

Generic Cross-Border Area Concept of Operations

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Abstract			
<p>This concept document describes the processes involved in the reservation, allocation and operational use of the CBA. Further details regarding these arrangements and processes are in the respective Letters of Agreement. The CONOPS document it is essential for any safety assessment. The present document was developed with the intent to provide an example for any airspace projects.</p>			
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DEFINITIONS

For the purposes of this cross border area (CBA) concept of operations (CONOPS), the following definitions apply:

Common Area of Interest	Within the context of the CBA concept of operations; common area of interest refers to the CBA areas, the airspace below and above the areas, as well as adjacent airspace structures affecting or being affected by CBA.
Conditional route	<p>A non-permanent Air Traffic Services (ATS) route or portion thereof which can be planned and used under specified conditions.</p> <p>According to their foreseen availability, flight planning possibilities and the expected level of activity of the possible associated areas (TSA/TRA), Conditional Route (CDRs) can be divided into the following categories:</p> <ul style="list-style-type: none"> - Category One: Permanently Plannable CDR, - Category Two: Non-Permanently Plannable CDR, - Category Three: Non – Plannable CDR (N/A in the CBA concept)
Cross border area	A Temporary Segregated Area (TSA) or Temporary Reserved Area (TRA) established over international boundaries for specific operational requirements
Host ACC	The area control centre delegating the defined portions of airspace within its area of responsibility for the purposes of conducting cross border operations.
Host AMC	The national AMC managing the defined portions of the cross – border areas within its FIR/UIR for the purposes of conducting cross – border operations.
Host military unit	The national military operator facilitating operations in the defined portions of airspace within its area of sovereignty for the purposes of conducting cross – border operations.
Lead AMC	A pre-determined AMC responsible for the co-ordination with adjacent AMCs of the harmonized allocation of Cross Border Area (CBA) and/or the availability of specific Cross-Border CDRs.
Originating ACC	The area control centre providing air traffic services in the FIR/UIR of the originating AMC.
Originating AMC	The national AMC requesting the delegation of the defined portions of the neighboring FIR/UIR for the purposes of cross – border operations conducted.
Originating military unit	The national military unit requesting CBA booking for the exclusive use of the respective state. In the case of joint exercises an originating military unit shall be nominated separately and will be considered as the focal point for the exercise planning and conduct.

ABBREVIATIONS

AMC	Airspace Management Cell	LoA	Letter of Agreement
AUP	Airspace Use Plan	NSA	National Supervisory Authority
ANSP	Air Navigation Service Provider	OAT	Operational Air Traffic
AoR	Area of Responsibility	TRA	Temporary Reserved Area
ASM	Airspace Management	TSA	Temporary Segregated Area
CAA	Civil Aviation Authority	UUP	Updated Airspace Use Plan
CADF	Centralized Airspace Data Function		
CBA	Cross – Border Area		
CBO	Cross – Border Operations		
CRC	Control and Reporting Center		
EC	European Commission		
FUA	Flexible Use of Airspace		
GAT	General Air Traffic		
KPI	Key Performance Indicator		

LIST OF ATTACHMENTS

Attachment 1	Area maps (CBA, TRAs, ...) TBD by the stakeholder developing the Safety case
Attachment 2	Flow charts TBD by the stakeholder developing the Safety case
Attachment 3	CBA Allocation procedure
Attachment 4	CBA Activation procedure
Attachment 5	Communications plan
Attachment 6	Civil-Military coordination phraseology TBD by the stakeholder developing the Safety case
Attachment 7	Military request CBA change
Attachment 8	CBA Deactivation procedure

1. INTRODUCTION

1.1 General

The Cross – Border Area (CBA) project between (state A) and (state B) was officially launched in dd/mm/yyyy. 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 drafted CBA are planned to be implemented on dd/mm/yyyy by an entry into 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 areas is included in chapter 2 of this document and it is supported by relevant maps in Attachment 1.

During the planning process it was accepted that the areas would be initially used during specific exercises as opposed to daily/night flight operations. Therefore this CONOPS document and its supporting safety assessment are limited in scope to describe and assess the infrequent use of the CBA. It has been agreed that for a period of nn months after the operational launch the area shall be used for specific exercises only with only one CRC conducting joint (state A) – (state B) operations inside one CBA at a time. Once the operational procedures for CBA usage have been verified during this period, the area can also be applied for daily/night flight operations. To ensure a coordinated transition from initial to daily/night operations, common acceptance criteria for the transition and associated regulatory approval are required. This concept of operations and the associated safety case will be updated as required to reflect the transition to daily/night operations. It is foreseen that no major changes to the safety case will be required as the hazards identified in the on – going safety assessment will remain the same. A review of all associated documentation will nevertheless be conducted prior to this transition.

This concept document describes the processes involved in the reservation, allocation and operational use of the CBA. Further details regarding these arrangements and processes are in the respective Letters of Agreement.

1.2 Operational Background

During the recent years several joint cross – border exercises have been arranged between the Air Forces of (state A) and (state B). The exercises have been allocated to the (side) part of (state A) and (state B), largely to the same geographical area that is now proposed as the permanent Cross-Border Area (name). The area is considered suitable for air force exercises as there is limited impact on other airspace users.

Main issues in the planning and execution of the joint exercises have been the airspace planning and allocation processes and coordination procedures required. A special Letter of Agreement between the ANSPs as well as regulatory coordination has been required between the countries for each exercise. With the implementation of permanent exercise areas, state level agreements and associated letters of agreement the conduct of these joint exercises can be standardized and the work required in the planning of the exercises is reduced significantly.

1.3 Regulatory Aspects

1.3.1 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 (state A) and (state B). 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.

1.3.2 EC FUA Regulation

EC regulation No 2150/2005 of the European Parliament and of the Council of common rules for the flexible use of airspace in Article 3. requires that the parties involved in cross – border activities:

“...(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.

1.3.3 EUROCONTROL Handbook for ASM

The basis for the FUA Concept is that airspace should no longer be designated as either military or civil airspace but should be considered as one continuum and used flexibly on a day-to-day basis. Consequently, any necessary airspace segregation should be only of a temporary nature.

The FUA Concept allows the maximum joint use of airspace by appropriate civil/military co-ordination to achieve the required OAT/GAT separation. The application of the FUA Concept also ensures, through the daily allocation of flexible airspace structures, that any necessary segregation of airspace is based on real usage within a specific time period.

