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Creation of the SASI CBA

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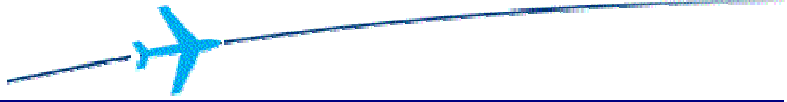
CONTENTS

CHAPTER 1 FOREWORD	7
CHAPTER 2 LEGISLATIVE ASPECTS	9
2.1 Single European Sky	10
2.2 EC FUA Regulation.....	10
2.3 Safety assessment.....	10
CHAPTER 3 AIRSPACE DESIGN	13
3.1 SASI CBA	14
3.1.1 Buffers.....	14
3.1.2 Vertical limits.....	15
3.1.3 Publication.....	15
3.2 Maps	16
CHAPTER 4 PROCEDURES	18
4.1 FUA Level 1	18
4.1.1 Allocation Planning Principles.....	19
4.1.1.1 Planned usage of the CBA's.....	19
4.1.1.2 Other Operations.....	19
4.1.2 CBA Operations by other actors	19
4.2 FUA Level 2 Operations	20
4.2.1 Lead – AMC	20
4.2.2 AMC – AMC Pre - Tactical Allocation Procedures.....	20
4.2.3 AMC – ANSP Pre – Tactical Coordination.....	21
4.2.4 MIL - MIL Pre – Tactical Coordination	21
4.3 FUA Level 3 Operations	21
4.3.1 AMC Responsibilities	22
4.3.2 MIL Responsibilities	22
4.3.3 ANSP Responsibilities	23
4.3.4 Non – participating Traffic.....	23
4.3.5 FPL Requirements-participating aircraft	23
4.3.6 Transit to/from CBA – Areas	23
4.4 Use of SSR - transponder.....	24
4.5 Airspace usage within the CBA – Area.....	24
4.6 Reservation De – Activation	24
4.6.1 AMC Responsibilities	25
4.6.2 MIL Responsibilities	25
4.7 Release of Airspace.....	25
4.8 Other Issues.....	25
4.8.1 Contingency Procedures.....	25
4.8.2 Data Archiving and ASM – Statistics	25
4.8.2.1 Data archiving principles.....	25
4.8.2.2 Statistics.....	26
4.8.3 Occurrence and Incident Investigation	26
4.8.4 Search and Rescue	26
4.9 Changes to Procedures or Airspace.....	26
4.10 Minimum ATS – facilities	26



Annex 1 State Framework Agreement.....	28
Annex 2 CAA-CAA Agreement	28
Annex 3 ANSP-ANSP LoA s.....	28
Annex 4 Mil-MIL LoAs.....	28

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CHAPTER 1 FOREWORD

The SASI Cross – Border Area (CBA) project between LICUA and GALOG States was officially launched in October 2006. The project has involved all the relevant stakeholders (regulators, service providers and air forces) of both participating states. Additionally, ministry level coordination between the states has taken place in order to develop high level framework agreements enabling cross – border operations (CBO).

The draft SASI CBA is planned to be implemented on 1st August 2010 through entry in force of the relevant Letters of Agreement and a coordinated publication of the area by the national AIS – departments. A more detailed description of the area is included here with.

This concept document describes the processes involved in the reservation, allocation and operational use of the CBA – areas. Further details regarding these arrangements and processes will be laid down in the respective Letters of Agreement.



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CHAPTER 2 LEGISLATIVE ASPECTS



2.1 *Single European Sky*

Whilst the Single European Sky initiative in general and the EC regulation 549/2004 (and the associated Airspace and FUA regulations) specifically do not extend to issues regarding military operations and national sovereignty, they do however facilitate the implementation of cross – border airspace structures and harmonization of FUA – procedures.

EC regulation No 551/2004 of the European Parliament and of the Council on the organisation and use of the airspace in the Single European Sky states that: “...Member States shall ensure the uniform application within the Single European Sky of the concept of the flexible use of airspace as described by the ICAO and as developed by Eurocontrol.” During the planning process of the cross – border operations it has become evident that the application of the FUA – concept differs significantly between LICUA and GALOG States. This CONOPS – document and the supporting Letters of Agreement define a common application of the FUA – concept in the area of common interest with regard to the cross – border operations. This will also ensure that the cross – border operations conform to the requirements of EC regulation 2150/2005 concerning joint use of common airspace.

