

**Department of Transportation****Federal Aviation Administration****[Docket No. 28671]****RIN 2120-AF95****Explosives Detection Systems****AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Final criteria for certification of explosives detection systems.

**SUMMARY:** The FAA is issuing the final Criteria for Certification of Explosives Detection Systems (EDS's) (hereafter referred to as "Criteria"). The Criteria introduces minimum performance standards for EDS equipment designed to identify detonators. The prior EDS Criteria issued September 10, 1993, established minimum performance standards only for EDS equipment designed to identify main/bulk explosive charges. The current Criteria allows the FAA to certify EDS equipment that meets or exceeds either the minimum performance standards for explosive material categorized as main/bulk explosive charges, or the minimum performance standards for explosive material categorized as detonators. This action is responsive to 49 U.S.C. 44913 (formerly section 108 of the Aviation Security Improvement Act of 1990, Public Law 101-604), which requires the Administrator to certify, prior to mandating its deployment, that EDS equipment "can detect under realistic air carrier operating conditions the amounts, configurations, and types of explosive material which would be likely to be used to cause catastrophic damage to commercial aircraft."

**EFFECTIVE DATE:** May 13, 1998.

**FOR FURTHER INFORMATION CONTACT:** Mr. Armen A. Sahagian, Senior Engineer (ACP-400), Office of Civil Aviation Security Policy and Planning, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C., 20591, telephone (202) 267-7076.

**SUPPLEMENTARY INFORMATION:****Availability of Document**

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267-9680. Communications must identify the docket number of this notice.

**Release of National Security and Sensitive Information**

The Associate Administrator for Civil Aviation Security has determined that certain portions of the Criteria are of national security concern and require safeguarding from unauthorized disclosure pursuant to Executive Order 12356 (National Security Information). Further, pursuant to 14 CFR part 191 (Protection of Sensitive Security Information), certain unclassified information has been determined to be sensitive security information. Upon request, the complete Criteria will be provided to prospective manufacturers of explosives detection equipment, and other interested parties with a bona fide need to have the complete Criteria, provided such persons have appropriate authorization for access to U.S. Government national security information and/or sensitive security information.

**Availability of Criteria**

Persons requesting access to, or a copy of, the complete text (including all classified and sensitive security information) of the Criteria may write to the Federal Aviation Administration, Office of Civil Aviation Security Operations, Attention: FAA Security Control Point (ACO-400), Docket No. 28671, 800 Independence Avenue, SW., Washington, D.C. 20591.

Individuals requesting the classified portion of the Criteria must include information regarding authorizations and security clearances for access to U.S. Government national security information, and sufficient explanatory information supporting the request to demonstrate a bona fide need to know the information contained in the Criteria.

**Background**

The Criteria are responsive to the statutory mandate for testing and certifying EDS. The FAA has had a long-standing research and development (R&D) effort to counter the threat of explosive materials to civil aviation. Along with other technologies, the FAA invested in detonator detection R&D beginning in 1985. However, based upon early research, the FAA focused its R&D resources primarily on the detection of main/bulk explosive charges, because it appeared to be the most technologically feasible approach. The effort resulted in the September 10, 1993, Criteria (58 FR 47804), which established minimum performance standards for main/bulk explosive charges detection equipment; however, recent technological advances suggest

that equipment capable of detecting the different types of detonators used to initiate or detonate an explosive may also be effective means of screening checked baggage. On August 30, 1996, the FAA published a Proposed Amendment to Criteria for Certification of Explosive Detection Systems (61 FR 46011) with a request for public comments by October 29, 1996, which was later extended to January 6, 1997 (61 FR 57511; Nov. 6, 1996). After considering the comments received, the FAA now considers it appropriate to adopt amendments to the minimum performance standards for the detection of detonators.

