



Operations over or near conflict zone

EAC No.121-19

SUBPART A

Purpose :

This circular contains guidance to aircraft operators, air navigation service provider (ANSP), and other entities deemed appropriate on the subject of risk assessments for civil aircraft operations over or near conflict zones. It covers the risk from both deliberate acts and unintentional hazards to civil aircraft operations over or near conflict zones

Background :-

According to Conflict zones definition it is : Airspace over areas where armed conflict is occurring or is likely to occur between militarized parties, and is also taken to include airspace over areas where such parties are in a heightened state of military alert or tension, which might endanger civil aircraft.

Here is one description of challenge which considered hazard on the aircraft during flight near or over the conflict zone .

SURFACE-TO-AIR MISSILES — CAPABILITY AND PROLIFERATION

- a- The principal weapons of concern for these purposes are those surface-to-air missiles (SAMs) with the capability of reaching aircraft at cruising altitudes (which for these purposes are taken to be altitudes in excess of 25 000 ft (7 600 m) above ground level). These are large, expensive and complex pieces of military equipment which are designed to be operated by trained personnel. There are many different types of systems, with varying capabilities and technologies, but they are all designed to track and destroy military targets in flight. In this context, civil aircraft represent a relatively easy and highly vulnerable target, due to their size and predictable flight paths, and as they are generally neither equipped nor tasked to consider tactically responding to being fired upon.
- b- Many SAMs are mobile and can be moved quickly between locations. Some have sensor systems integrated; others need to be linked to a separate radar sensor to identify targets. Many SAMs are located on warships.
- c- It is unlikely that non-State actors will have acquired SAMs direct from manufacturers, but a small number of non-State actors may well have acquired them indirectly. These may either have been passed to them by States or acquired through the seizure of former State assets during or following conflict situations. In either case, they could only be operated as designed — for example, with use of radar to identify the intended target — by fully trained personnel with all the necessary equipment.

Definitions

Acceptable level of safety performance (ALoSP). The minimum level of safety performance of civil aviation in a State, as defined in its State safety programme (SSP), expressed in terms of safety performance targets and safety performance indicators.

Note.— An acceptable level of safety performance for the State can be demonstrated through the implementation and maintenance of the SSP as well as safety performance indicators and safety performance targets showing that safety is effectively managed, built on the foundation of implementation of existing safetyrelated SARPs.

Acts of unlawful interference. These are acts or attempted acts such as to jeopardize the safety of civil aviation, including but not limited to:

- unlawful seizure of aircraft;
- destruction of an aircraft in service;
- hostage-taking on board aircraft or on aerodromes;
- forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility;
- introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes;
- use of an aircraft in service for the purpose of causing death, serious bodily injury, or serious damage to property or the environment; and
- communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel or the general public, at an airport or on the premises of a civil aviation facility.

(Aircraft) Operator. In the context of this document, references to the (aircraft) operator refer to those operators subject to ICAO Annex 6 — *Operation of Aircraft*, Parts I, II and III being operators of aeroplanes or helicopters authorized to conduct international commercial air transport operations or involved in international general aviation.

Air navigation services. This term includes air traffic management (ATM), communications, navigation and surveillance systems (CNS), meteorological services for air navigation (MET), search and rescue (SAR) and aeronautical information services/aeronautical information management (AIS/AIM). These services are provided to air traffic during all phases of operations (approach, aerodrome and en route).

Air navigation service provider (ANSP). Any entity providing ATM and/or other air navigation services mentioned in the definition for *Air navigation services*.

Note.— Annex 17 uses the term Air traffic service provider (ATSP). ATSP should be considered synonymous

with *ANSP* as used in this manual.

Air-to-air missiles. Missiles fired at an aircraft from another aircraft.

Appropriate ATS authority. The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

Appropriate authority for aviation security. The authority designated by a State within its administration to be responsible for the development, implementation and maintenance of the national civil aviation security programme.