2.2 *EC FUA Regulation*

FUA REGULATION (EC) 2150/2005 requires that the parties involved in cross – border activities:

“Article 3

Principles

...(d) *Member States shall develop cooperation for the efficient and consistent application of the concept of flexible use of airspace across national borders and/or the boundaries of flight information regions, and shall in particular address cross-border activities; this cooperation shall cover all relevant **legal, operational and technical issues**”*

This operational concept document aims to provide an outline of the required operational and technical procedures and requirements for the safe and harmonized implementation and use of cross – border airspace structures. The legal aspects of cross – border activities are agreed on a State level framework agreement and coordinated and monitored by the respective National high – Level Airspace Policy bodies in accordance with the national airspace charters.

2.3 *Safety assessment*

Differences in the current application of the flexible use of airspace concept in LICUA and GALOG have been identified during the planning process of the SASI CBA implementation. Due to the nature of the CBA – operations it is imperative that both countries apply the same set of rules and procedures in a uniform manner. Therefore



a joint safety assessment will be conducted by the participating service providers. The SASI CBA – related operations will be harmonized according to the findings of the safety assessment to ensure the safety of both the SASI CBA – operations and the impact of the SASI CBA – implementation on other components of the ATM – infrastructure. The scope of the safety assessment shall be limited to the boundary of the SASI CBA (including transit procedures to/from the area). Safety assessments regarding operations within the SASI CBA shall be conducted as required by the respective appropriate bodies under supervision of NSA’s regulating military flight operations. The SASI CBA safety assessment will be conducted according to the requirements set in *Eurocontrol Safety Regulatory Requirement (ESARR) 4: Risk assessment and Mitigation in ATM* and will be submitted to the respective LICUA and GALOG regulatory authorities for approval prior to implementation.

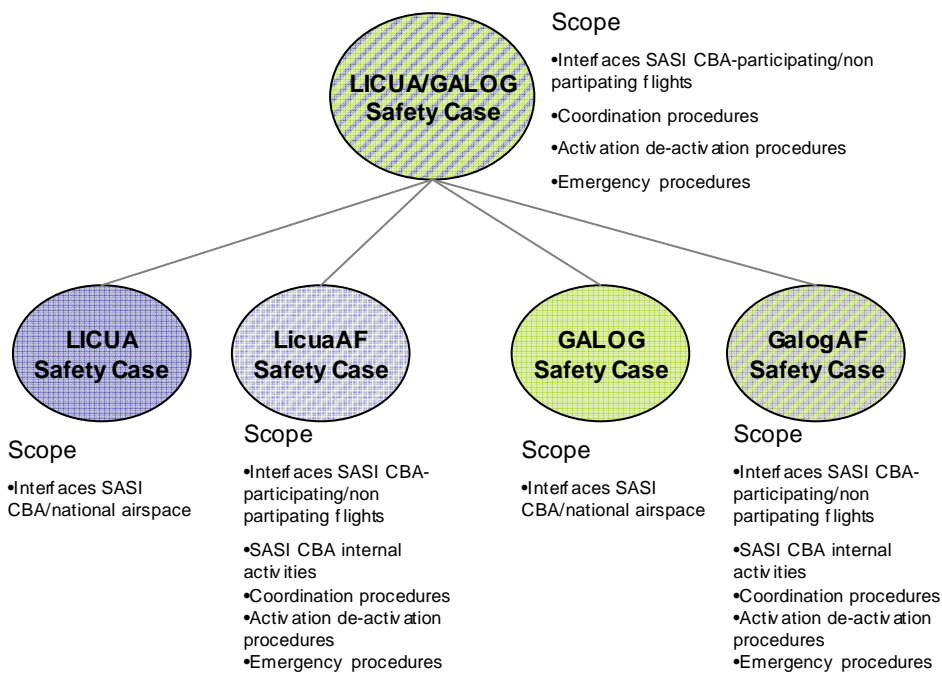


Figure 1 Overall safety cases relationship.



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CHAPTER 3 AIRSPACE DESIGN



3.1 SASI CBA

The planning process for the SASI CBA was launched by identifying suitable geographical location for the military operations to be accommodated. The main constraints in identifying these areas were:

- a location where the impact between the GAT – operations and the CBA – operations would have on each other would be minimal, and
- a location where the transit distance between the training area and the associated air force bases would be reasonable.

A suitable area was identified in the interface of Northern LICUA/GALOG and the planning process was started by a draft area map provided by LICUA ANSP.

The SASI CBA is the aggregation of two TSAs that maybe be activated independently following national rules as shown in figure 2 below.