**Detection of Main/Bulk Explosive Charges**

During the past two decades, the FAA has been working on the development of explosive detection equipment, with the initial explosive detection research and development (R&D) efforts beginning in 1977. As part of these R&D efforts, in 1983 the FAA established a formal, internal statement of detection and false alarm performance goals for explosive detection equipment designed to identify main/bulk explosive charges in checked baggage, air cargo, carry-on baggage and on passengers. Based upon additional information and further evaluation, these FAA explosives detection goals were revised and upgraded in 1986 to reflect the changing terrorist threat to civil aviation. Portions of these performance requirements were further revised in August 1989 in anticipation of using explosives detection equipment for screening international checked baggage. In October 1991, the FAA completed an internal review of all previous studies, reviews, analyses and other materials associated with explosive detection. The review was the most extensive examination yet conducted of previous classified and unclassified technical reviews and available information on the amounts, types, and configurations of explosives used in attempted or successful acts of sabotage against civil aviation. This review culminated with the issuance of the Criteria (58 FR 47804; Sept. 10, 1993) which established minimum performance standards only for main/bulk explosive charges detection equipment.

**Detection of Detonators**

In October 1995, the FAA completed its compilation and analyses of detonator technical designs obtained during visits to 38 detonator manufacturers located in the United States and 20 other countries. These analyses were the most extensive

examinations on the types, materials, and configurations of detonators. As a result, the FAA developed a comprehensive database on detonators manufactured worldwide, as well as global detonator production and consumption profiles. The types of detonators specified in the Criteria were based, in part, upon reports which identified the types of detonators used in terrorists acts, as well as those likely to be used in future attempts to destroy or sabotage civil aviation, other modes of transportation, and physical structures. This analysis was conducted by the FAA with advice and consultation from U.S. and international explosive materials experts, and agencies of the United States and other governments.

#### **Development of the Amended Criteria**

The primary change to the September 10, 1993, EDS Criteria is the introduction of minimum performance standards for the detection of detonators. These standards are included in the portion of the document not published in the **Federal Register** because they involve national security and sensitive information. The principal purpose of the Criteria is to state that it is possible to obtain certification of an EDS to automatically detect explosive materials in two distinct ways, either by identifying bulk/main explosive charges, or by identifying detonators.

The changes to the September 10, 1993, EDS Criteria, which are published here, include a definition for the term "explosive material." The definition distinguishes between two principal components of explosive material: bulk/main explosive charges and detonators.

#### **Management Plan for Certification Testing**

To facilitate testing of EDS candidate equipment under either of the two methods of explosives material detection, the Criteria references separate management test plans. The FAA previously developed a management test plan for EDS certification of bulk/main explosive charges detection equipment. A notice of availability of the draft management test plan was published in the **Federal Register** on June 22, 1993, for public comment (58 FR 33967). That management test plan, entitled *FAA Management Plan for EDS Certification Testing*, was based upon the National Academy of Science's General Testing Protocol for Bulk Explosive Detection Systems. A separate management test plan for EDS certification of detonator detection equipment is currently being developed. The FAA expects to issue a

notice of availability of a draft management test plan for EDS certification of detonator detection equipment in the near future.

#### **Discussion of Comments**

The FAA received only one comment, from the Air Line Pilots Association (ALPA), to the unclassified sections of the Notice of Proposed Amendment to Criteria for Certification of Explosives Detection Systems, and five responses from commenters addressing sections that contain national security and sensitive information.

The Air Line Pilots Association opposes formal certification of detonator detection equipment as EDS on several grounds. First, ALPA states that it will be too difficult to detect detonators in cluttered bags, a problem ALPA believes will increase as terrorists become more sophisticated. The FAA agrees that the development of equipment to detect detonators in baggage, whether cluttered or not, is a difficult task. However, the FAA, in concert with foreign governments, has conducted extensive research that indicates detection of detonators is possible in cluttered baggage. The Criteria are designed to assure that only equipment that can reliably detect detonators, even in cluttered baggage, will be certified.

Second, ALPA opposes certification of detonator detection equipment because it would not detect bulk explosive material, even though that undetected explosive material is not part of a device designed to explode, i.e., there is no detonator present to initiate an explosion. The Air Line Pilots Association believes that the inability to detect such bulk explosive material poses some risk of catastrophic damage because of the instability of some explosive material. The FAA acknowledges that detonator detection equipment is not designed to detect bulk explosive material; however, EDS designed to detect bulk explosive material will not identify detonators. Both detonators and bulk explosive material could be transported aboard aircraft in violation of the hazardous materials regulations, and both would pose some risk. However, neither by itself is "likely to be used to cause catastrophic damage to an aircraft." The FAA vigorously enforces the hazardous materials regulations and would take aggressive action in any instance where either a detonator or bulk explosive material is transported in violation of those regulations.

