



# CCAMS Contingency Plan

## Network Operations

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## APPROVAL TABLE

The following table identifies all management authorities who have successively approved the present issue of this document.

This table may be replaced by a format document review and approval meeting, with the meeting details recorded and retained in the edition's archive folder.

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## EDITION CHANGE RECORD

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# 1 Introduction

## 1.1 Identification

The CCAMS Contingency Plan is provided by the Network Operations Services Operational Documentation library.

This document has a title of 'CCAMS Contingency Plan'.

## 1.2 Purpose of the CCAMS Contingency Plan

The purpose of this document is to present provisions for maintaining a suitable level of SSR code management to conduct safe operations during a failure of one or more components of the Centralised SSR Code Assignment and Management System (CCAMS).

## 1.3 Scope

The objective of the Centralised SSR Code Assignment and Management System is to provide an increased efficiency in the management of the SSR codes and the ability to provide the flights with SSR codes that can be retained for the entire operations throughout the area of applicability.

The design of the concept was initiated through the development of the concept of operations and of the operational requirements.

However, the assumptions made in the design of the items mentioned in the previous paragraph addressed the availability of appropriate contingency solutions for potential failures in the nominal behaviour of the CCAMS.

This document presents from a conceptual point of view possible failure modes for CCAMS, effects of such failures, solutions to overcome partial or total unavailability of functionalities in CCAMS and procedures to recover from failures to a nominal behaviour of CCAMS.

Considering the generic architecture described in the concept of operations, the assessment of potential failures addresses the components and the links between them:

- The Central System (CCAMS);
- The modules in the local ATS systems that support the interface with CCAMS and the management of the SSR codes at local level;
- The availability of information to CCAMS;
- The communications between CCAMS and local ATS systems;
- Corruption of data.

Partial and total failures are analysed for each of the components listed above, and fall-back and recovery provisions are presented for each individual failure mode.

## 1.4 Intended Audience

CCAMS ANSPs, other civil and military external stakeholders and the Network Operations Services operations room.

## 1.5 Document Relationships and Applicability

No document relationships. Applicable to CCAMS States as specified in the CCAMS CAP.

## 1.6 Structure of the Document

### 1. Introduction

This section gives a general description of the purpose and scope of this document.

### 2. Centralised SSR Code Assignment and Management System

This section describes in brief the reasons for developing a centralised management of SSR codes.

### 3. Concept of Operations

This section contains an informal description of the context and environment and the operational concept.

### 4. Failure Modes

This section contains a list of potential failures of one of the components of CCAMS.

### 5. Fall Back Provisions

This section contains a set of provisions to apply during failures of the CCAMS in order to maintain a sufficient level of SSR code management to conduct safe operations.

### 6. Recovery from Failures

This section contains a set of high level requirements to be considered in the system architecture design to permit fast and safe recovery from contingency situations.

### 7. Abbreviations

This section contains abbreviations used within this document.

### 8. Annex I Contacts

This section contains contact information in case of technical problems or level RED contingency situations.

### 9. Annex II Level YELLOW and level RED procedures

This section contains detailed procedures to be followed in case of contingency level YELLOW and level RED.

### 10. Annex III Quick Reaction Codes

This section contains details on how Quick Reaction Codes (QRC) may be granted and which ones.

## 2 Centralised SSR Code Assignment and Management System

The objective of the Centralised SSR Code Assignment and Management System is to provide an increased efficiency in the management of the SSR codes and the ability to provide SSR codes which can be retained for the entire duration of a flight throughout the area of applicability.

The current rules and principles governing the assignment of SSR codes are based on the allocation of an appropriate number of SSR codes to each participating State to be assigned to international and domestic flights. Considering the number of States participating and that the number of codes allocated should meet the traffic peak requirements, the ORCAM system cannot provide a sufficient number of SSR codes to every State in the future in order to meet the expected traffic growth.

In addition, the planned implementation of FAB under the SES initiative could encounter significant difficulties caused by the code changes needed at the currently existing PA borders.

Consequently, appropriate actions have been initiated to identify the most appropriate solutions that would provide the required availability of SSR codes for traffic growth in medium and long term. From all the analysed solutions, the central management of the SSR codes was considered the most effective in providing the required availability of SSR codes.

All the developments with respect to defining the concept of operations, to establish the initial set of operational requirements and to identify communications means suitable to support the expected flows of data between a Central System and local systems and between the same Central System and the existing Network Operations systems have been made under the assumptions that appropriate contingency provisions will exist to support, from a SSR code perspective, the operations of an adequate amount of flights in case of failures of CCAMS and during the recovery from failures.

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### 3 Concept of operations

#### Functional Context

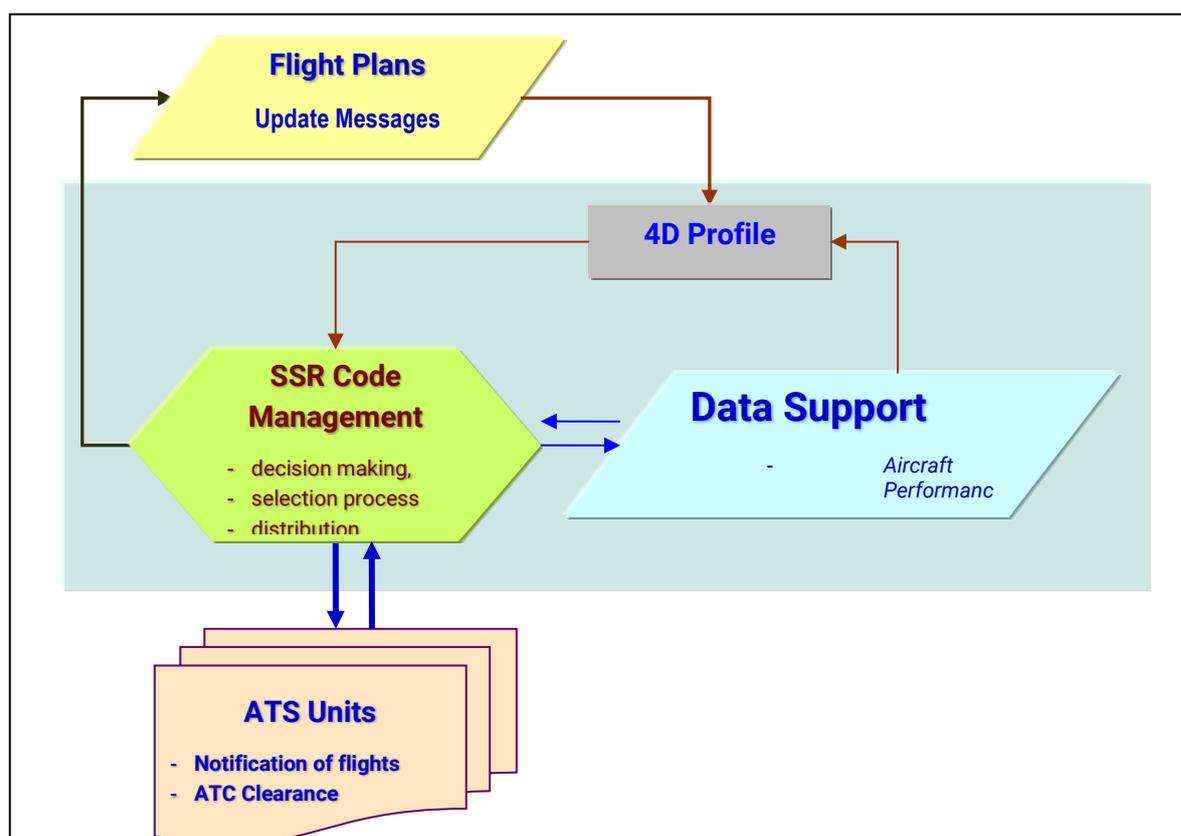
The Centralised SSR Code Assignment and Management System is a system created to ensure the most efficient use of Mode 3/A codes within the IFPS Zone.

#### 3.1 Functional Environment

To execute its function CCAMS exchanges data with:

- the local Flight Data Processing and Distribution functions, responsible for directing the selected code to be assigned to the corresponding flight;
- the Network Operations systems to get IFPS and ATFM data, to support the automation of code selection and to support the processing of flight profiles.

The following diagram shows the data exchanges from a functional point of view:



## 3.2 Operational Concept

The most adequate and efficient management of the SSR codes may be achieved by centrally selecting and distributing to the appropriate ATS units the SSR codes for flights operating within a defined area.

In the attempt to reduce the volume of messages to be exchanged between CCAMS and local ATS systems to a minimum, the system will use to the extent possible the data available in IFPS and ETFMS for automating the selection and distributions of SSR codes to ATS units responsible for the assignment to corresponding flights.

Therefore, the selection of a SSR code for a certain flight may be performed either automatically or as a response to a request received from ATS units. The automation of the code selection is possible if the appropriate flight plan information is provided by the Network Operations systems and a 'lead-time' parameter is specified for the distribution of the selected code to the assigning unit.

Considering the existing arrangements with respect to the central processing of flight plan data information, the geographical scope of CCAMS addresses an area coinciding with the IFPS Zone.

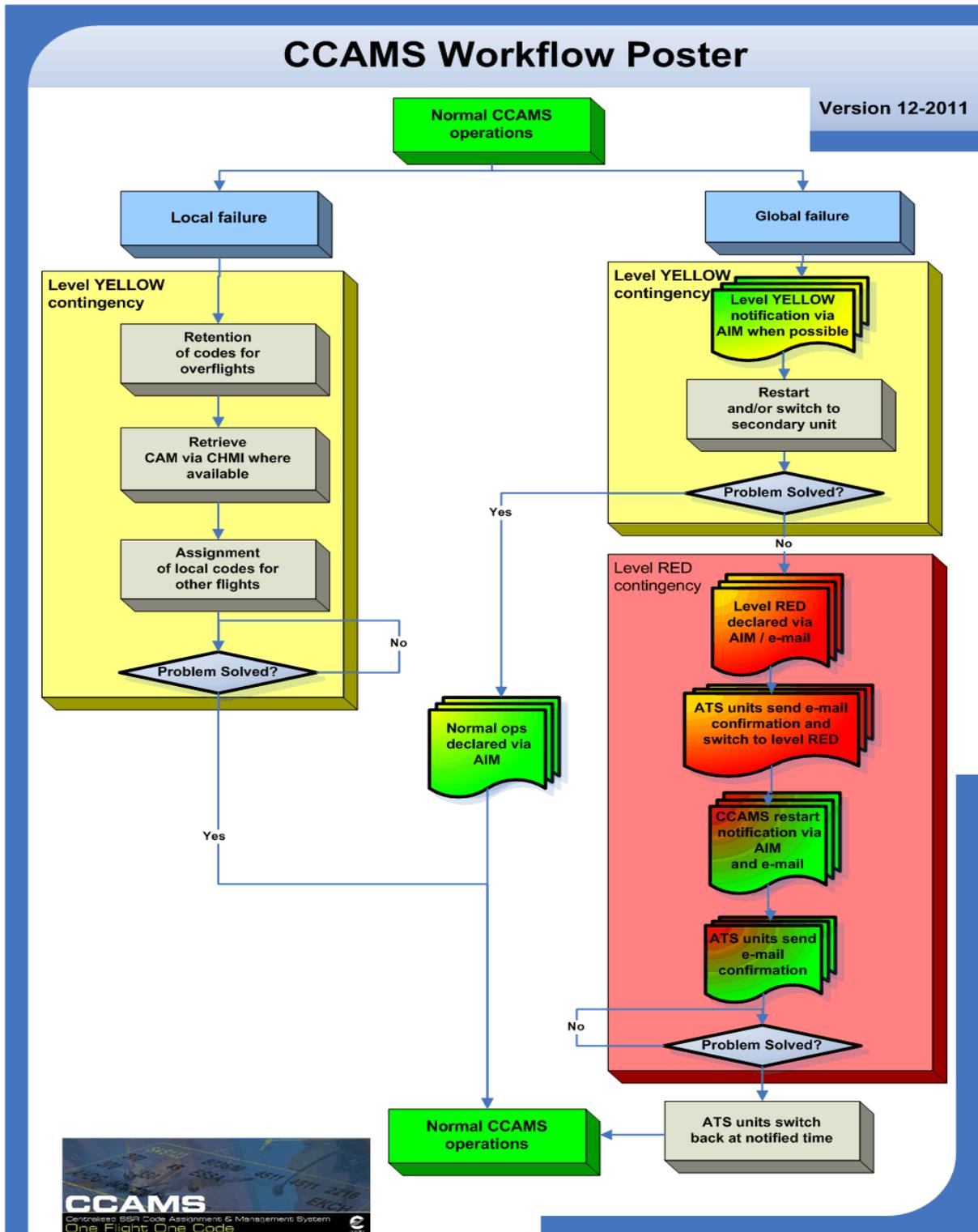
For obvious operational reasons, each local ATS system needs to be provided with the means to exchange data flows (receive and/or request a SSR code) with the Central System.