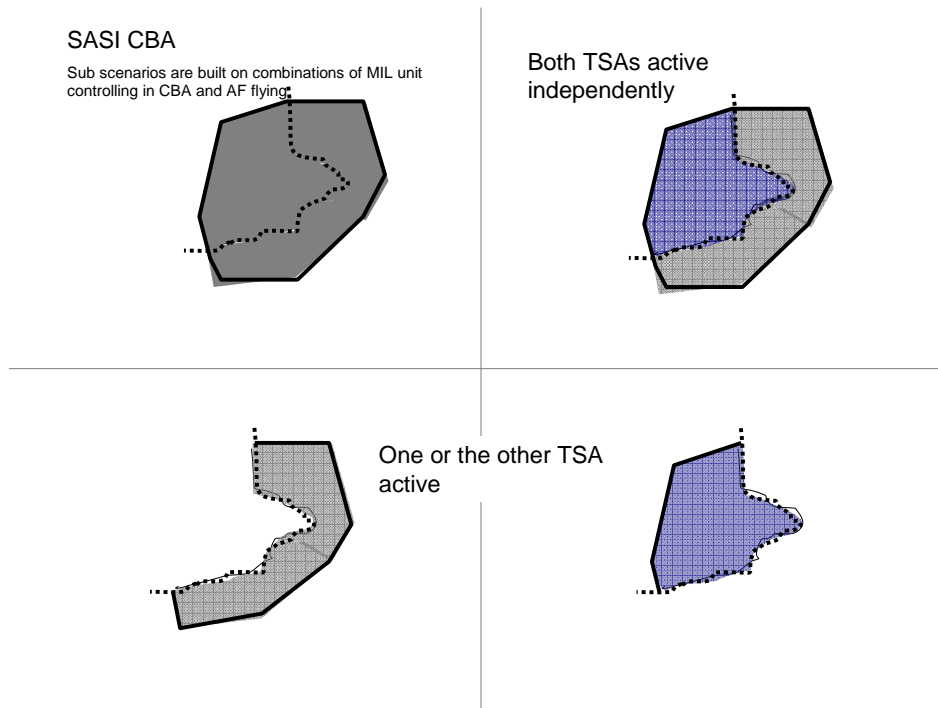


Figure 2 SASI CBA and TSAs activation schemes

3.1.1 Buffers

When constructing MIL exercise areas in LICUA State a 6NM buffer between the center line of an ATS – route and the boundary of an exercise area is provided according to "ANS Handbook" Section 11. In addition to this, Fighter Control applies a 2.5NM buffer within the area which amounts to a total buffer of 8.5 NM. When it comes to Class G airspace, ATC provides 1 NM and Fighter Control should provide 2.5 NM.



With regard to the portions of CBA – areas extending to GALOG, a 6NM buffer is provided between the area boundary and an affected airspace structure (TMA, ATS – route centreline).

Based on these design principles it has been agreed that MIL shall apply a 2,5NM buffer within the active SASI CBA and a 6NM design buffer is applied in the design phase between the areas and affected airspace structures.

The areas are planned to be published and used as Temporary Segregated Areas (TSA's), as described in the ICAO / Eurocontrol concept of the flexible use of airspace.

The draft areas were reviewed and their lateral limits adjusted to ensure adequate buffer between the SASI CBA and other affected airspace structures.

Additionally there are several D – and R – areas within the lateral limits of the SASI CBA . Operations conducted within these areas are potentially hazardous to flight operations within the CBA – area and the MIL AMC representatives shall coordinate operations in a way that overlapping requests between the CBA – areas and the affecting D – and R – areas are kept to a minimum. If simultaneous overlapping activities are allowed to take place it is the responsibility of the respective MIL operators to exercise due caution and the respective AMC's shall be informed of any planned or on – going activities within these D – and R – areas. Affecting D – and R – areas are identified in the AMC – AMC LoA.

3.1.2 Vertical limits

The SASI CBA shall be published and activated with a lower limit of FL155. The upper limit of the areas shall be FL660.

Below FL155/above FL660 operations are conducted in uncontrolled airspace and an airspace reservation cannot be allocated.

3.1.3 Publication

Both AIP LICUA and AIP GALOG shall show the complete SASI CBA. The area shall be published as a coordinate list and in a map be published . Respective AIS departments shall coordinate the publication of the areas in order to guarantee the consistency of published information.