Civil aircraft. Non-State aircraft (pursuant to Article 3 of the Chicago Convention). This could include passenger airliners, cargo aircraft and business or private jets.

Conflict zones. Airspace over areas where armed conflict is occurring or is likely to occur between militarized parties, and is also taken to include airspace over areas where such parties are in a heightened state of military alert or tension, which might endanger civil aircraft.

Contingency plan. A proactive plan to include measures and procedures addressing various threat levels, risk assessments and the associated security measures to be implemented, designed to anticipate and mitigate events as well as prepare all concerned parties having roles and responsibilities in the event of an actual act of unlawful interference. A contingency plan sets forth incremental security measures that may be elevated as the threat increases. It may be a stand-alone plan or included as part of a Crisis Management Plan.

Hazard. A condition or an object with the potential to cause or contribute to an aircraft incident or accident.

MANPADS (Man-Portable Air Defence Systems). Shoulder-launched surface-to-air missiles. These are widely available in many countries, particularly in conflict areas, portable and can be used with relatively limited training.

MANPADS are capable of bringing down aircraft, but not of reaching cruising altitudes.

Overflying. Passing over terrestrial areas (land or sea) at cruising altitude.

Risk. The potential for an unwanted or calculated outcome resulting from an occurrence. Risk can be estimated by considering the likelihood of threats, vulnerabilities and consequences or impacts.

Risk index matrix. A matrix that is used during risk assessment to define the level of risk by considering the category of probability or likelihood against the category of consequence severity. This is a simple mechanism to increase visibility of risks and assist management decision-making.

Risk level. See **Acceptable level of safety performance (ALoSP)**.

Risk mitigation. The process of incorporating defences or preventive controls to lower the severity and/or likelihood of a hazard's or threat's projected consequence.

Safety. The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Service provider. Any organization providing aviation products and/or services. The term thus encompasses approved

training organizations that are exposed to safety risks during the provision of their services, aircraft operators, approved maintenance organizations, organizations responsible for type design and/or manufacture of aircraft, engines or propellers, air navigation service providers and certified aerodromes.

Security. Safeguarding civil aviation against acts of unlawful interference. This objective is achieved by a combination of measures and human and material resources.

Surface-to-Air Missiles (SAMs). Any weapon that may be fired at an aircraft from the ground (including MANPADS), but in this context, is taken to mean advanced military equipment that is capable of attacking airborne targets at altitudes of at least 25 000 ft (7 600 m).

State of the Operator. The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

Threat. A man-made occurrence, individual, entity, or action that has, or indicates, the potential to harm life, information, operations, the environment and/or property.

Vulnerability. Factors or attributes that render an entity, asset, system, network or geographic area open to successful exploitation or attack or susceptible to a given threat or hazard.

SUBPART B

ECAA AS THE STATE OF OPERATOR ROLE :

- 1- The primary objective of ECAA with regard to international civil aviation security is to assure the protection and safety of Aircraft , passengers, crew, ground personnel and the general public in all matters related to safeguarding against acts of unlawful interference with civil aviation.
- 2- Under the oversight of ECAA , aircraft operators are responsible for their operations. The guiding principle for such operations is the use of risk management, and the ECAA should maintain adequate ongoing oversight of aircraft operators, including monitoring of their risk management systems, it is expected that the existing oversight and monitoring process will ensure the risk assessments, including those for operating over or near conflict zones.

PROMULGATION OF INFORMATION

&

PROVISION OF AERONAUTICAL INFORMATION

A- *Aeronautical Information Publication (AIP)*

- 1- The AIP contains aeronautical information of a permanent nature as well as temporary changes of long duration to this information. Temporary changes of longer duration (three months or longer) and information of short duration which contain extensive text and/or graphics are normally published as AIP Supplements. The AIP forms the basic element of the aeronautical information products supplied by Aeronautical Information Services. The products also include the amendment service to the AIP, AIP Supplements, NOTAM, pre-flight information bulletins (PIB), Aeronautical Information Circulars (AIC), checklists and lists of valid NOTAM. *Notice to airmen (NOTAM)*

B- A NOTAM is a notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

- 1- NOTAM is originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics. NOTAM should be published for a number of reasons, including:

- the presence of hazards outside promulgated sites which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events); and
- as matter of best practice, the presence of threats from a conflict zone, which is considered a reportable hazard for air navigation, including information as specific as possible regarding the nature and extent of threats arising from the conflict and its consequences for civil aviation.