During the SSR code selection process, the trajectory of the flight through the area of CCAMS is compared with the trajectories of other flights in order to identify potential sharing of the same SSR codes between multiple flights. The shared use of the same SSR code is possible only when the trajectories of the flights concerned meet the buffer requirements to ensure that no SSR code conflict is generated.

In addition, the concept of operations for CCAMS provides the capability to retain codes for flights originating outside the area of applicability of CCAMS and it fully accommodates the use of the Mode S conspicuity code A1000.

Further details are available in Centralised SSR Code Assignment and Management System - Concept of Operations.

### 3.3 Contingency workflow diagram

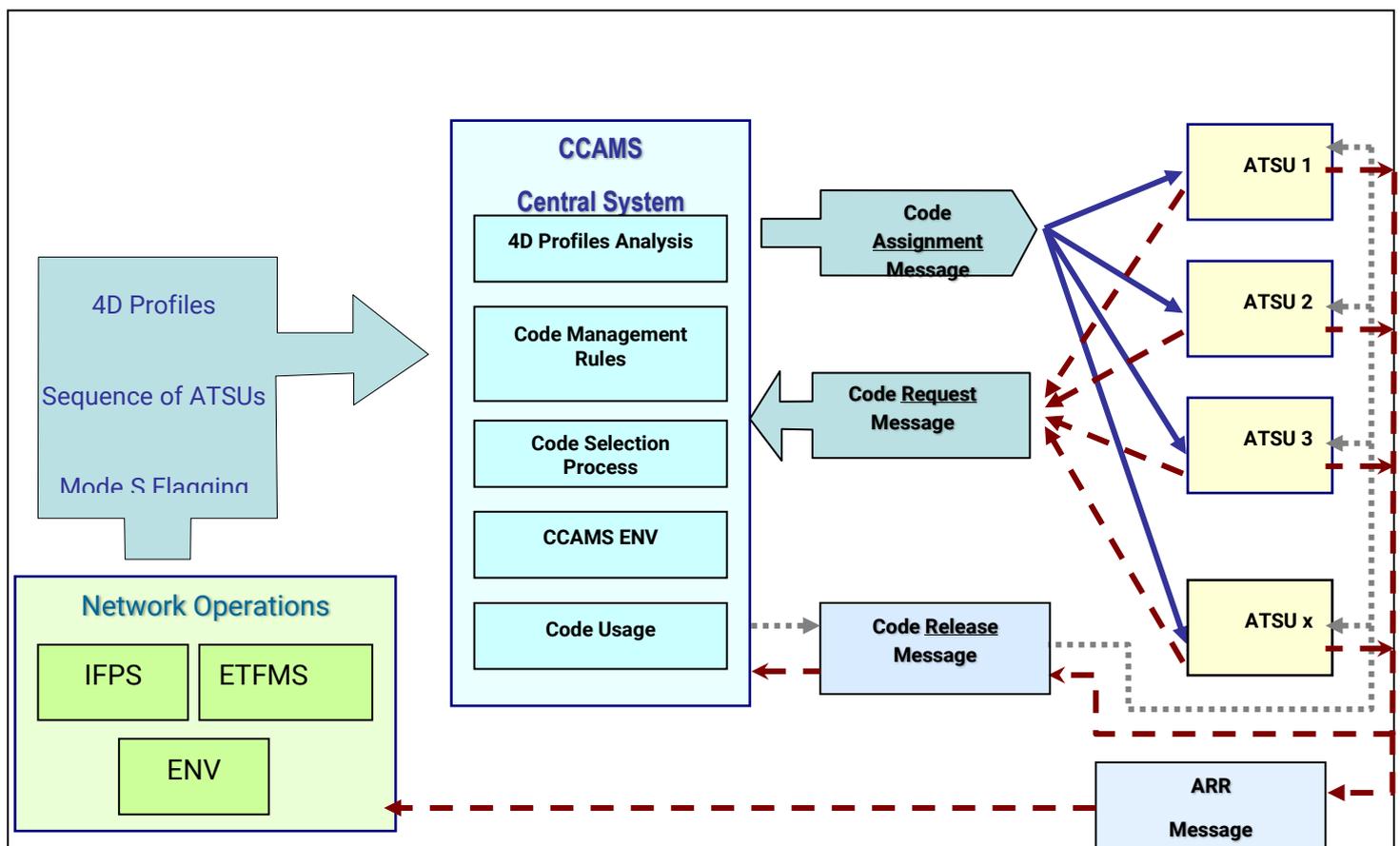


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## 4 Failure modes

In the attempt to identify the potential failures that could affect the correct functioning of the centralised management of SSR codes, all the components should be thoroughly examined to ascertain their contribution to a potential failure.

Considering the generic architecture described in the concept of operations, an assessment of potential failures should address at minimum the components and the links between them. As such, the following should be addressed for evaluating possible total and partial failures and their contribution to the overall functionality of the centralised management of the SSR codes:



- The CCAMS Central System (consisting of the CCAMS Central Server and other related Network Operations systems components);
- The modules in the local ATS systems that support the interface with CCAMS and the management of the SSR codes at local level;
- The availability of information to CCAMS;
- The communications between CCAMS and local ATS systems;
- Corruption of data.

## 4.1 Failures of the CCAMS Central System (FCS)

### 4.1.1 FCS01 Total failure of the Central System

A total failure of the Central System leads to the situation where no codes will be available for traffic subject to IFPS and within the area of applicability. The effect of such a failure will disrupt the normal operations in European ATM.

A failure of the selection process will have the same effect as a total CCAMS failure.

### 4.1.2 FCS02 CCAMS cannot process SSR code related data flows received from ATS units

Hence, it will not respond to SSR code request messages. As a result, a code assignment message will not be sent for flights entering the CCAMS area and for departures on request and the ATSU will have to assign local codes.

### 4.1.3 FCS03 CCAMS cannot process flight data from the Network Operations systems.

Therefore, no flight profiles are available to CCAMS selection process. In this situation, the Central System is not able to trigger automatically the selection and distribution of codes to local ATS systems. Moreover, the Central System is not able to associate code request with flight plan data. The Central System will select Omni directional codes in response to code requests or in the worst case will not select any codes.

A similar effect occurs when IFPS or ETFMS or the connection between them and CCAMS fails.

## 4.2 Local ATS System Failures related to SSR codes (FAS)

A failure of CCAMS-related SSR functionalities in local ATS system affects both, the assignment of codes for the departures and for inbound flights.

For departures with automatic assignment on timer and for inbound flights that have passed a CCAMS unit earlier on its route, a code assignment message can be retrieved via the Collaboration HMI (CHMI) The CCAMS code can also be retrieved from the flight list displayed in the NOP portal.

For all other flights, local codes will be assigned as defined in the local contingency plan.

However, if the local ATS system assigns local codes, the next ATS system will have to request codes from CCAMS, including the assigned local code in the request and to perform code changes for all aircraft with a local code assigned by the previous unit for which CCAMS assigns a different code.

A particular situation exists at the interface with a non-CCAMS unit, where a failure in the first CCAMS ATS unit may result in either inappropriate code retention from outside CCAMS or, assignment of a large bulk of local codes to traffic entering CCAMS.

The possible failures of ATS systems related to SSR code management may be categorised as follows:

#### **4.2.1 FAS01 Total failure of CCAMS-related SSR code management functions in ATS system**

In this situation the local ATS system will neither be able to process the messages received from CCAMS nor to send messages to CCAMS. In addition the use of the local pool of codes might be possible only manually.

#### **4.2.2 FAS02 Sudden loss of Mode S ELS capability in ATS system**

The local ATS system will not be capable of identifying aircraft on the downlinked aircraft ID due to a sudden loss of Mode S ELS capability.

As mitigation, discrete SSR codes need to be assigned by CCAMS instead of the Mode S conspicuity code A1000.

### **4.3 Unavailability of Information to CCAMS (UIC)**

#### **4.3.1 UIC01 Unavailability of flight plan data from Network Operations systems**

Effects similar to FCS03. The unavailability of such information may be a result of communication failure or a result of Network Operations systems failure.

### **4.4 Failure of Communications between CCAMS and Local ATS Systems (CCA)**

#### **4.4.1 CCA01 CCAMS unable to send messages to local ATS systems**

In the event that CCAMS cannot send messages, the local ATS systems will not receive codes selected by CCAMS for flights entering the CCAMS area of applicability via the respective ATS unit. According to the concept of operation, the local system will select a local code for assignment to the aircraft.

However, code assignment messages might be available via the CHMI and the assigned codes could be inserted manually into the FDPS. The CCAMS code might also be displayed in the flight list in the NOP portal.

#### **4.4.2 CCA02 Local ATS system cannot receive messages from CCAMS**

Effects similar to CCA01.

Code assignment messages will be available via the CHMI and/or NOP portal and the assigned codes could be inserted manually into the FDPS.

#### **4.4.3 CCA03 Local ATS system cannot send messages to CCAMS**

Effects similar to FCS02.

### **4.5 Corrupted Data (CRD)**

All data corruptions detected by the system shall be handled appropriately at system level.

Undetected credible data corruptions are a threat to the safety of code management and flight operations. Therefore, the performance of the system shall ensure an appropriate level of reliability and integrity.

The following cases are critical from the perspective of their potential contribution to SSR code conflict occurrences.

Corrupted data could result in the occurrence of code conflicts and the unavailability of SSR codes.

#### **4.5.1 CRD01 CCAMS database corruption**

- Corruption of environment data resulting in wrong calculation of conflict free trajectories;
- Database corruption during the recovery from a CCAMS failure.

#### **4.5.2 CRD02 CCAMS receiving corrupted data from Network Operations systems**

It should be noted that the corruption of a limited number of information from Network Operations systems might be compensated within normal operations. However, a situation where the amount of corrupted information is beyond a manageable limit should qualify as contingency.

#### **4.5.3 CRD03 CCAMS receiving corrupted information from ATS units**

Corruption of a limited number of information from ATS units may be accommodated within the normal operations. However, the situation where the number of corrupted information is beyond a certain limit should qualify as contingency.

#### **4.5.4 CRD04 Local ATS system receives corrupted messages from CCAMS.**

This may result in either rejection of the corrupted messages by the local ATS system, or, in the worst case (in case of credible corruption) it would lead to code duplication.

## 5 Fall back provisions

It should be noted that any failure occurring at a given moment will not affect the assignment already performed. Operations of flights on CCAMS selected codes will continue normally.

### 5.1 Generic contingency actions

Fall-back provisions consist in general of four different actions:

#### Alternative communication of CCAMS data

In case CCAMS messages cannot be received via the usual means (AFTN), an ATS Unit can either use the CHMI Opllog to retrieve CAM messages and the CCAMS codes for flights where these still are available or read the CCAMS code from the flight list displayed in the CHMI and the NOP portal.

#### Provision of additional Quick Reaction Codes (QRC) in case of single ATSU failure

A limited amount of Omni directional SSR codes might be available on request in case of a single ATSU failure for automatic or manual assignment to all flights.

Quick Reaction Codes are only available if/as specified in Annex III of this document, can only be used by one ATSU at a time and have to be requested from the CCAMS office.

### 5.2 Fall Back Provisions in case of Central System failures

#### 5.2.1 FCS01 Total CCAMS failure

##### Contingency level YELLOW

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

##### Contingency level RED

Assignment of RED codes allocated to the Unit.

Notification by the NM through AIM and e-mail.

Failure of CCAMS Central System (and similar).

The NM will notify ATS Units through AIM and e-mail about the initiation of contingency level RED. All ATS Units will then start to assign predefined RED codes. The exact distribution of RED codes is defined for each ATSU in Annex II.

From this moment on, local codes should only be used in case the contingency pool is exhausted. This will make the local codes available for the recovery phase when these might be needed.

### 5.2.2 FCS02 CCAMS cannot process SSR code related data flows from one ATS unit

For departures with automatic assignment on timer, a CAM will be sent by the CCAMS CS automatically. This code should be used for the respective flights.

#### Contingency level YELLOW

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

#### Provision of additional Quick Reaction Codes (QRC) in case of single ATSU failure

A limited amount of Omni directional SSR codes might be available on request in case of a single ATSU failure for automatic or manual assignment to all flights.

Quick Reaction Codes are only available if/as specified in Annex III of this document, can only be used by one ATSU at a time and have to be requested from the CCAMS office.

### 5.2.3 FCS03 CCAMS cannot process SSR code related data flows from all ATS units

#### Contingency level YELLOW

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

#### Contingency level RED

Assignment of RED codes allocated to the Unit.

Notification by CCAMS Operations through AIM and e-mail.

Failure of CCAMS Central System (and similar).

CCAMS Operations will notify ATS Units through AIM and e-mail about the initiation of contingency level RED. All ATS Units will then start to assign predefined RED codes. The exact distribution of RED codes is defined for each ATSU in Annex II.

From this moment on, local codes should only be used in case the contingency pool is exhausted. This will make the local codes available for the recovery phase when these might be needed.

