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Aviation Security Global Risk Context Statement

First Edition, 2018



Approved by and published under the authority of the Secretary General

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AMENDMENTS

Amendments are announced in the supplements to the *Products and Services Catalogue*; the Catalogue and its supplements are available on the ICAO website at www.icao.int. The space below is provided to keep a record of such amendments.

RECORD OF AMENDMENTS AND CORRIGENDA

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FOREWORD

This document contains a global aviation security risk assessment, including a global threat picture, and is intended to help inform and support ICAO Member States' processes for national and local aviation security risk assessment. Included in Appendix A is the risk assessment methodology and process map used to conduct this global risk assessment and other guidance information that may further assist Member States in their national processes.

Please note that six previous versions of the *Aviation Security Global Risk Context Statement* (RCS) were published without a document number. The ICAO Council, at the seventh meeting of its 211th session on 16 June 2017, approved the ICAO Aviation Security (AVSEC) Panel recommendation that the RCS be provided with an official document number in the catalogue of ICAO publications in order to increase its availability. Therefore, this new version, the seventh edition of the RCS, is being issued as a first edition of Doc 10108.

The *Aviation Security Global Risk Context Statement* should be made available to those who are responsible for conducting national and other aviation security risk assessments and aviation security decision makers, practitioners and other relevant stakeholders. Procedures for handling, transmission and storage of this document must be applied in accordance with each Member State's regulations for sensitive aviation security information.

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GLOSSARY

ACRONYMS

ATM	Air traffic management
CBR	Chemical, biological and radiological
COTS	Commercial off-the-shelf
EDS	Explosives detection system
HME	Homemade explosive
IED	Improvised explosive device
LNMC	Low- or no-metal content
MANPADS	Man-portable air defence system
PBIED	Person-borne improvised explosive device
PoC	Point of contact
RCS	ICAO Aviation Security Global Risk Context Statement
RED/RDD	Radiological exposure device/radiological dispersal device
RPAS	Remotely piloted aircraft system
SAM	Surface-to-air missile
SARPs	Standards and Recommended Practices
SATCOM	Satellite communication
SRA	Security restricted area
VBIED	Vehicle-borne improvised explosive device
WGTR	Working Group on Threat and Risk

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Chapter 1

INTRODUCTION

1.1 The continuing threat of terrorism to the global aviation system is most effectively managed by identifying, understanding and addressing the potential risks to and from civil aviation, including the transportation of passengers and goods (baggage, cargo, and mail). The identification of risks permits Member States to determine and implement proportionate measures and controls to mitigate appropriately against each risk type.

1.2 To assist Member States in this process, the *Aviation Security Global Risk Context Statement* (RCS) has been developed and is updated on a regular basis. The RCS aims to:

- a) offer States a methodology and a framework to conduct risk assessments at the national level (see Appendix A);
- b) provide an overview of the current global aviation security threat;
- c) present high-level global risk assessments to help inform States' national civil aviation security programmes; and
- d) assist ICAO in improving and updating Standards and Recommended Practices (SARPs) and guidance material.

1.3 The development of the RCS is undertaken by the ICAO AVSEC Panel Working Group on Threat and Risk (WGTR), whose terms of reference are provided in Appendix B. The work is done in recognition of the importance of a risk-based approach to aviation security and relies on the input of relevant experts, as well as the effective and timely reporting and sharing of information by ICAO Member States.

1.4 The WGTR regularly reviews previously completed risk assessments or conducts new risk assessments, updates the RCS on an annual basis, or as needed, and provides analysis and advice on risks to aviation to the AVSEC Panel. ICAO also draws on the advice of the WGTR with regard to evolving threats and incidents.

1.5 The RCS is aimed primarily at decision makers, practitioners and other relevant stakeholders within Member States who are responsible for conducting aviation security risk assessments.

Chapter 2

THE GLOBAL AVIATION THREAT PICTURE

2.1 For many years, civil aviation has been a very attractive terrorist target for a variety of reasons, and that remains the case as terrorists continue to seek to exploit real or perceived vulnerabilities in the international civil aviation system. Despite enhancements to the security system, terrorists continue to develop new techniques and weapons in the hope of circumventing or defeating security measures. Recent successes or partial successes in doing so have encouraged them to research and plan further attacks.

2.2 Terrorists, whether as part of an organized group or acting alone, generally aim to achieve one or more of the following objectives in selecting aviation as a target for attack:

- a) inflicting mass casualties;
- b) causing economic disruption;
- c) making a symbolic statement; and
- d) generating public anxiety.

2.3 These objectives may lead to a variety of forms of attack on the aviation system. Terrorists have shown themselves to be innovative, and may seek out a wider range of modus operandi and targets, influenced by the availability and vulnerability of such targets and dependent upon capability and the perceived opportunity for success.