The FUA Concept is based on three Levels of ASM which have been identified as:

- a) Strategic ASM - Level 1,
- b) Pre-Tactical ASM - Level 2, and
- c) Tactical ASM - Level 3.

The three ASM Levels correspond with civil/military ATM co-ordination tasks. Each Level is related directly to, and impacts on, the others.

Strategic ASM at Level 1 consists of a joint civil and military process within a high-level civil/military national body, which formulates the national ASM policy and carries out the necessary strategic planning work, taking into account national and international airspace users requirements.

Pre-Tactical ASM at Level 2 consists of the day-to-day management and temporary allocation of airspace through national or sub-regional AMCs. AMCs are joint civil/military ASM focal-points which have the authority to conduct operational ASM within the framework of the States airspace structures, priority rules and negotiation procedures as laid down by the national policy body. AMCs collect and analyse all airspace requests and decide the daily airspace allocation. AMCs promulgate the airspace allocation as an Airspace Use Plan (AUP) and amendments thereto through Updated Airspace Use Plans (UUPs).

Tactical ASM Level 3 consists of the real-time activation, deactivation or real-time reallocation of the airspace allocated at Level 2 and the resolution of specific airspace problems and/or traffic situations between civil and military ATS units and/or controllers, as appropriate.

1.4 Safety Assessment

Differences in the current application of the flexible use of airspace concept in (state A) and (state B) have been identified during the planning process of the 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, assisted by Eurocontrol. The CBA related operations will be harmonized according to the findings of the safety assessment to ensure the safety of both the CBA operations and the impact of the CBA implementation on other components of the ATM infrastructure. The scope of the safety assessment shall be limited to the boundary of the CBA (including transit procedures to/from the area).

Safety assessment regarding operations within the area shall be conducted as required by the respective NSA's regulating military flight operations. The safety assessment will be conducted according to the EC regulation No 2096/2005 of the European Parliament and of the Council and will be submitted to the respective regulatory authorities for approval prior to implementation.

Letters of Agreement between (state A) and (state B) put in form of legal agreement the provisions of the CONOPS:

States: Framework agreement	Covers.....	National high – Level: Airspace Policy bodies
GAANGA: LoA	Covers.....	
ANSP/ANSP: LoA	Covers.....	
AMC: AMC: LoA	Covers.....	
ANSP(5)/Flight control unit LoAs	Covers.....	

Initially, AMC LoA will include Level 2 and 3 CBA procedures but will be consider consolidating AMC and ANSP LoA into one.

2. AIRSPACE DEFINITION

2.1 Design Process and Constraints

The planning process for the CBA was launched by identifying suitable geographical location for these operations. 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.

Suitable areas were identified in the interface of (geographical position) and the planning process was started by a draft area map provided by (state B).

When constructing military exercise areas in (state B) a (n)NM buffer between the centre line of an ATS route and the boundary of an exercise area is provided according to national "*ANS Handbook*". In addition to this, Fighter Control applies a (m)NM buffer within the area which amounts to a total buffer of ~ (n+m)NM. There is no buffer provided between a TMA structure and a military area on construction level (TMA and military exercise areas border to one another) but separation is provided by ATC to TMA boundary by (n)NM and Fighter Control provides (m)NM. When it comes to Class G airspace, ATC provides (p)NM and Fighter Control should provide (r)NM.

With regard to the portions of CBA (x)NM 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 the operators shall apply a (m)NM buffer within the active CBA and a (x)NM design buffer is applied in the design phase between the areas and affected airspace structures.

These buffers are considered to be sufficient with regard to the requirements set in chapter 5.7 of this document regarding the use of an SSR transponder.

As an appropriate area type of CBA will be temporary restricted area (TRA). Area application principles are further described in section 5 "ASM Level 3 Operations" of this document.

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

The main airspace structures affecting the area design with regard to CBA were:

- ATS – routes (list of routes) . Additionally ATS – routes (additional list of routes) pass through the area and will be re designated as CDR1 category routes.
- ATS – routes (list of routes) pass through the area and will be re designated as CDR2 category routes and will be managed by the XX AMC.
- XXXX TMA in state A
- YYYY TMA in state B
- XXXX/YYYY airspace is depicted in attachment 1 to this CONOPS document.

It was noted during the planning process that there are significant differences between (state A) and (state B) with regard to CDR1 category ATS route management. It has been agreed that a common ATS route management methodology be applied with regard to the affected cross – border CDR1 category routes, i.e. the affected CDR1 category routes will be closed during CBA operations. It is the responsibility of the Lead AMC to manage these routes.

Additionally there are several Danger (D) and Restricted (R) areas within the lateral limits of the CBA areas. Operations conducted within these areas are potentially hazardous to flight operations within the CBA areas and the military AMC representatives shall coordinate operations in a way that overlapping requests between the CBA 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 military 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 according to the procedures described in the AMC – AMC LoA and AMC working procedures. Affecting D and R areas are identified in the AMC – AMC LoA.

Priorities between the different special use airspace structures are described in section 6 of this document. Activities conducted within the affecting areas and their management processes are not considered within the scope of the CBA CONOPS and safety case.

2.2 Vertical Boundaries

The CBA shall be published with a lower limit of FLXXX and upper limit of FLYYY. The CBA can be allocated to intermediate levels between flight levels FLXXX – FLYYY and allocation request shall be based on mission requirements to minimize the impact of CBA operations to other airspace users. Operations below FLXXX and above FLYYY are outside the scope of the CBA concept as they are not covered by the diplomatic clearance associated with the CBA allocation. With regard to CBA operations over the high seas below FLXXX are subject to the appropriate international treaties. Operations in CBA within the territorial boundaries of (state A) and (state B) below FLXXX are subject to the requirements stated in xxxx.

2.3 Publication

Both AIP (state A) and AIP (state B) shall show the complete CBA areas. The CBA areas shall be identified as "EU_Cxxxxxx" (maximum of six alphanumeric characters), according to accepted standards. The areas are sub divided into national TRAs (state A) and TRAs (state A) and they shall be published as a coordinate list and a map in the AIP ENR. Respective AIS departments shall coordinate the publication of the areas in order to guarantee the consistency of published information.

