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## DEPARTMENT OF HOMELAND SECURITY

### Transportation Security Administration

#### 49 CFR Part 1540

Docket No. TSA-2013-0004

RIN 1652-AA67

### Passenger Screening Using Advanced Imaging Technology

**AGENCY:** Transportation Security Administration, DHS.

**ACTION:** Final rule.

**SUMMARY:** The Transportation Security Administration (TSA) is amending its civil aviation security regulations to specify that TSA may use advanced imaging technology (AIT) to screen individuals at security screening checkpoints. This rule is issued to comply with a decision of the U.S. Court of Appeals for the District of Columbia Circuit, which ordered TSA to engage in notice-and-comment rulemaking on the use of AIT for passenger screening.

**DATES:** Effective [Insert date 60 days after date of publication in the Federal Register].

**FOR FURTHER INFORMATION CONTACT:** Chawanna Carrington, Acting Passenger Screening Program Portfolio Section Lead-Checkpoint Solutions and Integration Division, Office of Security Capabilities-Transportation Security Administration, OSCCSI-PSP@tsa.dhs.gov, 571-227-2958 (phone), 571-227-1931 (fax).

### SUPPLEMENTARY INFORMATION:

#### Availability of Rulemaking Document

You can get an electronic copy using the Internet by--

(1) Searching the electronic Federal Docket Management System (FDMS) web page at <http://www.regulations.gov>; or

(2) Accessing the Government Printing Office's web page at <http://www.gpo.gov/fdsys/browse/collection.action?collectionCode=FR> to view the daily published Federal Register edition; or accessing the "Search the Federal Register by Citation" in the "Related Resources" column on the left, if you need to do a Simple or Advanced search for information, such as a type of document that crosses multiple agencies or dates.

In addition, copies are available by writing or calling the individual in the FOR FURTHER INFORMATION CONTACT section. Make sure to identify the docket number of this rulemaking.

### **Small Entity Inquiries**

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires TSA to comply with small entity requests for information and advice about compliance with statutes and regulations within TSA's jurisdiction. Any small entity that has a question regarding this document may contact the person listed in the FOR FURTHER INFORMATION CONTACT section. Persons can obtain further information regarding SBREFA on the Small Business Administration's web page at <https://www.sba.gov/category/advocacy-navigation-structure/regulatory-policy/regulatory-flexibility-act/sbrefa>.

### **Abbreviations and Terms Used in This Document**

AIT	Advanced Imaging Technology
ANSI	American National Standards Institute
APA	Administrative Procedure Act
ATR	Automatic Target Recognition

ATSA	Aviation and Transportation Security Act
CAPPS	Computer-Assisted Passenger Prescreening System
CDRH	Center for Devices and Radiological Health
CFR	Code of Federal Regulations
DHS	Department of Homeland Security
DOJ	Department of Justice
DNA	Deoxyribonucleic acid
EAJA	Equal Access to Justice Act
E.O.	Executive Order
ETD	Explosives Trace Detection Devices
FAA	Federal Aviation Administration
FDA	Food and Drug Administration
FR	Federal Register
GAO	Government Accountability Office
HPS	Health Physics Society
ICAO	International Civil Aviation Organization
IEEE	International Electronic and Electrical Engineers
IRFA	Initial Regulatory Flexibility Analysis
LCCE	Life Cycle Cost Estimate
NEPA	National Environmental Policy Act of 1969
NPRM	Notice of Proposed Rulemaking
OCRL/OTE	Office of Civil Rights and Liberties, Ombudsman and Traveler Engagement
OMB	Office of Management and Budget
OSC	Office of Security Capabilities
PIA	Privacy Impact Assessment
PMIS	Performance Management Information System
PMO	Program Management Office
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act of 1996
RIA	Regulatory Impact Analysis
SAM	Screeener Allocation Model
SOP	Standard Operating Procedure
SSI	Sensitive Security Information
THz	Terahertz
TSA	Transportation Security Administration
TSL	Transportation Security Laboratory
TSO	Transportation Security Officer
UMRA	Unfunded Mandates Reform Act
U.S.C.	United States Code
WTMD	Walk Through Metal Detector

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## **I. Background**

### A. Summary of the Final Rule

Congress has charged the Transportation Security Administration (TSA), a component of the U.S. Department of Homeland Security (DHS), with responsibility for civil aviation security, 49 U.S.C. 114(d), including combatting the threat posed by al Qaeda and other terrorists. The Administrator of TSA must “assess current and potential threats to the domestic air transportation system” and take “necessary actions to improve domestic air transportation security,” including by providing for “the screening of all passengers and property” before boarding an aircraft to ensure that no passenger is “carrying unlawfully a dangerous weapon, explosive, or other destructive substance.”

See 49 U.S.C. 44904(a) and (e); 44901(a); 44902(a)(1).

By Federal regulation, “[n]o individual may enter a sterile area or board an aircraft without submitting to the screening and inspection of his or her person and accessible property in accordance with the procedures being applied to control access to that area or aircraft . . . .” 49 CFR 1540.107(a). The final rule amends this regulation to specify that the screening and inspection of a person may include the use of advanced imaging technology (AIT).

Congress has directed the Secretary of Homeland Security to “give a high priority to developing, testing, improving, and deploying, at airport screening checkpoints, equipment that detects nonmetallic, chemical, biological, and radiological weapons, and explosives.” 49 U.S.C. 44925(a).<sup>1</sup> In June 2008, the Senate Appropriations Committee encouraged TSA to expand the use of AIT.<sup>2</sup> TSA began deploying AIT in 2008 after laboratory and operational testing.

The AIT currently deployed by TSA is a millimeter wave imaging technology that can detect metallic and non-metallic objects on an individual’s body or concealed in his clothing without physical contact. The technology bounces electromagnetic waves off the body to detect anomalies. If an anomaly is detected, a pat-down of the area where the anomaly is located is usually performed to determine if a threat is present.

AIT addresses a critical weakness in aviation security regarding the inability of walk-through metal detectors (WTMDs) to screen for non-metallic explosives and other non-metallic threat items. AIT provides detection capability for weapons, explosives, and other objects concealed under a person’s clothing that may not trigger a metal

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<sup>1</sup> See also Presidential Memorandum Regarding 12/25/2009 Attempted Terrorist Attack” (Jan. 7, 2010), available at <http://www.whitehouse.gov/the-press-office/presidential-memorandum-regarding-12252009-attempted-terrorist-attack> (charging DHS with aggressively pursuing enhanced screening technology in order to prevent further such attempts while at the same time protecting passenger privacy).

