International Civil Aviation Organization

MIDANPIRG Communication Navigation and Surveillance Sub-Group (CNS SG)

Sixth Meeting
(Tehran, Iran, 9 – 11 September 2014)

Agenda Item 3: Global and Regional Developments related to CNS

EUROCONTROL SPECIFICATION FOR THE MODE S IC ALLOCATION COORDINATION AND IC CONFLICT MANAGEMENT

(Presented by the EUROCONTROL)

SUMMARY

The aim of this paper is to provide information EUROCONTROL Specification for the Mode S IC Allocation Coordination and IC Conflict Management

Action by the meeting is at paragraph 3.

1. INTRODUCTION

1.1 The MID Region have agreement with EUROCONTROL for MID Region Mode S IC Codes Allocation process, including the use of the EURCONTROL MICA application details are provided in working paper 11.

2. DISCUSSION

2.1 The EUROCONTROL developed the Specification document describes the process and procedures in order to coordinate the Mode S Interrogator Code (IC) Allocation for Mode S Interrogators with a fixed position within the International Civil Aviation Organisation (ICAO) European (EUR) and Middle-East (MID) Regions, as at **Appendix A** to this information paper.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this information paper.

EUROCONTROL

EUROCONTROL Specification for the Mode S IC Allocation Coordination and IC Conflict Management

Edition: 1.0
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EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL
Specification for the Mode S IC Allocation Coordination and IC Conflict Management

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Abstract

This EUROCONTROL Specification document describes the process and procedures in order to coordinate the Mode S Interrogator Code (IC) allocation for Mode S interrogators with a fixed position within the International Civil Aviation Organisation (ICAO) European (EUR) and Middle-East (MID) regions. For the purpose of the single European sky (SES), this Specification is a means of compliance to Regulation (EC) No 262/2009 for the coordinated allocation and use of Mode S interrogator codes.

Keywords

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EXECUTIVE SUMMARY

This EUROCONTROL specification defines processes applicable to the use of the centralised Mode S interrogator code allocation service in charge of coordinating interrogator code allocations within the ICAO European region and ICAO Middle-East region.

This document specifies the detailed procedures for Mode S Operators to obtain a coordinated Mode S interrogator code and particularly the interfaces between the Mode S Operators, the Focal Points representing competent States in the ICAO European region, the single ICAO Middle-East Focal Point representing all competent States of ICAO Middle-East region and the EUROCONTROL centralised Mode S interrogator code allocation service.

This document also specifies the procedures in place to manage interrogator code conflicts and the resolution of issues with respect to the interrogator code allocation plan.

1. Introduction

1.1 Purpose

This document describes the process and procedures in order to coordinate the Mode S Interrogator Code (IC) allocation for Mode S interrogators with a fixed position within the International Civil Aviation Organisation (ICAO) European (EUR) and Middle-East (MID) regions.

This document defines the procedures and the role of the following parties involved in the process:

- Mode S Operators
- Competent States
- International Organisations
- Focal Points
- EUROCONTROL Mode S IC Allocation Cell (hereinafter MICA Cell)

The document also describes the management and resolution of IC allocation and IC conflict issues.

The internal process followed by the MICA Cell is described in a complementary guidance material on the operation of the centralised Mode S interrogator code allocation service[1].

EU Member States that comply with this specification comply with a number of regulatory provisions of the following European Regulation (see Section 8 for the traceability to regulatory provisions):

> ***COMMISSION REGULATION (EC) No 262/2009 of 30 March 2009***
>
> ***laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky***

This document also supplements the following ICAO EUR document:

> ***European Principles and Procedures for the Allocation of Secondary Surveillance Radar Mode S Interrogator Codes (IC)***
>
> ***ICAO EUR DOC 024 – July 2012***

1.2 Scope

Section 2 provides details about the actors and their role in the IC allocation process.

Section 3 details the procedure to submit an IC application in order to request an IC allocation.

Section 4 details the Mode S IC allocation cycle (MICA cycle) which is the default procedure for processing IC applications.

Section 5 details the Ad-Hoc allocation process which is an alternative but more constraining procedure to process IC applications.

Section 6 provides details about the IC conflict reporting procedure.

Section 7 provides details on how to resolve IC allocation and conflict issues.

Section 8 provides the traceability to provisions of Commission Regulation No 262/2009

[1] To be made available Q3 2013

1.3 Context

Whilst traditional Mode A/C Secondary Surveillance Radar (SSR) stations continuously interrogate all aircraft within their range, Mode S interrogators perform selective interrogations.

In order to avoid ambiguity in the operation of the system it is essential that each eligible Mode S interrogator is allocated an eligible Interrogator Code (IC) and is protected from interference by other Mode S interrogators operating in overlapping or contiguous airspace.

The introduction of Mode S interrogators in the ICAO EUR region has identified the need for a coordinated approach to the allocation and implementation of the ICs used by ground-based, airborne and shipborne platforms.

Note: systems such as ACAS or current Multilateration systems do not require the co-ordinated allocation of an IC. Even if they use Mode S interrogations and replies, they do not rely on "All Call" for acquisition or perform lockout.

Provisions regarding the implementation and monitoring of Mode S IC allocations in the ICAO EUR region have been initially defined by ICAO in the ***European Basic Air Navigation Plan (EUR ANP) (Doc 7745, Volume I)*** and the ***European Facilities and Services Implementation Document (EUR FASID) (Doc 7754, Volume II)*** [RD 6]. In 2011, the 53rd Meeting of the ICAO EANPG decided that the EUR Principles and Procedures for SSR Mode S Interrogator Code (IC) Allocation should be transferred from the ICAO EUR ANP (Doc 7754) to a new separate document, **ICAO EUR DOC 024** [RD 3].

Due to the limited number of ICs, it is necessary to have a centralised IC allocation system to ensure an optimised allocation and a safe operation. In the ICAO EUR region, the centralised IC allocation system is exercised by EUROCONTROL on behalf of the European regional office of ICAO.

The EUROCONTROL Provisional Council recognised the need for a centralised Mode S IC allocation mechanism at the 13th Session on 11 April 2002 and requested to set up the necessary arrangements.

The **MICA Cell** has been created to provide the centralised service of IC allocation to Mode S Operators through their competent State Focal Point.

The Mode S Interrogator Codes Co-ordination Group (MICoG) had been created to oversee the allocation process and provide guidance to the MICA Cell. Presently, the Surveillance Ground Environment Group - Mode S Interrogator Codes Co-ordination Group (hereinafter SGEG-MICoG) performs this task.

In 2009, the following European Regulation entered into force:

> ***COMMISSION REGULATION (EC) No 262/2009 of 30 March 2009***
>
> ***laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky***

It defines regulatory provisions applicable to Mode S interrogator operators, air navigation service providers (ANSPs) and EU Member States with respect, in particular, to:

1. Interoperability and performance requirements on Mode S interrogators.
2. Mode S IC Allocation coordination procedures.
3. Contingency requirements.
4. Civil-Military coordination.

In 2011, the ICAO MID regional office requested EUROCONTROL to formally provide support for Mode S interrogator code allocation in ICAO MID region. It has been agreed that the MICA Cell will also support the ICAO MID regional office, with the same standard bi-annual MICA cycle (see Section 4) as that for Mode S interrogators within EUR region. This includes a coordinated listing of IC and coverage for Mode S interrogators in MID region. It has also been agreed that a single ICAO MID Regional Officer CNS will coordinate directly with the MICA Cell for all countries in MID region.

1.4 Conventions

The following conventions are used in this EUROCONTROL Specification:

a. "**Shall**" – indicates a statement of specification, the compliance with which is mandatory to achieve the implementation of this EUROCONTROL Specification.

b. "**Should**" – indicates a recommendation or best practice, which may or may not be satisfied by all systems claiming conformity to this EUROCONTROL specification.

c. "**May**" – indicates an optional element.

