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MINIMUM DETECTION SETTINGS FOR SECURITY SCREENING EQUIPMENT WITH REGARD TO EXPLOSIVES DETECTION: THE NEED FOR ICAO GUIDELINES

(Presented by Kazakhstan supported by Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan)

EXECUTIVE SUMMARY

This paper addresses the systemic gap in the international practice wherein ICAO USAP-CMA requires the establishment of minimum detection settings for the use of effective explosives detection equipment (including ETD and EDS), States however lack the capacity of establishing universal and verifiable minimum performance requirements for such security screening equipment.

As a result, it is impossible to objectively assess equipment suitability while procurement of such equipment becomes more difficult, leading to increased security risks associated with explosive detection capabilities of security screening equipment deployed at airports.

Kazakhstan invites you to note the development of a recommended list of minimum technical requirements for explosives detection equipment (ETD and EDS).

Strategic Goals:	This working paper relates to Strategic Goals *Every Flight is Safe and Secure*
Financial implications:	
References:	Annex 17 — *Aviation Security* Doc 8973— *Aviation Security Manual*

1. INTRODUCTION

1.1 Screening for explosives using technological means, such as technical screening equipment, is a key element of aviation security, as affirmed by Annex 17 Standards and the guidance material in the ICAO Aviation Security Manual (Doc 8973).

1.2 However, in practice, States face difficulties verifying the effectiveness of such security screening equipment due to the following reasons:

a. Manufacturers do not disclose key technical specifications related to explosive detection capabilities of security screening equipment.
b. No international minimum requirements exist for such specifications.
c. ICAO has not designated a body nor has established a mechanism responsible for the development or coordination of these requirements, as it relates to the establishment of minimum detection settings, including specifications of performance test pieces for security screening equipment.

1.3 This information paper is prepared on behalf of the Aviation Security Coordination Group of Central Asia and the Caucasus, which includes seven Member States. The issue of minimum detection setting requirements for explosives detection equipment was discussed at the Group's meeting on 29–30 May 2025 and was recognized as a priority issue for international consideration.

2. THE INTERNATIONAL NATURE OF THE ISSUE

2.1 This is not an issue for a limited number of States but a challenge for all, across all continents, the USAP-CMA audits revealed that regulators and operators face the challenge of procuring equipment based on formal criteria—such as certification and marketing descriptions—without assurance of its effectiveness in detecting modern threats, including State-specific and regional threats based on homemade and non-conventional explosives.

2.2 USAP-CMA auditors focus on the presence of protocols and procedures, i.e. whether the State has established a standardized approach to the setting of detection standards and establishing specifications of performance test pieces on the basis of a risk assessment used to determine types and amounts of substances/items to be detected in order to ensure the consistent detection of threat items. However, the auditors lack verifiable criteria to assess the technical adequacy of installed equipment deployed at the State's airports selected for observation.

What is required from the State is to prove that there is a mechanism to ensure that the equipment meets the detection requirements of the State. This can either be done by the State through conducting certification of security screening equipment, which is a difficult and challenging process for States lacking such capacity, or by receiving confirmation from an equipment certification body that a given type of equipment has the capacity to detect a list of threat items and amounts specified by the State, which in practice, is not achievable.

3. SYSTEMIC INCONSISTENCIES IN INTERNATIONAL PRACTICE

3.1 Annex 17 requires each Contracting State to ensure that supporting resources and facilities required by the aviation security services are made available at each airport serving civil aviation. For

States, this means to ensure the availability of effective security screening equipment, i.e. selecting the appropriate technology to efficiently detect the threat items identified by the State. However, there is no definition of "effectiveness" in technical terms, nor a list of minimum required specifications.

3.2 Under the USAP-CMA, there are eight Protocol Questions (PQs) related to this Standard. Four of these PQs (4.106 – 4.109) assess whether the State has established minimum detection settings, including specifications of performance test pieces, for security screening equipment used in the screening of persons other than passengers, passengers and their cabin/hold baggage, cargo and mail. For many States, it is a long-standing challenge to determine minimum detection settings, as many States lack the capacity to develop such settings for themselves.

3.3 While the ICAO Aviation Security Manual (Dov 8973) contains in Annex 2 to Appendix 20 guidance on the framework for the creation of minimal specifications for security equipment, there is no detailed guidance from ICAO describing, in practical terms, the process that States need to implement in order to establish their own minimum detection settings for security screening equipment…

3.4 Consequences include:

a) fragmented security equipment capabilities among States;
b) risk of procuring equipment with inadequate performance; and
c) although the impact of a potential explosion is the same for all States, the preventive approach remains unharmonized.

4. PROPOSAL FOR DISCUSSION

4.1 It is proposed that ICAO initiate the development of a recommended list of minimum technical requirements for explosives detection equipment (ETD and EDS) or take as a basis the practice of ECAC in determining the minimum requirements…

4.2 Potential areas for standardization include:

a) identification and continuous review of threats to civil aviation in order to recommend how to prevent the introduction of specific threat items or restricted articles into Security Restricted Areas (SRAs);
b) defining types and amounts of explosives that the equipment must detect, i.e. analysis of the characteristics and properties of the threat, i.e. types and amounts of substances/items to be detected in order to recommend the appropriate technology with minimum detection requirements to efficiently detect the threat items identified;
c) establishing threshold sensitivity levels and acceptable false alarm rates;
d) creating a framework for comparative assessment of suppliers; and
e) the Aviation Security Panel Working Group on Guidance Material and the Secretariat Study Group on the USAP to develop guidance material describing in detail the practical steps of the process for States to implement to establish minimum detection settings, including specifications of performance test pieces, for security screening equipment.

4.3 The development process may include:

a) collection of existing national specifications;
b) assist in audits and inspections; and

c) pilot implementation within a regional group (e.g., EUR/NAT AVSEC).

5. CONCLUSION

5.1 The gap between the requirement for effective screening and the absence of tools to assess such effectiveness undermines aviation security.

5.2 ICAO, in coordination with States and the expert community, could initiate the development of a recommended yet harmonized list of minimum requirements that would:

a) ensure comparability and transparency;
b) assist in audits and inspections; and
c) Strengthen global confidence in the screening system..

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