<sup>2</sup> S. Rep. No. 110-396, at 60 (2008).

detector. TSA has determined that use of AIT is the most effective technology currently available to detect both metallic and non-metallic threat items concealed on passengers, such as the non-metallic explosive used by the so-called “Christmas Day bomber” in 2009 in his attempt to blow up an American passenger aircraft.

AIT is an essential component of TSA’s risk-based security approach. This approach relies on a comprehensive security system including state-of-the-art technologies (such as AIT), a highly-trained frontline workforce, intelligence analysis and information sharing, behavior detection, explosives detection canine teams, Federal Air Marshals (FAMS), and regulatory enforcement.

In 2012, Congress enacted the FAA Modernization and Reform Act of 2012, Pub. L. 112-95, which required TSA to ensure that all AIT used to screen passengers must be equipped with and employ automatic target recognition (ATR) software. 49 U.S.C. 44901(l). That software eliminates passenger-specific (i.e., individual) images and instead indicates the location of potential threats on a generic outline. Since May 2013, all AIT units deployed by TSA have been equipped with ATR capability. The final rule adopts the statutory definitions of AIT and ATR, and requires that any AIT equipment used to screen passengers be equipped with and employs ATR software.

There are approximately 793 AIT machines deployed at nearly 157 airports nationwide. AIT screening is safe for all passengers and the technology meets all national health and safety standards. Passengers generally may decline AIT screening and opt instead for a pat-down.



## B. Purpose of the Final Rule

The final rule is adopted to comply with a ruling of the United States Court of Appeals for the District of Columbia Circuit. In Electronic Privacy Information Center (EPIC) v. U.S. Department of Homeland Security, 653 F.3d 1 (D.C. Cir. 2011), the court directed TSA to conduct notice-and-comment rulemaking on the use of AIT to screen passengers. TSA published a notice of proposed rulemaking (NPRM) on March 26, 2013, to obtain public comment on its proposal to revise civil aviation security regulations to codify that TSA may use AIT for passenger screening. 78 FR 18287. The final rule defines AIT, states that AIT may be used to screen passengers, and requires that AIT be equipped with and employ the use of ATR software.

## C. Costs and Benefits

When estimating the cost of a rulemaking, agencies typically estimate future expected costs imposed by a regulation over a period of analysis. As the AIT unit life cycle is 10 years from deployment to disposal, the period of analysis for estimating the cost of the rule is 10 years. TSA has revised the NPRM Regulatory Impact Analysis (RIA) assumption of an 8-year life cycle for AIT units to 10 years based on a recent life cycle cost estimate (LCCE) report.<sup>3</sup> AIT deployment began in 2008 and TSA, therefore, includes costs that have already been borne by TSA, the traveling public, the screening systems industry, and airports. Consequently, this RIA takes into account costs that have already occurred--in years 2008-2014--in addition to the projected costs in years 2015<sup>4</sup>-

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<sup>3</sup> TSA's Office of Security Capabilities (OSC), "Life Cycle Cost Estimate for Passenger Screening Program," March 10, 2014. This is a TSA acquisition sensitive report based on OSC technology assessments.

<sup>4</sup> The 2015 cost estimates used historical data when available. Please see the RIA for the complete description of the 2015 cost estimates.

2017. By reporting the costs that have already occurred and estimating future costs in this manner, TSA accounts for the full life cycle of AIT machines.

TSA estimates the total cost of the rule from 2008-2017 to be \$2,146.31 million (undiscounted). TSA incurs over 98 percent of all costs.

AIT generates benefits by reducing security risks because it is capable of detecting both metallic and non-metallic weapons and explosives.<sup>5</sup> Terrorists continue to test our security measures in an attempt to find and exploit vulnerabilities. The threat to aviation security has evolved to include the use of non-metallic explosives. Since it began using AIT, TSA has been able to detect many kinds of non-metallic items, small items, and items concealed on parts of the body that would not have been detected using the WTMD. TSA also considered the added benefit of deterrence--the effect of would-be attackers becoming discouraged because of increased security measures--from the use of AIT. Morral and Jackson (2009) stated, "Deterrence is also a major factor in the cost-effectiveness of many security programs. For instance, even if a radiation-detection system at ports never actually encounters weapon material, if it deters would-be attackers from trying to smuggle such material into the country, it could easily be cost-effective even if associated program costs are very high."<sup>6</sup> Given the demonstrated ability of AIT to detect concealed metallic and non-metallic objects, it is reasonable to assume that AIT acts as a deterrent to attacks involving the smuggling of a metallic or non-metallic weapon or explosive on board a commercial airplane. As an essential component in

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<sup>5</sup> Metal detectors and AITs are both designed to detect metallic threats on passengers, but do so in different ways. Metal detectors rely on the inductance that is generated by the metal, while AIT relies on the metal's reflectivity properties to indicate an anomaly. AIT detection capabilities exceed that of metal detectors because AIT can detect metallic and non-metallic weapons, non-metallic bulk explosives, and non-metallic liquid explosives.

<sup>6</sup> Andrew R. Morral, Brian A. Jackson, "Understanding the Role of Deterrence in Counterterrorism Security," 2009, Rand Homeland Security Program, [http://www.rand.org/content/dam/rand/pubs/occasional\\_papers/2009/RAND\\_OP281.pdf](http://www.rand.org/content/dam/rand/pubs/occasional_papers/2009/RAND_OP281.pdf).

TSA's comprehensive security system because it can detect both non-metallic and metallic threats concealed under a person's clothing, AIT plays a vital role in decreasing the vulnerability of civil aviation to a terrorist attack.

To describe further the security benefits from AIT, TSA performed a break-even analysis to compare the potential direct costs of an averted terrorist attack to the net cost of AIT. Agencies use a break-even analysis when quantification of benefits is not possible. According to OMB Circular No. A-4, "Regulatory Analysis," such an analysis answers the question, "How small could the value of the non-quantified benefits be (or how large would the value of the nonquantified costs need to be) before the rule would yield zero net benefits?"<sup>7</sup> Based upon the results from the break-even analysis, TSA estimates that AIT will need to prevent an attack between once every 5.25 years to once every 23.5 years--depending on the size of the aircraft--for the direct cost of an averted attack to equal the annualized cost of AIT. The break-even analysis does not include the difficult to quantify indirect costs of an attack or the macroeconomic impacts that could occur due to a major attack. See Section III of this preamble for more detailed results of the economic analyses.

