ESTONIAN NATIONAL TECHNICAL ANNEX BETWEEN ESTONIAN TRANSPORT ADMINISTRATION AND ESTONIAN DEFENCE FORCES

MILITARY FLIGHT PROCEDURES IN ESTONIAN AIRSPACE

Release version 2.5

Effective: 23-MAR-2023

APPROVED BY:

ESTONIAN TRANSPORT ESTONIAN DEFENCE FORCES

ADMINISTRATION AIR FORCE

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Director General Commander of Estonian Air Force

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DOCUMENT CHANGE RECORD

RELEASE	DATE	REASON FOR CHANGE	PAGES AFFECTED
	14.06.2016	New document release.	
2.0	26.04.2018	Document review by Estonian Air Force and EANS: - airspace management procedures removed; - changed separation standards; - general formatting.	All
2.1	03.01.2019	Change of phone numbers: - CRC Karmelava - CRC Tallinn - AMC Estonia	Page 11 - Item 7.2
2.2	13.12.2019	Changed unit whom MCU notifies it's take over – OPSUP to AMC Change of unit names and contacts	Page 5 – item 3 Page 11– item 7.2
2.3	27.01.2022	Document reviewed by EANS to accommodate the EUROCONTROL principles laid down in Specifications for harmonized Rules for Operational Air Traffic (EUROAT document) and include: - activities to be conducted within SUA – General - Flight within SUA - Air-to-air refuelling (AAR) - Non-standard formation - Formation take-off and landing - Formation Break-Up (Split) - Formation Join-up - Supersonic flights - More detailed separation standards New scramble definition – ECHO – throughout the document. SUA related procedures removed from this NTA and introduced into ASM LoA Annex 2, including: - Entry to SUA - Exit from SUA - Flights within SUA - Permeability of TSA for non-participating flights	Page 5 Page 6 Page 7 Page 9 Page 9 Page 9 Page 10 Page 11 Page 10 Page 11

2.4		Document review by Estonian Air Force and EANS: - Removed 4.8.3 Additional procedure for Mode 3A/C during ECHO Scramble. After coordination between MCU and relevant civil ATC units, the MCU may instruct E- SCR aircraft turn off SSR transponders within 20 NM of target; - A new chapter	Page 8
		 A new chapter 6 FLIGHT SAFTETY INCIDENT HANDLING and Annex 1 FLIGHT SAFETY INCIDENT REPORT; Change of unit names and contacts. 	Page 11 Page 11
2.5	23.01.2023	Change of unit contacts	Page 12 Page 13

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1. GENERAL

This Technical Annex describes supplementary military flight procedures of "Letter of Agreement between NATO and the Baltic States on airspace management arrangements in support of the air policing mission and other air activities in the Baltics" for military operations in Tallinn FIR, military airspace utilization within Special Use Airspace (SUA), and provides instructions for expeditious launch and recovery of aircraft in support of air defence operations.

Where the operational requirements of a flight are incompatible with either GAT rules or Estonian OAT rules, the activities shall be conducted in Special Use Areas (SUA) unless other methods will be approved by Estonian Air Navigation Services and Estonian Transport Administration.

States, when taking over air policing mission in the Baltic States, shall contact the Estonian Air Force Staff at least 90 days before actual operations in case the provisions laid down in this Annex cannot be met or in case any additional agreements are foreseen in order to fulfil their operating procedures.

2. ESTONIAN AIRSPACE MANAGEMENT PROCEDURES

Estonian Airspace management procedures and areas available for training in Tallinn Flight Information Region (FIR) are described in the national Agreement of Airspace Management on Levels 2 and 3 (obtained from Estonian Air Force Military Airspace Manager (MAM).

3. RESPONSIBLE MISSION CONTROL UNIT (MCU) AND MCU CHANGE

The coordination and safe provision of fighter control of Quick Reaction Alert (QRA) flights within Tallinn FIR is the responsibility of the designated Mission Control Unit (MCU).

Upon change of designated MCU, it is the responsibility of the MCU that takes over to notify Tallinn ATCC operational supervisor (OPSUP) about MCU change as soon as possible.