The Air Line Pilots Association also opposes certification of detonator detection equipment because it does not believe that a detonator is an "explosive

material" as that term is used in the statutory provision on certification of EDS. The Air Line Pilots Association views certification of detonator detection equipment as weakening the existing Criteria. The FAA shares ALPA's commitment to ensuring that equipment is certified as an EDS only when it meets the rigorous standard of the statute, but does not agree with ALPA's analysis. A detonator is designed to explode, and contains explosives to achieve that purpose. More important, a detonator is a critical part of an explosive device. A narrow reading misses the real purpose of the statutory provision, which is to foster the development and certification of EDS equipment that reliably detect explosive devices that can cause catastrophic damage to aircraft. The FAA is committed to that goal, and will encourage all technologies that demonstrate the potential to reliably detect such explosive devices. The standards for certification of detonator detection equipment are very high and are not weaker than the standards for certification of bulk explosive detection equipment.

The FAA also fully considered the five comments to sections of the Proposed Amendment to Criteria that contain national security and sensitive information. The FAA's analysis and response to those comments has been placed in the non-public docket. The comments resulted in the addition of another detonator to the list of detonators and in minor revisions to the language of both the unclassified and confidential portions of the proposed amendment. The comments determined to contain sensitive security information, and the FAA's response to them, are available, upon written request to the FAA, to prospective manufacturers of explosives detection equipment and other interested parties with a bona fide need, provided such persons have appropriate authorization for access to U.S. Government national security information.

#### **Revisions to the Proposed Amendment**

Based upon comments it received, the FAA added one detonator to the list prescribed in the sensitive portion of the original proposal. Additionally, in the "Component Testing" section, FAA has deleted reference to detonator detection equipment in the discussion of explosives detection devices (EDS's).

#### **Regulatory Evaluation**

The FAA has considered the impact of the Criteria as required under Executive Order 12866 and under the Department of Transportation's

regulatory policies and procedures. The FAA has determined that this action is not significant under either of these directives. In addition, the FAA has determined that no cost-benefit analysis is needed for the Criteria and related matters such as the Management Test Plans. Any final EDS deployment decision will be subject to further review, according to the requirements of Executive Order 12866. In this regard, the Department determined that the rule authorizing deployment of an EDS for screening international flights was a major rule as defined in the Executive Order. Based upon circumstances and information available at the final rule stage in 1989, the FAA determined that the EDS available at that time, the Thermal Neutron Analysis (TNA) device, would be cost-beneficial. The FAA has not required, nor will it require the deployment of TNA or any other EDS until such equipment meets the prescribed requirements of 49 U.S.C. 44913. The FAA's deployment strategy requires deployment of effective EDS equipment in a cost-effective manner.

Information relevant to deployment decisions was developed in the 1989 final rule (54 FR 36946) in terms of the development, installation, and annual operating costs of a TNA device. However, as the EDS certification process proceeds and policies affecting EDS deployment are developed, all relevant issues influencing the ultimate decision on the timing and scope of deployment will be reviewed. The FAA will analyze the information submitted by manufacturers during the certification testing process to determine its effect on the scope and timing of deployment.

#### **Regulatory Flexibility Determination**

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily burdened by government regulations. The RFA requires agencies to consider the impact of rules on small entities, that is, small businesses, non-profit organizations, and local governments. If there is a significant impact on a substantial number of small entities, the agency must prepare a Regulatory Flexibility Analysis.

The small entities that could be potentially affected by the implementation of this action are small business enterprises that are or might seek to become manufacturers of EDS equipment. The number of small business enterprises that are in, or that might seek to enter, this market cannot be determined.

The Criteria imposes minimal costs on those small business enterprises.