### 5.2.4 FCS04 CCAMS cannot process flight data from Network Operations systems

#### Contingency level YELLOW

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

### **Contingency level RED**

Assignment of RED codes allocated to the Unit.

Notification by CCAMS Operations through AIM and e-mail.

Failure of CCAMS Central System (and similar).

CCAMS Operations will notify ATS Units through AIM and e-mail about the initiation of contingency level RED. All ATS Units will then start to assign predefined RED codes. The exact distribution of RED codes is defined for each ATSU in Annex II.

From this moment on, local codes should only be used in case the contingency pool is exhausted. This will make the local codes available for the recovery phase when these might be needed.

## **5.3 Fall Back Provisions for Local ATS System Failures related to SSR codes**

### **5.3.1 FAS01 Total failure of SSR code management functions in one ATS system**

For departures with automatic assignment on timer, a CAM will be sent by the CCAMS CS automatically. This code should be used for the respective flights.

#### **Alternative communication of CCAMS data**

In case CCAMS messages can not be received via the usual means (AFTN), an ATS Unit can either use the CHMI Opllog to retrieve CAM messages and the CCAMS codes for flights where these still are available or read the CCAMS code from the flight list displayed in the NOP portal.

#### **Contingency level YELLOW**

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

#### **Provision of additional Quick Reaction Codes (QRC) in case of single ATSU failure**

A limited amount of Omni directional SSR codes might be available on request in case of a single ATSU failure for automatic or manual assignment to all flights.

Quick Reaction Codes are only available if/as specified in Annex III of this document, can only be used by one ATSU at a time and have to be requested from the CCAMS office.

### **5.3.2 FAS02 Sudden loss of Mode S ELS capability in ATS system**

**Local procedures shall exist to cope with this case in the short-term. However, for CCAMS units, the NM can inhibit the assignment of A1000 if the issue cannot be solved in the short-term.**

In order to stop the assignment of A1000 for all flights, the CCAMS office (during office hours) will be able to disable airspace and/or aerodromes suffering from a Mode S outage.

The AD Supervisor (outside CCAMS office hours) at EUROCONTROL NMOC will be able to disable aerodromes suffering from a Mode S outage. The contact details are available in [Annex I](#).

For flights that have been assigned A1000 already, discreet SSR codes can be requested by sending a COR message with A0000 in the SSR code field for the respective flight(s).

This will trigger a CAM to be sent with a discrete SSR code.

## 5.4 Fall Back Provisions for Failure of Communications between CCAMS and Local ATS Systems

### 5.4.1 CCA01 CCAMS unable to send messages to ATS units

In certain circumstances, it might happen that messages can not be sent out but that they can still be retrieved via the CHMI.

#### Alternative communication of CCAMS data

In case CCAMS messages cannot be received via the usual means (AFTN), an ATS Unit can either use the CHMI Oplog to retrieve CAM messages and the CCAMS codes for flights where these still are available or read the CCAMS code from the flight list displayed in the NOP portal.

#### Contingency level YELLOW

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

#### Contingency level RED

Assignment of RED codes allocated to the Unit.

Notification by CCAMS Operations through AIM and e-mail.

Failure of CCAMS Central System (and similar).

CCAMS Operations will notify ATS Units through AIM and e-mail about the initiation of contingency level RED. All ATS Units will then start to assign predefined RED codes. The exact distribution of RED codes is defined for each ATSU in Annex II.

From this moment on, local codes should only be used in case the contingency pool is exhausted. This will make the local codes available for the recovery phase when these might be needed.

### 5.4.2 CCA02 Local ATS system cannot receive messages from CCAMS

#### Alternative communication of CCAMS data

In case CCAMS messages can not be received via the usual means (AFTN), an ATS Unit can either use the CHMI Oplog to retrieve CAM messages and the CCAMS codes for flights where these still are available or read the CCAMS code from the flight list displayed in the NOP portal.

#### Contingency level YELLOW

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

#### **Provision of additional Quick Reaction Codes (QRC) in case of single ATSU failure**

A limited amount of Omni directional SSR codes might be available on request in case of a single ATSU failure for automatic or manual assignment to all flights.

Quick Reaction Codes are only available if/as specified in Annex III of this document, can only be used by one ATSU at a time and have to be requested from the CCAMS office.

### **5.4.3 CCA03 Local ATS system cannot send messages to CCAMS**

For departures with automatic assignment on timer, a CAM will be sent by the CCAMS CS automatically. This code should be used for the respective flight.

#### **Contingency level YELLOW**

Assignment of SSR codes received from CCAMS before the failure and local codes. ATS Units detect automatically the failure to receive CCAMS codes.

ATS Units will assign SSR codes which were already received from CCAMS in CAM messages or local codes to flights for which no CCAMS code has been received.

The duration of contingency level YELLOW depends on the amount of local codes available and the amount of traffic to be provided with an SSR code.

#### **Provision of additional Quick Reaction Codes (QRC) in case of single ATSU failure**

A limited amount of Omni directional SSR codes might be available on request in case of a single ATSU failure for automatic or manual assignment to all flights.

Quick Reaction Codes are only available if/as specified in Annex III of this document, can only be used by one ATSU at a time and have to be requested from the CCAMS office.

## **5.5 Fall Back Provisions in case of Corrupted Data**

### **5.5.1 CRD01 CCAMS database corruption**

The corruption of data in CCAMS may result in erratic behaviour of CCAMS. As long as the corruptions are undetected, no reliable fall back procedures exist. The likelihood of such occurrence shall be limited by the design and the performance of the Central System software.

Such occurrence may lead to code conflict situations and therefore, the local systems should maintain the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

### **5.5.2 CRD02 CCAMS receiving corrupted data from Network Operations systems**

Considering the concept of operations, incorrect data from Network Operations systems will not affect the assignment of SSR codes to flights as long as the local systems are able to request a code.

In certain conditions, this type of failure may lead to code conflict situations. Therefore, the local systems must maintain the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

A limited number of corruptions may be accommodated by using the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

### **5.5.3 CRD03 CCAMS receiving corrupted information from ATS units**

The reception of corrupted requests from local ATS systems may lead to unnecessary selection of Omni directional codes. Moreover, if the corrupted data affects parameters used for association with the corresponding flight plan data, the Omni directional code selected by CCAMS might not be used by the local system and this will further degrade the efficiency of the code management.

A limited number of corruptions may be accommodated by using the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

In certain conditions, this type of failure may lead to code conflict situations. Therefore, the local systems must maintain the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

### **5.5.4 CRD04 Local ATS system receives corrupted messages from CCAMS.**

This may result in either rejection of the corrupted messages by the local ATS system, or, in the worst case (in case of credible corruption) it would lead to code conflicts. Therefore, the local systems should maintain the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

A limited number of corruptions may be accommodated by using the capability of detecting code conflicts and to assign local codes to avoid code conflicts.

## 6 Recovery from failures

Any failure of a system shall be addressed through appropriate fall back procedures and provisions for recovering from the failure.

All recoveries are based on the principle, that if an ATS unit has not yet received a CAM for a flight, it will request a code from CCAMS via a COR and that it will assign a local code if it fails to receive a CAM in return.

During level YELLOW, ATS Units are assigning local codes to flights within their Area of Responsibility for which they have failed to receive a CAM message from CCAMS.

As soon as CCAMS is available, ATS Units will start to receive CAM messages from CCAMS again and will instruct the respective flights to squawk the selected SSR code.

No specific recovery procedure is required in this case as the whole process is covered by the implemented system capabilities and no manual intervention is necessary.

Therefore, the scenarios in this chapter will focus on recoveries from contingency level RED only.

### 6.1 Recovery from Central System failures

#### 6.1.1 FCS01 Total CCAMS failure

During a level RED contingency, all CCAMS States will assign RED codes, similar to ORCAM as defined in Annex II of this document.

For the recovery, CCAMS Operations will notify ATS Units through AIM and e-mail about the termination of contingency level RED and the application time. All ATS Units will then switch back to CCAMS mode and stop to assign the predefined RED codes.

As a result of missing CAM, ATS Units will gradually send COR messages for inbound flights and all CCAMS units on the route of the flight will receive a CAM in return.

The same applies for departures on request. CCAMS will send CAM messages to all units upon reception of a COR from the aerodrome of departure.

For departures with automatic assignment, CCAMS will re-compute the assign timer and automatically send CAM messages for departures with an EOBT equal or later than recovery time + 5 minutes.

If required, a COR can be sent for departures with an EOBT earlier than recovery time + 5 minutes in order to request a CCAMS code but it is assumed that for these flights in most cases a code has already been assigned.

#### 6.1.2 FCS02 CCAMS cannot process SSR code related data flows from ATS units

Same recovery as in FCS01

#### 6.1.3 FCS03 CCAMS cannot process flight data from Network Operations systems

Same recovery as in FCS01

### 6.2 Recovery from Local ATS System Failures related to SSR codes

#### 6.2.1 FAS01 Total failure of SSR code management functions in one ATS system

If an ATS system fails, the local contingency arrangements may provide manual assignment of local codes to departing aircraft and/or aircraft entering CCAMS area

of application via that ATS system. In addition, Quick Reaction Codes might be available on request.

Both, local codes and QRCs will be changed to a CCAMS code by a downstream ATS unit, able to exchange messages with CCAMS.

For the recovery, as a result of missing CAM, the ATS Unit will send COR messages for all inbound flights and CCAMS will send a CAM (the same CAM as to all other units on the route of the flight) in return.

The same applies for departures on request, CCAMS will send CAM messages to all units upon reception of a COR from the aerodrome of departure.

For departures with automatic assignment, CCAMS will automatically send CAM messages as part of normal ops for departures with an EOBT equal or later than recovery time + the specified lead time parameter.

If required, a COR can be sent for departures with an EOBT earlier than recovery time + the specified lead time parameter in order to request a CCAMS code but it is assumed that for these flights in most cases a (local) code has already been assigned.

### **6.2.2 FAS02 Sudden loss of Mode S ELS capability in ATS system**

For recovery, i.e. re-enabling Mode S and the assignment of A1000 by CCAMS after the problems have been resolved, please contact the CCAMS office during office hours. The contact details are available in Annex I under para 7.1.4.

## **6.3 Recovery from Failure of Communications between CCAMS and Local ATS Systems**

### **6.3.1 CCA01 CCAMS unable to send messages to ATS units**

During a level RED contingency, all CCAMS States will assign RED codes, similar to ORCAM as defined in Annex II of this document.

For the recovery, CCAMS Operations will notify ATS Units through AIM and e-mail about the termination of contingency level RED and the application time. All ATS Units will then switch back to CCAMS mode and stop to assign the predefined RED codes.

As a result of missing CAM, ATS Units will gradually send COR messages for inbound flights and all CCAMS units on the route of the flight will receive a CAM in return.

The same applies for departures on request. CCAMS will send CAM messages to all units upon reception of a COR from the aerodrome of departure.

For departures with automatic assignment, CCAMS will re-compute the assign timer and automatically send CAM messages for departures with an EOBT equal or later than recovery time + 5 minutes.

If required, a COR can be sent for departures with an EOBT earlier than recovery time + 5 minutes in order to request a CCAMS code but it is assumed that for these flights in most cases a code has already been assigned.

### **6.3.2 CCA02 Local ATS system cannot receive messages from CCAMS**

If an ATS system fails, the local contingency arrangements may provide manual assignment of local codes to departing aircraft and/or aircraft entering CCAMS area of application via that ATS system. In addition, Quick Reaction Codes might be available on request.

Both, local codes and QRCs will be changed to a CCAMS code by a downstream ATS unit, able to exchange messages with CCAMS.

For the recovery, as a result of missing CAM, the ATS Unit will send COR messages for all inbound flights and CCAMS will send a CAM (the same CAM as to all other units on the route of the flight) in return.

The same applies for departures on request, CCAMS will send CAM messages to all units upon reception of a COR from the aerodrome of departure.

For departures with automatic assignment, CCAMS will automatically send CAM messages as part of normal ops for departures with an EOBT equal or later than recovery time + the specified lead time parameter.

If required, a COR can be sent for departures with an EOBT earlier than recovery time + the specified lead time parameter in order to request a CCAMS code but it is assumed that for these flights in most cases a (local) code has already been assigned.

### **6.3.3 CCA03 Local ATS system cannot send messages to CCAMS**

Same recovery as in CCA02.

## **6.4 Recovery Provisions in case of Corrupted Data**

All undetected credible corruption of data may lead to code conflict situations. The assignment of a local code is mitigation to this failure. During recovery, that local code will be changed to a CCAMS code by one of the downstream units, according to the general principle.

All code conflicts are recorded and analysed. Regular analysis of those conflicts shall reduce the likelihood of data corruption.