Area management principles with regard to the Lead AMC function are described in both AIP publications. The areas are sub – divided into national TRA areas and the CBA as well as the associated TRA areas shall be published as a coordinate list in AIP ENR 5.2 and as a map in the AIP ENR part 6. Respective AIS departments shall coordinate the publication of the areas in order to guarantee the consistency of published information.

2.4 Allocation Scenarios

CBA is comprised of Temporary Reserved Airspace areas, which can be used separately and outside the scope of the CBA concept for the purposes on national training exercises according to national rules and procedures and managed by national AMCs.

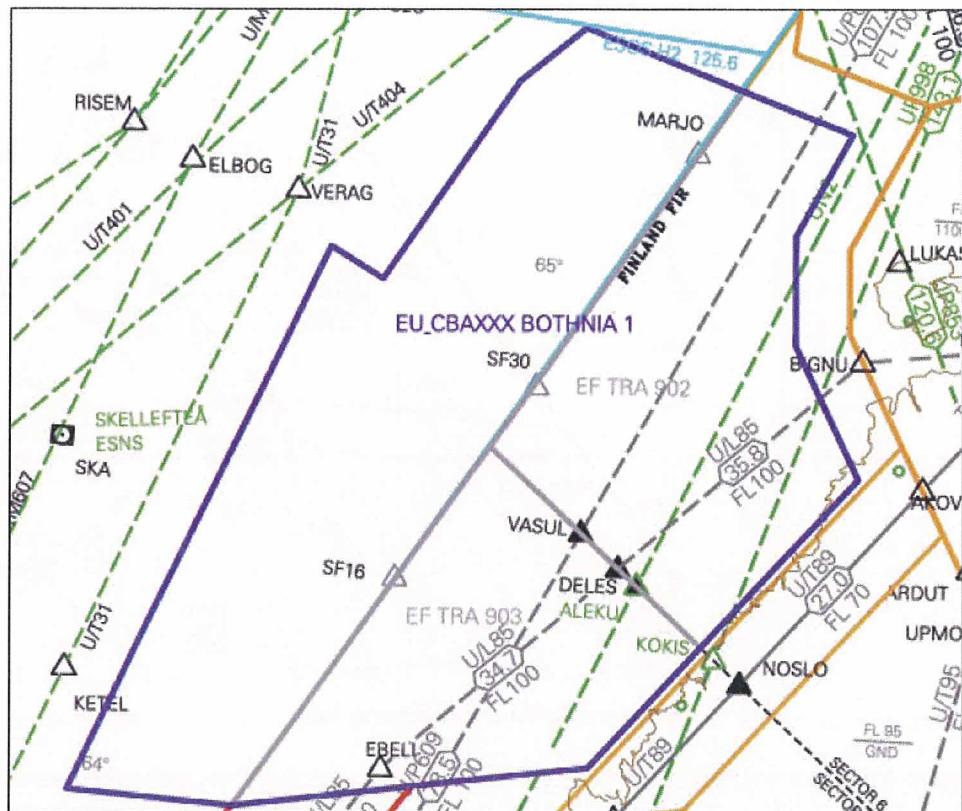


Figure 1 – Location of CBA

AMCs are responsible for the management of the TRAs and the CBA. The TRAs are managed by the national AMCs of the countries involved. The CBA is managed by the national AMCs of the countries involved, in accordance with the agreed-upon rules and procedures. The CBA is a temporary reserved airspace area, which can be used separately and outside the scope of the CBA concept for the purposes on national training exercises according to national rules and procedures and managed by national AMCs.

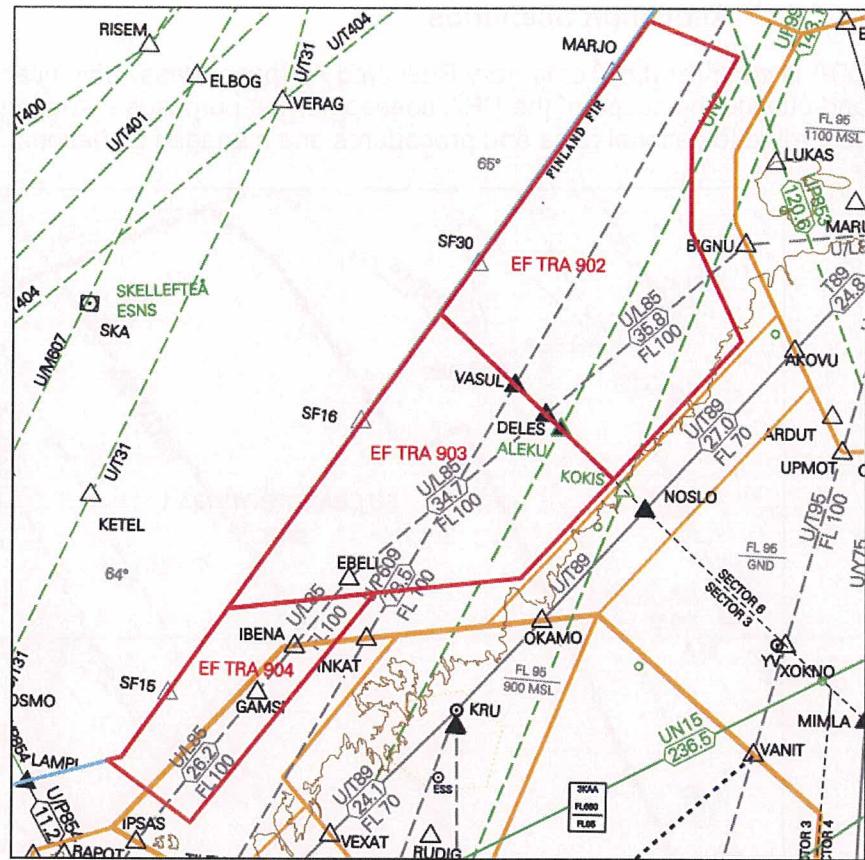


Figure 2 – CBA (name)

Figure 2 shows TRAs XX TRA 902, XX TRA 903 and XX TRA 904 which are also part of EU_Cxxxxxx “name” and can be utilized in any combination by AMC (state A) to facilitate national air force training exercises either exclusively on these TRAs, or in combination with other existing training areas, according to national ASM rules and procedures. Requirements related to the lateral use of the areas at the FIR/UIR boundary are described in the ANSP – ANSP LoA. The CBA can be allocated either for the specific use of one military operator or for common exercises involving both operators. The same procedures are applicable to TRAs in (state B) and in the CBA.