3.2 Maps

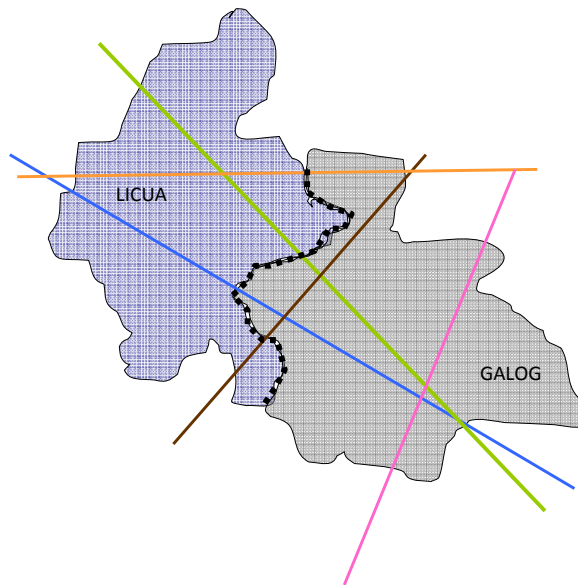


Figure 3a SASI CBA

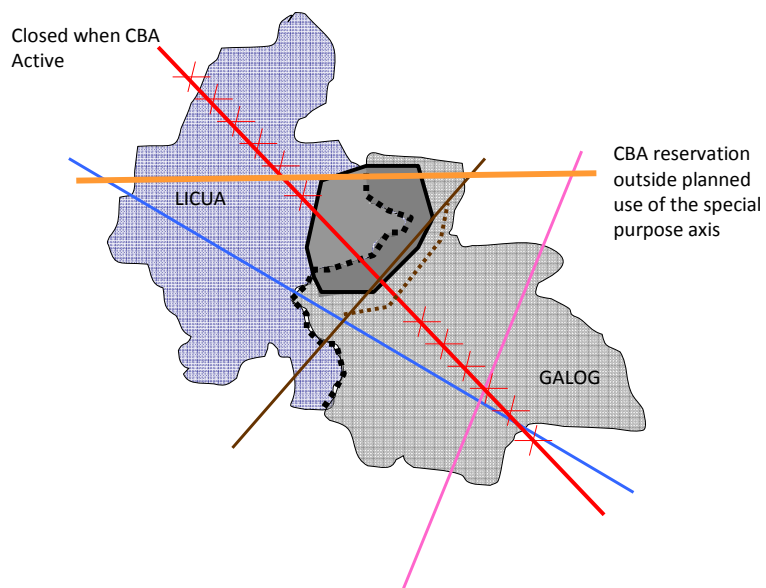


Figure 3b Impact of SASI CBA on routes



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CHAPTER 4 PROCEDURES

4.1 FUA Level 1

FUA Level 1 (one) includes the high level principles and agreements forming the basis for pre – tactical and tactical ASM procedures on FUA Levels 2 and 3. Within the context of Cross - Border Operations between GALOG and LICUA, FUA Level 1 arrangements are to be agreed upon in the State level “Framework Agreement” and the “Agreement between the Civil Aviation Authority LICUA and the Civil Aviation Authority GALOG on Cross – Border Operations.”

Priorities between airspace usage and structures are defined on Level 2 agreements, as agreed on Level 1 and/or by the national high – level policy bodies.

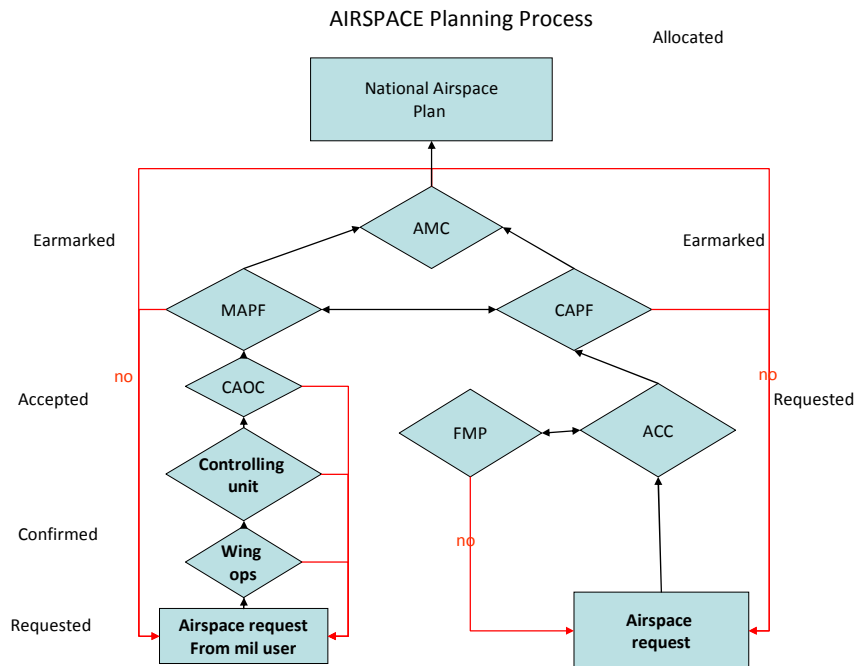


Figure 4 Airspace Planning process

4.1.1 Allocation Planning Principles

The general Airspace Management principles to be applied in the common area of interest are described in AMC - AMC Letter of Agreement.