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## 7 Abbreviations

Abbreviations and acronyms used in this document are available in the EUROCONTROL Air Navigation Inter-site Acronym List (AIRIAL) which may be found here:

<http://www.eurocontrol.int/airial/definitionListInit.do?skipLogon=true&glossaryUid=AIRIAL>

**The following definitions are specific to this document:**

<b>AIM</b>	Aeronautical Information Message
<b>ATFM</b>	Air Traffic Flow Management
<b>ATS</b>	Air Traffic Service
<b>ATSU</b>	ATS Unit
<b>CCAMS</b>	Centralised Code Assignment and Management System.
<b>CCAMS codes</b>	SSR codes available to CCAMS, individually selected by the Central Server for allocation to ATS Units during normal operations.
<b>CHMI</b>	Collaboration Human Machine Interface
<b>OM</b>	Operations Manager
<b>CSO</b>	Customer Technical Service Desk and Operations
<b>ETFMS</b>	Enhanced Tactical Flow Management System
<b>FAB</b>	Functional Airspace Block
<b>IFPS</b>	Initial Flight Plan Processing System
<b>Local codes</b>	SSR codes allocated to ATS Units for assignment to local traffic (VFR, non-IFPS IFR, Mil. etc.).
<b>NM</b>	Network Manager
<b>NMD</b>	Network Manager Directorate
<b>NMOC</b>	NM Operations Centre
<b>NOP</b>	Network Operations Portal
<b>ORCAM</b>	Originating Region Code Assignment Method
<b>PA</b>	Participating Area in ORCAM
<b>QRC</b>	Quick Reaction Codes
<b>RED codes</b>	After declaration of contingency level RED, RED codes will be made available in order to allow their allocation to ATS Units for assignment according to a predefined scheme (see Annex II)
<b>SES</b>	Single European Sky
<b>SSR</b>	Secondary Surveillance Radar

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# Annex I

## 8 Contacts

### 8.1 LEVEL RED CONTINGENCY FOCAL POINT

**Please contact only in case of level RED contingency and only in urgent cases.**

**Please send level RED acknowledgement to this e-mail address.**

Operations Manager, Network Manager Operations Centre (NMOC)

Tel.: +32 2 745 19 31

Fax: +32 2 729 90 27

E-mail: [nm.om@eurocontrol.int](mailto:nm.om@eurocontrol.int)

### 8.2 UNPLANNED LOSS OF MODE S CAPABILITY

**Please contact only in case of unplanned loss of Mode S ELS capability, initially by phone, followed by e-mail to the addresses below.**

CCAMS office (during office hours)

Tel.: +32 2 729 11 89

Email: [ccams@eurocontrol.int](mailto:ccams@eurocontrol.int)

AD Supervisor, Network Manager Operations Centre (NMOC)

The AD section will be able to disable aerodromes suffering from a Mode S outage.

Tel.: +32 2 7299848

Email: [nm.ad.spvr@eurocontrol.int](mailto:nm.ad.spvr@eurocontrol.int)

### 8.3 TECHNICAL PROBLEMS

In case of urgent technical problems:

Customer technical Service desk and Operations (CSO helpdesk)

Tel.: +32 2 745 19 97

Fax: +32 2 729 90 23

E-mail: [nm.cso.help-desk@eurocontrol.int](mailto:nm.cso.help-desk@eurocontrol.int)

### 8.4 SSR CODES

For recovery from a loss of Mode S capability and in case of questions concerning general SSR Code usage, level RED codes and contingency procedures:

CCAMS office (during office hours)

Tel.: +32 2 729 11 89

E-mail: [ccams@eurocontrol.int](mailto:ccams@eurocontrol.int)

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## Annex II

### 9 Level YELLOW and level RED procedures

#### 9.1 Level Yellow contingency procedures

##### 9.1.1 General

During a level YELLOW contingency, the local ATS system will not receive CAM messages.

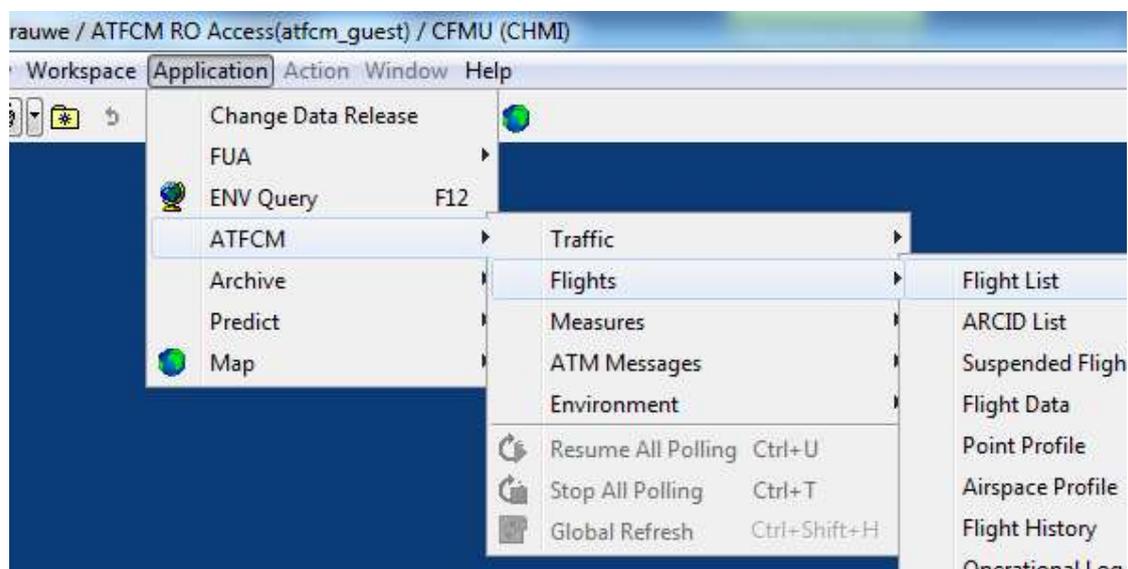
Flights for which a CAM is already available in the ATS system shall use the SSR code provided with the CAM.

For flights with automatic assignment on timer (departures or flights entering from a non-radar environment), as well as for flight which have passed another CCAMS unit upstream, a CAM will be generated by the CCAMS CS. The SSR code for these flights can be retrieved using the CHMI following the described procedure and should be used for the respective flights.

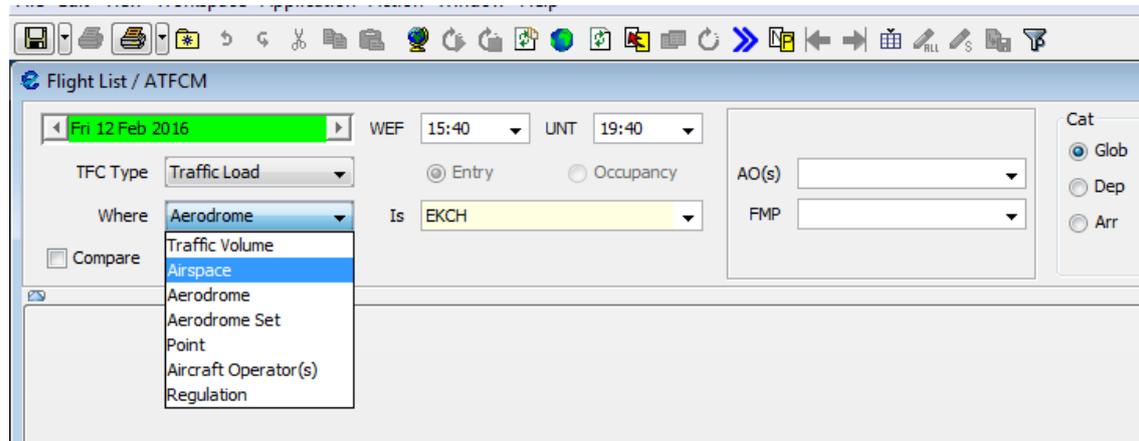
##### 9.1.2 Retrieve SSR Codes from the Collaboration Human machine interface (CHMI)

These steps have to be performed only once in order to display the correct flight list.

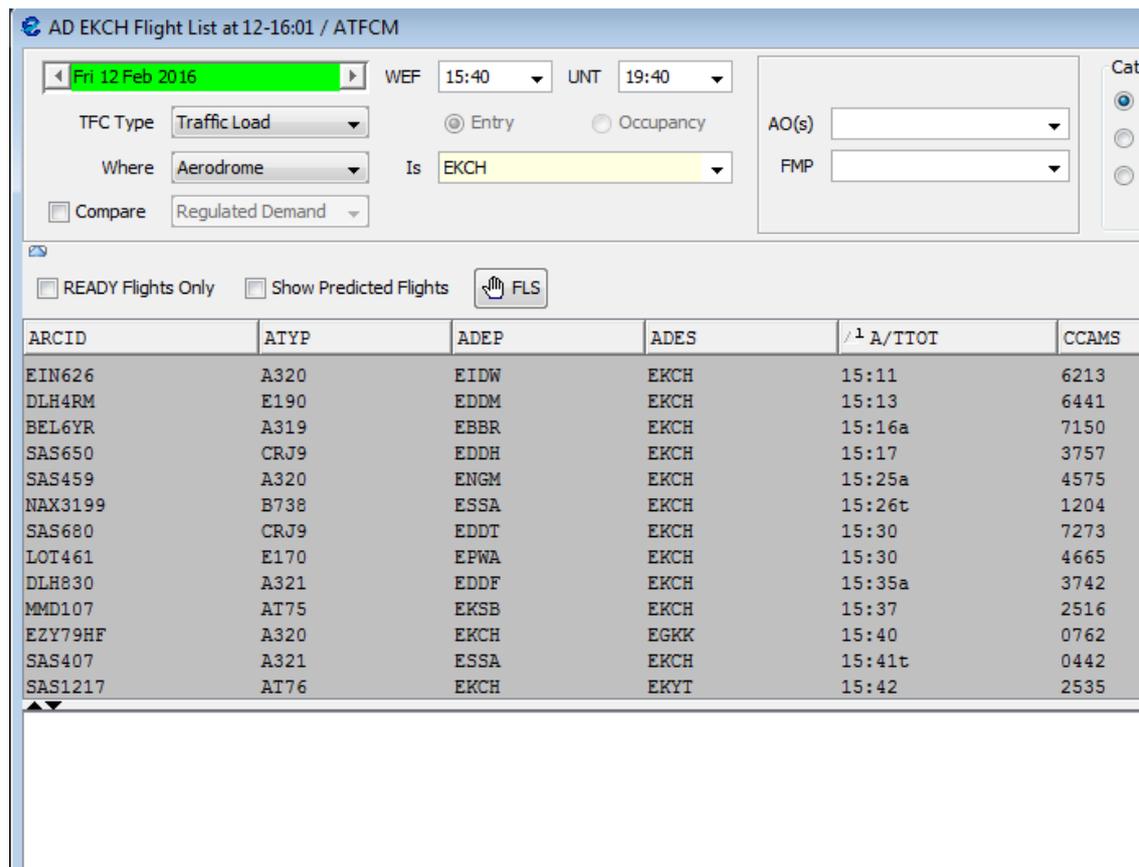
Select Flight List from the Flights menu.



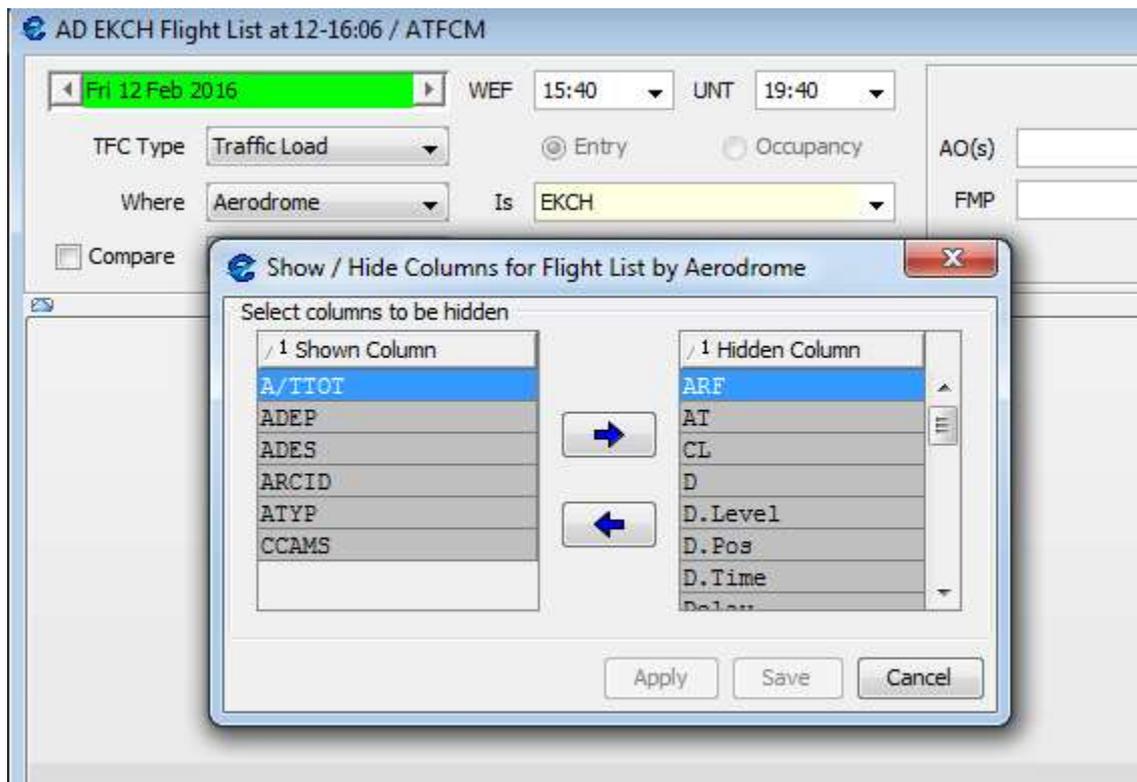
Choose the aerodrome or airspace of interest in the form and display the flight list as it is most appropriate.