1.5 Abbreviations

ANSP	Air Navigation Service Provider
EANPG	European Air Navigation Planning Group
EMS	European Mode S Station
EU	European Union
EUR	Europe (ICAO region)
IC	Interrogator Code
ICAO	International Civil Aviation Organisation
ICD	Interface Control Document
II	Interrogator Identifier
MICA	Mode S Interrogator Code Allocation
MICoG	Mode S Interrogator Code Coordination Group
MID	Middle-East (ICAO region)
SGEG	Surveillance Ground Environment Group
SI	Surveillance Identifier
TRD	Test, Research and Development

1.6 Definitions

For the purpose of this EUROCONTROL Specification, the following definitions are applicable. Those that are (or adapted) from the Regulation (EC) No 262/2009 are clearly identified. Indeed, some definitions within Regulation (EC) No 262/2009 were adapted to cover non-EU States and military authorities.

Cluster: a set of Mode S interrogators connected with each other in the same network and using the same IC to share track information in order to allow aircraft acquisition already acquired by other stations in the same cluster.

Competent State (adapted from Regulation (EC) No 262/2009):

(a) in the case of an ANSP from an EU Member State or States having chosen to transpose the EU regulation, the State that has certified the provider in accordance with Commission Regulation (EC) No 1035/2011 repealing Regulation 2096/2005;

(b) in other cases for an EU Member State or States having chosen to transpose the EU regulation, the State within the area of responsibility in which the Mode S Operator operates, or intends to operate, an eligible Mode S interrogator.

(c) for States not subject to EU regulation, the State within the area of responsibility in which the Mode S Operator operates, or intends to operate, an eligible Mode S interrogator in accordance with the ICAO EUR FASID and Doc024 (European Principles And Procedures for the Allocation of Secondary Surveillance Radar Mode S Interrogator Codes (IC)).

(d) States from ICAO MID region

Eligible Interrogator Code (Regulation (EC) No 262/2009): any code among the II codes and the SI codes, except:

1. II code 0;
2. the interrogator code(s) reserved for military entities, including intergovernmental organisations in particular North Atlantic Treaty Organisation (NATO) management and allocation;

Eligible Mode S Interrogator (Regulation (EC) No 262/2009): Mode S interrogator for which at least one of the following conditions is satisfied:

1. the interrogator relies, at least partly, on Mode S all call interrogations and replies for Mode S targets acquisition; or
2. the interrogator locks out acquired Mode S targets in reply to Mode S all call interrogations, permanently or intermittently, in part or totality of its coverage; or
3. the interrogator uses multi-site communications protocols for data link applications;

Focal Point: a person representing a competent State or an international organisation applying for interrogator codes, who is responsible for the coordination of all matters concerning the IC allocations between the MICA Cell and the Mode S Operators in his area of oversight.

Interrogator Code Allocation Plan (Regulation (EC) No 262/2009): the most recently approved complete set of interrogator code allocations.

Interrogator Code Allocation Plan Proposal (adapted from Regulation (EC) No 262/2009): a proposal for a complete set of IC allocations, submitted by the interrogator code allocation service for approval by competent States.

Interrogator Code Allocation System (adapted from Regulation (EC) No 262/2009): means a system within the European Air Traffic Management Network, and the associated procedures, through which a centralised service of interrogator code allocation (hereinafter interrogator code allocation service), for dealing with the processing of interrogator code applications and the distribution of an interrogator code allocation plan proposal, is provided for Mode S Operators through competent States.

Interrogator Code Application (hereinafter IC application): an application from a Mode S Operator for the allocation of an eligible interrogator code.

Interrogator Code Conflict (Regulation (EC) No 262/2009): uncoordinated coverage overlap of two or more Mode S interrogators operating on the same interrogator code, potentially resulting in aircraft remaining undetected by at least one of the Mode S interrogators.

Lockout (Regulation (EC) No 262/2009): protocol that allows the suppression of Mode S all call replies from already acquired Mode S targets.

Lockout Coverage: Mode S interrogator configuration defining where and how to apply lockout to Mode S targets. The Lockout Coverage can be provided in different formats depending on Mode S interrogator capabilities: European Mode S Coverage Map ICD, lockout range per sector, unique lockout range.

Lockout Coverage in European Mode S Coverage Map ICD format Map (hereinafter Lockout Map) (Regulation (EC) No 262/2009): Mode S interrogator configuration file defining where and how to apply lockout to Mode S targets.

MICA Cell: the EUROCONTROL Team operating the interrogator code allocation system in accordance with its associated procedures in order to provide a centralised interrogator code allocation service.

MICA Cycle: a recurrent 6 monthly procedure for Mode S IC allocation.

MICA Cycle Effective Date: the last date of a given MICA cycle.

MICA website: the Mode S IC Allocation web-based application (hereinafter MICA website) is used to coordinate and manage the allocation of eligible IC to eligible Mode S interrogators in ICAO EUR region and ICAO MID region. The access to the web application is managed through the Eurocontrol OneSkyOnline portal. The MICA website is part of the interrogator code allocation system.

Mode S: cooperative surveillance technique for air traffic control which enables the selective interrogation of aircraft and the extraction of air derived data through which new air traffic management functionalities can be developed.

Mode S All Call interrogations: messages that are normally used by Mode S interrogators to acquire Mode S targets entering their area of coverage.

Mode S interrogator (Regulation (EC) No 262/2009): a system composed of antenna and electronics, supporting addressing of individual aircraft through the Mode Select, known as Mode S.

Mode S Operator (adapted from Regulation (EC) No 262/2009): a person, organisation or enterprise operating or offering to operate a Mode S interrogator, including:

(a) Air navigation service providers;

(b) Mode S interrogators manufacturers;

(c) Airport operators;

(d) Military authorities;

(e) Research establishments;

(f) Any other entity entitled to operate a Mode S interrogator;

Mode S target (Regulation (EC) No 262/2009): a platform equipped with a Mode S transponder.

Third Country: a country where the Mode S IC allocation is not coordinated by the EUROCONTROL MICA Cell.

1.7 Reference material

[RD 1] ***ICAO Annex 10 to the Convention on International Civil Aviation***

Aeronautical Telecommunications

Volume IV Surveillance and Collision Avoidance Systems

Amendment 85 or latest

[RD 2] ***European Mode S Station Coverage Map Interface Control Document, Ed. 1.16***

EUROCONTROL – 9 May 2005

[RD 3] ***European Principles and Procedures for the Allocation of Secondary Surveillance Radar Mode S Interrogator Codes (IC)***

ICAO EUR DOC 024 – July 2012

[RD 4] ***COMMISSION REGULATION (EC) No 262/2009 of 30 March 2009***

laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky

[RD 5] ***Principles of Mode S operation and interrogator codes, Ed. 2.3***

EUROCONTROL – 18/03/2003

[RD 6] ***European Facilities and Services Implementation Document (EUR FASID) (Doc 7754, Volume II)***

2. General Requirements and Responsibilities

2.1 Competent State Responsibilities

In the ICAO EUR region, competent States **shall** nominate a Focal Point responsible for the coordination of all matters concerning the allocation of ICs between the MICA Cell and the Mode S Operators in their area of responsibility.

In the ICAO EUR region, competent States **should** nominate a backup Focal Point to support and to replace the Focal Point in order to ensure continuity of service.

In the ICAO MID region, the ICAO MID regional office **shall** nominate a Focal Point who is responsible for the coordination of all matters concerning the allocation of ICs between the MICA Cell and Mode S Operators that operate in the ICAO MID region.

In the ICAO MID region, the ICAO MID regional office **should** nominate a backup Focal Point to support and to replace the Focal Point in order to ensure continuity of service.

Note: It is expected that the Focal Point availability is ensured during standard business hours. There is no requirement for 24 hours a day, 7 days per week (24/7) availability.

Competent States **should** provide known points of contact for third countries to the MICA Cell through their Focal Point.

2.2 Focal Point Responsibilities

Focal Points **shall** be registered on the MICA website. Prior to MICA website registration, Focal Points **shall** self-register on the EUROCONTROL OneSkyOnline portal[2].