- 2- The use of a NOTAM arises from the State's responsibility to provide aeronautical information about its sovereign and delegated airspace under Annex 15. Most States have dedicated entities responsible for issuing aeronautical information, usually by (national) ANSPs. *Aeronautical Information Circular (AIC)*

An AIC is a notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

AIRCRAFT OPERATOR ROLE :-

- 2- In determining the flight routes to use, aircraft operators should as a matter of best practice ensure that flights will not commence unless risk assessments are carried out and appropriate mitigation actions are taken to ensure the safety and security of the aircraft on the intended route from the aerodrome of departure to the aerodrome of arrival, including the intended take-off, destination and en-route alternate aerodromes. This includes assessing the airspace over or near areas where there is armed conflict posing a risk to civil aviation. In planning the conduct of operations through areas of armed conflict or the potential for armed conflict, operators should give due regard to (but not be limited to):
 - any additional fuel required for in-flight diversion out of the conflict area;
 - any deferred item in accordance with the minimum equipment list, if applicable for take-off and departure from the conflict zone without refuelling;
 - consideration of emergency and non-normal procedures, such as depressurization and engine failure;
 - availability and serviceability of aircraft equipment needed to facilitate identification of the aircraft by military units;
 - use of procedures and means to ensure that the pertinent authorities are advised of the flight plan; and
 - ensuring monitoring of the appropriate frequencies.
- 3- The absence of any restrictions in foreign airspace should not preclude the operator from making its own determination on the safety/security risks of the airspace to be flown through. Various information sources can be used (e.g. government advisories, other aircraft operators, open-source intelligence) including in-house departments tasked with flight route management.
- 4- Operators have a need to know of any airspace restrictions or (potential) hazards/threats that affect the safety of their operations. This material includes available information and recommendations on conflict zones which should be incorporated into their risk assessment and decision-making processes. Operators should furthermore share their own risk assessment information with their national authorities and are encouraged to share this information with other operators and service providers.
- 5- The operator should ensure that there is a mechanism to facilitate the necessary information, and advice is updated and passed to the pilot-in-command in real time. While this information can nearly always be provided before take-off, in some instances, because of rapidly changing circumstances, it must be provided in-flight in a similar way as information is provided en-route for in-flight re-planning, as this could result in a change to the intended route.

- 6- Flight crews should maintain extra vigilance when operating over, or near, the area of an armed conflict. For example maximum effort should be taken to facilitate identification of the aircraft by military units (i.e. weather radar, transponder, radio altimeter, lighting) and ensure that appropriate radio communication frequencies are monitored.

AIR NAVIGATION SERVICE PROVIDER ROLE (within Egyptian FIR):-

- 1- The planning for and the execution of ATS is essentially a national responsibility unless agreements have been concluded among States to conduct this planning and execution as a joint effort for a defined area covering more than one State, or for areas where no sovereign rights are exercised (e.g. the high seas). It is therefore of prime importance that both the planning and execution of ATS be done so that optimum uniformity is maintained to the largest possible extent.
- 2- Annex 11 requires the ATS authority to develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of ATS and related supporting services in the airspace for which they are responsible for the provision of such services. Contingency plans may include a temporary deviation from the regional air navigation plans. When necessary, ICAO provides assistance with the development of such contingency plans in close coordination with the ANSPs responsible for the provision of services in adjacent portions of airspace and with the airspace users concerned.
- 3- The ANSP should as a matter of best practice conduct a risk assessment for activities potentially hazardous to civil aircraft and ensure that appropriate risk mitigation measures are implemented. This involves working closely with military and other security authorities with regard to activities that may affect flights of civil aircraft and civil military coordination in the event of an armed conflict affecting civil aviation.

