

Evolution of Certification Criteria

ADSA 14

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Background

As technologists, we tend to think of EDS Certification as a scientifically defensible methodology that assures EDS effectiveness. And that is, indeed, true. However, the origins of EDS Certification only partially rest on its scientific merits. Other factors had equal if not greater impact on its etiology, and understanding those factors (which can and most likely will reemerge) is essential to establishing how EDS Certification should be practiced in the future.

The following is an unofficial and admittedly unsubstantiated account of the origins of EDS Certification. It represents the understanding of an individual who closely followed the events that engendered the EDS Certification process.

Although explosives detection R&D began at what is now the Transportation Security Laboratory (TSL) in the immediate aftermath of the La Guardia Airport bombing in 1975, and was given a fillip following the Air India bombing in 1985, the concept of Certification of explosives detection systems (EDSs) did not emerge until the aftermath of the Pam Am 103 bombing over Lockerbie, Scotland in December 1988.

By December 1988 there was already a long list of TSL-sponsored R&D projects that had been tried and failed to effectively detect explosives in checked baggage. But there was one TSL-sponsored project that was considered promising: thermal neutron analysis (TNA). TNA systems had evolved to the point where multiple systems were being used to acquire baseline data at airports. But within months of Lockerbie the FAA position on the TNA systems changed from their being prototype devices used for baseline data acquisition to their being deployed, approved explosives detection systems.

On June 30, 1989 the President signed Public Law 101-45 which required, in part, “the use of explosives detection equipment that meets minimum performance standards requiring application of technology equivalent to or better than thermal neutron analysis . . .” In response to this law the FAA issued a Notice of Proposed Rulemaking (NPRM) on July 10, 1989 which would modify 14 CFR Part 108 to require U.S. air carriers to use explosives detection systems to screen checked baggage for international flights. The definition of an explosives detection system contained in this rule was that contained in Pub. L. 101-45.¹

¹ Although the term “certified” was not contained in the rulemaking, this was, in effect, the first governmental standard for checked baggage screening, and as such its legacy remains, not in the U.S., but in E.U., where many systems currently in use were constructed and qualified using the “equivalent to or better than TNA” performance standard.

The issuance of the NPRM engendered a strong reaction from the air carriers, predominantly through the Air Transport Association (ATA). The statement of the ATA, formally entered into the docket (Docket 25956) in response to the NPRM on August 7, 1989, raised three principal objections to the proposed rule:

First, it vastly underestimates the costs of deploying EDS equipment. Second, it erroneously assumes that the available EDS equipment has been demonstrated to be effective. Third, the NPRM makes no provision for the additional testing and development, and the public funding of EDS equipment which must precede deployment.

These objections were substantiated in a 14 page document² that was signed by Richard F. Lally, at that time the ATA's Vice President of Security, but formerly the Director of the Civil Aviation Security Service, a position that in today's terms would be akin to TSA Administrator. Nevertheless, the FAA issued a Final Rule on September 5, 1989 "as originally proposed."

While in retrospect all of the objections raised by the ATA were valid, from the perspective of the air carriers, the primary impact of the new rule was financial. At that time [and until the establishment of TSA under Aviation and Transportation Security Act of 2001 (ATSA), Pub. L. 107-71] the air carriers were responsible for aviation security (including but not limited to checked baggage screening) under 14 CFR Part 108. The role of the Government (in this case, the FAA) was solely that of a regulator. Accordingly, the entire cost of checked baggage screening would fall to the air carriers, who were mandated to purchase, install, and staff these large, expensive TNA systems. The costs of the Pan Am 103 bombing were ultimately borne by insurance companies; the costs of EDS deployment would have to be borne by the air carriers, and for this reason were considered perhaps an even a greater threat to corporate survival.

Although there may not be a linkage in the public record, two months after the issuance of the September 5, 1989 rule, the President's Commission on Aviation Security and Terrorism was established under the chairmanship of former Secretary of Labor Ann McLaughlin. This Commission, while bipartisan, was clearly not apolitical. In addition to Ms. McLaughlin, the members of the Commission consisted of two senators (Alfonse D'Amato, R-NY; Frank Lautenberg, D-NJ), two congressmen (John Paul Hammerschmidt, R-AR; James Oberstar, D-MN), Edward Hidalgo (former Secretary of the Navy) and Gen. Thomas C. Richards (USAF, retired). The Commission did its own investigation of TNA efficacy and practicability and came to the conclusion in its May 1990 report that "the requirement for wide-spread use of present TNA equipment should be deferred while the technology is developed further."

The air carriers had dodged a bullet. At the FAA, careers ended.

The Aviation Security Improvement Act of 1990 (ASIA), signed into law (Pub. L. 101-604) by President George H.W. Bush on November 16, 1990, implemented the recommendations of the

² In addition to the formal submission to the docket, the ATA commissioned a study by Geoffrey D. Gosling and Mark M. Hansen at the Institute of Transportation Studies, University of California at Berkeley. That study, "Practicability of Screening International Checked Baggage for U.S. Airlines" (Research Report UCB-ITS-RR-90-14) was published on July 1990 and supported the ATA position.

President's Commission. To prevent the FAA from issuing a rule similar to that issued on September 5, 1989, ASIA included the following language:

Subsection 44913. Explosives Detection (a) Deployment and purchase of equipment.

(1) A deployment or purchase of explosive detection equipment under section 108.7(b)(8) or 108.20 of title 14, Code of Federal Regulations, or similar regulation is required only if the Administrator of the Federal Aviation Administration certifies that the equipment alone, or as part of an integrated system, can detect under realistic air carrier operating conditions the amounts, configurations, and types of explosive material that would likely be used to cause catastrophic damage to commercial aircraft. The Administrator shall base the *certification* on the results of tests conducted under protocols developed in consultation with expert scientists outside of the Administration. Those tests shall be completed not later than April 16, 1992.

This is the first mention of certification in connection with EDS. To be clear: although certification ensured that any deployed EDS would be effective in detecting realistic threats (as opposed to simply being the best available technology), the primary intent of certification was to minimize the financial impact of checked baggage screening on the air carriers. Unofficially, the air carriers expected no technology would successfully meet the new threat-driven performance standard and that EDS would never be deployed.

As required by ASIA, the FAA initiated a new rulemaking to define the criteria for certification [NPRM issued November 4, 1992; Final Rule (Final Criteria for Certification of Explosive Detection Systems) issued September 10, 1993]. TSL issued a Management Plan for Explosives Detection System Certification Testing almost immediately afterwards (October 1993).

In parallel to the rulemaking, the FAA awarded a contract to the National Materials Advisory Board/National Academy of Sciences (“expert scientists outside the Administration”) to develop the required test protocols. The test protocols were developed by a committee under the chairmanship of Joseph Navarro and were published in 1993 (“*A General Testing Protocol for Bulk Explosive Detection Systems*”), although a draft of this report was distributed in August 1991. Thus, almost five years after the Pan Am 103 bombing, the Government was in a position to *begin* the certification testing process.³

³ In response to a vendor claim of having a valid alternative means of detecting IEDs in checked baggage (detonator detection), the FAA issued a Notice of Proposed Amendment to Criteria for Certification of Explosives Detection Systems on August 30, 1996. A Final Rule was issued on April 13, 1998. To date, no system was been submitted for certification testing based on this alternative approach.