Mode S Interrogator Code Allocation (MICA) Process

Surveillance/MICA Workshop

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Centralised Mode S IC Allocation Service

- Due to the limited number of Interrogator Codes (IC), it is necessary to have a centralised Mode S IC allocation system to coordinate the allocation of IC and radar coverage to fixed Mode S radar, civil and military, in the ICAO EUR region and the ICAO MID region.

- The MICA Cell:
  - operates the centralised Mode S IC allocation system
  - provides the centralised Mode S IC allocation service.

- An IC allocation grants a Mode S radar to operate
  - on a given IC
  - within a given coverage (surveillance and lockout coverage).

- No IC allocation to
  - mobile Mode S radars (II Code 0)
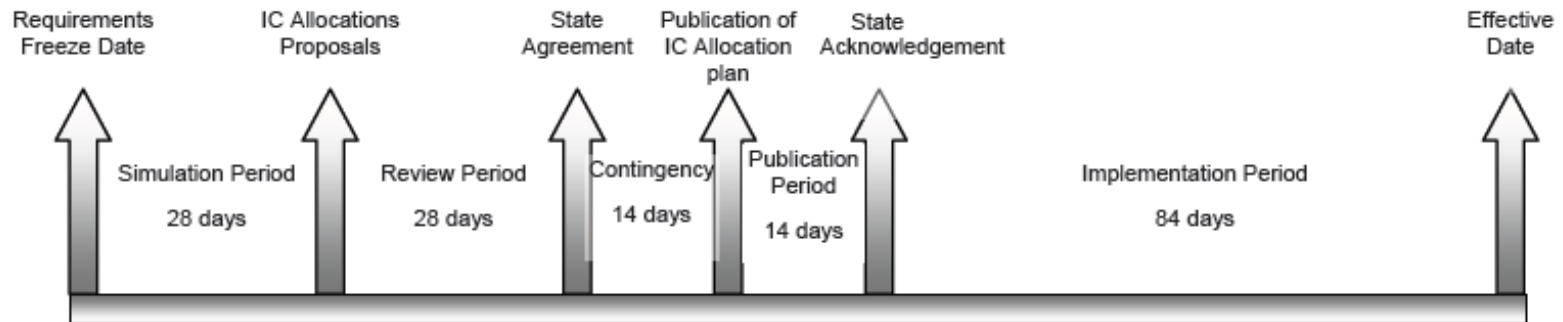 - WAM/MLAT (however operation on II<>0 for monitoring)

Users of Mode S IC Allocation Service

- Mode S Operator: a person, organisation or enterprise operating or offering to operate a Mode S radar, including:
    - Air navigation service providers;
    - Mode S interrogators manufacturers;
    - Airport operators;
    - Military authorities;
- 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.
- Super Focal Point: coordinate the IC allocation in the ICAO MID region
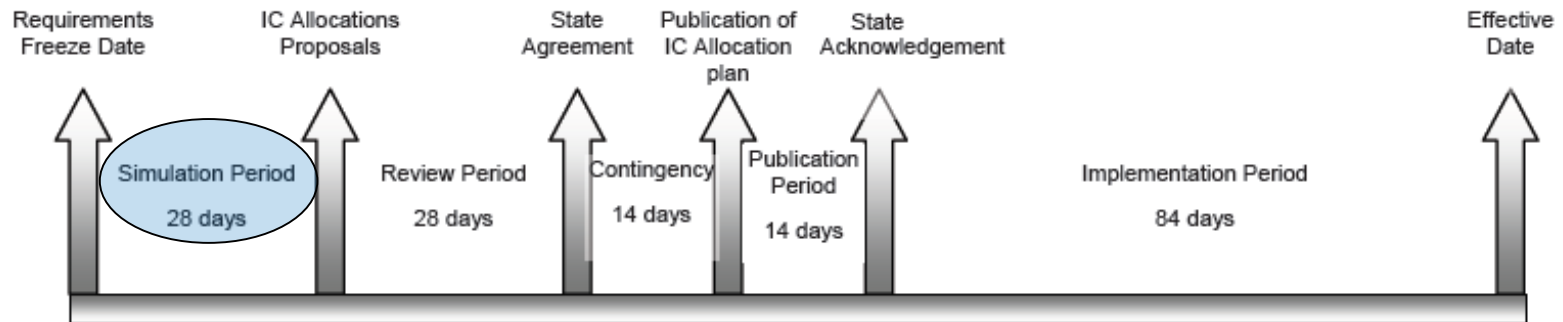
Interrogator Code Request

- Civil or military **Mode S Operators** intending to operate, or operating, an Mode S radar for which no IC has been allocated, have to submit an IC application before starting Mode S transmission.

- The **Focal Points** have to check the validity of IC applications received from Mode S Operators.

- The **MICA Cell** has to process submitted IC applications within the adequate MICA Cycle on the basis of the planned date of first Mode S transmission, or Ad-Hoc.

- IC applications should be submitted on the MICA website by the Mode S Operators/Focal Points.