THREAT ANALYSIS

- 1- Threat analysis focuses primarily on the evaluation of existing intent and capability, based on the information collected, to determine the presence of an intentional act of unlawful interference that could cause the loss of lives. The evaluation of likelihood may be inherently more difficult for threats than for hazards. This is because threat includes a component of intent which is generally not quantifiable, and therefore its assessment is based on qualitative narratives. In many cases information about intent may be classified, for example, because it comes from intelligence sources. Information about capability may also be security classified where it comes from intelligence or military sources; however, such information may to some extent be found in the public domain. Both quantitative and qualitative methods are available to this process, and a combination of historical data as well as scenario-building should be applied to appropriately assess likelihood. Qualitative methods can help to consider, for example, the likelihood of the threat increasing over time or uncertainties that need to be taken into account.

- 2- To properly analyse threat, a large amount of data may have to be sorted through, categorized, and scored against existing parameters. When conducting a threat assessment, as part of a larger risk assessment, having clear definitions of the severity of risk inputs is key. These definitions should be established and understood prior to conducting any part of a risk assessment, ensuring a consistent understanding of the relative likelihood of a threat when conducted across a number of scenarios. Appendix A contains a threat scoring methodology example. More examples of these can be found in the ICAO *Aviation Security Global Risk Context Statement* and the ICAO *Aviation Security Manual* (Doc 8973), but creation and application of risk assessments may be dependent upon the operating environment of the State and/or operator and should be developed locally, taking due account of this or any other locally applicable guidance.
- 3- If a credible threat can be determined as a result of threat analysis, an appropriate security risk assessment (Step 3) must be conducted to determine the feasibility of a continued operation over or near a conflict zone. Where there is capability, but no intent can be established to commit a deliberate act, the available threat information may nevertheless be used to identify appropriate hazards, including any that may arise as unintended consequences of mitigating actions.

HAZARD IDENTIFICATION

Any information gathered for the conduct of a threat analysis may also be used to identify hazards related to the operation over or near conflict zones. Hazards in this context relate to the operational exposure to unintended consequences emanating from areas with conflict. This includes the identification of existing operational hazards (e.g. weather, high terrain), but also hazards resulting directly from the conflicts (e.g. separation from military traffic, availability of air traffic services). Furthermore, the hazard identification process (Step 4) should also focus on the identification of any unintended consequences that may result from mitigating actions taken in response to an identified threat (e.g. fuel calculations to maintain higher single engine ceiling, or additional fuel for longer routings to avoid conflict zones). Appendix B contains an example of safety risk assessment methodology guidance material.

RISK ASSESSMENT

- 1- The risk assessment process aims to determine the existing risk, focusing on likelihood, vulnerability and consequences of identified threats and hazards. However, as stated above, for the security risk assessment the assumption can be made that the consequences of an aircraft being attacked by a SAM are likely to include the loss of the aircraft and all on board, as well as possible additional casualties on the ground and wider economic costs. Nor are the available mitigating actions and resulting vulnerabilities likely to vary. This is different for the safety risk assessment in terms of unintended consequences of mitigating actions against the threat as stated above. Furthermore, the risk assessment process serves as a mechanism to determine the acceptability of the residual risk and to prioritize, identify and establish mitigating actions to lessen the risk. This will help to define if an operation can be continued or needs to be suspended.