Participating MIL – operators shall provide the AMCs an agreed yearly schedule for planned SASI CBA usage according to the time parameters included in the AMC – AMC Letter of Agreement. This schedule shall, to the extent possible, include a description of planned activities in the D – and R – areas affecting the CBA – areas.

4.1.1.1 Planned usage of the CBA's

Allocation principles and priorities regarding the conduct and planning of joint exercises and operations conducted by one of the participating air forces within the SASI CBA should be described.

4.1.1.2 Other Operations

Operations within SASI CBA shall be planned to accommodate peak periods of the traffic. These periods are identified according to the CFMU flight demand data, especially to/from LIOUTO and BERLUCA airports. The national FMP's shall provide the flight demand data to the national AMC's.

The reservation of national training areas in conjunction with the SASI CBA shall be done according to national procedures and managed by the national AMCs.

4.1.2 CBA Operations by other actors

This CONOPS, the associated safety case and letters of agreement are based on the premise that only the LICUA and GALOG Air Forces are allowed to conduct operations



within the CBA – areas. Third party operations (e.g. other branches of the respective defence forces or international MIL exercises) are subject to approval by the appropriate authorities.

Operations conducted with unmanned aerial vehicles are subject to regulatory approval by both participating states.

The transit procedures to/from the SASI CBA described in this document are applicable only to manned MIL flight operations.

4.2 FUA Level 2 Operations

FUA Level 2 operations are managed by the respective Airspace Management Cells, under the authority of the national regulatory authorities. The rules and regulations governing FUA Level 2 activities have been agreed on Level 1 and specified in the AMC – AMC Letter of Agreement.

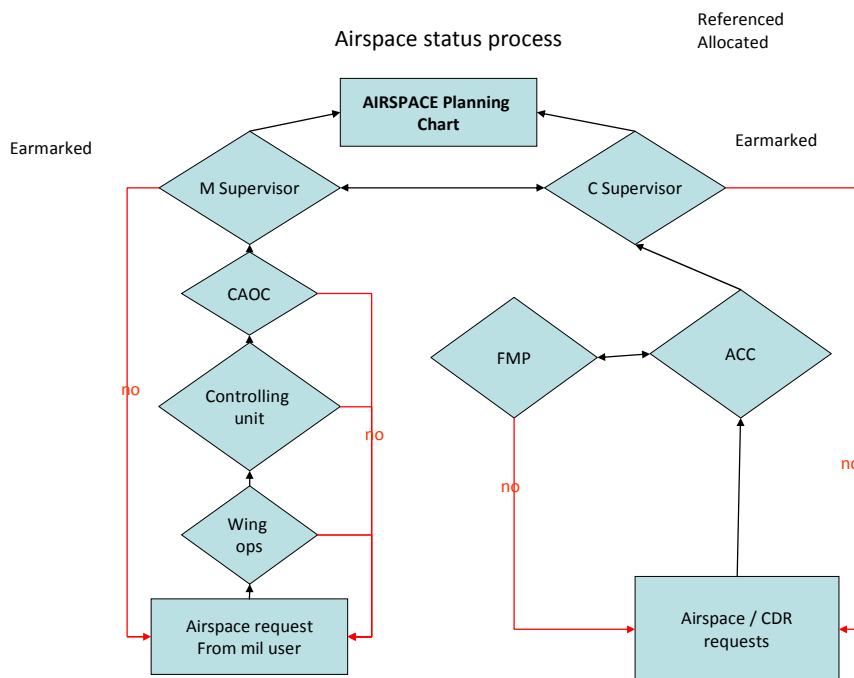


Figure 5 Airspace status chart

4.2.1 Lead – AMC

The nominated Lead – AMC is responsible for managing the allocation of the SASI CBA and the associated CDR – routes as agreed in the AMC – AMC LoA and acting as the focal point in Central Airspace Data Function (CADF) communications. National AMC’s manage other national FUA structures. Lead – AMC functions are described in the AMC – AMC – LoA Additionally the Lead – AMC function shall be described in the national AIP or other applicable AIS publication for the benefit of all airspace users.

4.2.2 AMC – AMC Pre - Tactical Allocation Procedures

Request for activation of SASI CBA shall be submitted to the national AMC by military unit according to national procedures.



Received requests for SASI CBA allocation are submitted to the Lead – AMC using procedures described to the AMC – AMC Letter of Agreement.

In case of conflicting/overlapping reservation requests for the CBA - areas it is the responsibility of the respective AMC MIL – representatives to negotiate and propose an allocation solution. If no allocation solution can be reached, the SASI CBA is allocated on a “*first – come, first – served*” – basis.