#### D. Changes from the NPRM

In the NPRM, TSA proposed to amend 49 CFR 1540.107 by adding a new paragraph to specify that the screening and inspection of an individual prior to entering a sterile area of an airport or boarding an aircraft may include the use of AIT. TSA defined AIT as "screening technology used to detect concealed anomalies without requiring physical contact with the individual being screened." TSA received many comments stating that the definition was too broad. Commenters also expressed confusion and

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<sup>7</sup> [http://www.whitehouse.gov/omb/circulars\\_a004\\_a-4/](http://www.whitehouse.gov/omb/circulars_a004_a-4/).

uncertainty regarding the use of the word “anomalies.” Some commenters suggested privacy safeguards be included in the final rule.

In response to those comments, TSA changed the definition in the final rule. TSA is adopting the definition of AIT created by Congress in the FAA Modernization and Reform Act of 2012.<sup>8</sup> That legislation, codified at 49 U.S.C. 44901(l), defines AIT as “a device used in the screening of passengers that creates a visual image of an individual showing the surface of the skin and revealing other objects on the body; and may include devices using backscatter x-rays or millimeter waves and devices referred to as ‘whole-body imaging technology’ or ‘body scanning machines’.” Further, in response to privacy concerns, TSA is adopting the statutory language that requires any AIT used for passenger screening to be equipped with and employ ATR software and comply with such other requirements TSA determines are necessary to address privacy considerations. Finally, consistent with the statute, TSA is defining ATR as, “software installed on an advanced imaging technology device that produces a generic image of the individual being screened that is the same as the images produced for all other screened individuals.”

In response to public comments, TSA also revised the RIA published with the NPRM to include a break-even analysis and pertinent data that has become available since the publication of the NPRM, including an updated AIT deployment schedule.

TSA’s major changes to the RIA from the NPRM are:

- Revising the airport listings to include 460 airports instead of 448. The updated airport list includes new, previous, and former airports that operated AIT units and are regulated under 49 CFR part 1542.

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<sup>8</sup> Pub. L. No. 112-95 (126 Stat. 11, Feb. 14, 2012).

- Updating the AIT life cycle and period of analysis from 8 to 10 years based on a recent LCCE report from the TSA Office of Security Capabilities (OSC). Using the information from this report, TSA also revised its previous assumption about the share of Passenger Screening Program expenditures spent on AIT technology.
- Revising the number of AIT units to be deployed from 821 to 793 throughout the period of analysis (2008-2017) based on new data.
- Revising the total wait time for a passenger that opts-out of AIT screening from 80 to 150 seconds to include passenger time spent waiting for a same gender Transportation Security Officer (TSO) to perform the pat-down.
- Revising the calculation of utilities costs to incorporate new data on the hours of AIT operation from the TSA's Performance Management Information System (PMIS) database.
- Refining the calculation of personnel costs by using information on specific labor hours dedicated to AIT operation in response to new data on hours of AIT operation.
- Revising the calculation of training costs to incorporate newly available historical data on the hours of participation for each training course required for AIT operation and new training and development costs.
- Including a break-even analysis to answer the question, "How small could the value of the non-quantified benefits be (or how large would the value of the non-quantified costs need to be) before the rule would yield zero net benefits?"

- Revising language within the RIA and final rule to state that passengers “may generally opt-out of AIT screening” to reflect current DHS policy.<sup>9</sup>

Table 1 presents a summary of the effects of these changes. In the table, NPRM and final rule costs have been annualized due to the different periods of analysis.

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<sup>9</sup> See Privacy Impact Assessment Update for TSA Advanced Imaging Technology (DHS/TSA/PIA-032(d)) December 18, 2015, <https://www.dhs.gov/sites/default/files/publications/privacy-tsa-pia-32-d-ait.pdf>.

**Table 1: Changes in AIT Estimates from the NPRM to the Final Rule  
(Annualized at a 7% Discount Rate in 2014 dollars)**

Variables	NPRM and FR Comparison			Description of Changes
	NPRM	Final Rule	Difference	
<b>Annualized Industry Costs (\$millions)</b>				
Airport Utilities Cost	\$0.19	\$0.15	-\$0.04	This estimate decreased due to incorporation of newly available historical data on AIT hours of operation from the TSA's PMIS database.
Backscatter AIT Removal	\$0.21	\$0.18	-\$0.03	Total cost in constant dollars remained the same, but annualized cost decreased because of the different periods of analysis between NPRM and final rule.
<b>Annualized Passenger Costs (\$millions)</b>				
Opportunity Costs (Delay Costs)	\$2.08	\$2.60	\$0.52	This estimate increased because the estimated duration of a pat-down increased from 80 to 150 seconds to include passenger wait time to be handed off to a same gender TSO.
<b>Annualized TSA Costs (\$millions)</b>				
Personnel	\$216.40	\$117.17	-\$99.22	TSA refined this estimate to account for labor hours dedicated to AIT operation. TSA used AIT operational hours recorded in PMIS as a basis for this estimate.
Training	\$5.81	\$27.68	\$21.87	TSA revised the calculation of training costs to incorporate newly available historical data on the hours of participation for each training course required for AIT operation and new training and development costs.

Variables	NPRM and FR Comparison			Description of Changes
	NPRM	Final Rule	Difference	
Equipment	\$70.62	\$56.53	-\$14.08	TSA revised its cost estimates in 2014 -2017 to reflect the most recent LCCE document by OSC. TSA also revised some assumptions for cost estimates from 2008-2013 based on the recent LCCE.
TSA Utilities Cost	\$0.25	\$0.26	\$0.01	This change reflects the revised estimate on AIT operation time and an increase of airport enrollment in TSAs utilities reimbursement program.
<b>Total Costs</b>	<b>\$295.56<sup>10</sup></b>	<b>\$204.57</b>	-\$90.99	The total cost decreased from the NPRM, primarily from the reduction in personnel costs.
<b>Benefits</b>				
Break-Even Analysis	Prevent 1 attack per 5.25 to 23.52 years considering only the major direct costs of an averted attack			Per public comment, TSA has included a break-even analysis in the RIA.

## II. Public Comments on the NPRM and TSA Responses

### A. Summary

TSA published the NPRM on March 26, 2013, and requested comments be submitted by June 24, 2013. Private citizens, industry associations, advocacy groups, and non-profit organizations submitted comments in docket TSA 2013-0004. The discussion below groups the submissions by the primary issues raised in the public comments.

<sup>10</sup> There was a calculation error in the NPRM's presentation of annualized costs. TSA has resolved this error and presented the correct annualized amounts in Table 1. The error in annualized cost did not affect any other cost estimates in the NPRM, including the estimated total cost of the rule and the estimated itemized costs presented in the NPRM.