These costs are primarily for obtaining access to or copies of the classified and sensitive security information portions of the Criteria. Because the incremental cost imposed by this proposed action is expected to be small, the FAA finds that this proposed action would not have a significant economic impact on a substantial number of small entities.

#### **International Civil Aviation Organization (ICAO) and Joint Aviation Regulations**

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA's policy to comply with ICAO Standards and Recommended Practices and the Joint Aviation Regulations to the maximum extent practicable. The FAA is not aware of any differences that the Criteria would present.

#### **Paperwork Reduction Act**

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), there are no requirements for information collection associated with the Criteria.

#### **The Amended Criteria (Excluding Sensitive Portions)**

The following sets forth the entire text of the Criteria except those portions of the document that contain either national security information that requires safeguarding pursuant to Executive Order 12356, or sensitive security information that requires safeguarding pursuant to 14 CFR part 191. (Note: Paragraph markings (U) indicate that the content of the paragraph is unclassified consistent with standard procedures for paragraph markings in the original classified document.)

#### **Criteria for Certification of Explosives Detection Systems**

##### *Introduction*

(U) Prior to any requirement for the deployment or purchase of explosives detection equipment under 14 CFR, 49 U.S.C. 44913 (formerly section 108 of the Aviation Security Improvement Act of 1990, Public Law 101-604) requires the FAA to certify that, based upon the results of tests conducted pursuant to protocols developed in consultation with experts from outside the FAA, such equipment can detect under realistic air carrier operating conditions the amounts, configurations, and types of explosive materials likely to be used in attacks against commercial aircraft.

(U) The criteria establish the minimum acceptable performance requirements for an Explosives Detection System (EDS) to meet the

mandate of 49 U.S.C. 44913 for certification by the FAA, and supersede previous EDS performance requirements established by the FAA.

##### *Explosive Materials Definition*

(U) For purposes of these Criteria for Certification of Explosives Detection Systems: "Explosive materials" consist of bulk/main explosive charges and detonators; a "bulk/main explosive charge" is an explosive which may be detonated or initiated by a detonator; and a "detonator" is a device, containing an initiating or primary explosive, used for initiating detonation if the bulk/main explosive charge.

##### *Explosives Detection System (EDS) Definition*

(U) An EDS is an automated device or combination of devices, which has the ability to detect, in passenger checked baggage, the amounts, types, and configurations of explosive materials as specified by the FAA. The term "automated" means that the ability of the system to detect explosive materials, prior to the initial automated system alarm, does not depend on human skill, vigilance, or judgment.

(Sensitive Portion of Document Deleted): In the full text of the classified Criteria document, this portion addresses alarm resolution requirements subsequent to the initial automated alarm.)

##### *General Operational Requirements*

(U) The EDS must detect and differentiate explosive materials from among all other materials found in checked baggage.

(U) The detection must not be dependent on the shape, position, orientation, or configuration of the explosive materials.

(U) The EDS must not pose a health hazard to system operators or the public (as detailed in 10 CFR part 20—Standards for Protection Against Radiation and 10 CFR part 51—Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions and 21 CFR part 1020—Performance Standards for Ionizing Radiation Emitting Products).

(U) The EDS must not cause damage or significant residual alteration of the luggage or its contents, other than highly sensitive materials such as photographic film.

##### *Detection Requirements*

(U) The detection of explosive materials in checked baggage is affected by the type, quantity, and configuration of the bulk/main explosive charges or detonators, as well as the bag and its

contents. Depending on the type of detection equipment used, the EDS must reliably detect a mix of types and quantities of explosive materials selected by the FAA when any of these charges or detonators are present in checked baggage.

(U) The term "checked baggage" applies to all passenger bags destined for the cargo hold, including originating and transfer baggage, regardless of whether or not the bags accompany a passenger on a particular flight.

#### *(Sensitive Portion of Document Deleted)*

In the full text of the classified Criteria, this portion contains two tables. The first table identifies the types and quantities of explosive materials (bulk/main explosive charges) that must be detected, the minimum detection rate for each category of bulk/main explosive charges; and the overall detection and maximum false alarm rates. The first table also specifies the requirement to detect the minimum quantity and larger quantities of each listed bulk/main explosive charge. The second table lists the makes, models, and U.N. classification numbers of detonators that must be detected, and the overall detection and maximum false alarm rates. The throughput requirement that appears in both the main/bulk explosive charges and detonator tables, is quoted under "Overall Performance Requirements" below, because it is the only item that is not sensitive security information.)