- It is recommended to submit IC applications one year before the planned date of first Mode S radar transmission.
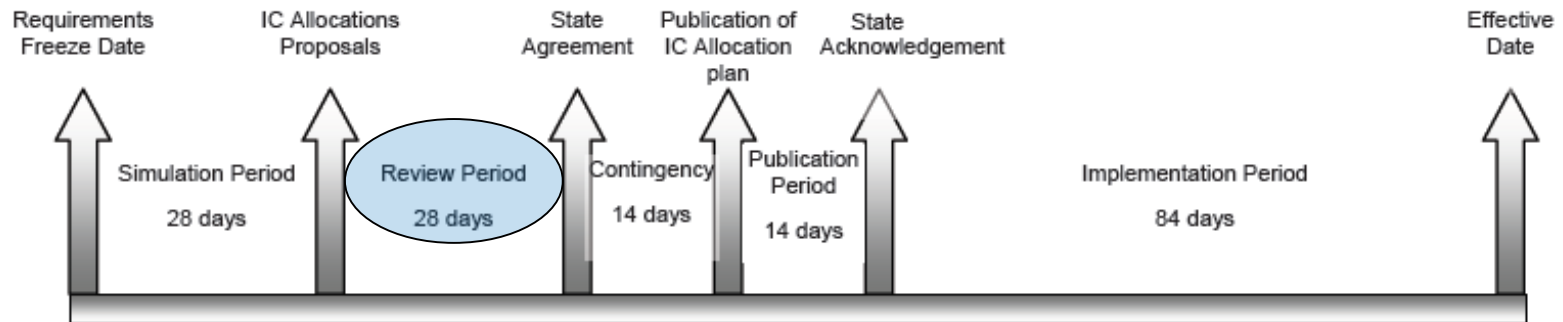
MICA Cycle

- ~2 MICA Cycles per year (MICA Cycle = 168 days)
- By default, IC applications are processed during a MICA Cycle
  - For urgent requests → Ad-Hoc process
- During a MICA Cycle, existing IC allocations may be modified to provide an IC allocation to new Mode S radars.
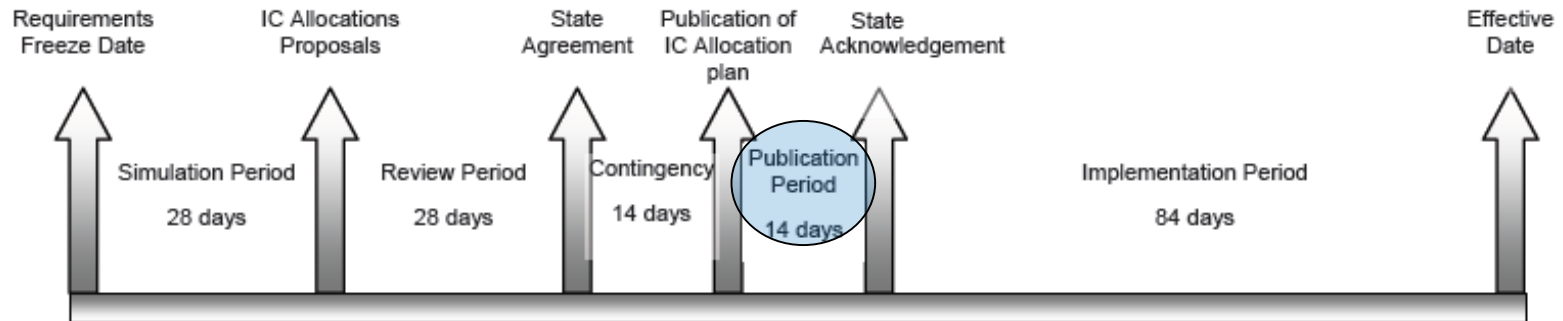
MICA Cycle – Simulation Period

- **MICA Cell** performs interrogator code allocation plan update simulations and prepares a proposed update of the interrogator code allocation plan.

- IC allocation proposals are created on the MICA website covering:
  - pending IC applications
  - changes to existing IC allocations impacted by the proposed interrogator code allocation plan update

- Proposed Implementation Sequence is provided if required
  - It identifies which IC allocation programming need to be coordinated and the order in which these IC allocations have to be programmed.

MICA Cycle – Review Period

- The **Focal Points** have 28 days to review the IC allocation proposals with the responsible Mode S Operators

- The **Focal Points** have to accept or reject IC allocation proposals for Mode S radars within the State under their responsibility before the end of the review period on the MICA website

  - For IC allocation proposals rejected within the first 14 days, the MICA Cell will propose a new IC allocation proposal

  - For IC allocation proposals rejected later in the review period, the MICA Cell will try to find a solution