4. FLIGHT PROCEDURES

4.1. FLIGHTS WITHIN SUA

Responsible Unit (CMU or PIC) shall ensure that all participating aircraft will stay within the SUA as follows:

- within lateral limits of the area and:
- vertically not closer than 500 FT to controlled airspace.

When flying back and forth from SUA to uncontrolled airspace, GAT rules shall be adhered to in uncontrolled airspace.

4.2. QUICK REACTION ALERT FLIGHTS (QRA)

When an ALPHA-Scramble (A-SCR) or an ECHO-Scramble (E-SCR) order has been issued, coordination procedures laid down in 6.4.2.4 of the "Letter of Agreement between NATO and the Baltic States on airspace management arrangements in support of the air policing mission and other air activities in the Baltics" shall apply. E-SCR is subject to termination by Civil ATC if deemed necessary.

Immediately before the initiation of an A-SCR or E-SCR mission from Ämari Airbase, the information listed in 6.4.2.4 of the main body of the agreement shall be issued to Ämari Tower (TWR) as the relevant Air Traffic Control (ATC) unit.

QRA (interceptor (I)) flights are conducted as described in paragraph 6 of the main body of the agreement. Once the A-SCR or E-SCR mission is complete and the scramble status is changed from ALPHA or ECHO to TANGO, an ICAO flight plan is not needed to proceed to any activated SUA and/or to return to the operating airbase.

ATC will consider all flights which have changed their scramble status from ALPHA or ECHO to TANGO as GAT IFR flights.

4.3. AIR-TO-AIR REFUELLING (AAR)

AAR operations should preferably be conducted in SUA(s).

4.4. AIR COMBAT MANOEUVRING (ACM)

Training of Air Combat Manoeuvring (ACM) is allowed only in activated SUAs.

4.5. AIRBORNE WARNING AND CONTROL SYSTEM (AWACS)

AWACS operations may be carried out inside activated SUAs or in controlled airspace, as coordinated with responsible ATC.

If AWACS flight is carried out outside SUAs, it is considered as GAT flight and standard separation minima apply (incl. minima in RVSM airspace) unless otherwise requested by PIC.

4.6. LOW LEVEL FLYING

Standard operational procedures for low level flying of military jet aircraft greater than 250kt in Estonian airspace are described in AIP Estonia ENR 5.2.

4.7. USE OF CHAFF AND FLARE

Usage of chaff must be prior coordinated with Estonian AF HQ A3.

Usage of flare is allowed only in SUAs with prior notice to MCU.

4.8. USE OF TRANSPONDER

4.8.1. SSR Code Assignment

The following Mode 3A (SSR) codes will be used for QRA(I) aircraft involved in A-SCR:

CALLSIGN	SSR CODE	CALLSIGN	SSR CODE
MA01	1325	MA03	1313
MA02	1326	MA04	1314
SA01	1301	SA03	1307
SA02	1302	SA04	1310
El01	1321	EI03	1323
El02	1322	EI04	1324
JK01	1303		
JK02	1304		

The following Mode 3A (SSR) codes will be used for QRA(I) aircraft involved in T-SCR or E-SCR:

CALLSIGN	SSR CODE	CALLSIGN	SSR CODE
MA01	1501	MA03	1503
MA02	1502	MA04	1504
SA01	1570 - 1577		
SA02	1570 - 1577		
EI01	1570 - 1577		

El02	1570 - 1577	
JK01	1570 - 1577	
JK02	1570 - 1577	

4.8.2. Formation Flights

Whilst transiting to and from a SUA in standard formation, only the lead military aircraft is to squawk Mode 3A/C. Other aircraft are to switch their transponder to "standby" mode.

In non-standard formation all military aircraft shall squawk Mode 3A/C.

4.8.3. ACAS/TCAS

If equipped with ACAS/TCAS, single aircraft (not a formation flight) shall operate in the Traffic Alert/Resolution Advisory (TA/RA) mode outside SUA-s.

In a formation, if equipped with ACAS/TCAS, only the lead aircraft should operate in the TA/RA mode.