After the AUP / UUP has been composed and accepted, the Lead – AMC shall distribute the AUP to the (originating) national AMC. The national AMC’s shall distribute the AUP to the airspace users according to national procedures. This distributed AUP / UUP is verification to the requesting unit of an approved allocation request.

AUPs / UUPs are to be composed according to the Eurocontrol ASM Handbook.

Reservation is only allocated to the portion of the request extending into controlled airspace and the requested altitude segment (possibly) extending into uncontrolled airspace will be considered a notification of operations.

4.2.3 AMC – ANSP Pre – Tactical Coordination

Any changes to the published availability of PERM ATS – routes due to SASI CBA operations are subject to an AIP SUP publication according to AIRAC – procedures.

Lead – AMC shall compose a NOTAM Proposal for the ANSPs concerning the availability of CDR1 – routes. The NOTAM proposal shall only include the route segments within the AoR of the respective service providers.

4.2.4 MIL - MIL Pre – Tactical Coordination

Military operators should coordinate planned SASI CBA usage in advance to avoid overlapping / contradicting reservation requests.

Military operators shall provide the national AMCs with their planned exercise schedule for the following calendar year. This plan will be continuously updated and further detailed.

Any changes or cancellations to the reservation requests shall be coordinated to the national AMC by telephone by the appropriate military unit. The national AMC shall notify the Lead – AMC of any changes to planned airspace use.

4.3 FUA Level 3 Operations

FUA Level 3 operations are managed by the respective ATS – units and Airspace Management Cells. The rules and regulations governing FUA Level 3 activities have been agreed on FUA Levels 1 and 2.

Any significant delays or cancellations to the reservation requests will be promptly relayed to the national AMC by the requesting units. National AMC shall forward this information to the Lead – AMC. In case of cancellation, the airspace is made available to other airspace users



either on tactical basis or by the use of a UUP message. The UUP shall be composed and promulgated by the Lead – AMC.

Example request LicuaAF to utilise SASI CBA

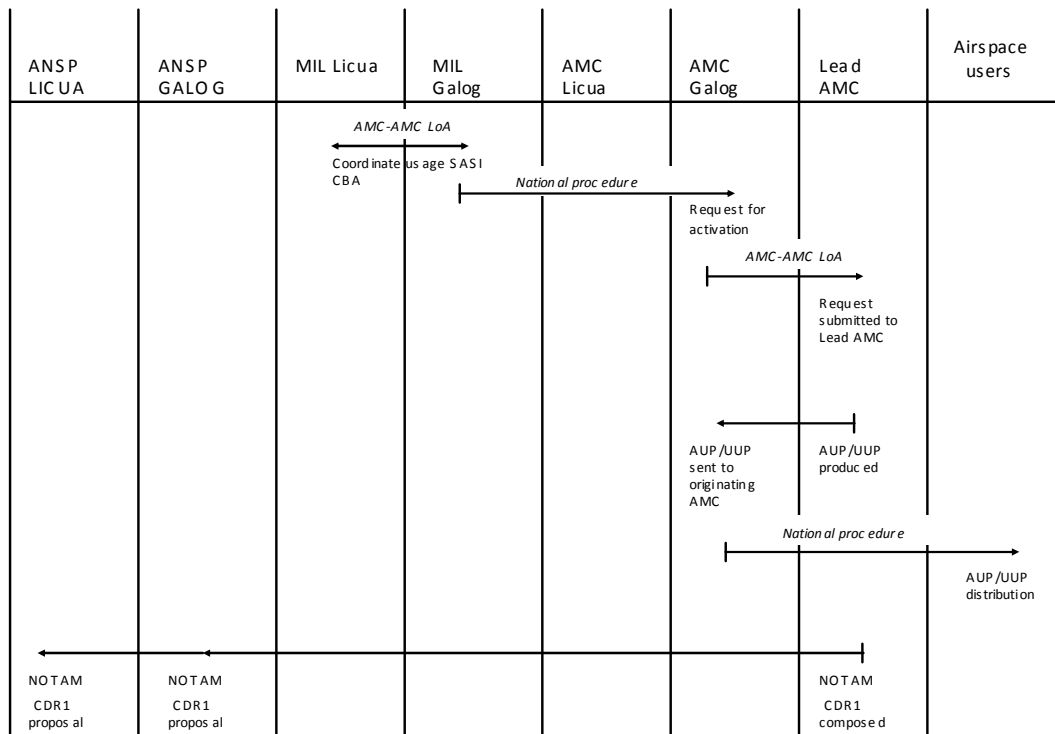


Figure 6 Flow of activities from planning to activation

4.3.1 AMC Responsibilities

The delegating national AMC shall coordinate the activation request internally according to national procedures.

The requesting AMC shall be informed by the delegating AMC when the SASI CBA is delegated. Area reservation is considered to be in effect only after this information has been passed.