CURRENT GLOBAL THREAT

2.4 Much information is available in the public domain about the specific nature of recent and current threats to aviation. However, there is also much that, because of the sensitive nature of the information itself or of its sources, cannot be put into the public domain or discussed in documents such as this. This includes information about actual attacks, but also planned attacks that may have been disrupted, not followed through, or not yet come to fruition. Such information may be sought from States' own security or intelligence services.

2.5 Twenty-two acts of unlawful interference were recorded in the ICAO Database of Acts of Unlawful Interference in 2017, as compared to nine in 2016. These acts covered a range of geographical regions, and consisted of various attack types including nine attacks on, or at, aviation facilities, one attempted attack on an aircraft, one attempted attack using an aircraft as a weapon, one cyber-attack, two unlawful seizures and eight attacks qualified as "others", which include breaches of secure areas and systems. Other occurrences or incidents, identified through media reports but not officially reported as acts of unlawful interference, continue to provide further evidence of planning by terrorists to commit acts of unlawful interference against aviation targets.

GLOBAL TRENDS

2.6 The ability of terrorist groups to inspire or call directly upon radicalized individuals to carry out attacks remains a very prevalent threat. With centralized attack planning, groups have the ability to leverage resources and skills to pursue sophisticated tactics against relatively hardened targets, such as aircraft. However, as the planning of attacks becomes more decentralized, there is an expansion of tactics, techniques, and procedures to less sophisticated weapons targeting more vulnerable and easily accessed targets, for example the public areas of airport terminals. Globally, a high number of non-aviation related mass casualty attacks across many States during 2017 has again demonstrated the vulnerabilities of crowded public spaces. Within the aviation security context, primary soft targets are landside or public areas of the airport, specifically departure halls prior to the security checkpoint, and arrival halls.

2.7 Despite this, terrorist groups still demonstrate a preference to attack aircraft in flight if possible. Improvised explosive devices (IEDs) remain a terrorist's main weapon of choice for such attacks. Some groups or individuals continue to attempt to develop innovative ways of making, concealing and conveying IEDs in order to bypass or defeat aviation security measures. IEDs may be introduced onto an aircraft concealed on the person or in items carried by a passenger, or in checked baggage, cargo or aircraft supplies. Other potential means of attack on board an aircraft include weapons and chemical agents.

2.8 Terrorists have consistently sought to identify and exploit vulnerabilities in security environments in an attempt to find or create the path of least resistance to their targets. This could include the exploitation of people (e.g., airport employees or other "insiders") or a process (e.g., ineffective security measures) to allow or facilitate a terrorist to conduct an attack using less sophisticated methods than may otherwise be necessary.

Chapter 3

RISK ASSESSMENT RESULTS

3.1 The WGTR has updated its global risk assessment each year since 2009. Risks are assessed by threat type. Each threat category incorporates many scenarios or sub-scenarios, and for each of these there is an explanation of the general scenario, including the target (e.g., an aircraft), the means of attack (e.g., armed assault) and, where necessary, the type or perpetrator (e.g., a category of privileged insider). For each plausible threat scenario, the WGTR assesses the likelihood, consequences, mitigating measures in place, and residual vulnerability in order to determine the residual risk. The detailed results are recorded on risk matrices compiled for each threat type, which are then used as the basis for the WGTR's advice to ICAO and for the broader summaries that are set out in the RCS.

3.2 Keep in mind that these risk results attempt to reflect an overall global picture and not a specific regional or national picture (an exception is the threat from man-portable air defence systems (MANPADS), because this is considered to vary significantly depending on the local proliferation of such weapons). Also note that the vulnerability level has been assessed here as the residual vulnerability, assuming that States have implemented effectively all relevant security measures currently required by ICAO, primarily those in Annex 17 — *Security*.

3.3 The following sections of this document provide an overview of the risk assessment results and a summary of the changes for this 2018 edition. A more complete summary of the results of the WGTR's global risk assessments is provided in Appendix C.

OVERVIEW OF RISK ASSESSMENT RESULTS

3.4 Table 3-1 below provides a high-level overview of the results, grouped according to the threat type.

Table 3-1. Threat-type risk levels

<i>THREAT TYPE</i>	<i>Likelihood</i>	<i>Consequence</i>	<i>Vulnerability</i>	<i>RISK</i>
PERSON-DELIVERED IED on the body or in cabin baggage	High	High	Medium-high to High	HIGH
LANDSIDE ATTACKS	High	Medium-low to Medium	Medium-high	MEDIUM-HIGH
MANPADS in conflict or proliferation zone	Medium-high	High	Medium-high	MEDIUM-HIGH
IED IN CARGO	Medium-high	Medium-high to High	Medium-high	MEDIUM-HIGH