#### *Overall Performance Requirements*

(U) All the criteria pertaining to detection rate, false alarm rate, and throughput are based exclusively on the fully automated component(s) or element(s) of the system.

#### *(Sensitive Portion of Document Deleted)*

In the full text of the classified Criteria document, this portion includes information regarding requirements for no human intervention, detection rate, and false alarm rate.)

(U) The cumulative minimum automated system throughput processing rate during the certification tests must be at least 450 bags/hour (not including alarm resolution).

#### *Other Operational Issues*

(U) In addition to the mandatory criteria discussed above, there are a number of other operational considerations that will influence any future FAA decision to require the purchase, deployment, and use of EDS for screening checked baggage. While these considerations are not mandatory for certification of EDS equipment, they should be factored into development and design decisions made by potential

manufacturers and vendors of EDS equipment.

(U) The FAA has not yet established precise EDS parameters which would serve to define what is practical or cost-effective (e.g., precise physical characteristics such as unit weight and size, or precise unit cost). Given the variety of airport and air carrier operating environments, the FAA does not wish to foreclose the development of technologies which may work under some, but not all, operating conditions.

(U) The FAA can, however, provide potential manufacturers and vendors, as well as air carriers and airports with the following guidance. In general, EDS equipment that is less costly, smaller and lighter is more practical for use in a variety of airports than a system that is more expensive, larger, and heavier, especially if such equipment would require separate structures or substantial modifications of existing terminal structures for installation or operation. Also, systems which are easily operated and maintained, and are proven to be reliable, will be more acceptable than systems that require extensive specialized training for operation, calibration, and maintenance.

(U) In addition, systems with throughput rates that substantially exceed the minimum rate established in the certification criteria are operationally more efficient in many applications, and are less likely to cause delays and congestion when large numbers of passenger bags must be screened in short periods of time. Further, systems that can be more easily integrated into existing passenger and baggage processing systems would presumably be more acceptable to potential users.

(U) Trade-offs are often made among these and other operational considerations during the course of system design. For example, reliability, maintainability, and availability can usually be improved, but often at the expense of an increase in purchase price. While such trade-offs may not affect certification, they will be considered during decision making to require deployment of certified EDS.

#### *System Certification*

(U) The FAA will certify EDS equipment based upon the mandatory detection criteria and develop a list of certified equipment that would be eligible for use by air carriers. Additional action must be taken by the FAA to require the deployment of certified EDS to screen checked baggage.

#### *(Sensitive Portion of Document Deleted)*

In the full text of the classified Criteria document, this portion contains

information on the Act's requirement to detect likely-to-be-used explosive materials.)

(U) The FAA will not require air carriers to use certified EDS equipment until such time as the FAA determines that such equipment is available in sufficient quantities to satisfy air carrier and airport operational concerns, and is practical for use under realistic air carrier operating conditions (e.g., cost, size, weight, reliability, maintainability, and availability), and cost-effective.

(U) The FAA will only certify complete systems. It will not certify or allow for use, individual component devices. Prior to final certification, the FAA will require manufacturers and vendors to provide full system documentation. This documentation will include, but is not limited to: recommended system installation and calibration procedures; minimum essential test equipment and devices; routine field testing procedures and test objects to be used; routine and emergency operation procedures; field preventative maintenance and repair procedures; and training programs.

#### *Certification Testing*

(U) Testing of bulk/main explosive charges detection equipment presented to the FAA for EDS certification, will be performed in accordance with the FAA's Management Plan for EDS Certification Testing, based upon A General Testing Protocol for Bulk Explosives Detection Systems, (National Advisory Board, final report 1993).

(U) Testing of detonator detection equipment presented to the FAA for EDS certification, will be performed in accordance with the FAA's Management Plan for EDS Certification Testing of Detonator Detection Equipment, based upon FAA's General Testing Protocol for Detonator Detection Systems.