Upon activation of the SASI CBA the delegating AMC will inform the requesting AMC on any other on – going or planned airspace use activities which might impact operations within the SASI CBA.

Any changes to an active airspace reservation shall be coordinated by telephone. Verbal coordination overrides any previous coordination.

4.3.2 MIL Responsibilities

Activation request is to be made according to the national procedures. National AMC – unit will coordinate the activation request with Lead – AMC (and vice versa). Activation procedures and time parameters are further defined in the AMC – AMC LoA.



4.3.3 ANSP Responsibilities

The ATC – units providing ATS – services in the area where the SASI CBA lays, shall ensure the timely availability of the CBA – area, based on the information provided in the AUP/UUP.

OLDI – messages will be used to exchange flight and coordination data between the ACC – units.

4.3.4 Non – participating Traffic

Non – participating traffic in controlled airspace shall be separated from SASI CBA when active according to national requirements. A buffer of 6 NM is provided by the area design with regard to the SASI CBA and ATS – routes bordering the areas. Additional 2,5NM buffer is provided by the MIL – operators applying said buffer inside the CBA – areas. 2000ft vertical separation shall be provided for traffic crossing above or below an the (active) SASI CBA area in controlled airspace.

At no time shall the responsibility of separating participating and non – participating traffic be transferred to the fighter control unit.

Flights within the lateral limits of the SASI CBA in uncontrolled airspace are allowed. The fighter control unit in charge of the operations conducted within the SASI CBA will be provided with information concerning such flights to the extent possible.

4.3.5 FPL Requirements-participating aircraft

Flight plans shall be submitted by the MIL unit planning to operate in the area according to national requirements.

FPL shall be submitted using the standard ICAO FPL format according to ICAO Doc. 4444 PANS – ATM Appendix 2, with the following addendum:

- the route definition shall include predefined fixes inside the CBA – area on both sides of the FIR/UIR boundary (defined in the ANSP – ANSP LoA) and additional route segments / fixes published in the national AIPs as required.
- FPL shall not be promulgated via IFPS but sent to the AFTN – addresses defined in the ANSP – ANSP LoA. Further FPL – addressing within the delegating country is carried out according to national requirements.

4.3.6 Transit to/from CBA – Areas

Flights to the SASI CBA shall be given the appropriate clearance only after the SASI CBA activation has been completed.

Flights between the SASI CBA and the DEP/DEST airfield shall be conducted according to national regulations of the host state.

Transfer of control and radio communications between the ATS – units and the fighter control unit shall normally take place at the border of the SASI CBA, unless otherwise agreed after verbal coordination.

Return clearances for flights from the SASI CBA to the airbase shall always be coordinated by the AMC – unit by telephone with the ACC – sector within whose AoR the aircraft will exit the CBA. Return clearance shall be such that the aircraft are contained within CBA – area until they are within the AoR of the ACC issuing the clearance.



The fighter controller has to ensure that aircraft are following the coordinated clearances prior to transferring the aircraft to the ATC.

4.4 Use of SSR - transponder

SSR – transponder set to Mode A and C shall be used at all times during the flight.

4.5 Airspace usage within the CBA – Area

The requesting unit is authorized to utilize the SASI CBA up to 2,5NM of its horizontal limits, and up to and including its allocated vertical limits. However, if the reservation request includes a notification for operations in uncontrolled airspace, that portion of airspace is not reserved for the exclusive use of the MIL operator and non – participating traffic may operate there.

4.6 Reservation De – Activation

Reservation de – activation shall be initiated only after all participating aircraft have left the CBA – area.

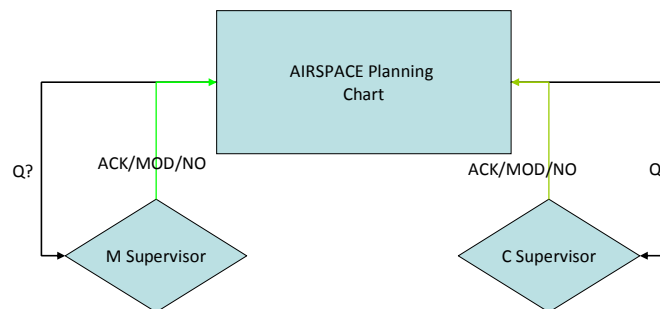


Figure 7 Activation-de-activation



4.6.1 AMC Responsibilities

National AMCs shall inform the Lead – AMC of area de – activation. Both AMCs shall coordinate the de – activation notification internally according to national procedures.

4.6.2 MIL Responsibilities

De – activation notification shall be made to the national AMC by the unit operating in the area according to the procedures described in the AMC - AMC LoA.