When the CBA is allocated by the Lead AMC, the national TRA areas of which the CBA is composed of, are no longer available for other use. In the Figure 2, XX TRA 902, XX TRA 903 and XX TRA 83 have been allocated for use as a CBA and the rules for area access and application described in this CONOPS document and AMC – AMC LoA are in effect.

Priorities between national training exercises and CBA operations are described in section 6 in this document.

3. ASM LEVEL 1 ARRANGEMENTS

ASM Level 1 includes the high level principles and agreements forming the basis for pre – tactical and tactical ASM procedures on Levels 2 and 3. Within the context of Cross-Border Operations between (state A) and (state B), ASM Level 1 arrangements are agreed upon in the State level “Framework Agreement” and the “Agreement between the (state A) Civil Aviation Authority and the (state B) Civil Aviation Authority on Cross – Border Operations.” Priorities between airspace usage and structures are defined in the AMC – AMC LoA, as mandated by the regulatory authorities on Level 1. A description of the priority rules between the different special use airspace structures is included in section 6 “Priority Rules” of this document. Any national FUA/ASM agreements which describe the priorities between different ASM space structures shall be consistent (with regard to the airspace types applied at the area of common interest to CBO) between the states to ensure uniform application of cross – border operations. These common priority rules are described in the AMC – AMC LoA.

ASM Level 1, 2 and 3 procedures are described in a flow chart format in attachment 2 to this document.

3.1 Allocation Planning Principles

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

Participating military operators shall provide the AMCs an agreed yearly schedule for planned CBA usage according to the time parameters included in the AMC – AMC LoA. This schedule shall, to the extent possible, include a description of planned activities in the D and R areas affecting the CBA. The Lead AMC is tasked with maintaining a consolidated yearly planning schedule regarding CBA operations based on information provided by the operators as described in the AMC – AMC LoA.

3.1.1 Planned Usage of the CBA

Allocation principles and priorities regarding the conduct and planning of joint exercises and operations conducted by one of the participating air forces within the CBA are described in the AMC – AMC LoA. Priority will be given to national exercises over cross-border operations, as described in section 6 of this document.

3.1.2 Other Operations

Operations within CBA shall be planned to accommodate peak periods of the seasonal traffic. These periods are identified according to the CFMU flight demand data. The national FMP's shall provide the flight demand data to the national AMC's. CBA may only be used during the time periods defined in the CAA – CAA LoA to facilitate the traffic. Should there be a requirement to operate CBA outside of the allowed time periods defined in the CAA – CAA LoA, an approval is required from the appropriate NSAs, AMCs and ANSPs.

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

3.2 CBA Operations by Other Actors

Operations conducted within national TRA/TSA areas immediately adjacent to the CBA areas are not allowed unless

- the operations are conducted by the air force of the same state and these exercises have been coordinated, and,
- the CBA has been allocated for the specific use of that operator only.

This CONOPS, the associated safety case and letters of agreement are based on the premise that only the (state A) and (state B) Air Forces are allowed to conduct operations within the CBA. Third party operations (e.g. other branches of the respective defence forces or international military exercises) are subject to approval by the civil and military regulatory authorities. The state and unit designated to be in charge of the planning of an exercise which includes third party operations shall be responsible for ensuring that the appropriate regulatory requirements are met regarding these operations.

Operations conducted with unmanned aircraft system (UAS) are subject to regulatory approval by both participating states. The transit procedures to/from the CBA described in this document and the letters of agreement are applicable only to manned military flight operations and potential UAS operations require a separate safety assessment and are therefore outside the scope of this CONOPS.

Operations conducted with unmanned aircraft system (UAS) are subject to regulatory approval by both participating states. The transit procedures to/from the CBA described in this document and the letters of agreement are applicable only to manned military flight operations and potential UAS operations require a separate safety assessment and are therefore outside the scope of this CONOPS.

4. ASM LEVEL 2 OPERATIONS

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

4.1 Lead AMC

The nominated Lead AMC is responsible for managing the allocation of the CBA and the associated CDRs as agreed in the AMC – AMC LoA and acting as the focal point in CADF communications. National AMC's manage other national airspace 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. It has been agreed that AMC (state) shall take on the responsibility of Lead AMC functions regarding the CBA operations between (state A) and (state B) within the context of this CONOPS document.

The Lead AMC shall:

- maintain and distribute an updated CBA use plan,
- coordinate the CBA usage with respect to flows in accordance with the requirements of and the CAA – CAA LoA
- act as a CADF focal point in matters related to CBA management usage and associated communications
- collect data related to the planned and actual use of the CBA according to KPIs specified by the National Regulatory Authorities
- manage and coordinate the daily allocation of the CBA as described in the AMC – AMC LoA

4.2 AMC – AMC Pre-Tactical Allocation Procedures

Request for CBA allocation shall be submitted to the originating AMC by the originating military unit according to national procedures. Detailed process for CBA allocation is shown in attachment 3. To enable the release of airspace for the benefit of other airspace users, reservation requests should be mission specific and block request should be avoided.

Received requests for CBA allocation are submitted to the host AMC for coordination using procedures and time parameters described to the AMC – AMC LoA. As the Lead AMC is always either the originating or the host AMC no additional coordination is required.

In case of conflicting/overlapping reservation requests for the CBA it is the responsibility of the respective AMC military representatives to negotiate and propose an allocation solution. If no allocation solution can be reached, CBA is allocated on a “*first come, first served*” basis, according to the priority rules in section 6.

After the AUP/UUP has been composed and accepted, the Lead AMC shall distribute the AUP area list to the originating and/or host AMC and CFMU for notification. The national AMC's shall distribute the AUP area list to the airspace users according to national

procedures as required. This distributed AUP/UUP area list is verification to the originating unit of an approved allocation request. eAUP/eUUP with CFMU via NOP portal, could be used for information sharing. Procedure for AUP/UUP distribution is described in the AMC – AMC LoA.

An AUP/UUP is composed according to the Eurocontrol ASM Handbook and CIAM users' manual.

Any changes to the planned cross border area use shall be coordinated by the originating AMC to the Lead AMC.