Focal Points **shall** inform their respective civil and military Mode S Operators of their responsibilities described in this document.

Focal Points **shall** transmit to the MICA Cell the MICA website registration requests they have received and accepted from Mode S Operators representing either civil or military organisations under their responsibility.

Focal Points **shall** inform the MICA Cell within 6 months of when a Mode S interrogator ceases operation in order to permit the withdrawal of the corresponding IC allocation.

Focal Points **shall** revalidate the IC allocations under their responsibility every 5 years and confirm to the MICA Cell via e-mail whether the issued IC allocations are still in use. This revalidation is to occur every 5 years following the effective date of the issued IC allocation. The IC allocation system automatically identifies which IC allocations need to be revalidated and notifies the Focal Points for action. An IC allocation that has not been revalidated may be withdrawn from the allocation plan if it is no longer in use (see Section 2.5).

Note: The effective date of an IC allocation is either the end date of the MICA cycle (see Section 4) or the end date of the Ad-Hoc allocation process (see Section 5). The effective date of an IC allocation is indicated on the MICA website and will be part of any exported IC Allocation file from the website.

[2] https://extranet.eurocontrol.int/http://was.eurocontrol.int/elsh/registerNewUserForApplication.do?eurocontrolresourceid=circa

2.3 Mode S Operator Responsibilities

Mode S Operators **should** be registered on the MICA website. Prior to this registration, they **shall** self-register on the EUROCONTROL OneSkyOnline portal[3] and send a request to their responsible Focal Point to enable access to the MICA website.

Mode S Operators **shall** only operate an eligible Mode S interrogator, using an eligible IC and coverage map if they have received an issued IC allocation, for this purpose, from their responsible Focal Point.

Mode S Operators **shall** ensure that all Mode S interrogators under their responsibility of operation are programmed with the latest issued IC allocation.

Mode S Operators **shall** report to their responsible Focal Point (at least every six months) any update on the installation and operation of eligible Mode S interrogators:

- Any change in the installation planning **shall** be reported.
- Any change in the operational status of the eligible Mode S interrogators **shall** be reported.

Mode S Operators **shall** develop their IC and associated lockout coverage programming procedures, to take into account their own specific arrangements. If Mode S Operators rely on the Mode S interrogator manufacturer to program the Mode S interrogator, they **shall** ensure that the manufacturer has developed programming procedures.

As a minimum, procedures **shall** include the following verification steps, to be completed for each IC allocation programming:

1. Verification of the compliance of programming parameters with the IC allocation data, including:
    - Position of the radar;
    - IC;
    - Lockout range and coverage map.
2. Verification of the validity status of the IC allocation used for programming.
3. Verification of following parameters:
    - Parameters related to II/SI Code Operation;
    - Default parameters to apply when the coverage map is not correctly loaded, if any.
4. When operating in a cluster, verification that the relevant parameters of cluster states are compliant with the IC allocation data.
5. Verification that the programmed data, including following radar chain switch-over and switch-off/switch-on cycles are applied correctly.

The procedure results **shall** be recorded, dated, signed and archived for future reference.

[3] https://extranet.eurocontrol.int/http://was.eurocontrol.int/elsh/registerNewUserForApplication.do?eurocontrolresourceid=circa

2.4 International Organisation Responsibilities

International Organisations **shall** only operate an eligible Mode S interrogator, using an eligible IC and coverage map if they have received an issued IC allocation, for this purpose, from their responsible Focal Point. The Focal Point is the one responsible for the competent State where the fixed Mode S interrogator is installed or planned to be.

International Organisations intending to operate, or operating, an eligible Mode S interrogator, using an eligible IC and coverage map, **shall** comply with all Mode S Operator responsibilities described in this EUROCONTROL Specification.

2.5 MICA Cell Responsibilities

The MICA Cell **shall** maintain the interrogator code allocation plan.

The MICA Cell **shall** maintain the MICA website.

The MICA Cell **shall** report to SGEG-MICoG providing the update of the interrogator code allocation plan and any related issues which have been encountered following the allocation and use of IC.

The MICA Cell **shall** inform Focal Points about IC allocations that need to be revalidated (after the 5-year period).

The MICA Cell **shall** coordinate with the responsible Focal Point when an IC allocation has not been revalidated. If it is determined that the IC allocation is no longer in use, it may be withdrawn from the allocation plan.

The MICA Cell **shall** be duly aware of the ***Commission Regulation (EC) No 262/2009*** [RD 4]

The MICA Cell **shall** develop and maintain the ***EUROCONTROL Specification for the use of the Centralised Mode S Interrogator Code Allocation Service*** document (the current document).

The MICA Cell **shall** develop and maintain complementary guidance material on the operation of the centralised Mode S interrogator code allocation service[4].

2.6 IC Allocation Coordinated Area

For the EUR region, the MICA Cell manages the Mode S IC Allocation coordination on behalf of the European regional office of ICAO.

The MICA Cell is also supporting the Middle East regional office in the coordination and allocation of Mode S ICs for the ICAO Middle East Region.

The list of countries where the Mode S IC Allocation coordination is managed or supported by the MICA Cell can be downloaded from the MICA website (MICA – List of Coordinated Countries.doc). This list provides the status at a given date and may be subject to modification.

Where a potential overlap exists between the coverage of an eligible Mode S interrogator located within the area of responsibility of a competent State whose IC allocation is carried out through the MICA Cell and the coverage of a Mode S interrogator located within the area of responsibility of a third country which is not in the list of coordinated countries, provided that the Focal Point has communicated a point of contact for the third country to the MICA Cell, the MICA Cell **shall**:

a. inform the third country of the safety requirements related to the allocation and use of interrogator codes;

[4] To be made available Q3 2013

b. coordinate the use of ICs with that third country

3. IC Application Procedures

3.1 Mode S Operator Responsibilities

Civil or military Mode S Operators intending to operate, or operating, an eligible Mode S interrogator for which no IC has been allocated, **shall** submit an IC application to the responsible Focal Point, including the following key items, as a minimum:

- A unique application reference from the competent State;
- Full details of the Mode S Operator point of contact for Mode S IC allocation matters;
- Mode S interrogator name;
- Mode S interrogator use (operational or test);
- Mode S interrogator position using the World Geodetic System 1984 (WGS 84) reference (Latitude and Longitude in degree, minute, seconds format);
    - If the Mode S interrogator position is sensitive information (e.g. military interrogators), that position may be accurate to the minute.
- Antenna centre height above ground and ground altitude above mean sea level;
- Rotation period;
- Mode S interrogator manufacturer and model;
- Planned date of first Mode S transmission;
- Planned date of end of transmission in case of temporary allocation;
- Ad-Hoc allocation process requested;
    - The Operator **shall** justify why the IC application is to follow the Ad-Hoc allocation process. No justification is required if the IC application is for a TRD Mode S interrogator.
- Requested Mode S coverage;
    - expressed as a range (in NM) per sector
- Specific operational requirements;
- SI code capability;
- “II/SI code operation” capability;
- EMS Map ICD coverage map capability.
- Mode S interrogator operating in cluster or not.
    - second IC requested or not in case of cluster

Note: Fixed operational interrogators are normally allocated a single IC, unless they are operated in a cluster. In that case, a second IC may be allocated to the cluster for fallback modes of operation, and to test and integrate new clustered interrogators.

Mode S Operators **shall** either submit an IC application by using the MICA website or through the responsible Focal Point.

Note: An IC application form has been developed for this purpose and can be downloaded from the MICA website or from the EUROCONTROL MICA webpage.

When an IC application is submitted using the MICA website, an automatic notification e-mail is sent to inform the responsible Focal Point(s) and the MICA Cell.

Mode S Operators **shall** inform their Focal Point of any changes in the installation or planning of eligible Mode S interrogators as soon as possible and at least every six months. IC applications which have not yet been processed **shall** also be updated to reflect those changes.