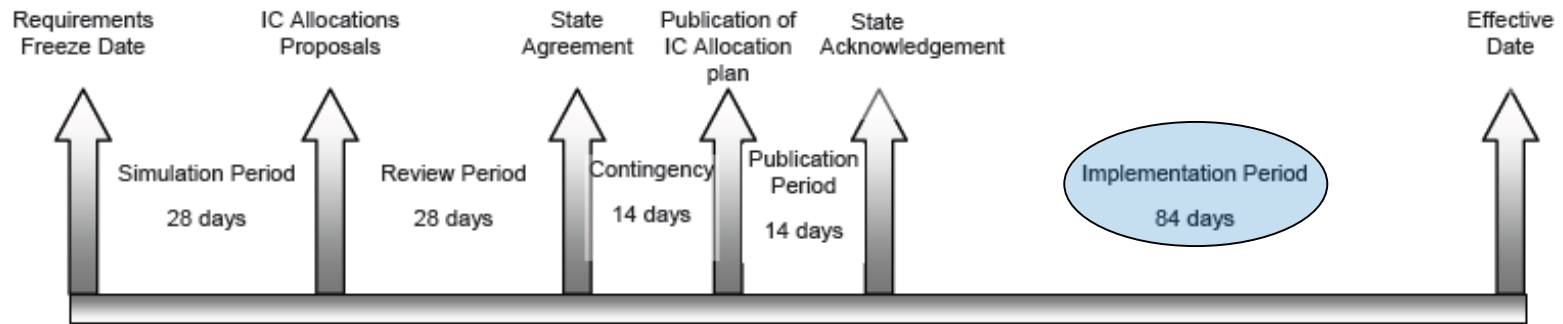- The Focal Points can raise an objection for other allocation proposal

MICA Cycle – Publication Period

- The IC allocation proposals which have been accepted are issued.

- Implementation sequence diagram is provided if required

- The **Focal Points** have to:
  - Communicate issued IC allocations covering pending IC applications as well as changes to existing IC allocations to the relevant Mode S Operators under their responsibility;
  - Provide the implementation sequence if required;

- The **Mode S Operators** may access the MICA website to consult or export the IC allocations issued for their Mode S interrogators.
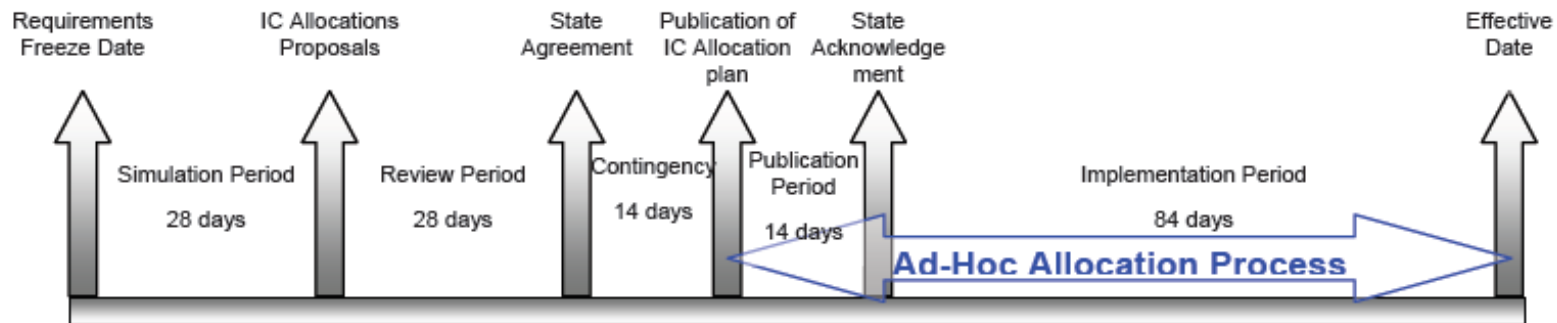
MICA Cycle – Implementation Period

- The **Mode S Operators** have to implement all changes to existing IC allocations before the end of the implementation period.
- IC allocations issued for new Mode S radar should be programmed conforming to the planned date of first Mode S transmission provided in the IC application.

MICA Cycle – IC allocation programming

- When programming a Mode S radar, **Mode S Operators** have to 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 diagram and coordinate IC allocation programming with other Mode S Operators if necessary;
- Once an issued IC allocation has been programmed, the **Mode S Operator** has to inform his responsible **Focal Point**
- Once programmed, the implementation of an issued IC allocation shall be confirmed on the MICA website.

Process IC applications in Ad-Hoc (1)

- IC applications may be processed on an Ad-Hoc basis, but this process must not impact any existing Mode S IC allocation issued to other Mode S radar.
  - Short process, typically 15 days
  - Not recommended for operational Mode S radar IC applications. As no change is made to existing issued IC allocations, the allocation processed in Ad-Hoc may be more constraining than one provided within a standard MICA Cycle.

Process IC applications in Ad-Hoc (2)

- Simulation period
  - Very short in time as existing IC allocations are not impacted
  - IC allocations are proposed at the end of the simulation period
- Review Period:
  - generally limited to 14 days.
  - Focal Points have to accept or reject IC allocations proposals
- IC allocations are issued at the end of the review period
  - No coordination is required with other Mode S operators as there is no change to the existing Mode S allocations
- IC allocations processed Ad-Hoc can be programmed by the Mode S Operators once they are issued by the MICA Cell.

Mode S IC Allocation Flow