(U) The FAA Technical Center in Atlantic City, New Jersey will perform certification tests for producers of candidate explosives detection systems. The EDS Certification Test Director in the Office of Aviation Security Research and Development is the point of contact.

(U) As required by both the FAA Management Plan for EDS Certification Testing, and the FAA Management Plan for EDS Certification Testing of Detonator Detection Equipment, manufacturers seeking FAA certification for their candidate EDS must submit complete descriptive data and their test results to the FAA prior to receiving permission to ship their equipment to the FAA Technical Center. The FAA reserves the right to visit manufacturers' facilities for technical quality assurance purposes, require and/or monitor in-

house tests, and review associated data prior to granting permission to ship equipment for certification testing.

(U) There may be extenuating circumstances that make it impractical for the equipment to be accommodated at the FAA Technical Center. Therefore, the FAA will consider requests for an exception that would permit equipment to be tested at a facility other than the FAA Technical Center. The written request must explain in detail why an exception is in the best interest of the U.S. Government and indicate the methods and procedures that will be used to conduct equivalent tests to those conducted at the FAA's facility.

(U) The FAA may recognize, on a reciprocal basis, EDS testing and certification conducted by a foreign government's aviation security organization. Such recognition by the FAA will be considered only if certain conditions are met. These conditions include, but are not limited to, the negotiation of an appropriate security technical exchange agreement which assures compliance with the FAA Criteria for Certification of Explosives Detection Systems using strict quality control procedures that are consistent with FAA testing procedures. The agreement must also provide for full reciprocity for certifications issued by both the foreign government aviation security organization and the FAA.

(U) All direct costs associated with testing and certification (e.g., insurance, shipping, installation, set-up, technical operation, maintenance, calibration,

disassembly, and FAA laboratory testing costs) must be borne by the manufacturers or vendors. Both the FAA Management Plan for EDS Certification Testing, and the FAA Management Plan for EDS Certification Testing of Detonator Detection Equipment contain specific information on the incremental costs associated with tests performed at the FAA Technical Center facilities, or other locations.

*(Sensitive Portion of Document Deleted:* In the full text of the classified Criteria, this portion contains information pertaining to test objects used in EDS certification testing.)

#### *Component Testing*

(U) As part of the FAA Security R&D program, the FAA Technical Center evaluates explosives detection devices (EDD's) that do not meet all of the EDS performance standards. An EDD is an automated, uncertified EDS that is capable of meeting the partial detection requirements for bulk/main explosive charges, in the criteria. For instance, some of the devices that the FAA has evaluated have relatively low throughput rates and higher false alarm rates than the maximum acceptable rate. It will be possible under certain circumstances, for example, for a manufacturer of an automated EDD to have the FAA test and evaluate the device, even though it is not expected to fully meet the EDS certification criteria (e.g., false alarm rate or throughput).

(U) Although only complete systems can be certified, the FAA may attest to the performance of, but not certify or approve for use, EDD's or individual components. Attesting to the performance of EDD's is intended to assist manufacturers and vendors who are seeking partners with whom they can create a functioning EDS composed of multiple devices.

(U) Testing of EDD's will only be conducted: (1) on a first-come, first-served basis; (2) if adequate resources and facilities are available at the FAA Technical Center to permit such testing (The FAA will also consider requests to test the equipment at a facility other than the FAA Technical Center; these requests will be given the lowest priority and the testing will be performed only if it does not delay other testing being performed by the FAA Technical Center.); (3) at a lower precedence than EDS certification testing; and (4) if the FAA determines from the manufacturer's test data that there is a substantial likelihood that the device will meet the partial detection criteria.

(Authority: 49 U.S.C. 106(g), 5103, 40113, 40119, 44701-44702, 44705, 44901-44905, 44907, 44913-44914, 44932, 44935-44936, 46105)

Issued in Washington, DC, on April 7, 1998.

**Jane F. Garvey,**

*Administrator.*

[FR Doc. 98-9642 Filed 4-10-98; 8:45 am]

BILLING CODE 4910-13-M