## B. Support for AIT

Comments: A number of submissions included a statement of general support for the continued use of AIT without offering additional, substantive rationale. Commenters also expressed approval for AIT for a variety of reasons. Several individual commenters stated they have medical conditions (e.g., metallic implants, metallic artificial joints, and prostheses) which cause them to alarm the WTMD, and they prefer the ease and quickness of AIT to the pat-down procedure, which would be required to resolve an alarm of the WTMD. Several other commenters noted that the need to ensure the safety of airline passengers and other American targets against terrorist threats outweighs possible privacy concerns associated with AIT. In supporting AIT use, many commenters referenced the terrorist attacks on September 11, 2001. Individual commenters also stated they did not have any concerns related to the use of AIT. In response to other public comments opposed to AIT, several individual commenters questioned the significance of the alleged impact of AIT on privacy or safety. Several individual commenters also expressed a preference for AIT over a pat-down.

TSA Response: TSA agrees with these commenters that AIT provides the most effective and least intrusive means currently available to detect both metallic and non-metallic threats concealed under a person's clothing.

## C. Opposition to AIT

Comments: Many submissions included statements of opposition to the continued use of AIT. Of these, individual commenters expressed concerns pertaining to efficacy, privacy, health, cost, and civil liberties. TSA addresses each of these topics in subsequent comment responses in this preamble. Some individual commenters also

expressed criticism of TSA and its staff. Some comments included statements requesting the elimination of AIT.

Other commenters made statements regarding the impact of AIT screening on their travel choices. Many of these commenters indicated they no longer travel by air because of the use of AIT. Some said they limit their airline travel as much as possible because of AIT screening. An individual commenter cited a news article that highlights increasing ridership of Amtrak over airline travel. Several other individual commenters noted that international travelers no longer want to visit the United States because of AIT screening. According to another individual commenter, the AIT scanners have created an “adversarial tension” between TSOs and travelers that is detrimental to security.

A few commenters discussed TSA’s statement in the NPRM that the public generally approves of the AIT scanners. For example, an individual commenter stated this claim was not supported by data regarding the public’s approval. Other commenters suggested that TSA should not assume the lack of complaints about AIT to be support for the use of AIT. For example, a privacy advocacy organization stated that TSA has not taken into consideration the number of passengers who choose AIT over a pat-down because it is faster and potentially less invasive of personal privacy, not because they support the use of AIT. Another individual commenter, however, acknowledged that National ABC and CBS news polls indicated that the majority of poll participants favored full body scanners at airports.

TSA Response: The information TSA receives from intelligence-gathering agencies confirms that civil aviation remains a favored target for extremists and terror organizations. AIT is an essential tool to address that threat by helping TSA to detect

both metallic and nonmetallic explosives and other dangerous items concealed under clothing. AIT screening generally is optional and passengers are advised that they may choose to undergo a pat-down instead of AIT.

TSA takes the issues raised in the comments regarding the screening experience seriously and has instituted changes in its policies to address these concerns. New risk-based policies have transformed the agency from one that screens every passenger in the same manner to one that employs a more effective, risk-based, intelligence-driven approach. Adopting a risk-based approach permits much-needed flexibility to adjust to changing travel patterns and shifting threats.

For example, beginning in 2011, after analyzing intelligence reports, TSA instituted new screening procedures for passengers under the age of 12 and those ages 75 and older to expedite screening and reduce the need for a pat-down to resolve alarms.<sup>11</sup> TSA also instituted TSA Pre✓™ (a known and trusted traveler program) based on the rationale that most passengers do not pose a risk to aviation security.<sup>12</sup> This program increases passenger throughput at the security checkpoint and improves the screening experience of frequent, trusted travelers.<sup>13</sup> In addition, TSA Pre✓™ reduces the amount of time TSOs devote to screening low-risk travelers, thereby increasing the resources available to deter or detect the next attack. TSA is working to expand the population of

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<sup>11</sup> These individuals currently can receive some form of expedited screening, are permitted to leave their shoes, light jackets, and headwear on for screening, and are screened primarily by the Walk-Through Metal Detector (WTMD). See <https://www.tsa.gov/travel/special-procedures>, <https://www.tsa.gov/travel/special-procedures/traveling-children>.

<sup>12</sup> <https://www.tsa.gov/tsa-precheck>.

<sup>13</sup> <https://www.tsa.gov/tsa-precheck>. See also *Ruskai v. Pistole*, 775 F.3d 61, 64 (1st Cir. 2014) (“Additionally, TSA has opted to impose more limited screening burdens on passengers whom it confirms are part of TSA’s PreCheck program. As described in the briefing, PreCheck offers passenger members ‘expedited screening in designated lanes if they have been cleared for such screening based on certain background checks conducted prior to their arrival at the airport,’ and a more limited pat-down in the event that the passenger alarms a WTMD.”).

passengers eligible for the program, the number of participating air carriers, and the airports where it is available. In December 2013, TSA launched its TSA Pre✓™ application program that allows U.S. citizens and lawful permanent residents to apply for TSA Pre✓™. As of February 2015, TSA Pre✓™ is available at 120 airports and eleven airlines participate in the program. Millions of passengers have undergone expedited screening through the program. Finally, TSA has instituted a new protocol at certain airports that allow passengers who are not registered in TSA Pre✓™ to undergo a real-time threat assessment at the airport so that they may be randomly selected for expedited screening. TSA will always incorporate random and unpredictable security measures throughout the airport, and no individual is guaranteed expedited screening. TSA encourages all potential passengers to learn about the TSA Pre✓™ program by going to its website at [www.tsa.gov](http://www.tsa.gov).

As explained in the NPRM, in order to address privacy concerns and meet the statutory requirement to install and employ ATR software on all AIT units, TSA removed all backscatter AIT machines from screening checkpoints, and only millimeter wave AIT machines equipped with ATR are used to screen passengers. The ATR displays a generic outline on which boxes appear where an anomaly is detected. The outline is displayed on the AIT machine so that the passenger and the TSO are able to see the boxes. No specific image of an individual is created.

TSA disagrees with statements that use of AIT has had a material impact on U.S. air travel and the comments did not contain data in support. TSA was unable to find empirical evidence that air travel is reduced due to AIT. TSA notes that based on PMIS data collected from 2009, the first full year of data collection, through 2013, the last full

year of data available at the time TSA began drafting this final rule, approximately one percent of passengers have selected a pat-down over AIT screening.<sup>14</sup> TSA agrees with a commenter that independent polling on AIT acceptance shows strong public support for and understanding of the need for AIT.<sup>15</sup>

#### D. TSA Authority to Use AIT

Comments: Many individual commenters stated that TSA has overstepped its authority by deploying AIT and that the agency itself should be eliminated or that AIT should be eliminated as a screening technology. Additionally, many individual commenters stated that responsibility for airport security and the costs should be returned to either the owners of airports or the airlines.