4.9. ALTIMETER SETTINGS

QNH altimeter setting as provided by the appropriate ATC unit shall be used by aircraft operating at or below transition altitude (TA) of 5000 FT AMSL and by aircraft descending below the transition level (TL).

The standard atmospheric pressure (e.g. 1013.2 hPa or 29.92 in Hg) shall be used by aircraft operating at or above the transition level and by aircraft climbing above the transition altitude (TA) of 5000 FT AMSL.

4.10. FORMATION FLYING

Sufficient safety distance between the aircraft comprising a formation flight shall be the responsibility of the formation leader and the individual PIC at all phases of the flight, which includes take-off and landing and all parts of the enroute flight.

Upon each initial report on a new radio frequency, the formation leader shall indicate to ATC whether the flight is in standard or non-standard formation and the number of aircraft in the formation (E.g. Callsign/Standard formation of 4).

4.10.1. Standard Formation

A Standard Formation is a formation in which each aircraft will stay within 1 NM horizontally and 100 FT vertically from the formation leader.

4.10.2. Non-Standard Formation

A Non-standard Formation is a formation in which aircraft/elements belonging to that formation will exceed the limits of a standard military formation.

Before flying in non-standard formation all aircraft shall squawk Mode 3/A and Mode C and request an approval from ATC stating the required distance between aircraft (i.e.: REQUEST NON-STANDARD FORMATION – TRAIL 3 MILES).

4.10.3. Formation Take-off and Landing

Take-off and landing of aircraft comprising a military formation flight ATC will treat the formation the same way as the take-off and landing of a single aircraft.

Required time/distance intervals between elements or individual aircraft comprising the formation flight are determined by the formation leader and he/she shall inform ATC about the magnitude of the intervals.

During formation take-offs and recovery, the separation between the leader and all other aircraft of the formation may be higher than 3 NM horizontally and/or 1000 ft vertically. For this type of departure / recovery, all aircraft of the formation shall squawk Mode 3/A and Mode C.

Formation take-offs with intervals more than 1 minute will be treated as take-offs of separate aircraft/elements and separate clearance shall be received to each individual aircraft/element.

4.10.4. Formation Break-Up (Split)

Except in an emergency, a formation break-up shall only occur after pre-planning, advanced coordination, and approval by ATC. Formation Beak-up is usually done by one aircraft/element at a time

Prior to the planned formation break-up, the formation leader shall inform ATC whether to break-up the formation flight into single aircraft or elements.

The formation leader shall inform ATC about his intended aircraft/element break-up sequence and call-signs.

As soon as the formation break-up has been directed by ATC for the respective aircraft/element, this aircraft/element is no longer part of the previous formation flight and shall follow subsequent ATC directions issued to them.

After the formation leader reported ready for break-up, the controller should inform the formation leader when the break-up procedure shall commence, the method to be used and allocate or confirm SSR codes.

However, ATC will only assume responsibility for separation between the aircraft/elements that are conducting the formation break-up after prescribed separation minima have been established. Until then, the individual pilot-in-command/element-leader is responsible for maintaining sufficient safety distance.

Formation break-up in uncontrolled airspace shall be reported to the appropriate ATC unit before entering controlled airspace.

4.10.5. Lost-Wingman (Lost-Lead) Procedure

In any lost wingman situation, an immediate initial safety distance between aircraft is essential for flight safety to avoid a potential mid-air collision. Therefore, each wingman losing sight/contact of the aircraft preceding him or being unable to maintain formation for other reasons shall immediately execute the procedures relevant to his flight position, while transitioning to instrument flying and resuming own navigation.

Wingman losing sight/contact of the aircraft preceding him or being unable to maintain formation for other reasons shall squawk A7700 and request individual clearance from ATC as soon as possible.

<u>Note:</u> Lost-Wingman Procedure execution may result in a loss of minimum separation in respect to other air traffic and is an Emergency situation for ATC.

4.10.6. Formation Join-up

When ATC controls a formation join-up, an ATCO shall provide the appropriate separation until the formation leader has confirmed his/her readiness to assume responsibility for maintaining safety distance between his aircraft, the aircraft comprising the formation and the joining aircraft (MARSA or similar report).

The individual aircraft will not be handled like a formation before the formation leader has reported that the join-up is completed.