Note: The planned date of first Mode S transmission provided in an IC application will determine when the IC application will be processed by the MICA Cell. Therefore, once the planned date of first Mode S transmission changes and the IC application has not been processed, it is important to update this date information in the IC application.

3.2 Focal Point Responsibilities

Focal Points **shall** check the validity of IC applications received from Mode S Operators, before they are submitted to the Mode S IC allocation system. The validity check shall include the key items listed in Section 3.1. That validity check depends on the way the IC application has been submitted by the Mode S Operator:

- If the IC application has been directly submitted on the MICA website, the Focal Point is informed by a notification e-mail sent by the MICA website. The Focal Point **shall** then use the MICA website to review and acknowledge this IC application.

  Upon acknowledgement, an automatic notification e-mail is sent by the MICA website to inform the IC application creator, the responsible Focal Point(s) and the MICA Cell.

- If the Focal Point has received from a Mode S Operator an IC application which has not been submitted on the MICA website, the Focal Points **shall** review and submit this IC application on the MICA website.

  Upon submission, an automatic notification e-mail is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

- In the event of MICA website service unavailability for Focal Point IC Allocation submission:

  1. The Focal Point **may** submit the IC application by e-mail to the MICA Cell accompanied by the appropriate form which has been developed for that purpose (the IC application form can be downloaded from the MICA website or from the EUROCONTROL MICA webpage). In this case the Focal Point **shall** add full details about the Focal Point who is responsible for the coordination of the Mode S IC Allocation.

  2. Once the MICA Cell has submitted the IC application on the MICA website, the Focal Point **shall** review and acknowledge this IC application using the MICA website when service availability is resumed.

     Upon acknowledgement, an automatic notification e-mail is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

Focal Point **shall** submit and acknowledge IC applications on the MICA website before the requirement freeze date of the MICA cycle preceding the Mode S interrogator planned date of first Mode S transmission.

Note: Key MICA cycle dates are available on the MICA website.

IC applications requesting the Ad-Hoc allocation process (see Section 5) **shall** be submitted and acknowledged on the MICA website by the responsible Focal Point before being processed. IC applications may be processed in Ad-Hoc once issued IC allocations of the current cycle are published.

Focal Points **shall** report to the MICA Cell any change in the installation planning of eligible Mode S interrogators received from Mode S Operators. IC applications which have not yet been processed **shall** be updated to reflect those changes.

3.3 MICA Cell Responsibilities

The MICA Cell **shall** validate IC applications on the MICA website in terms of their compliance with the format and data conventions, and for completeness, accuracy and timeliness.

- If the IC application cannot be validated (e.g. errors), the MICA Cell shall contact the responsible Focal Point for corrective actions.
- Validated IC applications **shall** be integrated into the system by the MICA Cell.

  Upon integration, an automatic notification e-mail is sent by the MICA website to inform the IC application creator, the responsible Focal Point(s) and the MICA Cell.

If an IC application is provided by a Focal Point to the MICA Cell by e-mail:

1. The MICA Cell **shall** submit this IC application on the MICA website.

   Upon submission, an automatic notification e-mail is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell that a new IC application has been created.
2. Once the Focal Point has acknowledged the IC application on the MICA website, the MICA Cell **shall** integrate this IC application. The IC application is then ready to be processed.

   Upon integration, an automatic notification e-mail is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

The MICA Cell **shall** process submitted IC applications within the adequate MICA cycle on the basis of their planned date of first Mode S transmission (except for IC applications that follow the Ad-Hoc process).

4. Mode S IC Allocation Cycle

The IC allocation cycle is the standard procedure for processing IC applications and to issue corresponding IC allocations. An IC application is submitted to request an allocation for a new eligible Mode S interrogator or to request an update of an existing IC allocation.

There are only two Mode S IC allocation process cycles per year (at 168 days intervals). Each cycle is composed of 4 periods and foresees a contingency of 14 days.

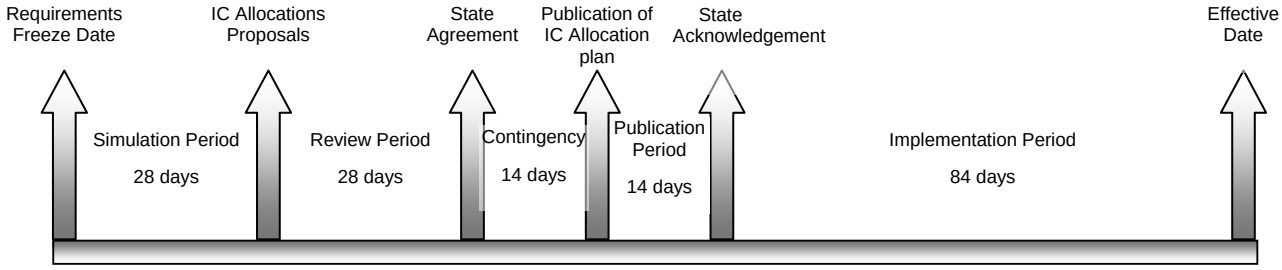


Figure 1: Mode S IC Allocation cycle (MICA cycle)

A flowchart describing the MICA cycle is provided in ANNEX A.

4.1 Simulation Period

The simulation period of the MICA cycle lasts 28 days. During this period, the MICA Cell performs interrogator code allocation plan update simulations and prepares a proposed update of the interrogator code allocation plan. This proposed update is to be approved during the subsequent review period.

4.1.1 Mode S Operator Responsibilities

This period does not apply to Mode S Operators.

4.1.2 Focal Point Responsibilities

This period does not apply to Focal Points.

4.1.3 MICA Cell Responsibilities

During the simulation period of a Mode S IC Allocation Cycle, the MICA Cell **shall**:

- perform interrogator code allocation plan update simulations on the basis of the pending IC applications
- prepare a proposed update of the interrogator code allocation plan for approval by the Focal Points representing the competent States that are affected by it

At the end of the 28-day simulation period, the MICA Cell **shall** create IC allocation proposals covering:

- pending IC applications for new Mode S interrogators,
- pending IC applications to modify the IC allocation of existing Mode S interrogators,

- changes to existing IC allocations impacted by the proposed interrogator code allocation plan update[5].

Upon creation of the IC allocation proposals, an automatic e-mail notification is sent by the MICA website to inform all Focal Points and the MICA Cell. This notification contains the list of all IC allocation proposals that constitute the proposed interrogator code allocation plan update.

The proposed update of the interrogator code allocation plan **shall** be free of IC conflict.

The IC allocations proposed by MICA Cell **shall** to the greatest extent meet the following operational requirements of the IC applications:

- Mode S interrogator planned date of first Mode S transmission
- Requested Mode S coverage
- Any specific operational requirements

IC allocation proposals **shall** be available online on the MICA website where they can be accessed by all Focal Points for review.

4.2 Review Period

The review period of the MICA cycle lasts 28 days. During this period, the Focal Points review the IC allocation proposals that constitute the proposed interrogator code allocation plan update. An acknowledgement is required from the Focal Points representing competent States that are affected by the proposed interrogator code allocation plan.

4.2.1 Mode S Operator Responsibilities

Mode S operator may access the MICA website to consult the status of the IC allocations proposed for the Mode S interrogators that they operate or plan to operate.

Mode S operators shall not program IC allocation proposals in Mode S interrogators.

4.2.2 Focal Point Responsibilities

The proposed updated interrogator code allocation plan **shall** be subject to the approval, through their Focal Point, by all competent States that are affected by the update of the plan.

Focal Points **should** check the suitability of the proposed IC allocations with the responsible Mode S Operators for the Mode S interrogators installed or planned to be installed in the State under their responsibility.

Focal Points **shall** use the MICA website to accept or reject IC allocation proposals for planned or existing Mode S interrogators within the State under their responsibility before the end of the review period. Once an IC allocation proposal is accepted or rejected, its status is updated on the MICA website and an automatic e-mail notification is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

In the event of MICA website service unavailability, the Focal Point **shall** contact the MICA Cell by e-mail to indicate acceptance or rejection of the proposed IC allocations.