A non-profit organization referenced 49 U.S.C. 44903(b)(2)(A) and 49 U.S.C. 44903 (b)(2)(B) to support its statement that the proposed rule is inconsistent with statutory requirements to protect passengers and the public interest in promoting air transportation. The organization stated that TSA is not authorized “to sexually assault passengers” under current statutes or regulations. An individual commenter stated that TSA, as a Federal agency, has no jurisdiction over public airports, which the commenter stated are mostly on state land. Another individual commenter alleged that the Administrator of TSA acted illegally implementing AIT and stated he should be removed from office and charged accordingly.

TSA Response: TSA has the statutory authority to deploy AIT. The Administrator of TSA has overall responsibility for civil aviation security, and Congress

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<sup>14</sup> PMIS is a database used to track checkpoint operations. The database contains information on AIT use.

<sup>15</sup> 78 FR 18296 at footnote 62.

has conferred on the Administrator authority to carry out that responsibility.<sup>16</sup> Federal law requires that the Administrator “assess threats to transportation,” and “develop policies, strategies, and plans for dealing with threats to transportation security.”<sup>17</sup>

Prior to the terrorist attacks of September 11, 2001, and the enactment of the Aviation and Transportation Security Act (ATSA),<sup>18</sup> air carriers were required to conduct the screening of passengers and property and did so in accordance with regulations issued by the Federal Aviation Administration (FAA) and security programs approved by the FAA.<sup>19</sup> The security programs were sensitive security information (SSI) and were not shared with the public.<sup>20</sup> The ATSA transferred that responsibility to TSA, as codified at 49 U.S.C. 44901(a), and required the TSA Administrator to provide for the screening of all passengers and property that will be carried aboard a passenger aircraft. Federal law also requires the TSA Administrator to prescribe regulations to require air carriers to refuse to transport a passenger or the property of a passenger who does not consent to a search, and to protect passengers and property on an aircraft against an act of criminal violence or aircraft piracy.<sup>21</sup> As commenters noted, when prescribing certain regulations, the Administrator is required to consider whether the regulation is consistent with protecting passengers and the public interest in promoting air transportation.<sup>22</sup> Air transportation security is essential to ensure the freedom of movement for people and commerce. As the U.S. Court of Appeals for the First Circuit wrote in Ruskai, “[p]lanes blown out of the sky in Russia and attempted bombings on U.S. airliners in recent years

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<sup>16</sup> 49 U.S.C. 114(d).

<sup>17</sup> 49 U.S.C. 114(f).

<sup>18</sup> Pub. L. No. 107-71 (115 Stat. 597, Nov. 19, 2001).

<sup>19</sup> 14 CFR part 108, 66 FR 37330 (July 17, 2001). The FAA Administrator prescribed regulations requiring air carriers to screen all passengers and property before boarding.

<sup>20</sup> See 14 CFR 191.7(a) (2001).

<sup>21</sup> 49 U.S.C. 44902(a) and 44903(b).

<sup>22</sup> 49 U.S.C. 44903(b)(1),(2), and (3).

have warned TSA that its screening procedures must be capable of detecting both metallic and nonmetallic threats.”<sup>23</sup> TSA has determined that AIT is the best method currently available to screen passengers for both metallic and nonmetallic threats concealed under clothing.

As explained in the NPRM, Congress has directed that TSA prioritize the development and deployment of new technologies to detect all types of terrorist weapons at airport screening checkpoints, including the submission of a strategic plan to promote the optimal utilization and deployment of a range of detection technologies, including, “backscatter x-ray scanners.”<sup>24</sup> TSA has complied with this statute and with the subsequent statutory requirement that all AIT units used for passenger screening be equipped with ATR software, which eliminates passenger-specific images and only produces a generic outline.<sup>25</sup> Since May 16, 2013, all AIT units deployed by TSA have been equipped with ATR software; AIT units that could not accommodate ATR software have been removed from the airports.

#### E. Congressional Directive to Deploy AIT

Comments: Some commenters addressed the 2004 congressional directive discussed in the NPRM regarding the development and deployment of new screening equipment. An individual commenter noted that this congressional direction specifically included the investment in and deployment of AIT. Other commenters, however, stated that TSA’s implementation of AIT is inconsistent with congressional direction. Specifically, a privacy advocacy group stated that TSA’s deployment of AIT is

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<sup>23</sup> Ruskai v. Pistole, 775 F.3d, 61, 63 (1st Cir. 2014).

<sup>24</sup> 49 U.S.C. 44925(a) and (b). “Detection Equipment at Airport Screening Checkpoints,” Report to Congress, Aug. 9, 2005. See also 78 FR 18292.

<sup>25</sup> 49 U.S.C. 44901(l).

inconsistent with a qualifier in the congressional directive—that the agency develop equipment to detect threats that terrorists would likely try to smuggle aboard an air carrier aircraft.<sup>26</sup> The commenter stated that TSA has demonstrated an overly broad interpretation of the congressional authorization and that, although the agency repeatedly cites AIT’s abilities to identify weapons, the NPRM does not establish how such weapons are likely to be smuggled aboard planes by terrorists. The commenter further stated that TSA must analyze and evaluate AIT and alternatives regarding the ability to detect weapons and explosives likely to be used by terrorists, and demonstrate that AIT best achieves that goal with concrete evidence. The commenter stated that the analysis on which TSA currently relies fails to do either satisfactorily.

One individual commenter stated that a congressional directive is insufficient to supplant TSA’s duty to make a reasoned decision regarding the use of AIT. An individual commenter expressed concern that TSA did not act in accordance with the congressional direction because the agency acted without either public input or independent testing, and pursued a technology the commenter stated was purchased as part of a “corrupt deal.” Another individual commenter stated that Congress authorized TSA to procure and deploy AIT only as a secondary screening tool at security checkpoints—not as a primary means of screening. Other individual commenters stated that even if Congress has authorized the proposed deployment of AIT, the proposed use of AIT is not necessarily legal or the appropriate course of action, and TSA was not performing the agency’s own due diligence in trying to restrain the executive and legislative branches subsequent to congressional direction.

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<sup>26</sup> 49 U.S.C. 44925(a).