If the formation join-up is requested to be carried out under VFR, ATC will provide traffic information until the formation leader reports that formation join-up is completed.

4.11. SUPERSONIC FLIGHTS

Supersonic flight in Tallinn FIR above land or above sea up to 10 nautical miles outside the territorial waters may not take place below flight level FL300.

Restrictions described above do not apply to QRA(I) flights involved in A-SCR or E-SCR.

4.12. SPEED RESTRICTION OF 250 KTS BELOW FL100

This restriction does not apply if military aircraft must be flown at a higher air speed due to their military flying characteristics or when involved in Low Level Tactical Flying. These aircraft shall fly at the lowest possible air speed for the respective flight configuration under the given flight conditions, unless the mission requires a higher speed. The responsibility for the performance of a safe flight rests with the PIC.

4.13. UNPLANNED DIVERSION WITH ARMAMENT

Before landing with armament or practice munitions at any military or civilian airfield, where respective local procedures are not known, the pilot-in-command shall appropriately advise ATC about the circumstances.

After landing the pilot-in-command shall request taxi instructions to the designated safe-for-parking area and avoid taxiing into an area or position that could threaten personnel or equipment.

4.14. RADIO COMMUNICATION FAILURE

In case of a radio communication failure a pilot-in-command shall ensure compliance with relevant ICAO radio failure procedures.

4.14.1. Formation Radio Failure

A formation flight in which a flight member experiences total radio failure shall comply with the procedures outlined for this case within the Standard Operating Procedures (SOP) of their appropriate national authority.

If the SOP requires deviations from a given clearance, the flight leader or the pilot of the aircraft with the serviceable radio shall inform the ATC unit and request a different clearance.

In the event that the total radio failure affects all aircraft of the formation flight, the formation leader shall ensure compliance with basic ICAO radio failure procedures.

In case a formation break-up is required for safe approach and landing all aircraft or element-leader of the formation flight shall squawk A7600, as soon as the break-up was initiated by the formation leader and continue to ensure compliance with basic ICAO radio failure procedures.

5. SEPARATION STANDARDS

The prescribed separation minima are applicable to formations of no more than four aircraft. For larger formations double horizontal separation or prescribed vertical separation from a level block shall be used.

5.1. VERTICAL SEPARATION

When applying vertical separation between aircraft the following minima shall be used:

1000 FT between:

- single military aircraft and other traffic below FL290;
- RVSM approved single military aircraft and other RVSM approved aircraft above FL290;
- a standard formation and other traffic within lateral limits of Tallinn TMA1 up to 5000 ft MSL:
- all aircraft of a non-standard formation and other traffic below FL290.

2000 FT between:

- a standard formation and other traffic (with the exception stated above);
- an A-SCR or E-SCR flight (formation or single aircraft) and other traffic;
- all aircraft of a non-standard formation and other traffic above FL290.

If operationally required pilot or MCU may request a specific level block. In such case ATC shall apply the appropriate vertical separation minimum to agreed level block.

All formation flights in RVSM airspace will be considered as non-RVSM.

5.2. HORIZONTAL SEPARATION

Horizontal separation minima shall be:

Within Tallinn CTA 5 NMWithin Tallinn TMA 3 NM

To ensure that the minimum horizontal separation is not infringed between all aircraft of the standard formation and other traffic, ATC shall add 1 NM to the distance of the prescribed horizontal minimum separation between the squawking aircraft of the formation and other traffic.

In case Non-standard formation, ATC shall apply prescribed horizontal separation between all aircraft of the non-standard formation and other traffic.

5.3. SEPARATION STANDARDS BETWEEN GAT AND SUA-s

ATC shall provide separation between activated SUA-s and non-participating controlled flights:

- Vertically 500 FT (if SUA is activated at or below FL 285) or
- Vertically 1500 FT (if SUA is activated at or above FL 295).

Controlled VFR flights in the vicinity of SUA shall be informed about activity by relevant ATC unit.

6. FLIGHT SAFETY INCIDENT HANDLING

In case of a flight safety incident occurrence or violation of effective procedures in Tallinn FIR, a written report needs to be filled in and submitted ASAP but not later than within a 24 hour timeframe from the incident by the participating entities in accordance with ANNEX 1 of this document.