4.3 AMC – ANSP Pre-Tactical Allocation Coordination

Lead AMC shall compose a NOTAM Proposal for the ANSPs concerning the CBA activation and availability of CDR1 routes. The NOTAM proposal shall only include the route segments within the AoR of the respective service providers. The Lead AMC shall use the NOTAM Proposal templates provided by the respective NOTAM Offices. This NOTAM Proposal shall be distributed by the Lead AMC to predefined addresses according to the parameters defined in the AMC – AMC LoA. The appropriate contact information and templates shall be included as an attachment to the AMC – AMC LoA. Lead AMC shall ensure that the published NOTAM corresponds to the allocation request and the contents of the AUP/UUP.

4.4 Military-Military Pre-Tactical Coordination

Military operators should coordinate planned CBA usage in advance to avoid overlapping/contradicting reservation requests (see 4.2).

Military operators shall provide the national AMCs with their planned exercise schedule for the following calendar year, according to 3.1. This plan will be continuously updated and further detailed on ASM Level 2.

Any changes or cancellations to the reservation requests shall be coordinated to the originating AMC by telephone by the originating military unit. If airspace is released on pre – tactical level, Lead AMC shall ensure the promulgation of this information for the benefit of other airspace users (AUP/UUP, NOTAMs). Coordination procedures are further described in the AMC – AMC LoA.

For common exercises in the CBA, the Lead AMC shall be notified which unit is nominated as the originating military unit responsible for the overall conduct of the exercise. Lead AMC shall coordinate the exercise preparation with this nominated focal point.

5. ASM LEVEL 3 OPERATIONS

ASM Level 3 operations are managed by the respective ATS units and AMC. The rules and regulations governing ASM Level 3 activities have been agreed on ASM Level 1 and Level 2.

Any significant delays or cancellations to the reservation requests will be promptly relayed to the originating AMC by the originating military units. Originating 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 and/or by the use of a UUP message. The UUP shall be composed and promulgated by the Lead AMC.

5.1 AMC Responsibilities

CBA activation requests shall be coordinated internally according to national procedures. Upon completion of the required coordination procedures, the host AMC shall notify the originating AMC that the CBA activation process is completed. The host AMC shall also inform the originating AMC of any other on – going or planned operations which might impact the cross – border operations. The special use airspace areas of interest are described in section 2.1 of this document and further defined in the AMC – AMC LoA.

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

5.2 Military Responsibilities

The originating military unit shall request the activation from the originating AMC according to national procedures. Detailed process of CBA activation is shown in attachment 4.

CBA is considered active only after the originating military unit has received confirmation from originating AMC.

The originating military unit is responsible for performing a communications check with the designated ACC sectors prior to commencing operations in the CBA according to the communications plan, as described in attachment 5 and AMC – AMC LoA.

Activation procedures and time parameters are further defined in the AMC – AMC LoA.

Operations within the CBA shall always be conducted under the supervision of a Fighter allocator/controller. The FA/FC shall act as a coordination focal point for the mission.

5.3 ANSP Responsibilities

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

Upon receiving the activation request, the ANSP shall initiate internal activation coordination processes according to national requirements. As the activation of CBA will affect the airspace usage within the XXXX TMA, AMC (state) shall ensure that the appropriate scenario regarding (vertical) use of the airspace within the TMA is initiated.

Any changes to an active airspace reservation shall be directly coordinated between the ANSP and AMC. In case of ad hoc situations requiring direct communications between the designated ACC sectors and the originating military unit a direct telephone connection is established and configured between the ANSP and military units designated to conduct operations in the CBA. The communications plan is included as attachment 5 to this document. Phraseology to be used in this coordination process is described in attachment 7 to this document. Verbal coordination overrides any previous coordination. Lead AMC is to be informed of all changes by the respective ANSP unit.

Separation between the active CBA and non – participating traffic shall be the responsibility of the ANSP unit providing ATC services in the area.

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

5.4 Non-Participating Traffic

Non – participating traffic in controlled airspace shall be separated from an active CBA according to national requirements. A buffer of nNM is provided by the area design with regard to the CBA and ATS routes bordering the areas. Additional mNM buffer is provided by the military operators applying said buffer inside the CBA. A minimum of nnnnft vertical separation and pNM horizontal separation shall be provided for traffic crossing between the FIRs/UIRs when affected by an active CBA in controlled airspace.

The responsibility for separation between participating and non – participating traffic shall not be transferred to the fighter control unit at any time. If a non – participating aircraft diverts from its intended flight path – either intentionally, or unintentionally – the unit providing ATS services for the aircraft in question shall take timely action to coordinate the flight intentions of the aircraft to the appropriate MIL/AMC/ACC unit, as required. CBA reservation can be restricted vertically and/or horizontally to facilitate the safe operation of the affecting aircraft.

Coordinated penetration of an active CBA by a non – participating aircraft shall be allowed when the penetration occurs wholly within the AoR of the respective ATS unit and the operations within the CBA are conducted by the air force of the respective state, if such agreements between the service provider and military controlling unit have been established.

Example: a non – participating aircraft penetrates an active CBA so that the entry point to the CBA, entire flight path within the CBA and exit point from the CBA are contained within XXXX FIR/UIR and the CBA has been reserved and activated for the sole use of the state B air force -> a flight may be coordinated to pass the area. If the operations within the area are either joint or conducted by the XXXX air force this is not allowed. Such penetration procedures are defined and described according to national requirements.

5.5 FPL Requirements

Flight plans shall be submitted by the military unit planning to operate in the area, using the template provided in AMC – AMC LoA attachment 2.

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 a predefined fixes inside the CBA 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.
- Unique FPL for each aircraft in a formation is required
- OAT or GAT FPL formats are accepted, common FPL content requirements are included in the ANSP – ANSP LoA.
- When intending to operate below FLXXX over the high seas within the AoR of the other State, this information is to be included in the RMK section of the FPL as described in the AMC – AMC LoA and Technical arrangements.
- Statement regarding the diplomatic clearance relating to the operation of the flight(s) is to be included in the RMK section of the flight plan

Example of a submitted TSA flight plan:

(FPL-BLADE21-IM
-02F18/M-DILOUV/C
-YYTP1100
-N0400F320 PAPA TS305 PIR
-XXTP0115
-RMK/FOR/BLADE21+BLADE22)

The route segment is defined as a MIL SID, followed by a “dummy route point” which is a calculated center point of a TRA, defined in the ATM system followed by the NAVAID/fix used for the end of the return segment. Similar points shall be defined for the areas used for CBA operations and these shall be used in the flight plans to ensure proper FPL coordination and EST message transmission between the appropriate ATS units. Same point shall be used as holding points in case of no return clearance having been issued for CBA exit and return to base.