TSA Response: TSA is in compliance with Federal law, as well as congressional directives to pursue the development of new, advanced detection technology.<sup>27</sup> AIT addresses a critical vulnerability in aviation security. While WTMD and hand-held metal detectors are unable to screen for nonmetallic items, AIT can detect non-metallic explosives and other non-metallic threats, such as plastic firearms and knives. Explosives Trace Detection Devices (ETD) screen for nonmetallic explosives, but the process is too slow to perform on the same number of passengers as are currently screened by AIT. Congress clearly recognized this issue when it directed TSA to “give a high priority to developing, testing, improving, and deploying, at airport screening checkpoints, equipment that detects nonmetallic, chemical, biological, and radiological weapons, and explosives, in all forms, on individuals and in their personal property.”<sup>28</sup> There is no requirement in the statute or in any of the congressional reports to limit the use of AIT to secondary screening.

AIT provides greater detection capability for weapons, explosives, and other threats concealed on a passenger’s body that may not trigger a metal detector. Concealed threat items, including nonmetallic explosives, pose a substantial threat to aviation security. As the former TSA Administrator explained in an August 2013 speech to the Airports Council International/North America, “With respect to the evolving security challenges we all face today, one of the principal concerns we have is the continued migration to more nonmetallic threats such as liquid and plastic explosives.”<sup>29</sup> As explained in the NPRM, on December 25, 2009, a bombing plot by Al Qaeda in the

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<sup>27</sup> See 49 U.S.C. 44925(a) and 44901(l).

<sup>28</sup> 49 U.S.C. 44925(a).

<sup>29</sup> John S. Pistole, TSA Administrator, address at the Airports Council International–North America (Aug. 14, 2013). Text available at <https://www.tsa.gov/news/speeches/airports-council-international-%E2%80%93-north-america-tsa-administrator-john-s-pistole-0>.

Arabian Peninsula (AQAP) culminated in Umar Farouk Abdulmutallab's attempt to blow up an American aircraft over the United States using a non-metallic explosive device hidden in his underwear. 78 FR 18291. More recently, in the spring of 2012, AQAP developed another concealed, nonmetallic explosive that had a new level of redundancy in the event the primary system failed. Fortunately, this plot was thwarted.<sup>30</sup> Additionally, open source information shows that terrorists currently plan to conduct attacks against the United States. Terrorists test the limits of TSA's ability to detect nonmetallic explosives concealed under clothing; the destruction of passenger aircraft remains a terrorist priority.

F. Compliance with the Administrative Procedure Act

Comments: Some commenters addressed concerns related to the Administrative Procedure Act (APA). Generally, commenters stated that TSA has not complied with the APA's procedural requirements. Non-profit organizations, a privacy advocacy group, and individual commenters stated that TSA did not comply with APA requirements prior to initial deployment of AIT. A privacy advocacy group stated that the agency received two petitions signed by numerous civil liberties organizations to institute a rulemaking proceeding, yet failed to initiate such a proceeding. A few individual commenters stated that if TSA had initially complied with rulemaking procedures, the public likely would have rejected the proposed action, and TSA would not have been able to deploy the technology. A privacy advocacy group and an individual commenter raised further concerns regarding the money spent on the deployment of AIT despite the lack of opportunity for public comment.

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<sup>30</sup> Id. Note that these examples occurred on flights originating outside of the United States. Therefore, TSA's AIT would not have been in place to detect the devices.

Commenters stated that the proposed rule and justification provided in the NPRM would not meet the arbitrary and capricious standard applied to agency actions under the APA. A privacy advocacy group stated that factors regarding effectiveness, alternatives, and health risks were not considered and the term “anomaly” was not adequately explained.

Commenters also stated that the proposed regulatory language effectively failed to provide the public with adequate notice and denied the public the opportunity to provide meaningful comment because the rule is too broad and vague, and descriptive information on the program was omitted.

An individual commenter wrote that noncompliance with APA requirements indicated TSA acts as it chooses without accountability. Another individual commenter requested TSA to commit to complying with APA requirements in the future. A non-profit organization requested that TSA hold public hearings in the future before imposing new procedures and policies, but specified that the agency should retain the authority to declare emergency regulations and procedures without public hearings or a comment period. Further, an individual commenter suggested that TSA withdraw the proposed rule and issue an advance notice of proposed rulemaking to allow TSA to gather missing information in order to receive comments that are more meaningful. An advocacy group and an individual commenter stated that TSA only issued a NPRM because it was court-ordered. Other commenters wrote that TSA had the option to request public input prior to implementing and deploying AIT scanners.

TSA Response: As discussed above, TSA deployed AIT consistent with its statutory authority and as directed by Congress. TSA issued the NPRM consistent with

the opinion of the U.S. Court of Appeals for the D.C. Circuit in EPIC v. DHS, 653 F.3d 1 (D.C. Cir. 2011). In that case, TSA contended it had properly processed letters it received from EPIC and other groups regarding the initiation of a rulemaking proceeding. TSA also described how the deployment of AIT was consistent with statutory exceptions to the notice-and-comment requirements of the APA. The court did not agree. “None of the exceptions urged by the TSA justifies its failure to give notice of and receive comments upon such a rule.”<sup>31</sup> The court explained that,

[d]espite the precautions taken by the TSA, it is clear that by producing an image of the unclothed passenger, an AIT scanner intrudes upon his or her personal privacy in a way a magnetometer does not. Therefore, regardless whether this is a ‘new substantive burden,’ . . . the change substantively affects the public to a degree sufficient to implicate the policy interests animating notice-and-comment rulemaking.<sup>32</sup>

A subsequent decision by the same court, however, indicates that TSA’s decision not to engage in rulemaking prior to deploying AIT was not unreasonable. Following the court’s APA ruling, EPIC petitioned the court to recover attorney’s fees under the Equal Access to Justice Act (EAJA). 28 U.S.C. 2412(d). The EAJA allows attorney’s fees to be recovered unless the position of the government “was substantially justified or . . . special circumstances make an award unjust.”<sup>33</sup> In denying EPIC’s request to recover attorney’s fees, the court stated, “[t]he TSA’s position regarding the only issue on which EPIC prevailed – whether the agency improperly bypassed notice and comment in adopting the new screening technology – was substantially justified.”<sup>34</sup>

Federal regulation stipulates that no individual may enter the sterile area of an airport or board an aircraft without submitting to the screening and inspection of his or

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<sup>31</sup> EPIC, 653 F.3d at 11.

<sup>32</sup> Id. at 6.

<sup>33</sup> 28 U.S.C. 2412(d)(1)(A).