- 2- There are several ways in which a risk assessment can be conducted. The specific process undertaken by a ECAA, operator or service provider is dependent upon a number of factors, including resources, information that is available, and information that can be collected. Regardless of the risk methodology selected, there are certain characteristics that need to be met, including clearly defined risk inputs, a set scoring methodology for risk, and an understanding of what is an acceptable level of risk.
- 3- It is important that the initial assessment of the existing risk be based on the existing threats and hazards without considering any mitigation actions. This allows the determination of whether any measures can and should be applied to reduce the existing risk, and if so, which ones. Because risk assessment is a cyclical process, the residual risk needs to be evaluated in the same way as the initial risk assessment was conducted after any possible mitigation actions have been identified and their implementation factored in. It should be noted that consequences associated with hazards are determined in terms of severity and impact aircraft operators or service providers. They should be evaluated by considering loss of lives and equipment, financial loss, reputational impact and other relevant factors.
- 4- The illustrative risk assessment process is an inclusive mechanism to determine the correlated operational risk from operations over or near conflict zones and serves as enabler for an informed risk-based decision on the continuation of affected operations. The six components — collection and sharing of relevant information, threat analysis, security risk assessment, hazard identification, safety risk assessment, and risk determination — are complementary in nature and build on interfaces designed to address appropriately any unintended consequences of applied mitigation strategies. It is important to consider this process as a continuous mechanism that should be an ongoing activity. Emphasis is placed on the availability of appropriate information which is the prerequisite for a functioning risk assessment process.
- 5- The described risk assessment process is designed as a mechanism that is continuously applied to the relevant operation and initiated by changes in the operating environment or specific time intervals. Furthermore, the process is cyclical and does not conclude with the determination of risk acceptability. The outcomes of the assessment are re-integrated in the volume of available information and applied in the execution of the successive process.
- 6- The outcome of the risk assessment process is individual for each operation and may vary between operators and service providers based on the same information, for example, due to different risk acceptability. It is therefore important that the acceptable operational risk may need to be defined in a dialogue between the ECAA and the operators and service providers under the oversight authority.
- 7- Additional mitigation actions may need to be developed where the determined operational risk level exceeds the organization's risk tolerance. Thus if the determined operational risk is not acceptable, the process needs to identify effective and efficient measures to lower the risk to an acceptable level. These measures are intended to strengthen operation and should be implemented in the functional domain which is most relevant to the identified concern (e.g. a security-

related high operational risk may best be addressed through the implementation of mitigating actions in the security domain, whereas a safety-related high risk can be addressed through measures in that domain). However, as noted above, in the case of a potential SAM attack on civil aircraft, the only mitigation action available is likely to be avoidance of the affected airspace. At the same time, implementation of effective mitigating actions may create indirect vulnerabilities that must be monitored by the entity conducting the measures. For example, avoiding airspace over or near a conflict zone may cause greater air traffic in other flight routes, and any safety implications of that must be assessed. Additionally, flying at higher altitudes may require more fuel or a decrease in the aircraft payload. Understanding the costs, benefits, and toll on resources is a key factor when determining mitigation actions.

Subpart C

Action required form any operator needs to operate near or over conflict zone

- 1- Preparing a clarified security study (security risk) on the security situation of airports in the itineraries with a review of operating areas according to the data provided by these links
 - <https://www.easa.europa.eu/domai/air-operations/czibs>
 - <https://www.icao.int/Newsroom/pages/ICAO-Goes-Live-With-New-Online-Conflict-Zone-Information-Repository.aspx>
 - <https://www.faa.gov/air-traffic/publication/us-restrictions/>
 - <https://www.public.nm.eurocontrol.int/PUBPORTAL/gaspec/index.html>
- 2- Preparing (safety risk) according to operation specifications and submitting it to air operations central administration for opinion .
- 3- Preparing (Risk assessment) for itineraries and submitting them to the safety department of the Egyptian Civil Aviation Authority for opinion
- 4- Preparing a flight plan for the trip and attaching the airport status from the private official websites mentioned in the conflict areas and submitting it to the office (FIC), provided that these requirements are submitted at least one week before the proposed date of operation for the study in order to be able to approve the work of the flights so that each designated party can study and express an opinion