If an IC allocation proposal is rejected by a Focal Point, this **shall** be duly justified.

[5] It may be necessary to change existing IC allocations in order to accommodate the IC applications.

4.2.3 MICA Cell Responsibilities

If any of the proposed IC allocations are rejected within the first 14 days of the review period, the MICA Cell **shall** prepare a new proposed IC allocation plan update.

Note: If any IC allocation proposal is rejected after the initial 14 days of the review period, the MICA Cell will attempt to provide a new IC allocation proposal which is acceptable. As a measure of last resort, the MICA Cell will cancel an unacceptable IC allocation proposal and the corresponding IC application will be re-processed in the next MICA cycle.

If a Focal Point contacts the MICA Cell by e-mail to accept or reject the IC allocation proposals, the MICA Cell **shall** use the MICA website on behalf of the Focal Point to submit the acceptance or rejection of these IC allocation proposals. Once an IC allocation proposal is accepted or rejected, its status is updated on the MICA website and an automatic e-mail notification is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

4.3 Publication Period

The publication period of the MICA cycle lasts 14 days. On the first day of the publication period, the MICA Cell updates the interrogator code allocation plan and communicates it to all Focal Points. All IC allocation proposals which have not been rejected are issued on the MICA website.

An automatic e-mail notification containing the list of all issued IC allocations is sent by the MICA website to inform all Focal Points and the MICA Cell. An automatic e-mail notification is also sent by the MICA website to the Mode S Operators if IC allocations are issued for the Mode S interrogators they operate.

4.3.1 Mode S Operator Responsibilities

Mode S operator may access the MICA website to consult or export the IC allocations issued for the Mode S interrogators that they operate or plan to operate.

Mode S operators shall not program issued IC allocations in Mode S interrogators during the publication period.

4.3.2 Focal Point Responsibilities

Within the 14 days of reception of the updated interrogator code allocation plan, Focal Points **shall**:

- Communicate issued IC allocations covering pending IC applications as well as changes to existing IC allocations impacted by the update of the interrogator code allocation plan to the relevant Mode S Operators under their responsibility;
- Provide the implementation sequence to all impacted Mode S Operators;

  Note: IC allocation programming may need to be carefully sequenced in order to avoid temporary IC conflicts.
- Acknowledge issued IC allocations under their responsibility by using the MICA website;

  Upon acknowledgement, an automatic e-mail notification is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

In the event of MICA website service unavailability, the Focal Point **shall** contact the MICA Cell by e-mail to submit the acknowledgement.

4.3.3 MICA Cell Responsibilities

On the fist day of the publication period, the MICA Cell **shall**:

- Update and communicate to all Focal Points the interrogator code allocation plan which has been approved, without prejudice to national procedures for the communication of information on Mode S interrogators operated by military
- Provide the implementation sequence to all Focal Points

If a Focal Point contacts the MICA Cell by e-mail to acknowledge issued IC allocations, the MICA Cell **shall** acknowledge these issued IC allocations on behalf of the Focal Point on the MICA website. Upon acknowledgement, an automatic notification e-mail is sent by the MICA website to inform the responsible Focal Point(s) and the MICA Cell.

4.4 Implementation Period

The implementation period of the MICA cycle lasts 84 days. The end date of this period is also the end date of the MICA cycle and the MICA cycle effective date.

All changes to existing IC allocations issued during the Mode S IC allocation cycle must be programmed in Mode S interrogators before the end of the implementation period.

IC allocations issued for new Mode S interrogators should be programmed conforming as much as possible to the planned date of first Mode S transmission provided in the IC application.

The programming of IC allocations which are covered by the implementation sequence must be coordinated as described in the implementation sequence. An example of the implementation sequence diagram is provided in ANNEX B.

4.4.1 Mode S Operator Responsibilities

When programming a Mode S interrogator, Mode S Operators **shall** comply with:

- The allocated IC provided in the issued IC allocation;
- The surveillance and lockout coverage provided in the issued IC allocation;
- The implementation sequence document and coordinate IC Allocation programming with other Mode S Operators if necessary;

Prior to programming an issued IC allocation in a Mode S interrogator, the Mode S Operator **shall** perform the following verification steps:

1. verify if the issued IC allocation is identified in the implementation sequence document
    a. If the IC allocation is not identified in the implementation sequence, then no coordination with other Mode S Operators is required.

       The Mode S Operator may proceed to program the IC allocation in the Mode S interrogator and skip the below steps 2 and 3.
    b. If the IC allocation is identified in the implementation sequence, then coordination with other Mode S Operators may be required.

       Step 2 **shall** be performed.
2. verify the position of the issued IC allocation in the implementation sequence

a. If the IC allocation is at the beginning of the implementation sequence, the programming of this IC allocation does not depend on any other IC allocation programming.

   The Mode S Operator **should** proceed to program the IC allocation in the Mode S interrogator as soon as possible.

b. If the IC allocation is not at the beginning of the implementation sequence, there is a dependency on the programming of other Mode S interrogators which precede it in the implementation sequence.

   Step 3 **shall** be performed.

3. verify on the MICA website if all preceding IC allocations in the implementation sequence for other Modes S interrogators have been programmed

   a. If all preceding IC allocations in the implementation sequence are confirmed on the MICA website as being implemented, the Mode S Operator **should** program the IC allocation in the Mode S interrogator as soon as possible in case of changes to existing IC allocations.

   b. If any of the preceding IC allocations in the implementation sequence are not confirmed on the MICA website as being implemented, the Mode S Operator **shall** wait before programming the IC allocation.

Mode S Operators **shall** implement all changes to existing IC allocations before the end of the implementation period.

Once an issued IC allocation has been programmed, the responsible Mode S Operator **shall** inform his responsible Focal Point and, if he's registered on the MICA website, **shall** confirm its implementation on the MICA website.

When the implementation of an IC allocation is confirmed on the MICA website, the status of the issued IC allocation is updated on the MICA website and an automatic notification e-mail is sent by the MICA website to inform the responsible Mode S Operator(s), the responsible Focal Point(s) and the MICA Cell that issued IC allocation has been programmed into the respective Mode S interrogator.

This IC allocation implementation confirmation mechanism enables the IC allocation system to provide to all registered users on the MICA website the up-to-date status of the implementation of the interrogator code allocation plan in Mode S interrogators.

Mode S Operators **shall** contact their responsible Focal Point if they encounter problems or difficulties when implementing IC allocations.

4.4.2 Focal Point Responsibilities

Focal Points **shall** ensure that all changes to existing IC allocations are programmed before the end of the implementation period.

When a Focal Point is informed that an IC allocation is programmed, he **shall** verify that the implementation status of that IC allocation is confirmed on the MICA website. If not, the Focal Point **shall** confirm the implementation. Upon confirmation of implementation, the status of the issued IC allocation is updated on the MICA website and an automatic e-mail notification is sent by the MICA website to inform the responsible Mode S Operator(s), the responsible Focal Point(s) and the MICA Cell.

In the event of MICA website service unavailability to confirm the implementation of an issued IC allocation, the Focal Point **shall** contact the MICA Cell by e-mail to confirm the implementation of the issued IC allocation.

4.4.3 MICA Cell Responsibilities

If a Focal Point contacts the MICA Cell by e-mail to confirm the implementation of an issued IC allocation, the MICA Cell **shall** confirm the implementation of the issued IC allocation on behalf of the Focal Point on the MICA website. Upon confirmation of implementation, the status of the issued IC allocation is updated on the MICA website and an automatic e-mail notification is sent by the MICA website to inform the responsible Mode S Operator(s), the responsible Focal Point(s) and the MICA Cell.

5. Ad-hoc Allocation Process

IC applications may be processed on an Ad-Hoc basis, but this process must not impact any existing Mode S IC allocations issued to other Mode S interrogators.