<sup>34</sup> EPIC v. DHS, No. 10-1157 (Order filed Feb. 15, 2012).

her person and accessible property “in accordance with the procedures being applied to control access to that area or aircraft. . . .” 49 CFR 1540.107(a). This requirement was originally promulgated by the FAA through notice and comment rulemaking and then transferred to TSA by ATSA.<sup>35</sup>

Although TSA acknowledges that it did not engage in notice and comment rulemaking related to the deployment of AIT specifically prior to its use, TSA does not agree with statements by commenters that there was no public notice of TSA’s use of AIT. Prior to the deployment of AIT, TSA conducted years of testing on the safety, effectiveness, and efficiency of the technology.<sup>36</sup> Contrary to the assertion of a commenter regarding the purchase of AIT equipment, the AIT equipment was obtained in accordance with all government procurement requirements, which includes the public solicitation of bids.<sup>37</sup> TSA also considered alternatives to AIT and these are discussed in the NPRM and the RIA. In 2007, TSA initiated the first pilot test of AIT in the secondary screening position. In January 2008, TSA published a Privacy Impact Assessment (PIA), which encompassed AIT screening of all passengers, both as a primary and secondary form of passenger screening.<sup>38</sup> The PIA provided notice to the public regarding TSA’s use of the technology. It stated that TSA published extensive

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<sup>35</sup> See 62 FR 41730, 63 FR 19691, and 66 FR 37330, 37360. The ATSA transferred that authority from FAA to TSA in 2001. On February 22, 2002, the TSA and FAA published a final rule titled “Civil Aviation Security Rules,” 67 FR 8340, transferring the regulations at 14 CFR parts 107, 108, 109 and 191 to 49 CFR parts 1540, 1542, 1544, 1548, and 1520, and §§ 129.25 and 129.26 to part 1546.

<sup>36</sup> See, e.g., “Detection Equipment at Airport Screening Checkpoints,” Report to Congress, Aug. 9, 2005. The report describes TSA’s ongoing research and development program to develop technologies to increase its ability to detect explosives on passengers, including body imaging systems, i.e., backscatter x-ray.

<sup>37</sup> See The TSA is seeking sources for Imaging Technology systems, Solicitation No. HSTS04-08-R-CT2056, [https://www.fbo.gov/index?s=opportunity&mode=form&id=be7cd5b087bd3d28ce6bee81f7644141&tab=core&\\_cview=1](https://www.fbo.gov/index?s=opportunity&mode=form&id=be7cd5b087bd3d28ce6bee81f7644141&tab=core&_cview=1).

<sup>38</sup> “Privacy Impact Assessment for TSA Whole Body Imaging,” Jan. 2, 2008. Updates to the initial AIT PIA were conducted on Oct. 17, 2008, Jul. 23, 2009, and Jan. 25, 2011. See <http://www.dhs.gov/publication/dhstsapia-032-advanced-imaging-technology>. All TSA PIA reports are available at <http://www.dhs.gov/privacy-documents-transportation-security-administration-tsa>.

information on the technology on its website beginning in February 2007 and conducted outreach with national press and with privacy advocacy groups to explain the evaluation of the technology. The PIA explained that informational brochures were made available to the public at each pilot site showing the image that the technology created. The cover page of each PIA includes a point of contact for the public to reach out to with questions or concerns. In 2009, TSA began to test AIT as the primary screening equipment. In 2010, TSA submitted a Report to Congress on privacy protections and deployment of AIT.<sup>39</sup> TSA also published information on its website to inform passengers of AIT procedures at the checkpoint at [www.tsa.gov](http://www.tsa.gov). The public may provide comments or concerns regarding AIT by contacting the TSA Contact Center.<sup>40</sup>

As directed by the court, TSA issued the NPRM and invited public comment on its proposed regulation regarding the use of AIT for primary screening of passengers. The NPRM invited public comment on a variety of issues related to the use of AIT, including the threat to aviation security, types of AIT equipment, privacy safeguards, safety, AIT procedures and items discovered using AIT. TSA received thousands of comments on these issues. In response to comments and to avoid confusion, TSA has altered the regulatory text in the final rule. TSA has determined not to define AIT using the term “anomaly”; instead, TSA has adopted the statutory definition of AIT, *i.e.*, a device used in the screening of passengers that creates a visual image of an individual showing the surface of the skin and revealing other objects on the body. In addition, TSA has clarified the final rule by adopting the statutory provision to deploy AIT equipped with ATR software. Thus, AIT equipment must produce a generic image of the

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<sup>39</sup> “Advanced Imaging Technologies: Passenger Privacy Protections,” Fiscal Year 2010 Report to Congress, Feb. 25, 2010.

<sup>40</sup> <https://www.tsa.gov/contact>.

individual being screened that is the same as the images produced for all other screened individuals. These changes are in response to the concerns of commenters regarding the breadth of the regulatory text, and significantly mitigate any privacy concerns associated with the use of AIT as a primary screening method. Accordingly, and consistent with TSA's obligation to complete this rulemaking and TSA's discretion to prioritize its rulemaking resources, TSA does not intend to issue a supplemental NPRM or hold public hearings on this matter. TSA addresses issues regarding effectiveness and safety in subsequent responses.

G. Adherence to the Court Decision in EPIC v. DHS

Comments: Commenters also discussed the court's decision in EPIC v. DHS.

Several individual commenters specifically supported EPIC's position that AIT scanners are invasive of individual privacy. Another individual commenter opposed the court's decision to allow TSA to continue use of AIT. A privacy advocacy group wrote that the NPRM incorrectly stated the holding of the case. A privacy advocacy group and many individual commenters pointed out the length of time that elapsed between the court decision and the issuance of the NPRM. A privacy advocacy group stated that it filed three mandamus petitions during the elapsed 2-year period. An advocacy group stated that the constitutional issue raised by EPIC was not ripe for decision because the court did not have a rulemaking record before it and speculated that the court might invalidate its holding regarding the Fourth Amendment in a future judicial review of this rulemaking.

TSA Response: TSA is in compliance with the court's directive to engage in notice-and-comment rulemaking on the use of AIT to screen passengers. TSA notes that

all of EPIC's other constitutional and statutory challenges to the use of AIT, including its Fourth Amendment claims, were rejected by the court. The court also rejected EPIC's petition for rehearing (including the Fourth Amendment ruling), as well as three subsequent petitions that EPIC filed demanding immediate issuance of the NPRM. TSA notes that the court issued its decision before TSA instituted ATR software on all of the millimeter wave AIT units and removed all of the backscatter units from service. The ATR software does not produce an individual image of a passenger that must be reviewed by a TSO, but instead reveals a generic outline that is visible to the passenger as well as the TSO. In a recent case decided after these changes in AIT equipment were implemented, the U.S. Court of Appeals for the First Circuit held that a constitutional challenge to AIT body scanners that depict revealing images of bodies and pat-downs procedures for passengers who opted out of screening using AIT became moot following the installation of ATR software on all millimeter wave units and the removal of backscatter machines.<sup>41</sup>

#### H. Fourth Amendment Issues

Comments: Commenters also addressed concerns related to the Fourth Amendment. The vast majority of these commenters stated that use of AIT constitutes a violation of Fourth Amendment rights. Individual commenters stated that AIT fails to meet the standard of a constitutionally permissible search. Specifically, some individual commenters stated that TSA could not conduct such searches without a warrant. Individual commenters also stated that neither the purchase of an airline ticket nor a desire to travel is sufficient to give TSA "probable cause" to conduct a search.