The points for the associated areas are:

AREA	CENTRE POINT	POIND ID
tbd	tbd	tbd

Flight plans shall be submitted according to the time parameters described in the AMC – AMC LoA. Flights intending to operate in the cross border areas shall not be given a clearance to enter the area unless the area is activated and an approved flight plan has been submitted, accepted and promulgated.

5.6 **Transit To/From CBA Areas**

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

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

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

Return clearances for flights from the CBA to the airbase shall always be coordinated by the fighter control unit 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 until they are within the AoR of the ACC issuing the return clearance (see image below).

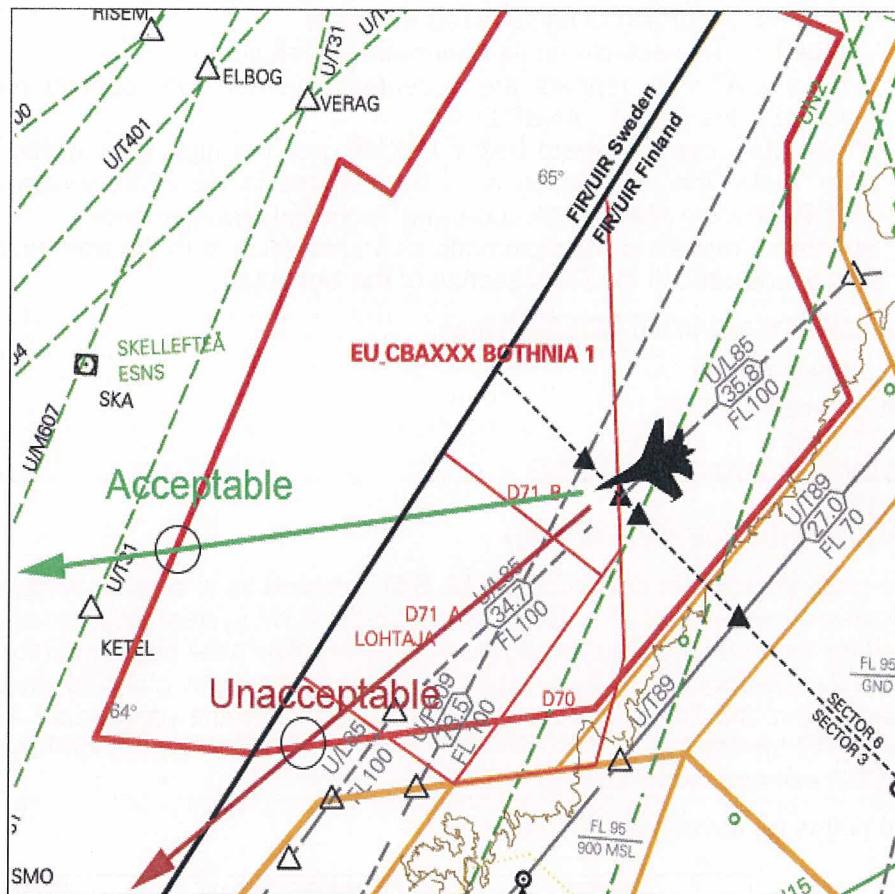


Figure 3 – Return clearance exiting CBA

Acceptable return clearance delivers the aircraft directly to the appropriate AoR.

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

5.7 Use of SSR Transponder

SSR transponder set to Mode A and Mode C on request shall be used at all times during the flight. Any exceptions to the use of SSR transponder during CBA operations require regulatory approval. SSR usage during the transit to/from the CBA shall be according to national regulations, including formation flights. In the case of formation flights, flights within the formation not using the SSR transponder during transit shall ensure that the SSR transponder is used according to the requirements of this CONOPS once entering the CBA.

5.8 Radiotelephony

Common phraseology relating to the tactical coordination procedures between the FC/FA and ATC is developed. Additionally, contingency phraseology concerning return clearance issuance from the area is included in case of loss of communications between the aircraft in the area and the FC/FA unit. This phraseology is contained in Attachment 6 to this document.

5.9 Communication Plans

Direct telephone connections are to be established between the designated military units conducting operations within the CBA and the designated ACC sectors.

The designated military units in (state A) are:

- tbd
- tbd

The designated military units in (state B) are:

- tbd
- tbd

The designated ACC sector in (state A) is XXXX ACC sector n.

The designated ACC sector in (state B) is YYYY ACC sectors m.

Maps including the sector boundaries are contained in Attachment 1 to this document.

(state) air force shall coordinate, when required, directly with the appropriate ACC sector according to these boundaries.

Communication lines shall be tested before commencing operations within the CBA. The communications plan is included as attachment 5 to this document.

5.10 Changes to an Active Area Reservation

The originating military unit may request a change (level change, time extension) to an active CBA reservation from the originating AMC. The originating AMC shall coordinate these requests with the originating ACC and the host AMC who in turn will coordinate the request with the host ACC. As the priority for the area has been granted based on the initial allocation request the change may be accepted with restrictions applied, or it can be declined by any actor in the coordination process. The result of the coordination process shall be relayed back to the originating military unit through a reverse process and the change will take effect only after the completion of this coordination process. Detailed process of CBA activation is shown in attachment 9.

5.11 Airspace Usage within the CBA

The originating military unit is authorized to utilize the CBA up to nNM of its horizontal limits, and up to and including nnnnft/mmmm ft (FLxxx and below/above FLxxx) of its vertical limits.

5.11.1 Operations over High Seas

Flights in the area designated as High Seas shall be allowed to operate according to the provisions of relevant international treaties. All units providing services in the area will be given information on such flights to the extent possible. For military operations over the High Seas, the coordination procedures related to FPL requirements set in section 5.5 are to be followed.

5.12 Reservation Deactivation

Reservation deactivation shall be initiated only after all participating aircraft have left the CBA and shall be triggered by the originating military unit according to procedures described in the AMC – AMC LoA. Detailed process of CBA deactivation is shown in attachment 10.

5.12.1 AMC Responsibilities

National AMCs shall inform the Lead AMC of area deactivation. National AMCs shall coordinate the deactivation notification internally according to national procedures.