If a CCAMS code is available, it will be visible in the respective column and can be assigned to the respective flight. Please note that the SSR code may change so it is highly recommended to refresh the flight list with Ctrl + Shift + H each time before retrieving the CCAMS code.



In case the CCAMS column is not visible, please press Ctrl + Shift + D in order to ensure that it is not hidden.



## 9.2 Retrieve SSR Codes from the NOP PORTAL

In addition to the CHMI, the same information can also be found in the NOP Portal.

The information is stored in the flight list under the heading CCAMS.

**Note:** If an SSR code is changed, the flight list is not automatically updated. In order to always have the most updated information, it is advised to refresh the flight list regularly.

The screenshot displays the NOP Portal interface for flight list management. At the top, there is a search bar with 'Target Date 23/01/2013' and a 'Set' button. Below this, there are several filter tabs: 'ARCD', 'Aerodrome', 'Aerodrome Set', 'Aircraft Operator', 'Airspace', 'Point', 'Regulation', and 'Traffic Volume'. The 'Aerodrome' filter is set to 'LFFG', and the 'Category' is 'Global'. The 'Traffic Type' is 'Traffic Load', and the 'WEF' is '1400' and 'UNT' is '1500'. There are also checkboxes for 'Compare With', 'D. Time Threshold', 'D. Level Threshold', and 'D. Pos Threshold'. The main table shows flight data for the period '23/01/2013 14:22:00 - 51 Flights'. The table has columns for TO/TTA, STA, ARCD, ATYP, ADEP, ADES, D, T, ARF, IOBT, U, ECTOT, X, F, S, ATTDOT, AT, Delay, R, Opp, W, MSG, REGUL+, D, impacted, and CCAMS. The bottom of the page shows the copyright notice '© EUROCONTROL 2011' and the email 'nop.office@eurocontrol.int'.

TO/TTA	STA	ARCD	ATYP	ADEP	ADES	D	T	ARF	IOBT	U	ECTOT	X	F	S	ATTDOT	AT	Delay	R	Opp	W	MSG	REGUL+	D	impacted	CCAMS	
14:00A		EZ210X	A319	EGPH	LFFG	A	390	23-13:20	13:30E	N	1	12:38	S												7704	
14:20A	LU	RAE987	E170	EGPD	LFFG	A	370	23-12:40	12:50E	U	1	12:51	S													7701
14:40A	LU	AFR1645	A319	LUJEE	LFFG	A	380	23-10:50	11:00E	F	1	11:22	S													6274
14:22A	LFL	FDX3279	B77L	NDF	LFFG	A	340	23-06:17	06:27E	F	1	06:20	S													6146
14:40A	LF	ANA206	B77W	RJAA	LFFG	A	360	23-02:50	03:00E	F	1	03:03	S													6007
14:05A		BAW314	A319	EGLL	LFFG	A	320	23-13:00	13:20E	N	1	13:21	S													2201
14:08A		AFR279H	RJ85	EDW	LFFG	A	310	23-12:10	12:20E	a	1	12:48	S													2211
14:21A	LF	JAL405	B77W	RJAA	LFFG	A	380	23-02:05	02:15E	F	1	02:29	S													2071
14:05A		AFR207E	E190	ENGM	LFFG	A	400	23-11:50	12:10E	N	1	12:06	S													1436
14:00A		CYP387	A319	LFFG	LCLJ	A	390	23-13:45	14:01E	F	1	14:09a	C													
14:00A		AFR641Z	A320	EHAM	LFFG	A	230	23-12:55	13:13E	N	1	13:07	S													
14:08A	LF	OMA134	A333	LSZH	LFFG	A	380	23-12:30	12:50E	a	1	13:07	S													
14:09A		AFR234Z	A320	LFFG	L999	A	270	23-14:00	14:17E	F	1	14:09a	C													
14:09A		AF727PX	A319	LFFG	LFFG	A	260	23-13:25	13:35E	N	1	13:25	S													
14:11A	LFL	TMA137	B763	HLLB	LFFG	A	380	23-10:45	10:55E	F	1	10:55	S													
14:12A	LF	AFR548	A332	LFFG	ORRN	A	390	23-14:00	14:15E	F	1	14:12a	C													
14:13A		MSR800	B77W	LFFG	HECA	A	350	23-13:35	13:46E	F	1	14:13ad	C													
14:14A	LU	AUA415C	A320	LOWW	LFFG	A	380	23-12:20	12:33E	F	1	12:37	S													
14:15A		QTR020	A348	LFFG	OTBD	A	370	23-14:00	14:11E	F	1	14:15a	C													
14:17A		OMA134	A333	LSZH	LFFG	A	355	23-11:00	11:25E	A	1	13:13	S													
14:18A	LU	SAR63W	A319	LSZH	LFFG	A	310	23-13:10	13:25E	N	1	13:22	S													
14:20A	LU	AFR121E	E190	LSZH	LFFG	A	310	23-13:35	13:50E	u	1	13:35	S													
14:24A		FRY466A	A319	LFFG	ORRN	A	370	23-14:15	14:24E	C	1	14:24a	C													

## 9.3 Level RED Contingency procedures

### 9.3.1 Declaration

In case of a failure of the CCAMS Central Server, level RED will be declared via AIM and e-mail within 30 minutes after the failure.

There is a remote possibility that level RED will be declared due to a failure of the complete AFTN. In this case, the notification period might take longer.

When the failure occurs, an advance warning **might** be issued via AIM:

```
CCAMS LEVEL YELLOW
-----

SUBJECT: CCAMS OPERATIONS INTERRUPTED

ATTENTION: THIS MESSAGE DOES NOT DECLARE CCAMS LEVEL RED

CCAMS OPERATIONS IS CURRENTLY INTERRUPTED.

MEASURES ARE TAKEN TO RESTART FULL OPERATIONS IMMEDIATELY. SHOULD
THOSE
ATTEMPTS FAIL PLEASE BE ADVISED THAT LEVEL RED MIGHT BE DECLARED. IN
THIS
CASE YOU WILL RECEIVE ANOTHER AIM (AS DESCRIBED IN THE CCAMS
CONTINGENCY
PLAN).

PLEASE AVOID CALLING THE FMD HELPDESK AS WE ARE UNABLE TO ASSIST WITH
CCAMS
RELATED TECHNICAL MATTERS.

NM OPERATIONS CENTRE - BRUSSELS
```

If the problem can be solved within 30 minutes, the following AIM will be issued:

```
CCAMS BACK TO NORMAL
-----

SUBJECT: CCAMS OPERATIONS RESUMED

CCAMS ISSUES HAVE BEEN SOLVED. THE SYSTEM IS BACK TO FULL OPERATIONS.

NM OPERATIONS CENTRE - BRUSSELS
```

If the problem cannot be solved, level RED will be declared within 30 minutes to all units participating in CCAMS via e-mail and via AIM:

### Specimen e-mail

**From:** NM OM  
**Sent:** Friday 18 November 2011 13:27  
**To:** <Participating CCAMS Units>  
**Subject:** CCAMS LEVEL RED DECLARED

#### NM Operations Centre Information Message

CCAMS Central Server operations is interrupted and cannot be restored at short term.

#### **CCAMS Contingency level RED is declared**

All CCAMS Units shall activate their pool of RED codes immediately.

All CCAMS Units are requested to confirm the reception of this message by Reply to All.

Date and time of CCAMS restart into operations will be announced by AIM and email.

#### **Operations Manager**

Network Manager Operations  
Tel: +32 2 745 19 31

Fax: +32 2 729 9027

E-mail: [nm.om@eurocontrol.int](mailto:nm.om@eurocontrol.int)

#### **EUROCONTROL**

96 Rue de la Fusée

B - 1130 Brussels

[www.eurocontrol.int](http://www.eurocontrol.int)

Alternatively, in case of a catastrophic disaster at the NMOC in Brussels that disables communications from the NMOC site, the email above will:

- Be sent from the address: [eurocontrol@fact24.com](mailto:eurocontrol@fact24.com);
- Mention 'This is the NM Operations Centre Alert System' as first line;
- Instead of 'Reply to All', it will request to confirm by following a link.

**Specimen AIM**

CCAMS LEVEL RED

-----

SUBJECT: CCAMS OPERATIONS – LEVEL RED

CCAMS CENTRAL SERVER OPERATIONS IS INTERRUPTED AND CANNOT BE RESTORED AT SHORT TERM.

CCAMS CONTINGENCY LEVEL RED IS DECLARED

=====

ALL CCAMS UNITS SHALL ACTIVATE THE POOL OF RED CODES IMMEDIATELY.

ALL CCAMS UNITS ARE REQUESTED TO CONFIRM RECEPTION OF THIS MESSAGE BY EMAIL TO: NM.OM@EUROCONTROL.INT

DATE AND TIME OF RESTART OF CCAMS OPERATIONS WILL BE ANNOUNCED BY AIM AND EMAIL.

NM OPERATIONS CENTRE – BRUSSELS

Alternatively, in case of a catastrophic disaster at the NMOC in Brussels, the AIM above will originate from the Maastricht Upper Area Control Centre instead of the NMOC in Brussels.

**9.3.2 Acknowledgement**

As a partial switch to level RED could cause SSR code conflicts, it is important that the reception of the declaration of level RED is acknowledged by all units via a reply to the respective e-mail.

The Operations Manager will call those units by phone from which such acknowledgement has not been received in order to ensure awareness.

**9.3.3 Recovery**

After the system has been restored and tested, the restart of CCAMS operations will be declared via AIM and e-mail for a specific time and date.

As a partial switch to normal CCAMS operations could cause massive SSR code conflicts, it is important that notification of the restart is acknowledged by all units via a reply to the respective e-mail.

The Operations Manager will call those units by phone from which such acknowledgement has not been received in order to ensure awareness.

**Specimen e-mail**

**From:** NM OM  
**Sent:** Friday 18 November 2011 13:27  
**To:** <Participating CCAMS Units> ---> updated by CCAMS Office regularly  
**Subject:** CCAMS RESTART NOTIFICATION

NM Operations Centre Information Message

CCAMS Central Server operations is restarted on

**<DD MMM YYYY> AT <HH:MM>**

All CCAMS Units shall de-activate their pool of RED codes and switch to CCAMS at the above deta/time.

All CCAMS Units are requested to confirm the reception of this message by Reply to All.

Please avoid calling the FMD Helpdesk as we are unable to assist in this matter.

**Operations Manager**

Network Manager Operations  
Tel: +32 2 745 19 31  
Fax: +32 2 729 9027  
E-mail: nm.om@eurocontrol.int

**EUROCONTROL**

96 Rue de la Fusée  
B - 1130 Brussels  
[www.eurocontrol.int](http://www.eurocontrol.int)

## Specimen AIM

```
CCAMS RESTART NOTIFICATION
-----

SUBJECT: CCAMS RESTART

CCAMS CENTRAL SERVER OPERATIONS WILL BE RESTARTED ON

<DD MMM YYYY> AT <HH:MM>

ALL CCAMS UNITS SHALL DE-ACTIVATE THE POOL OF RED CODES AND SWITCH
BACK TO CCAMS AT THE ABOVE DATE/TIME.

ALL CCAMS UNITS ARE REQUESTED TO CONFIRM RECEPTION OF THIS MESSAGE BY
EMAIL TO : NM.OM@EUROCONTROL.INT

NM OPERATIONS CENTRE – BRUSSELS
```

## 9.4 Assignment and retention of RED codes

During a level RED contingency, general ORCAM rules and regulations apply.

Any SSR codes received via CAM from the CCAMS Central Server shall not be used for the period of level RED contingency.

### 9.4.1 Assignment

After level RED contingency has been declared by the OM, the SSR codes listed in the "Assign" section shall be assigned for flights with the respective ADES in the "Destination" column (taking into account eventual remarks).

SSR codes not listed cannot be assigned.

### 9.4.2 Retention

The "Retain from" section specifies those SSR codes that can be retained from the respective country in the header of the columns.

SSR codes not listed, have to be changed when the flight enters the airspace.