The investigation of aviation incidents and accidents involving military aircraft in Tallinn FIR must be conducted in accordance with Estonian national regulations and NATO Standard "Safety Investigation and Reporting of Accidents/Incidents Involving Military Aircraft, Missiles, and/or UASs – AFSP-1.3" (STANAG 3531).

7. COMMUNICATION

7.1. FAILURE OF GROUND/GROUND VOICE COMMUNICATIONS

In case of communications failure, pilots shall be instructed, at least 5 minutes prior to the transfer of control, to pass flight data on the appropriate frequency of the accepting unit for the purpose of obtaining an entry clearance.

The transferring unit shall hold the aircraft within its AoR and after a maximum of 10 minutes instruct the pilot to re-establish radio contact with the accepting unit. This procedure shall be repeated until an onward clearance has been obtained from the accepting unit.

7.2. COMMUNICATION CONTACTS

CRC Tallinn (c/s LIGHTHOUSE) +372 717 3701 (FA) +372 717 3711 (FA) +372 717 3721 (FA) +372 717 3700 (MC) CRC Lielvarde (c/s AMBERLAND) +371 6500 2204 (FA) +371 6500 2202 (MC) CRC Karmelava (c/s GALAXY) +370 3730 9694 (FA)	+371 6500 2698 +370 3730 7526 +370 3739 9027	kv.osd.ojke.gci@mil.ee AFCRC@mil.lv crc.karmelava@mil.lt
+372 717 3721 (FA) +372 717 3700 (MC) CRC Lielvarde (c/s AMBERLAND) +371 6500 2202 (MC) +371 6500 2202 (MC) CRC Karmelava +370 7067 8501 (FA)	+370 3730 7526	
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Sector +372 6 710 227	-	-
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Manager (MAM) +372 717 3119		airspace@mil.ee

ANNEX 1 FLIGHT SAFETY INCIDENT REPORT

Date:	Time:	Location:
Type of control: (CLO	SE POSITIVE / LOOSE A	DVISORY / BROADCAST)
Incident description (v	what, where, with who, how	v, closest traffic, etc.):
Recommendations (he	ow to prevent it happening	g again):
Name:		OPS position: (FA / FC / FC backseater)
ivanie.		Of 5 positions (FA / FG / FG backseater)

This form needs to be filled in and send to <u>flightsafety@mil.ee</u> and <u>safety@eans.ee</u> ASAP but not later than within a 24 hour timeframe from the incident by the participating entities.

ATTACHMENT A ABBREVIATIONS

AAR Air-to-Air Refuelling

ACAS Airborne Collision Avoidance System

ACC Area Control Centre
ACM Air Combat Manoeuvring

AIP Aeronautical Information Publication

AMC Airspace Management Cell

AoR Area of Responsibility

ARR Arrival

ATC Air Traffic Control

AWACS Airborne Warning and Control System

CRC Control and Reporting Centre

CTA Control Area

EANS Estonian Air Navigation Services

ENR Enroute

ETO Estimated Time Over FA Fighter Allocator

FIR Flight Information Region

FL Flight Level

FT feet

GAT General Air Traffic

HOSP Hospital

IFR Instrumental Flight Rules

kt knots

MAM Military Airspace Manager

MARSA Military Accepts Responsibility for Separation of Aircraft

MC Master Controller MCU Mission Control Unit

NM Nautical mile

OPSUP Operational supervisor PIC Pilot in Command QRA Quick Reaction Alert RCO Range Control Officer