5.12.2 Military Responsibilities

Deactivation notification shall be made to the originating AMC by the originating military unit according to the procedures described in the AMC-AMC LoA.

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

5.12.3 ANSP Responsibilities

The ANSP is allowed access to the CBA airspace only after the deactivation notification has been received. Area will not be considered deactivated by the ATS units according to time parameters of the booking request alone.

5.13 Release of Airspace

Within the specified allocation periods (as defined in the AUP/UUP), but outside the actual utilization, the CBA is available to the appropriate ATC units for tactical use. When further area activation is expected to follow the deactivation, the appropriate ATC units are to take into consideration the requirements of 5.3.

6. PRIORITY RULES REGARDING CBA ALLOCATION

The priority rules regarding overlapping military airspace structures have been defined by the military operators and are detailed in the AMC – AMC LoA. As a principle, all national training requirements override cross border area usage. This includes the national use of TSA/TRA areas as well as dedicated D and R areas. When potential overlapping requests for the cross border area usage are received, common exercises override the requirements for CBA access by a single military operator. These requests shall be coordinated by the AMC military personnel before a final request is submitted for area allocation.

Priority order:

- National use of the TRA's
- Joint use of the CBA
- National use of the CBA
- Non-participating traffic

Priorities are in effect until booking requests are received, processed, allocated and confirmed. After the CBA has been allocated to either military operator this cannot be superseded by subsequent requests, even if the requested use is of higher priority.

NOTAMs regarding D and R area activity of significance to CBA operations shall be taken into account by the military operators when conducting operations within the CBA.

Conditional cross border ATS routes affected by the use of CBA shall be closed during the operations or traffic will be tactically rerouted. Priority for CBA operations over the conditional cross border routes can be given as follows (during daily operations):

- (day) – (day) hhmm – hhmm UTC (hhmm – hhmm UTC during DST)

Specific exercises requiring priority for the CBA outside these hours are subject to approval by the NSAs (civil and military) and AMCs. A NOTAM shall be published 2 days prior to these exercises, specifying the expected booking times for the CBA and the availability of affected ATS routes.

Outside the hours listed above, during weekends and national bank holidays (listed in AMC – AMC LoA), priority will be given to CDR1 routes over the CBA.

Conditional cross border routes which do not cross from one state to the other can be managed according to local procedures. The ATS routes managed by Lead AMC in the context of cross border operations are defined in the AMC – AMC LoA.

6.1 Priorities for Non-Participating Traffic

If any of the following types of non – participating traffic require the use of the airspace of a CBA (even when allocated and activated to a military operator according to the procedures described in this document and the appropriate letters of agreement) the priority will be given and operations within the CBA may be restricted:

- QRA (Quick Reaction Alert) flights conducted by either military, other state agency conducting comparable operations or other operational missions conducted by either state
- flights conducted in accordance with the Treaty on Open Skies,

- STS SAR/HOSP flights
- STS State/Head flights

7. TRAINING

All participating personnel connected to the management, allocation and operation of the CBA shall be trained according to the requirements of the appropriate authority prior to the commencement of the CBA operations. The training for the operational staff shall include theoretical training on the concept of operations as well as simulator training regarding the allocation and use of the areas, including cross border civil-military coordination procedures. ACC supervisors and AMC personnel shall be given additional training on the pre – tactical CBA management as required.

8. CONCEPT ACCEPTANCE

A common acceptance application can be submitted to the (state A) CAA and the (state B) CAA. Common acceptance documentation shall consist of an approved CONOPS including the attachments, ANSP-ANSP LoA, a common safety case and reports from simulated CBA allocation scenarios and other tests conducted to ensure safe CBA management (e.g. FPL distribution, OLDI message verification, communications checks, etc.). National acceptance procedure may require additional proof of concept and any such national requests shall be coordinated between the NSAs to ensure timely and coordinated acceptance of the concept. Operations in the areas will not be started until all parties have signed the required documentation and agree that the operations can commence.

9. OTHER ISSUES

9.1 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 AMC – AMC LoA and ANSP – ANSP LoA.

Planned use of the airports located within the AoR of the host state is subject to a prior approval of the appropriate authorities. Transit to the destination airfield of the other state (e.g. (state A) air force aircraft landing at a (state B) airfield according to flight plan) shall be executed according to the rules and procedures of the destination state and is subject to the appropriate permissions.

In case of communication failure the following procedure is to be followed by the participating aircraft:

- SSR code 7600,
- remain in the area for n minutes,
- select a flight altitude within the vertical limits of the CBA taking into account the required buffers,
- fly left or right triangle at the designated point 1 min each leg (right turn=transmitter failure, left turn=both transmitter & receiver failure)
- followed by exit from the area according to national procedures

Contingency procedures concerning communications outages between the Lead AMC and CFMU are described in the LoA between CFMU, AMC (state A) and AMC (state B).

9.2 Data Archiving and ASM Statistics

9.2.1 Data Archiving

The ANSP data archiving requirements in (state A) and (state B) differ, with the (state A) regulator requiring the data to be archived for a minimum of n months and the (state B) regulator requiring a minimum of 30 days (ICAO requirement).

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

9.2.2 Statistics and KPIs

Key performance indicators (KPIs) relating to the planned and actual use of the CBA areas shall be developed and accepted by all actors prior to the operational use of the CBA. The KPIs shall meet the requirements set forth in the Annex to the EC Regulation No. 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,

military operators and AMCs and shall be submitted to the NSAs for approval according to a specified schedule.

The following KPI data can be produced immediately following the implementation:

- Requested/Available ratio
- Reservation time windows
- Allocated/Required ratio
- Usage altitude blocks

Additional KPIs may be added following required system support. The military operators shall provide additional KPIs in order to evaluate the area usage more completely.

9.3 Occurrence and Incident Investigation

Occurrence and incident investigation and reporting is conducted according to CAA – CAA and ANSP – ANSP LoA.

9.3.1 Liability

Liability issues relating to the operation of military aircraft and any potential damage inflicted by these operations are described in the State Framework Agreement.

9.3.2 Reporting

In case of incident reports filed concerning operations within the CBA a mechanism is required to ensure the distribution of these reports to all affected parties. Reports shall be distributed according to the agreed SMS procedures between the ANSPs and additionally provided to the AMCs and operators for comments, quality control and concept refinement.