## 9.5 Level RED codes

### 9.5.1 RED codes Austria

#### Assign

Codes	Destination	Remarks
0301-77	EUR-D EUR-E	Exit to LH LZ, protect EUR-B LI
1330-57	All	
5140-67	EUR-E	Exit to LK
7101-77	All	Exit to EUR-D EUR-E, protect EUR-B LK
7201-47	EUR-B EUR-C	Exit to EUR-B LK
7250-77	LIPP	
7301-77	All	

#### Retain from

LK	LZ	LH	LD	LJ	LI	LS	ED
0101-77	0101-77	0101-77	0101-77	0101-77	0101-77	0101-77	0101-77
		0201-77	0201-77	0201-77	0201-77	0201-77	0201-77
0301-77*						0301-77*	0301-77*
			0401-77	0401-77	0401-77		
0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77
0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77
						1001-77	1001-77
1101-77	1101-77	1101-77	1101-77	1101-77	1101-77	1101-77	1101-77
			1201-77	1201-77	1201-77		
			1360-77	1360-77	1360-77		
	2001-77	2001-77	2001-77	2001-77	2001-77		
2101-77							2101-77
2201-77							2201-77
	2301-37	2301-37	2301-37	2301-37			
2501-77	2501-77	2501-77	2501-77	2501-77	2501-77	2501-77	2501-77
	2601-77	2601-77					
2701-77	2701-77	2701-77	2701-77	2701-77	2701-77	2701-77	2701-77
3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77
3201-77	3201-77	3201-77	3201-77	3201-77	3201-77	3201-77	3201-77
3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77
		3701-77	3701-77	3701-77	3701-77		
	4101-77	4101-77	4101-77	4101-77	4101-77		
4350-77		4301-47	4301-47	4301-47	4301-47		4350-77
5201-77	5201-77	5201-77	5201-77	5201-77	5201-77	5201-77	5201-77
	5301-77	5301-77	5301-77	5301-77			
	5401-77	5401-77					
	5501-77	5501-77	5501-77	5501-77			
	5601-77	5601-77	5601-77	5601-77			
5701-77	5701-77	5701-77	5701-77	5701-77	5701-77	5701-77	5701-77
	6001-77	6001-77	6001-77	6001-77	6001-77		
6101-77	6101-77	6101-77	6101-77				
		6501-77	6501-77	6501-77	6501-77		

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LK	LZ	LH	LD	LJ	LI	LS	ED
6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77
7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77
7601-77							7601-77
7701-27							7701-27

\* special retention arrangement

## 9.5.2 RED codes Bosnia And Herzegovina

## Assign

Codes	Destination	Remarks
4130-47	All	
7301-07	All	

## Retain from

LD	LY
0101-77	
0201-77	0201-77
0301-77	
0401-77	0401-77
0501-77	
0601-77	
1101-77	1101-77
1201-77	1201-77
1330-77	1330-77
2001-77	2001-77
2101-77	
2201-77	
	2301-77
2501-77	
2701-77	
3001-77	
	3201-77
3501-77	
3701-77	3701-77
4101-27	4101-27
4150-77	4150-77
4301-77	4301-77
5201-77	
	5301-77
	5501-77
	5601-77
5701-77	
	6001-77
6101-77	
6501-77	6501-77
6601-77	6601-77
7101-77	
	7201-77
7310-77	
7501-77	
7601-77	
7701-77	7701-77

## 9.5.3 RED codes Bulgaria

## Assign

Codes	Destination	Remarks
1740-47	All	
1756-77	All	
3401-77	All	
4701-77	All	

## Retain from

UK	LR	LY	LW	LG	LT
	0101-77	0101-77	0101-77		
	0201-77	0201-77	0201-77	0201-77	
	0301-77	0301-77	0301-77		
	0401-77	0401-77	0401-77	0401-77	
	0501-77	0501-77	0501-77		
	0601-77	0601-77	0601-77	0601-77	
	1101-77	1101-77	1101-77		
	1201-77	1201-77	1201-77	1201-77	
	1401-77	1401-77	1401-77		
	1730-37 1750-55	1730-37 1750-55	1750-55	1750-55	1750-55
		2001-77	2001-77	2001-77	2001-77
	2101-77	2101-77	2101-77		
	2201-77	2201-77	2201-77		
				2301-77	2301-77
	2501-77	2501-77	2501-77		
	2601-77	2601-77			
	2701-77	2701-77			
	3001-77	3001-77	3001-77		
3201-77				3201-77	3201-77
	3501-07	3501-07	3501-07		
	3701-77	3701-77	3701-77	3701-77	
	4101-77	4101-77	4101-77		
4201-77	4201-77	4201-77			
	4301-77	4301-77	4301-77	4301-77	
	4401-77	4401-77			
	4501-77	4501-77			
4601-77	4601-77				
5101-77	5101-77	5101-77			
5201-77	5201-77	5201-77			
5301-77				5301-77	5301-77
	5401-77	5401-77			
			5501-77	5501-77	5501-77
				5601-77	5601-77
	5701-77	5701-77			
	6001-77	6001-77	6001-77		
6101-77	6101-77				
	6201-77	6201-77			
6301-77	6301-77				6301-77
6401-77	6401-77				
	6501-77	6501-77	6501-77		
	6601-77	6601-77	6601-77		
	7101-77	7101-77	7101-77		
	7250-77	7250-77	7250-77		
	7301-77	7301-77	7301-77		
7501-77	7501-77	7501-77	7501-77		
	7601-77	7601-77			
	7701-17	7701-17			

## 9.5.4 RED codes Croatia

## Assign

Codes	Destination	Remarks
6520-77	All	

## Retain from

LQ	LY	LI	LJ	LO	LH
0101-77		0101-77	0101-77	0101-77	0101-77
0201-77	0201-77	0201-77	0201-77		
0301-77		0301-77	0301-77	0301-77	0301-77
0401-77	0401-77	0401-77	0401-77		
0501-77		0501-77	0501-77	0501-77	0501-77
0601-77		0601-77	0601-77	0601-77	0601-77
1101-77	1101-77	1101-77	1101-77	1101-77	1101-77
1201-77	1201-77	1201-77	1201-77		
1330-77	1330-77	1330-77	1330-77	1330-77	1330-77
2001-77	2001-77	2001-77			
2101-77			2101-77	2101-77	2101-77
2301-77	2301-77				2301-77
2501-77		2501-77	2501-77	2501-77	2501-77
2701-77		2701-77	2701-77	2701-77	2701-77
3001-77		3001-77	3001-77	3001-77	
3201-77	3201-77	3201-77			3201-77
3501-77		3501-77	3501-77	3501-77	3501-77
3701-77	3701-77	3701-77	3701-77		
4101-27	4101-27	4101-27	4101-27	4101-27	4101-27
4140-77	4140-77	4140-77	4140-77	4140-77	4140-77
4301-77	4301-77	4301-77	4301-77	4301-77	4301-77
5201-77		5201-77	5201-77	5201-77	
5301-77	5301-77				5301-77
5501-77	5501-77	5501-77	5501-77	5501-77	5501-77
5601-77	5601-77		5601-77	5601-77	5601-77
5701-77		5701-77	5701-77	5701-77	
6001-77	6001-77				6001-77
6501-17			6501-17	6501-17	
6601-77		6601-77	6601-77	6601-77	6601-77
7101-77		7101-77	7101-77	7101-77	7101-77
7201-77	7201-77				7201-77
7301-77		7301-77	7301-77	7301-77	7301-77
7501-77		7501-77	7501-77	7501-77	7501-77
7601-77			7601-77	7601-77	7601-77
7701-77	7701-77		7701-77	7701-77	7701-77

## 9.5.5 RED codes Cyprus

## Assign

Codes	Destination	Remarks
5540-77	All	
5601-27	All	
7230-77	All	

## Retain from

LG	LL	LT
0101-77		0101-77
0201-77		0201-77
0301-77		0301-77
0401-77		0401-77
0501-77 *		0501-77 *
0601-77		0601-77
0701-77 *		0701-77 *
1101-77		1101-77
1201-77		1201-77
1330-77		1330-77
2001-77		2001-77
2101-77		2101-77
2201-77		2201-77
2301-77		2301-77
2501-77		2501-77
2701-77		2701-77
3001-77		3001-77
3201-77		3201-77
3401-77 *		3401-77 *
3501-77		3501-77
3701-77		3701-77
4101-77		4101-77
4301-77		4301-77
4701-77 *		4701-77 *
5201-77 *		5201-77 *
5301-77		5301-77
5501-37		5501-37
	5630-77	
5701-77		5701-77
6001-77		6001-77
6101-77		6101-77
6201-77 *		6201-77 *
	6401-77	
6501-77		6501-77
6601-77		6601-77
7101-77		7101-77
7201-27		7201-27
7301-77 *		7301-77 *
7501-77		7501-77
7601-77		7601-77
7701-75		7701-75

\* The retention is indicated only for arrivals.

## 9.5.6 RED codes Denmark

## Assign

Codes	Destination	Remarks
0201-67	All	
0270-77	EF, EN, ES	
0401-77	All	
0701-17	EK Dep directly into EDYY	
3270-77	ED	
3701-27	All	
3760-67	All	
6001-77	All	
7501-07	All	
7536-37	All	
7570-77	All	

## Retain from

EG	EN	ES	ED	EDYY	EH
0301-77	0301-77	0301-77	0301-77	0301-77	0301-77
0501-77	0501-77	0501-77	0501-77	0501-77	0501-77
0601-77	0601-77	0601-77	0601-77	0601-77	0601-77
0720-77	0720-77	0720-77	0720-77	0720-77	0720-77
1101-77	1101-77	1101-77	1101-77	1101-77	1101-77
	1201-77	1201-77			
	1401-77	1401-77			
		1730-77	1730-77	1730-77	
3001-77	3001-77	3001-77	3001-77	3001-77	3001-77
3101-77	3101-77	3101-77	3101-77	3101-77	3101-77
3501-77	3501-77	3501-77	3501-77	3501-77	3501-77
			3730-57	3730-57	
	4001-37	4001-37			
4040-77	4040-77	4040-77	4040-77	4040-77	4040-77
	4301-77	4301-77			
	4501-77	4501-77			
	4601-77	4601-77			
4701-77	4701-77	4701-77	4701-77	4701-77	4701-77
5520-77			5520-77	5520-77	5520-77
6101-77	6101-77	6101-77	6101-77	6101-77	6101-77
6230-47					
	6501-77	6501-77			
6601-77	6601-77	6601-77	6601-77	6601-77	6601-77
		7260-77	7260-77	7260-77	7260-77
	7301-77	7301-77			
7510-35	7510-35	7510-35	7510-35	7510-35	7510-35
7540-67	7540-67	7540-67	7540-67	7540-67	7540-67
7601-17	7601-17	7620-77	7620-77	7620-77	7620-77

## 9.5.7 RED codes Estonia

## Assign

Codes	Destination	Remarks
4001-37	All	
6501-27	All	

## Retain from

EF	ES	EV	U
	0101-77	0101-77	
0201-77	0201-77	0201-77	
0301-77	0301-77	0301-77	
0401-77	0401-77	0401-77	
0501-77	0501-77	0501-77	
	0601-77	0601-77	
0701-77	0701-77		
	1001-77	1001-77	
1101-77	1101-77	1101-77	
1201-77	1201-77	1201-77	
	1330-77	1330-77	
1401-77	1401-77		
	1730-77	1730-77	
2001-77	2001-77		
2201-77	2201-77		
2301-77	2301-77		
2501-77	2501-77	2501-77	
	3001-77	3001-77	
	3101-77	3101-77	
3401-77	3401-77	3401-77	
	3501-77	3501-77	
3701-77	3701-77	3701-77	
4201-77	4201-77	4201-77	
	4301-77	4301-77	
	4701-77	4701-77	
		5101-77	
5201-77	5201-77	5201-77	
6001-77	6001-77	6001-77	
6101-77	6101-77	6101-77	
6201-77	6201-77	6201-77	
6530-77	6530-77	6530-77	
	6601-77	6601-77	
7101-77	7101-77		
	7260-77	7260-77	
7301-77	7301-77	7301-77	
	7501-77	7501-77	
	7601-77	7601-77	

## 9.5.8 RED codes Finland

## Assign

Codes	Destination	Remarks
2001-77	EE, EF, EK, EN, ES, EV	
2201-77	All	
2301-77	All	