RVSM Reduced Vertical Separation Minimum

SAR Search and Rescue

SCR Scramble

SOP Standard Operating Procedures SSR Secondary Surveillance Radar

SUA Special Use of Airspace TA Transition Altitude

TCAS Traffic Collison Avoidance System

TL Transition Level
TMA Terminal Control Area

TWR Tower

VFR Visual Flight Rules

ATTACHMENT B DEFINITIONS

Air Policing (AP)	A peacetime mission involving the use of the Air Surveillance and Control System, air command and control and appropriate air defence assets, including interceptors, for the purpose of preserving the integrity of the NATO airspace part of Alliance airspace.
Air Traffic Control (ATC Unit)	Air Traffic Control (ATC) Unit means variously, area control centre, approach control unit or aerodrome control tower.
Airborne Early Warning (AEW)	Military aerial operation during which an aircraft is utilizing active and/or passive electronic emitters. AEW operations usually take place inside designated areas (e.g. TSA/TRA), or use other airspace arrangements that have been precoordinated with ATC as an unusual aerial activity.
Aircraft Scrambling	Directing the immediate take-off of aircraft from a ground- alert condition of readiness.
Air-to-Air Refuelling (AAR)	Military aerial operation to refuel aircraft during flight. AAR operations usually take place in designated military training areas (e.g. TRA/TSA), or use other airspace arrangements that have been pre-coordinated with ATC as an unusual aerial activity.
ALPHA Scramble (A-SCR)	Tactical mission of military aircraft involved in an actual air policing incident.
Area of Responsibility (AoR)	An airspace of defined dimensions where an ATC unit has responsibility for providing air traffic services.
Control and Reporting Centre (CRC)	An air control element subordinate to a Combined Air Operations Centre (CAOC) from which warning operations and weapons control are conducted.
ECHO Scramble (E-SCR)	Tactical training mission carried out in accordance with A-SCR rules and is subject to termination by Civil ATC if deemed necessary.
Fighter Aircraft	A generic term to describe a type of fast and manoeuvrable fixed-wing aircraft capable of tactical air operations against air and/or surface targets.
Fighter Allocator (FA)	An officer who assigns and supervises intercept control teams to control intercepts.
Fighter Control	A service provided for the purpose of specialized military operations such as air policing, air combat training, low level missions, in-flight refuelling and other activities which are not compatible with the normal application of air traffic service procedures as specified in the ICAO Rules of the Air.
Fighter Controller (FC)	An officer who has the responsibility to control intercepts using specific procedures.

Formation Flight	A flight consisting of more than one aircraft which, by prior arrangement between the pilots, operates as a single aircraft with regard to navigation and position reporting, as well as clearances issued by ATC.
General Air Traffic (GAT)	All flights, which are conducted in accordance with the rules and procedures of ICAO and/or the national civil aviation regulations and legislation.
Low-Level Flying Areas/routes	Established areas where authorised low flying may be carried out in accordance with national regulation and special procedures.
MCU Master Controller (MC)	An officer at an MCU who is responsible for the minute-to-minute control of Air Defence (AD) operations.
Military Special-Use Area (SUA)	Airspace wherein activities must be confined because of their nature, or wherein limitations may be imposed upon aircraft operations that are not part of those activities. These areas may include generally CBAs/TSAs/TRAs/Restricted areas/Dangerous areas/ Established Routes and Corridors, firing areas for any military purpose. These are published in national AIPs.
Non-standard Formation	Aircraft/elements of a formation flight that are outside the horizontal and/or vertical limits of standard military formation parameters are considered a non-standard formation.
Quick Reaction Alert Interceptor (QRA(I))	Air defence fighters on alert for the peacetime policing mission as part of the NATO deterrent.
Scramble	An order directing take-off of aircraft as quickly as possible, usually followed by mission instructions.
Standard Military Formation	A formation of aircraft flying under IFR in which each wingman aircraft will stay within 1 NM horizontally and 100 FT vertically of the lead aircraft. Only the lead aircraft (formation leader) shall squawk as directed by ATC.
Tactical Low-Level Flying	A military training mission carried out to accomplish a specific authorised mission within a designated timeframe and a designated airspace volume.
TANGO Scramble (T-SCR)	A scramble for a direct practice of Air Defence/Air Policing mission. This will be executed in accordance with national flying regulations. CAOC should arrange for a portion of T-SCRs to be initiated from and into adjacent Air Policing Areas. Flying Units and CAOC/MCU are encouraged to discuss the training requirement and plan meaningful mission accordingly.
Temporary Segregated Area (TSA)	An airspace of defined dimension within which activities require the reservation of airspace for the exclusive use of specific users during a determined period of time.