9.4 Search & Rescue

The legal provisions for search and rescue operations are laid down in a State framework agreement between (state A) and (state B).

9.5 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 CBA must be coordinated between all parties involved.

Airspace changes shall be coordinated by the national delegates to the EUROCONTROL Route Network 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.

9.6 Minimum Facilities

Sufficient facilities need to be available to provide services relating to the use of the CBA.

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

Direct telephone lines shall be available between the designated ACC sectors and Fighter control units in charge of the operations conducted in the CBA. It is the responsibility of the military unit intending to operate in the area to ensure that appropriate telephone connections are functional between the Fighter controller unit and the ACC sectors. This connection shall be tested before initiating area activation procedures according to the COM plan. Telephone connections shall be described in the communications plan, ANSP – ANSP LoA and AMC – AMC LoA as required.

Flight plan and coordination data shall be transmitted by OLDI messages. Message content and parameters are described in 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 CBA operations are conducted in CBA:

- Kxxx or Oxxx in (state A) and Lyyy or Uyyy in (state A),

Rxxx in (state A) and Lyyy in (state A) when scheduled maintenance of these facilities shall be relayed to Lead AMC for area use planning purposes and inclusion to the rolling CBA use plan.

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

- Hxxx, Kxxx or Vxxx (aaa,bbb MHz)

These radio relay stations are primarily used for contingency communications in case of loss of communications between the aircraft operating in the CBA areas and the Fighter controllers. Return clearance from the training area to the respective home base can be requested using these frequencies. There is no requirement to monitor these frequencies during normal operations conducted within the CBA.

The projection of the CBA and the associated traffic on the various different display systems used by the participants shall be consistent and accurate to the requirements set by the appropriate regulatory authorities. Safety net parameters and operation (e.g. Area Proximity Warning, MTCD) shall be verified prior to the commencement of CBA operations.

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

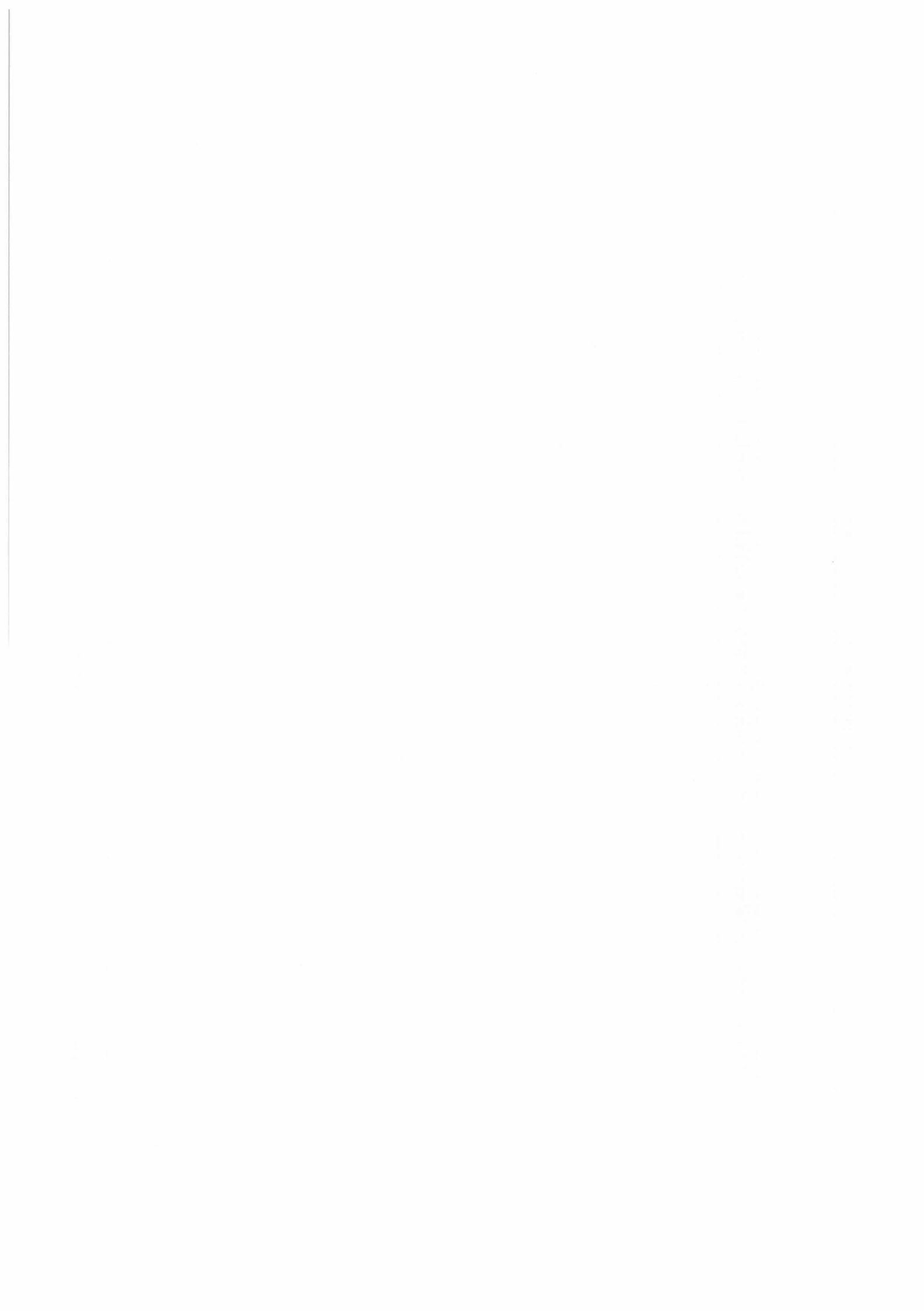
When ATM related data is shared (e.g. radar data) between the ANSPs, any planned service disruptions are to be coordinated in advance.

With regard to military facilities required to operate or monitor operations within the CBA, the respective military units shall inform the national AMCs in case of inadequate military facilities and inform whether operations within the CBA shall be discontinued until such time that required operational functionality has been restored.

Attachment 1 - Area maps (CBA, TRAS, ...) TBD by the stakeholder developing the Safety case

Attachment 2 - Flow charts TBD by the stakeholder developing the Safety case

Attachment 6 - Civil-Military coordination phraseology **TBD by the stakeholder developing the Safety case**



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