## Retain from

EN	ES	EE	U
0101-77	0101-77	0101-77	
0201-77	0201-77	0201-77	
0301-77	0301-77	0301-77	
0401-77	0401-77	0401-77	
0501-77	0501-77	0501-77	
0601-77	0601-77	0601-77	
0701-77	0701-77	0701-77	
1001-77	1001-77	1001-77	
1101-77	1101-77	1101-77	
1201-77	1201-77	1201-77	
1301-77	1301-77	1301-77	
1401-77	1401-77	1401-77	
1501-77	1501-77	1501-77	
1601-77	1601-77	1601-77	
1701-77	1701-77	1701-77	
2401-77	2401-77	2401-77	
2501-77	2501-77	2501-77	
2701-77	2701-77	2701-77	
3001-77	3001-77	3001-77	
3101-77	3101-77	3101-77	
3201-77	3201-77	3201-77	
3401-77	3401-77	3401-77	
3501-77	3501-77	3501-77	
3701-77	3701-77	3701-77	
4001-37	4001-37	4001-37	
4201-77	4201-77	4201-77	
4301-77	4301-77	4301-77	
4501-77	4501-77	4501-77	
4601-77	4601-77	4601-77	
4701-77	4701-77	4701-77	
5001-77	5001-77	5001-77	
		5101-77	
5201-77	5201-77	5201-77	
5301-77	5301-77	5301-77	
6001-77	6001-77	6001-77	
6101-77	6101-77	6101-77	
6201-47	6201-47	6201-47	
6401-77	6401-77	6401-77	
6501-77	6501-77	6501-77	
6601-77	6601-77	6601-77	
7001-77	7001-77	7001-77	
7101-77	7101-77	7101-77	
7260-77	7260-77	7260-77	
7301-77	7301-77	7301-77	
7401-77	7401-77	7401-77	
7501-77	7501-77	7501-77	
7601-77	7601-77	7601-77	

## 9.5.9 RED codes Ireland

## Assign

Codes	Destination	Remarks
0201-77	C, EI, K	
0501-77	All	
1150-76	All	
1401-77	C, EG, EI, K	
4215-47	C, EG, EI, K	
5252-70	All	
5660-76	All	
6201-27	C, EG, EI, K	
7270-77	All	
7301-07	C, EG, EI, K	
7610-17	C, EE, EF, EG, EI, EK, EN, ES, EV, K	
7730-57	C, EG, EI, K	

## Retain from

EG
0001-57
0101-77
0301-77
0440-77
0601-77
0701-77
1001-77
1101-47
1201-77
1330-77
1401-07
1730-77
2101-77
2201-77
2301-77
2501-77
2660-77
2701-77
3001-77
3101-77
3201-77
3301-77
3401-77
3501-77
3601-77
3720-77
4001-77
4101-77
4201-14
4250-77
4301-77
4401-77
4501-77
4601-77
4701-77
5001-77
5101-77
5201-51
5271-77

<b>EG</b>
5301-77
5401-77
5501-77
5601-77*
5701-77
6001-77
6101-77
6230-77
6301-77
6401-77
6501-77
6601-77
6701-77
7001-77
7101-77
7201-57
7270-77
7310-77
7401-77
7501-77
7601-07
7620-77
7701-27
7760-75

## 9.5.10 RED codes Lithuania

## Assign

Codes	Destination	Remarks
2201-67	All	

## Retain from

EP	UMKK	ES	EV	UMMV
0101-77	0101-77			0101-77
0301-77	0301-77			0301-77
0501-77	0501-77	0501-77	0501-77	0501-77
0601-77	0601-77	0601-77	0601-77	0601-77
1101-77	1101-77	1101-77	1101-77	1101-77
1330-77	1330-77			1330-77
1401-77	1401-77			1401-77
1730-77	1730-77			1730-77
2601-77	2601-77			2601-77
3001-77	3001-77	3001-77	3001-77	3001-77
3401-77	3401-77		3401-77	3401-77
3501-77	3501-77	3501-77	3501-77	3501-77
3601-77	3601-77			3601-77
4201-77	4201-77			4201-77
4401-77	4401-77			4401-77
4501-77	4501-77			4501-77
4601-77	4601-77			4601-77
4701-77	4701-77			4701-77
5101-77	5101-77			5101-77
5201-77	5201-77			5201-77
5401-77	5401-77			5401-77
6101-77	6101-77			6101-77
6230-77	6230-77			6230-77
6430-53	6430-53			6430-53
6460-77	6460-77			6460-77
6601-77	6601-77	6601-77	6601-77	6601-77
7501-77	7501-77	7501-77	7501-77	7501-77
7601-77	7601-77	7601-77	7601-77	7601-77
7701-75	7701-75			7701-75

## 9.5.11 RED codes Moldova

## Assign

Codes	Destination	Remarks
2270-77	All	

## Retain from

LR	UK
0101-77	0101-77
0201-77	0201-77
0301-77	0301-77
0401-77	0401-77
0501-77	0501-77
0601-77	0601-77
0701-77	0701-77
1001-77	1001-77
1101-77	1101-77
1201-77	1201-77
1301-77	1301-77
1401-77	1401-77
1501-77	1501-77
1701-77	1701-77
2001-77	2001-77
2101-77	2101-77
2201-67	2201-67
2301-77	2301-77
2401-77	2401-77
2501-77	2501-77
2601-77	2601-77
2701-77	2701-77
3001-77	3001-77
3101-77	3101-77
3201-77	3201-77
3301-77	3301-77
3401-77	3401-77
3501-77	3501-77
3601-77	3601-77
3701-77	3701-77
4001-77	4001-77
4101-77	4101-77
4201-77	4201-77
4301-77	4301-77
4401-77	4401-77
4501-77	4501-77
4601-77	4601-77
4701-77	4701-77
5001-77	5001-77
5101-77	5101-77
5201-77	5201-77
5301-77	5301-77
5401-77	5401-77
5501-77	5501-77
5601-77	5601-77
5701-77	5701-77
6001-77	6001-77
6101-77	6101-77
6201-77	6201-77

<b>LR</b>	<b>UK</b>
6301-77	6301-77
6401-67	6401-67
6501-77	6501-77
6601-77	6601-77
6701-77	6701-77
7001-77	7001-77
7101-77	7101-77
7201-77	7201-77
7301-77	7301-77
7401-77	7401-77
7501-77	7501-77
7601-77	7601-77
7701-75	7701-75

## 9.5.12 RED codes Norway

## Assign

Codes	Destination	Remarks
0101-77	EF, EN, ES, Oceanic interfaces	
1401-77	EF, EN, ES, Oceanic interfaces	
3401-77	EF, EN, ES, Oceanic interfaces	
4201-77	EF, EN, ES, Oceanic interfaces	
4501-77	EF, EN, ES, Oceanic interfaces	
4601-77	EF, EN, ES, Oceanic interfaces	
6101-77	All	
6401-77	EF, EN, ES, Oceanic interfaces	
7101-77	EF, EN, ES, Oceanic interfaces	

## Retain from

EG	EK	ES	EF	U
	0201-77	0201-77	0201-77	
0301-77	0301-77	0301-77	0301-77	
	0401-77	0401-77	0401-77	
0501-77	0501-77	0501-77	0501-77	
0601-77	0601-77	0601-77	0601-77	
1101-77	1101-77	1101-77	1101-77	
	1201-77	1201-77	1201-77	
		1330-77	1330-77	
	1730-77	1730-77	1730-77	
		2001-77	2001-77	
		2201-77*	2201-77*	
		2301-77*	2301-77*	
	2501-77*	2501-77*	2501-77*	
3001-77	3001-77	3001-77	3001-77	
3101-77	3101-77	3101-77	3101-77	
3501-07	3501-07	3501-07	3501-07	
	3701-77	3701-77	3701-77	
		4001-77	4001-77	
	4301-77	4301-77	4301-77	
	5001-77	5001-77	5001-77	
	5301-77	5301-77	5301-77	
5520-77	5520-77	5520-77		
	6001-77	6001-77	6001-77	
6201-47	6201-47	6201-47	6201-47	
	6501-77	6501-77	6501-77	
	6601-77	6601-77	6601-77	
	7001-77	7001-77	7001-77	
	7260-77	7260-77	7260-77	
	7301-77	7301-77	7301-77	
	7401-77	7401-77	7401-77	
	7501-77	7501-77	7501-77	
7601-17	7620-77	7620-77	7620-77	

\* Protect EG

## 9.5.13 RED codes Poland

## Assign

Codes	Destination	Remarks
1330-77	EUR-C, EUR-E, EUR-F	Protect EUR-B, LK
1730-37	All	
4501-77	All	
4601-37	All	

## Retain from

ED	ES	EY/UMKK	UMMV	UK	LZ	LK
0101-77						0101-77
0201-77					0201-77	0201-77
0301-77	0301-77					0301-77
0501-77	0501-77					0501-77
0601-77						0601-77
1101-77	1101-77					1101-77
1401-77					1401-77	1401-77
				1740-77	1740-77	1740-77
2201-77						2201-77
2501-77						2501-77
			2601-77	2601-77	2601-77	2601-77
3001-77					3001-77	3001-77
			3201-77	3201-77	3201-77	3201-77
			3401-77	3401-77	3401-77	3401-77
3501-77						3501-77
			4201-77	4201-77	4201-77	4201-77
				4401-77	4401-77	4401-77
				4640-77	4640-77	4640-77
			4701-77	4701-77	4701-77	4701-77
		5101-77	5101-77	5101-77	5101-77	5101-77
				5201-77	5201-77	5201-77
			5401-77	5401-77	5401-77	5401-77
				6101-77	6101-77	6101-77
		6201-77	6201-77	6201-77		
		6401-77	6401-77	6401-77	6401-77	
6601-77	6601-77				6601-77	6601-77
7201-77					7201-77	7201-77
7501-77					7501-77	7501-77
7601-77						7601-77

## 9.5.14 RED codes Portugal

## Assign

Codes	Destination	Remarks
3330-77	All	
4701-77	All	
5401-77	All	

## Retain from

EGGX	GC	GM	LE
			0101-77
0301-77			0301-77
			0501-77
			0601-77
			0701-77
			1001-77
			1401-77
2001-37			
2201-77			2201-77
			2301-77
			2501-77
2701-37			2701-77
			3101-77
			3501-77
			4001-77
	4201-77	4201-77	4201-77
	4401-77	4401-77	4401-77
		4501-77	4501-77
		4601-77	4601-77
5201-77			5201-77
			5301-77
			5701-77
			6001-77
	6201-77	6201-77	
	6401-77	6401-77	6401-77
			6501-77
			6701-77
			7101-77
7201-77			
			7501-77
			7601-77
7701-17			7701-17
	7730-75	7730-75	7730-75

**9.5.15 RED codes Romania****Assign**

<b>Codes</b>	<b>Destination</b>	<b>Remarks</b>
2640-77	All	
5401-77	All	

**Retain from**

<b>LB</b>	<b>LH</b>	<b>LU</b>	<b>LY</b>	<b>UK</b>
	0101-77	0101-77	0101-77	0101-77
0201-77	0201-77	0201-77	0201-77	0201-77
	0301-77	0301-77	0301-77	0301-77
0401-77	0401-77	0401-77	0401-77	0401-77
	0501-77	0501-77	0501-77	0501-77
	0601-77	0601-77	0601-77	0601-77
1001-77	1001-77		1001-77	
	1101-77	1101-77	1101-77	1101-77
1201-77	1201-77	1201-77	1201-77	1201-77
	1330-77	1330-77		1330-77
	1401-77	1401-77		1401-77
1730-77			1730-77	
	2201-77	2201-77		2201-77
2301-77		2301-77		2301-77
	2501-77	2501-77	2501-77	2501-77
	2601-37	2601-37	2601-37	2601-37
	2701-77	2701-77	2701-77	2701-77
	3001-77	3001-77	3001-77	3001-77
3201-77		3201-77		3201-77
3401-77				
	3501-77	3501-77	3501-07	3501-77
3701-77	3701-77	3701-77	3701-77	3701-77
	4201-77	4201-77		4201-77
	4401-77	4401-77		4401-77
	4501-77	4501-77		4501-77
	4601-37	4601-37		4601-77
4701-77				
	5101-77	5101-77		5101-77
		5201-77		5201-77
5301-77		5301-77		5301-77
5501-77			5501-77	
5601-77		5601-77	5601-77	5601-77
6001-77	6001-77		6001-77	
		6101-77		6101-77
	6201-77	6201-77		6201-77
6301-77		6301-77		6301-77
6401-77	6401-77	6401-77		6401-77
6501-77	6501-77		6501-77	

<b>LB</b>	<b>LH</b>	<b>LU</b>	<b>LY</b>	<b>UK</b>
	<b>6601-77</b>	<b>6601-77</b>	<b>6601-77</b>	<b>6601-77</b>
	<b>7101-77</b>	<b>7101-77</b>	<b>7101-77</b>	<b>7101-77</b>
<b>7201-77</b>	<b>7201-77</b>		<b>7201-77</b>	
	<b>7301-77</b>		<b>7301-77</b>	
	<b>7501-77</b>	<b>7501-77</b>	<b>7501-77</b>	<b>7501-77</b>
	<b>7601-77</b>	<b>7601-77</b>	<b>7601-77</b>	<b>7601-77</b>
	<b>7701-17</b>	<b>7701-17</b>	<b>7701-17</b>	<b>7701-17</b>