THREAT TYPE	Likelihood	Consequence	Vulnerability	RISK
IED IN HOLD BAGGAGE	Medium-low	High	Medium to Medium-high	MEDIUM
VEHICLE-BORNE IED	Medium	Medium-high	Medium-high	MEDIUM
AIRCRAFT USED AS A WEAPON	Medium	High	Medium	MEDIUM
CONVENTIONAL HIJACK	High	Medium-low	Medium-low	MEDIUM
CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL THREATS	Medium	Medium-high	Medium-high	MEDIUM
IED IN SERVICES (catering, in-flight supplies, etc.)	Medium-low	High	Medium	MEDIUM-LOW
ATTACK USING REMOTELY PILOTED AIRCRAFT SYSTEMS (on aviation targets)	Low	High	Medium-high	MEDIUM-LOW
MANPADS (non-conflict or proliferation zone)	Medium-low	High	Medium-high	MEDIUM-LOW
CYBER-ATTACKS	Low	High	Medium-low	LOW

3.5 According to this assessment, the threat type which still poses the greatest risk to international civil aviation at the global level is person-borne IEDs, that is, explosive devices carried on board a plane by a passenger either on their body or in cabin baggage and personal effects. Following a further review of this threat type by the WGTR this year and of recent events, the residual risk continues to be assessed as **HIGH**, having been increased to that level three years ago. Within this category, it is considered that IEDs concealed in personal belongings, including electronic or electro-mechanical devices, currently represent the greatest risk.

3.6 The threat types that are assessed to represent the next highest level of risk are landside attacks, IEDs concealed in cargo (which continue to attract the interest of certain groups), and attacks using MANPADS in areas of conflict and proliferation. Each of these continues to be assessed as **MEDIUM-HIGH**. In particular the WGTR has noted a renewed interest by terrorist groups in the use of cargo and mail as a means of getting IEDs on board aircraft, whether to attack the aircraft directly or to convey them to other locations. As foreseen in the previous edition, the WGTR has completed a further review during 2017 of the risk from chemical, biological and radiological (CBR) attacks. This has taken account of events in the past year, including the report by Australian authorities that the same group responsible for a failed plot to smuggle an IED on board an aircraft in Sydney was also found to have acquired the materials needed to produce an improvised chemical dispersal device. In light of these and other developments, the WGTR has increased its assessment of the likelihood of a CBR attack against civil aviation, and consequently the overall assessed residual risk for this type of attack has been raised from **LOW** to **MEDIUM**.

3.7 The WGTR has continued to assess other emerging threat types, including remotely piloted aircraft systems (RPAS), and the threat of cyber-attacks (against aircraft or air traffic management systems). In each of these cases the risk continues to evolve, but is currently assessed as **MEDIUM-LOW** and **LOW**, respectively. However, potential vulnerabilities have been identified, and the risk could well increase as current technological trends continue or if the threat likelihood should grow.

APPENDIX A

RISK ASSESSMENT METHOD, PROCESS MAP AND GUIDANCE INFORMATION FOR MEMBER STATES

1. RISK ASSESSMENT METHOD AND PROCESS MAP

1.1 The risk assessment method set out below was developed to enable the WGTR to carry out its work in a logical, consistent and clear manner, to explain the method used and its results to the recipients of the RCS, and to assist States and other entities in performing risk assessments of their own. It is not a precise scientific or mathematical exercise but is designed to generate an understanding and a *relative* ranking of current residual risk in order to inform policy-making.

1.2 Figure A-1 provides the risk assessment process map employed by the WGTR. This risk assessment process comprises the following elements:

- a) the identification and analysis of plausible threat scenarios and their likelihoods, and consequences;
- b) the assessment of current mitigations and remaining vulnerabilities;
- c) residual risk assessment taking into account the likelihood, consequences, and vulnerabilities of a specific threat scenario; and
- d) recommendations for further risk-based work and possible mitigation.

1.3 The key components for completion of the risk assessment are:

- a) *threat scenario* — an identification and description of a credible act of unlawful interference comprising a target (such as an airport terminal, associated infrastructure or an aircraft), the modus operandi (including conveyance and concealment) and methods of an attack (such as an IED), and the adversary (based on the role an adversary plays in the aviation system — passenger, non-travelling person, and/or insider). This should be sufficiently detailed to permit accurate assessment and analysis; “an attack against an aircraft” is not good enough as a scenario;
- b) *likelihood* of an attack — the probability or likelihood of that attack being attempted, based on terrorist intentions and capabilities but NOT taking into account current security measures. The WGTR utilizes likelihood as an indicator of threat, considering both the *intent* and *capability* of a perpetrator to carry out a threat scenario;
- c) *consequences* — the nature and scale of the consequences of the specific attack, in human, economic, political, and reputational terms under a reasonable worst-case scenario;