The Ad-Hoc process is suited for IC applications for TRD Mode S interrogators as there is no need to allocate a de-conflicted interrogator code. It is not recommended to apply this process for operational Mode S interrogator IC applications. Indeed, as no change will be made to existing issued IC allocations, the provided allocation may be far more constraining than one provided within a standard MICA cycle (see Section 4).

To avoid any impact on the proposed IC allocation plan update, Ad-Hoc IC applications are only processed after the publication of the issued IC allocations of the current MICA cycle.

The time frame of the Ad-Hoc allocation process in the MICA cycle is provided in the figure below.

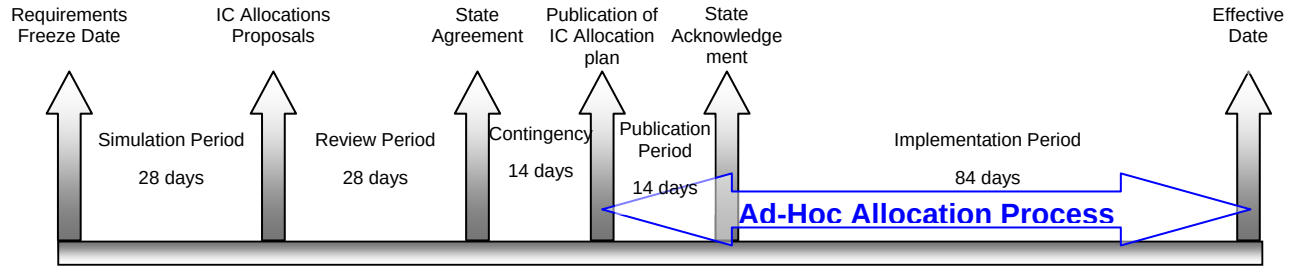


Figure 2: Ad-Hoc Allocation Process Time Frame in MICA Cycle

In general, the Ad-Hoc process is a short process lasting 15 days.

5.1 Simulation Period

During the simulation period of the Ad-Hoc allocation process, the MICA Cell performs interrogator code allocation plan update simulations on the basis of the pending IC applications and prepares a proposed update of the interrogator code allocation plan for approval by the competent States that are affected by it.

As the number of Ad-Hoc IC applications to be processed is usually low and no change to the existing IC allocations is made, the IC allocation proposals are created within a few days.

5.1.1 Mode S Operator Responsibilities

This period does not apply to Mode S Operators.

5.1.2 Focal Point Responsibilities

This period does not apply to Focal Points.

5.1.3 MICA Cell Responsibilities

The responsibilities on the MICA Cell are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.1.3) with the exception of:

- The MICA Cell **shall** issue IC allocation proposals which only cover Ad-Hoc IC applications. No change will be made to existing IC allocations issued for other Mode S interrogators.

- The IC allocations proposed by MICA Cell may not meet the following operational requirements of the IC applications:
    - Mode S interrogator planned date of first Mode S transmission in case the IC application is received at short notice;
    - Requested Mode S coverage;
    - Specific operational requirements;

5.2 Review Period

Contrary to the standard MICA cycle review period of 28 days, the Ad-Hoc process review period is generally limited to 14 days. An acknowledgement is required from the Focal Points representing the competent States that are affected by the proposed interrogator code allocation plan update.

If an IC allocation proposal is rejected, the MICA Cell may prepare an updated IC allocation proposal. Nevertheless, due to the limitations inherent to the Ad-Hoc process, it may not be possible to fulfil all the requirements requested by the Mode S Operator. In such case, the unsuitable IC allocation proposal is withdrawn and the IC application will be processed in the next MICA cycle (see Section 4).

5.2.1 Mode S Operator Responsibilities

Mode S operator may access the MICA website to consult the status of the IC allocations proposed for the Mode S interrogators that they operate or plan to operate.

Mode S operators shall not program IC allocation proposals in Mode S interrogators.

5.2.2 Focal Point Responsibilities

The responsibilities on the Focal Point are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.2.2).

5.2.3 MICA Cell Responsibilities

The responsibilities on the MICA Cell are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.2.3) with the exception of:

- If an IC allocation proposal is rejected, the MICA Cell may prepare an updated IC allocation proposal.

5.3 Publication Period

Once the review period of the Ad-Hoc process is finalised, the MICA Cell updates the interrogator code allocation plan and communicates it to all Focal Points. All IC allocation proposals which have not been rejected are issued on the MICA website. This date of issue becomes the effective date for the IC allocations processed in Ad-Hoc.

Once IC allocations are issued, an automatic e-mail notification is sent by the MICA website to inform all Focal Points and the MICA Cell. This notification contains the list of all issued IC allocations.

No coordination with other Modes S operators is required as there is no change to the existing Mode S allocations issued for other Mode S interrogators.

5.3.1 Mode S Operator Responsibilities

Mode S operator may access the MICA website to consult or export the IC allocations issued for the Mode S interrogators that they operate or plan to operate.

Mode S operators shall not program issued IC allocations in Mode S interrogators during the publication period.

5.3.2 Focal Point Responsibilities

The responsibilities on the Focal Point are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.3.2) with the exception of:

- There is no time limit to communicate issued IC allocations to the relevant Mode S Operators;
- There is no implementation sequence to be provided to the Mode S Operators;

5.3.3 MICA Cell Responsibilities

The responsibilities on the Focal Point are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.3.3) with the exception of:

- There is no implementation sequence to be provided to the Focal Points;

5.4 Implementation Period

IC allocations processed Ad-Hoc can be programmed by the Mode S Operators once they are issued by the MICA Cell.

5.4.1 Mode S Operator Responsibilities

When programming a Mode S interrogator, Mode S Operators **shall** comply with:

- The allocated IC provided in the issued IC allocation;
- The surveillance and lockout coverage provided in the issued IC allocation;

Once an issued IC allocation has been programmed, the responsible Mode S Operator **shall** inform his responsible Focal Point. If he is registered on the MICA website, he **shall** confirm its implementation on the MICA website

When the implementation of an IC allocation is confirmed on the MICA website, the status of the issued IC allocation is updated on the MICA website and an automatic e-mail notification is sent by the MICA website to inform the responsible Mode S Operator(s), the responsible Focal Point(s) and the MICA Cell that the issued IC allocation has been programmed into the respective Mode S interrogator.

This IC allocation implementation confirmation mechanism enables the IC allocation system to provide to all registered users on the MICA website the up-to-date status of the implementation of the interrogator code allocation plan in Mode S interrogators.

Mode S Operators **shall** contact their responsible Focal Point if they encounter problems or difficulties when implementing IC allocations.

5.4.2 Focal Point Responsibilities

The responsibilities on the Focal Point are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.4.2) apart that there is no impacted IC allocation to be considered.

5.4.3 MICA Cell Responsibilities

The responsibilities on the MICA Cell are identical to those detailed within the Mode S IC Allocation Cycle (see Section 4.4.3).

6. IC Conflict Reporting

6.1 Introduction

Operating Mode S interrogators may be impacted by an IC conflict or may be the source of an IC conflict.

An IC conflict is defined as an uncoordinated overlap of lockout coverage of two or more Mode S interrogators operating on the same IC, potentially resulting in aircraft remaining undetected by at least one of the Mode S interrogators.

The Mode S IC allocation system provides a means to report an IC conflict through a reporting mechanism implemented in the MICA website.

6.2 IC Conflict Reporting Procedure

6.2.1 Mode S Operator Responsibilities

When a Mode S Operator identifies a potential IC conflict impacting a Mode S interrogator under his responsibility, he **shall**:

1. Report the potential IC conflict to his representative Focal Point and make available, through the MICA website (if he's registered), any related information for other Mode S Operators.

   Once reported on the MICA website, the system will send an automatic e-mail notification to inform all registered users (MICA Cell, Focal Points and Mode S Operators) that a potential IC conflict has been identified.

2. Report the potential IC conflict accompanied with the related information to the MICA Cell if it has not been possible to report it on the MICA website.

3. Investigate the conflict and coordinate bilaterally with appropriate Mode S Operators to determine the potential cause of conflict. Mode S Operators contact details are provided on the MICA Contact List which is published by the MICA Cell on the MICA website.