**9.5.159.5.16** RED codes Serbia and Montenegro

## Assign

Codes	Destination	Remarks
4150-57	All	
6001-77	All	
7210-27	All	

## Retain from

LH	LR	LB	LW	LA	LI	LD	LQ
0101-77					0101-77	0101-77	0101-77
0201-77			0201-77	0201-77	0201-77	0201-77	0201-77
0301-77					0301-77	0301-77	0301-77
0401-77			0401-77	0401-77	0401-77	0401-77	0401-77
0501-77					0501-77	0501-77	0501-77
0601-77					0601-77	0601-77	0601-77
1101-77	1101-77	1101-77	1101-77	1101-77	1101-77	1101-77	1101-77
1201-77			1201-77	1201-77	1201-77	1201-77	1201-77
1330-77			1330-77	1330-77	1330-77	1330-77	1330-77
	2001-77	2001-77	2001-77	2001-77			
2101-77					2101-77	2101-77	2101-77
2201-77					2201-77	2201-77	2201-77
	2301-77	2301-77	2301-77	2301-77			
2501-77					2501-77	2501-77	2501-77
2701-77					2701-77	2701-77	2701-77
3001-77					3001-77	3001-77	3001-77
	3201-77	3201-77	3201-77	3201-77			
3501-77					3501-77	3501-77	3501-77
3701-77			3701-77	3701-77	3701-77	3701-77	3701-77
			4101-47	4101-47	4101-47	4101-47	4101-47
			4160-77	4160-77	4160-77	4160-77	4160-77
			4301-77	4301-77	4301-77	4301-77	4301-77
5201-77	5201-77	5201-77	5201-77	5201-77	5201-77	5201-77	5201-77
	5301-77	5301-77	5301-77	5301-77			
	5501-77	5501-77	5501-77	5501-77			
	5601-77	5601-77	5601-77	5601-77			
5701-77					5701-77	5701-77	5701-77
			6101-77	6101-77	6101-77	6101-77	6101-77
6501-77					6501-77	6501-77	6501-77
6601-77					6601-77	6601-77	6601-77

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<b>LH</b>	<b>LR</b>	<b>LB</b>	<b>LW</b>	<b>LA</b>	<b>LI</b>	<b>LD</b>	<b>LQ</b>
7101-77					7101-77	7101-77	7101-77
	7201-07 7230-77	7201-07 7230-77	7201-07 7230-77	7201-07 7230-77			
7301-77					7301-77	7301-77	7301-77
7501-77					7501-77	7501-77	7501-77
7601-77					7601-77	7601-77	7601-77
7701-77	7701-77	7701-77				7701-77	7701-77

**9.5.169.5.17RED codes Sweden****Assign**

<b>Codes</b>	<b>Destination</b>	<b>Remarks</b>
1201-77	All	
2501-77	EE EF EN EV	Protect EUR-B
5001-77	EF EN ES	Protect EUR-B
5301-77	EF EN ES	Protect EUR-B
6530-77	All	
7001-77	EF EN ES	
7350-77	All	
7401-57	EF EN ES	

**Retain from**

<b>ED</b>	<b>EK</b>	<b>EN</b>	<b>EF</b>	<b>EE</b>	<b>EV</b>	<b>EY</b>	<b>UMKK</b>	<b>EP</b>
0101-77	0101-77	0101-77	0101-77	0101-77	0101-77	0101-77	0101-77	0101-77
	0201-77	0201-77						
0301-77	0301-77	0301-77	0301-77	0301-77	0301-77	0301-77	0301-77	0301-77
	0401-77	0401-77						
0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77
0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77
0701-77	0701-77	0701-77						0701-77
1001-77	1001-77	1001-77						1001-77
			1330-77	1330-77	1330-77	1330-77	1330-77	1330-77
	1401-77	1401-77	1401-77					
1730-77	1730-77		1730-77	1730-77	1730-77	1730-77	1730-77	1730-77
		2001-77	2001-77	2001-77	2001-77			
		2201-77	2201-77	2201-77	2201-77			
		2301-77	2301-77	2301-77	2301-77			
2701-37	2701-37	2701-37						2701-37
3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77
3101-77	3101-77	3101-77						
3201-77	3201-77	3201-77	3201-77	3201-77	3201-77	3201-77	3201-77	3201-77
	3401-77	3401-77	3401-77					
3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77
3730-57	3701-77	3701-77						
4040-77	4040-77	4040-77	4001-37	4001-37	4001-37			
		4201-77	4201-77					
			4301-77	4301-77	4301-77	4301-77	4301-77	
		4501-77	4501-77					

<b>ED</b>	<b>EK</b>	<b>EN</b>	<b>EF</b>	<b>EE</b>	<b>EV</b>	<b>EY</b>	<b>UMKK</b>	<b>EP</b>
		4601-77	4601-77					
4740-77	4740-77		4701-77	4701-77	4701-77	4701-77	4701-77	4701-77
			5201-77	5201-77	5201-77	5201-77	5201-77	5201-77
	5520-77							
	6001-77	6001-77						
	6101-77	6101-77	6101-77					
	6201-47	6201-47	6201-47					
	6401-77	6401-77	6401-77					
			6501-27	6501-27	6501-27			
6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77
		7101-77	7101-77					
7260-77	7260-77							7260-77
7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77
7620-77	7601-77	7601-77	7601-17	7601-17	7601-17		7620-77	7620-77

**9.5.179.5.18RED codes Ukraine****Assign**

Codes	Destination	Remarks
4260-77	All	
4640-77	All	
5201-77	ES, EF, EE, EV, EY, UMMV, HE, LC, LB, LL, LR, LT, O, R, U, V, W, Z	
6101-77	All	
6350-77	HE, LC, LL, LT, O, R, U, V, W, Z	

**Retain from**

EP	UMMV	LZ	LU	LB	LR	LH	LT	Russia
0101-77	0101-77	0101-77	0101-77	0101-77	0101-77	0101-77		
0201-77	0201-77	0201-77	0201-77	0201-77	0201-77	0201-77		
0301-77	0301-77	0301-77	0301-77	0301-77	0301-77	0301-77		
0401-77	0401-77	0401-77	0401-77	0401-77	0401-77	0401-77		
0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77		
0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77		
1101-77	1101-77	1101-77	1101-77	1101-77	1101-77	1101-77		
1201-77	1201-77	1201-77	1201-77	1201-77	1201-77	1201-77		
1301-77	1301-77	1301-77	1301-77	1301-77	1301-77	1301-77		
1401-77	1401-77	1401-77	1401-77	1401-77	1401-77	1401-77		
1701-77	1701-77	1701-77	1701-77	1701-77	1701-77	1701-77		
2001-77	2001-77	2001-77	2001-77	2001-77	2001-77	2001-77		
2201-77	2201-77	2201-77	2201-77	2201-77	2201-77	2201-77		
2301-77	2301-77	2301-77	2301-77	2301-77	2301-77	2301-77		
2501-77	2501-77	2501-77	2501-77	2501-77	2501-77	2501-77		
2601-77	2601-77	2601-77	2601-77	2601-77	2601-77	2601-77		
3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77		
3201-77	3201-77	3201-77	3201-77	3201-77	3201-77	3201-77		
3401-77	3401-77	3401-77	3401-77	3401-77	3401-77	3401-77		
3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77		
3701-77	3701-77	3701-77	3701-77	3701-77	3701-77	3701-77		
4201-57	4201-57	4201-57	4201-57	4201-57	4201-57	4201-57		
4301-77	4301-77	4301-77	4301-77	4301-77	4301-77	4301-77		
4401-77	4401-77	4401-77	4401-77	4401-77	4401-77	4401-77		
4501-77	4501-77	4501-77	4501-77	4501-77	4501-77	4501-77		
4601-37	4601-37	4601-37	4601-37	4601-37	4601-37	4601-37		
4701-77	4701-77	4701-77	4701-77	4701-77	4701-77	4701-77		
5101-77	5101-77	5101-77	5101-77	5101-77	5101-77	5101-77		

<b>EP</b>	<b>UMMV</b>	<b>LZ</b>	<b>LU</b>	<b>LB</b>	<b>LR</b>	<b>LH</b>	<b>LT</b>	<b>Russia</b>
5301-77	5301-77	5301-77	5301-77	5301-77	5301-77	5301-77		
5401-77	5401-77	5401-77	5401-77	5401-77	5401-77	5401-77		
6001-77	6001-77	6001-77	6001-77	6001-77	6001-77	6001-77		
6201-77	6201-77	6201-77	6201-77	6201-77	6201-77	6201-77		
							6301-47	
6401-77	6401-77	6401-77	6401-77	6401-77	6401-77	6401-77		
6501-77	6501-77	6501-77	6501-77	6501-77	6501-77	6501-77		
6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77		
7101-77	7101-77	7101-77	7101-77	7101-77	7101-77	7101-77		
7201-77	7201-77	7201-77	7201-77	7201-77	7201-77	7201-77		
7301-77	7301-77	7301-77	7301-77	7301-77	7301-77	7301-77		
7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77		
7601-77	7601-77	7601-77	7601-77	7601-77	7601-77	7601-77		
7701-77	7701-77	7701-77	7701-77	7701-77	7701-77	7701-77		

**9.5.189.5.19** RED codes United Kingdom

## Assign

Codes	Destination	Remarks
0301-77	All	
2001-37	All	
2201-77	EG, EI, LF, LE, LP, FA, GC, LX	
2701-37	All	
3221-57	B, C, EG, EI, K, M, S, T	
3401-57	EB, ED, EG, EH, EI, EL	
4450-77	B, C, EG, EI, K, M, S, T	
4740-77	All	
5201-51	All	
6230-47	EE, EF, EK, EN, ES, EV	
6250-57	EH	
6301-77	LF	
7250-57	EG, EI, LF	
7310-27	EG, EH, EI	
7601-07	EF, EG, EI, EN, ES	
7620-77	B, C, EG, EI, K, M, S, T	
7701-17	D, EG, EI, G, LE, LF	
7760-75	EGJ	

## Retain from

EB	EDYY	EH	EI	EK	EN	LF
0101-77	0101-77	0101-77	0101-77			0101-77
0501-77	0501-77	0501-77	0501-77	0501-77	0501-77	0501-77
0601-77	0601-77	0601-77	0601-77	0601-77	0601-77	0601-77
0701-77	0701-77	0701-77	0701-77			0701-77
1001-77	1001-77	1001-77	1001-77			1001-77
1101-76	1101-76	1101-76	1101-76	1101-76	1101-76	1101-76
						1201-77
1330-77	1330-77	1330-77				
			1410-77			
2101-77	2101-77	2101-77	2101-77			2101-77
2301-77	2301-77	2301-77	2301-77			2301-77
2501-77	2501-77	2501-77	2501-77			2501-77
2740-77	2740-77	2740-77	2740-77			2740-77
3001-77	3001-77	3001-77	3001-77	3001-77	3001-77	3001-77
3101-77	3101-77	3101-77	3101-77	3101-77	3101-77	3101-77
3460-77	3460-77	3460-77				
3501-77	3501-77	3501-77	3501-77	3501-77	3501-77	3501-77
4001-77	4001-77	4001-77	4001-77	4001-77	4001-77	4001-77
4101-77	4101-77	4101-77	4101-77			4101-77
			4215-47			
4401-47	4401-47	4401-47				4401-47
5252-77	5252-77	5252-77	5252-77			5252-77
5301-77	5301-77	5301-77	5301-77			5301-77
5501-77	5501-77	5501-77	5501-77			5501-77
5601-76	5601-76	5601-76	5601-76			5601-76
5701-77	5701-77	5701-77	5701-77			5701-77

<b>EB</b>	<b>EDYY</b>	<b>EH</b>	<b>EI</b>	<b>EK</b>	<b>EN</b>	<b>LF</b>
6260-77	6260-77	6260-77	6201-27			
6601-77	6601-77	6601-77	6601-77	6601-77	6601-77	6601-77
6701-77	6701-77	6701-77	6701-77			6701-77
7101-77	7101-77	7101-77	7101-77			7101-77
7201-47	7201-47	7201-47	7201-47			7201-47
7260-67	7260-67	7260-67	7260-67			7260-67
7330-47	7330-47	7330-47	7301-07			
						7440-77
7501-77	7501-77	7501-77	7501-77	7501-77	7501-77	7501-77
			7610-17			
7720-27	7720-27	7720-27	7730-57			

## Annex III

### 10 Quick Reaction Codes

Quick Reaction Codes (QRC) are discrete SSR codes that may be made available on request for an ATS Unit (ATSU) participating to CCAMS for automatic or manual assignment to all flights. The cases where such a request may be accepted are described throughout this document. They may only be used by one ATSU at a time.

This is a medium-term mitigation measure that shall not be considered as a solution or hinder in any possible way the actions taken locally to restore normal CCAMS operations.

The request shall be addressed to the CCAMS office, which will assess and either grant or refuse it. **The amount of SSR codes and period when they are granted are ultimately decided by the CCAMS office.** The outcome of the decision will be based on the overall situation of CCAMS code availability and possible impact at network level.

The discrete SSR codes that may be offered as QRC are:

- **A0301-77.**



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