Reservation is considered to be de – activated immediately following the de – activation notification.

4.7 Release of Airspace

Within the specified allocation periods (as defined in the AUP/UUP), but outside the actual utilization, the SASI CBA are available to the appropriate ATC – units for tactical use. When further area activation is expected to follow the de – activation, the appropriate ATC – units are to take into consideration the requirement that ATC – units providing ATS – services in the area shall ensure the timely availability of the CBA – area, based on the information provided in the AUP/UUP.

4.8 Other Issues

4.8.1 Contingency Procedures

An aircraft experiencing an in – flight emergency shall be provided with as much assistance as possible by all participating actors. In case of an emergency landing at an airport located within the AoR of the delegating/host state the appropriate authorities shall be notified. Further contingency procedures are described in the LicuaAF – GalogAF In – flight guide.

Planned use of the airports located within the AoR of the delegating/host state is subject to a prior approval of the appropriate authorities.

COM – failure A/C

- According to flight rules or a specific procedure (need for such procedure to be determined during assessment)
- return point, agreed altitude, etc.
- Procedure & SSR usage and altitude for mission termination

4.8.2 Data Archiving and ASM – Statistics

4.8.2.1 Data archiving principles

The data archiving requirements in LICUA and GALOG differ, with the LICUA regulator requiring the data to be archived for a minimum of 2 months and the GALOG regulator requiring a minimum of 30 days (ICAO requirement).

This discrepancy has been noted and accepted by the SASI CBA – project steering group, which includes the representatives from both regulatory bodies.



4.8.2.2 Statistics

Key performance indicators (KPIs) relating to the planned and actual use of the SASI CBA shall be developed and accepted by all actors prior to the operational use of the SASI CBA. The KPIs shall meet the requirements set forth in the Annex to the EC Regulation # 2150/2005 and they shall be used to compile a joint yearly report on cross – border activities. Additional KPIs may be used to assess national ASM – processes. Yearly reports on cross – border functionality shall be composed in co – operation with the ANSPs, MIL – operators and AMCs and shall be submitted to the NSAs for approval according to a specified schedule.

Eurocontrol Handbook for Airspace Management may be used as reference when developing the KPIs for cross – border operations.

- Potential KPI's:
- reservation time windows
- usage time windows
- ratio between res. and usage
- altitude blocks
- affected traffic
- etc

4.8.3 Occurrence and Incident Investigation

Occurrence and incidence investigation and reporting is conducted according to the CAA – CAA Letter of Agreement and to the ANSP – ANSP LoA.

4.8.4 Search and Rescue

The legal provisions for search and rescue operations are laid down in a state level framework agreement between LICUA and GALOG.

4.9 Changes to Procedures or Airspace

Any changes to the published areas, affecting ATS – routes and other airspace structures impacting the usability of and procedures relating to the management of the SASI CBA must be coordinated between all parties involved.

Airspace changes shall be coordinated by the national delegates to the Eurocontrol Route Development Sub – Group (RNDSG).

Changes to operational procedures shall be coordinated between the operators and the service providers in a timely fashion in order to facilitate possible safety analysis and document revisions.

Changes to airspace use and allocation principles shall be coordinated between the regulators.

4.10 Minimum ATS – facilities

Sufficient ATS – facilities need to be available to provide services at the SASI CBA.



When the minimum ATS – infrastructure described in this section is not available, operations within the SASI CBA can be cancelled by either the MIL – operators or the ANSPs.

Direct telephone lines shall be available between the appropriate ACC – sectors and AMC – units. All CIV/MIL – coordination shall be conducted primarily through the AMC – units or when required between the affected ACC – sectors. Telephone connections shall be described in the ANSP – ANSP LoA, as well as in the AMC – AMC LoA.

Flight plan and coordination data shall be transmitted by OLDI – messages. Message content and parameters are described in the ANSP – ANSP LoA. In case of non – availability or failure of automatic data exchange these messages shall be relayed according to the procedures described in the ANSP – ANSP LoA.

The following MSSR – radar facilities shall be operational when SASI CBA operations are conducted:

- BENA radar, FREDO radar and/or TONYL radar

The following VHF – radio relay stations shall be operational when SASI CBA operations are conducted:

- GILLERMO system for LICUA ANSP and BUBUL system for GALOG ANSP

When the ATM – system is operating in a reduced mode or ATC – services are provided by using fallback systems, SASI CBA operations shall not be conducted.

When ATM – related data is shared (e.g. radar data) between the ANSPs, any planned service disruptions are to be coordinated in advance.



Annex 1 State Framework Agreement

Annex 2 CAA-CAA Agreement

Annex 3 ANSP-ANSP LoA s

Annex 4 Mil-MIL LoAs

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