4. Advise the MICA Cell, respective Focal Points and relevant Mode S Operators once the potential cause of the conflict has been identified.

5. Advise the MICA Cell, respective Focal Points and appropriate Mode S Operators once the conflict has been resolved.

6.2.2 Focal Point Responsibilities

When a Focal Point is notified by a Mode S Operator of an IC conflict within his area of responsibility, the Focal Point **shall** provide the necessary assistance and advice to achieve an early resolution of the IC conflict.

If the Mode S Operator has not been able to report the conflict on the MICA website, the Focal Point **shall** report the IC conflict on the MICA website with any related information.

The Focal Point **shall** ensure that all appropriate parties that might be affected by the IC conflict are informed:

- Mode S Operator(s) who might be the cause of conflict and responsible Focal Point(s)
- Mode S Operator(s) who might be impacted by the conflict and responsible Focal Point(s)
- MICA Cell

When a Focal Point is notified that a conflict might originate from within his area of responsibility, he **shall** ensure that the relevant Mode S Operator(s) cooperate to identify the cause of the conflict and take the necessary actions in a timely manner.

6.2.3 MICA Cell

If a potential IC conflict accompanied with the related information has been reported to the MICA Cell but has not been reported on the MICA website, the MICA Cell **shall** report it on the MICA website accompanied with any related information provided by the Mode S Operator.

The MICA Cell **should** provide whatever assistance and advice it can to facilitate the dissemination of information and early resolution of the conflict.

7. Resolution of IC Allocation and IC Conflict Issues

7.1 IC Allocation Issues

The Mode S IC allocation process is executed in a constrained environment. Notably, to avoid overlapping coverage with other Mode S interrogators using the same IC, an IC allocation proposed by the MICA Cell may not meet the requested operational requirements of the IC application. As a result the MICA Cell allocation proposal for a Mode S interrogator may contain operational restrictions.

These operational restrictions may not be acceptable to the concerned Focal Point and the IC allocation proposal for the Mode S interrogator can be rejected.

Other proposals may lead to unacceptable operational restrictions on existing IC allocations for other Mode S interrogators. If no other acceptable IC allocation can be proposed, then no IC allocation will be issued at the end of the IC Allocation process for the Mode S interrogator. As a consequence, the update of the interrogator code allocation plan will not contain an IC allocation covering the IC application submitted for the Mode S interrogator.

If no IC allocation has been issued, the MICA Cell will perform the following actions:

1. Re-process the IC application in the next Mode S IC Allocation cycle.
2. Investigate and propose an interim IC allocation to the responsible Focal Point, i.e. a temporary IC allocation that would be valid until a satisfactory IC allocation is issued. This temporary IC allocation may be on a test IC or on an operational IC with operational restrictions. This temporary IC allocation should permit to start the Mode S interrogator installation and test.
3. Attempt to determine IC allocation options in close collaboration with the Focal Point(s) of competent States that could participate in the identification of an acceptable proposal for all parties.

If the above actions are unsuccessful, the IC allocation issue will be tabled at a meeting of the SGEG-MICoG.

However, the Focal Point may disagree with the changes in the interrogator code allocation plan and bring the matter to the appropriate State decision level. EU Members States shall bring the matter to the EC for action as foreseen in Article 5(4) of Commission Regulation (EC) No 262/2009.

7.2 IC Conflict Issues

Operation of Mode S interrogators may be impacted by an IC conflict. This may prevent them to reliably detect incoming traffic, potentially compromising the safety of air navigation. Mode S interrogators impacted by such conflicts may need to apply the appropriate fallback mode of operation to mitigate the IC conflict.

The IC conflict resolution depends on the collaboration between Mode S Operators (see Section 6). In the event of lack of collaboration, the MICA Cell will initiate mediation with the Focal Points of the competent States concerned.

If the above action is unsuccessful, the IC conflict issue will be tabled at a meeting of the SGEG-MICoG.

If the IC conflict remains unresolved, the chairman of SGEG-MICoG **shall** bring the matter to the appropriate states decision making levels of the involved parties.

8. Traceability to Regulatory Provisions

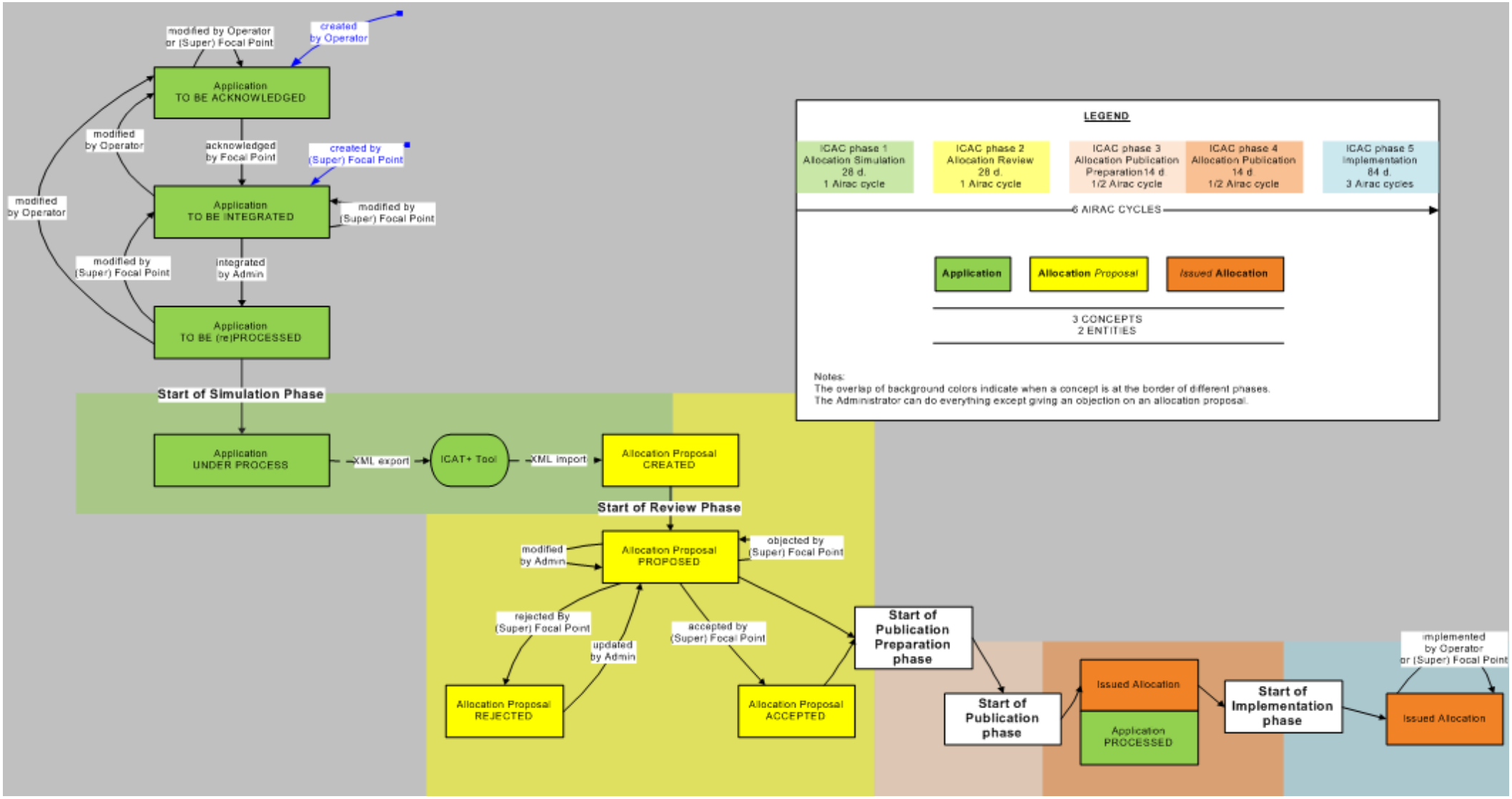
The first column references the regulatory provisions of Commission Regulation (EC) No 262/2009. The second column indicates the specific Sections of the EUROCONTROL Specification addressing the regulatory provisions. The third column provides the level of compliance of the requirements in this specification with regard to the provisions of Commission Regulation (EC) No 262/2009.

Commission Regulation (EC) No 262/2009 Specific Regulatory Provisions	MICA EUROCONTROL Specification Specification Reference	Level of Compliance
Article 1, Req. 1	Whole document	
Article 1, Req. 2	Not covered by this document.	N/A
Article 2	Some definitions of EC No 262/2009 are re-used in this document	N/A
Article 3	Not covered by this document.	N/A
Article 4, Req. 1	Section 2.3	Full
Article 4, Req. 2	Section 3.1	Full
Article 4, Req. 3	Section 4.4.1 and Section 5.4.1	Full
Article 4, Req. 4	Section 2.3, Section 3.1, Section 4.4.1 and Section 5.4.1	Full
Article 4, Req. 5	Section 2.3, Section 4.4.1 and Section 5.4.1	Full
Article 5, Req. 1.	Section 3.2	Full
Article 5, Req. 2. (a) Article 5, Req. 2. (b)	Section 3.3	Full
Article 5, Req. 2. (c). (i) Article 5, Req. 2. (c). (ii) Article 5, Req. 2. (c). (iii)	Section 4.1.3 and Section 5.1.3	Full
Article 5, Req. 2. (c). (iv)	Section 4.3.3 and Section 5.3.3	Full
Article 5, Req. 3	Section 4.2.2 and Section 5.2.2	Full
Article 5, Req. 4	Section 7.1	Full
Article 5, Req. 5	Section 4.2.2 and Section 5.2.2	Full
Article 5, Req. 6	Section 4.3.2 and Section 5.3.2	Full
Article 5, Req. 7	Section 2.2, Section 2.5, Section 4.4.1 and Section 5.4.1	Full
Article 5, Req. 8	Section 2.1 and Section 2.6	Full
Article 6	Not covered by this document.	N/A
Article 7, Req. 1 and Req. 2	Not covered by this document	N/A

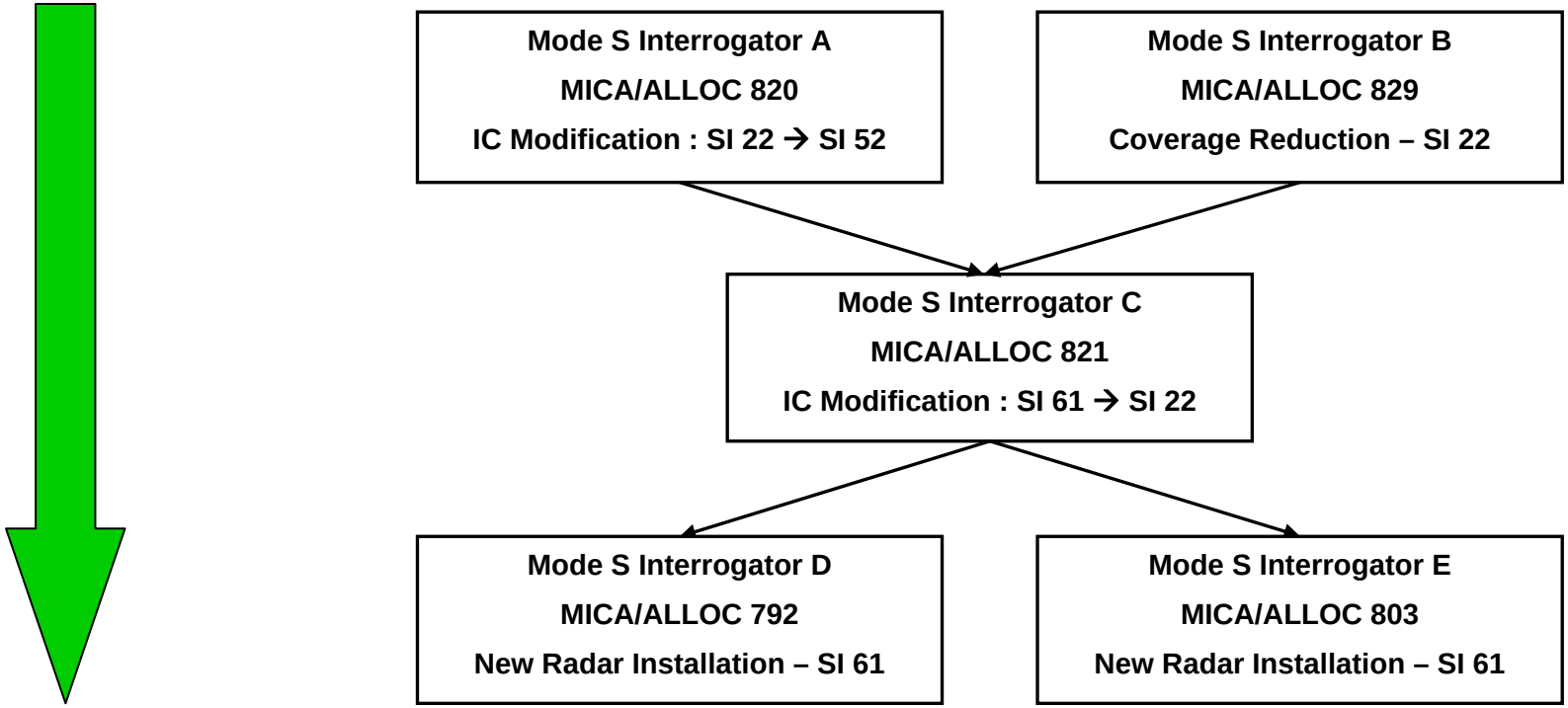
Article 7, Req. 3	Section 6.2.1	Full
Article 8	Not covered by this document.	N/A
Article 9	Not covered by this document.	N/A
Article 10	Not covered by this document.	N/A
Article 11	Not covered by this document.	N/A
Article 12, Req. 1 and Req. 2	Not covered by this document.	N/A
Article 12, Req. 3 and Req. 4	Section 1.3 and Section 2.5	Partial
Article 13	Not covered by this document.	N/A

Table 1: Traceability to Regulatory Provisions

ANNEX A – Mode S IC Allocation Cycle Flow



ANNEX B – Implementation Sequence Diagram



In the Implementation Sequence Diagram provided above, the sequence of Mode S radar programming is the following:

1. The IC programmed in **Mode S Interrogator A** has to be changed from SI 22 to SI 52 conforming to MICA/ALLOC 820.

   The coverage programmed in **Mode S Interrogator B** on SI 22 has to be modified conforming to MICA/ALLOC 829.

   As these 2 IC allocations are at the beginning of the implementation sequence diagram, the programming of these IC allocations does not depend on the programming of any IC allocation.

   MICA/ALLOC 820 and MICA/ALLOC 829 must be programmed before the end of the Implementation Period of MICA Cycle.

2. As MICA/ALLOC 821 is not at the beginning of the implementation sequence, the programming of this IC allocation depends on the programming of the IC allocations which precede it in the implementation sequence: MICA/ALLOC 820 and MICA/ALLOC 829.

   Once step 1 above is done, the IC programmed in **Mode S Interrogator C** has to be changed from SI 61 to SI 22 conforming to MICA/ALLOC 821.

   MICA/ALLOC 821 must be programmed before the end of the Implementation Period of MICA Cycle.

3. As MICA/ALLOC 792 and MICA/ALLOC 803 are not at the beginning of the implementation sequence, the programming of these IC allocations depends on the programming of the IC allocation which precedes them in the implementation sequence: MICA/ALLOC 821.

   Once step 2 above is done, **Mode S Interrogator D** can be programmed on SI 61 conforming to MICA/ALLOC 792 and **Mode S Interrogator E** can be programmed on SI 61 conforming to MICA/ALLOC 803.

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