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<sup>41</sup> Redfern v. Napolitano, 727 F.3d 77, 83-85 (1st Cir. 2013).



Others stated that AIT is impermissible under Federal case law. Several individual commenters cited the holding in U.S. v. Davis, in which the U.S. Court of Appeals for the Ninth Circuit held that administrative searches must be “no more extensive nor intensive than necessary, in the light of current technology, to detect the presence of weapons or explosives, that it is confined in good faith to that purpose, and that potential passengers may avoid the search by electing not to fly.”<sup>42</sup> Several individual commenters stated that the AIT screening process fails to meet this standard because elements of the scan and the opt-out alternative are too intrusive, and the scope of the scan is not tailored narrowly enough to exclusively identify weapons, explosives, and incendiaries (e.g., AIT is able to identify items such as adult diapers and women’s sanitary products, which commenters stated are outside the scope of threats TSA is trying to identify). Individual commenters recommended alternative search methods that they thought were less invasive and better suited to meet TSA’s need, such as x-raying suitcases, using WTMD, and only using AIT as a secondary means of screening.

Other court cases cited in the comments to support claims that AIT violates the Fourth Amendment include: U.S. v. Pulido-Baquerizo, 800 F.2d 899 (9th Cir. 1986), U.S. v. Skipwith 482 F.2d. 1272 (5th Cir. 1973), U.S. v. Hartwell, 436 F.3d 174 (3d Cir. 2006), Camara v. Municipal Court, 387 U.S. 523 (1967), Missouri v. McNeely, 133 S.Ct. 1552 (2013), Katz v. U.S., 389 U.S. 347 (1967). An individual commenter also cited a court decision pertaining to virtual strip searches, Reynolds v. City of Anchorage, 379 F.3d 358 (6th Cir. 2004) to support opposition to AIT.

An individual commenter observed that, even though AIT use was not found to be in violation of the Fourth Amendment in EPIC v. DHS, the subsequent issuance of an

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<sup>42</sup> 482 F.2d 893, 913 (9th Cir. 1973).

NPRM, which does not specify the degree to which AIT will be used to promote the government's interest, may result in TSA's failure to meet the balancing test applied to Fourth Amendment rights cases.

TSA Response: The court in EPIC held that the use of AIT as a primary screening method at an airport security checkpoint does not violate the Fourth Amendment.<sup>43</sup> This decision is consistent with decisions by the U.S. Supreme Court and the Federal circuits that have upheld airport security screening as a valid administrative search that does not require a warrant, probable cause, reasonable suspicion, or the consent of the passenger.<sup>44</sup> More than 30 years ago, the U.S. Court of Appeals for the Third Circuit recognized that the government “unquestionably has the most compelling reasons,” including “the safety of hundreds of lives and millions of dollars’ worth of private property for subjecting airline passengers to a search for weapons and explosives.” Singleton v. Comm’r of Internal Revenue, 606 F.2d 50, 52 (3d Cir. 1979). “[T]he events of September 11, 2001, only emphasize the heightened need to conduct searches at this nation’s international airports,” U.S. v. Yang, 286 F.3d 940, 944 n.1 (7th Cir. 2002). In a recent opinion issued by the U.S. Court of Appeals for the Eleventh Circuit, the Court concluded that AIT “is a reasonable administrative search under the Fourth Amendment.”<sup>45</sup>

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<sup>43</sup> EPIC, 653 F.3d at 10.

<sup>44</sup> Chandler v. Miller, 520 U.S. 305, 323 (1997) (“We reiterate, too, that where the risk to public safety is substantial and real, blanket suspicionless searches calibrated to the risk may rank as ‘reasonable’—for example, searches now routine at airports”), Nat’l Treasury Emps. Union v. Von Raab, 489 U.S. 656, 675 n.3 (1989) (“The point [of valid suspicionless searches] is well illustrated also by the Federal Government’s practice of requiring the search of all passengers seeking to board commercial airlines . . . without any basis for suspecting any particular passenger of an untoward motive.”), U.S. v. Aukai, 497 F.3d 955, 960 (9th Cir. 2007) (en banc) (“The constitutionality of an airport screening search, however, does not depend on consent.”).

<sup>45</sup> Corbett v. TSA, 767 F.3d 1171, 1180 (11th Cir. 2014) (“The scanners at airport checkpoints are a reasonable administrative search because the governmental interest in preventing terrorism outweighs the degree of intrusion on . . . privacy and the scanners advance that public interest.”).

Like other exceptions created by courts for searches that do not require a warrant, the administrative search within the airport context reflects the careful balancing of the public's privacy interests against the compelling goal of protecting the traveling public. As explained by the D.C. Circuit in EPIC, because the primary goal of airport screening is “not to determine whether any passenger has committed a crime but rather to protect the public from a terrorist attack,” airport screening is permissible under the Fourth Amendment without individualized suspicion so long as the government's interest in conducting screening outweighs the degree of intrusion on an individual's privacy.<sup>46</sup> The court made clear that this standard does not require the government to use the least intrusive search method possible.<sup>47</sup> In fact, the U.S. Supreme Court has held that the scope of the administrative search must be “reasonably related to [its] objectives” and “not excessively intrusive.”<sup>48</sup> In EPIC, the court found that the--

balance clearly favors the Government here. The need to search airline passengers ‘to ensure public safety can be particularly acute,’ and, crucially, an AIT scanner, unlike a magnetometer, is capable of detecting, and therefore of deterring, attempts to carry aboard airplanes explosives in liquid or powder form. On the other side of the balance, we must acknowledge the steps TSA has already taken to protect passenger privacy, in particular distorting the image created using AIT and deleting it as soon as the passenger has been cleared.<sup>49</sup> [Citations omitted]

With the addition of ATR software and the elimination of any individual image, the balance tips even more in favor of the government. Courts have also held that, “absent a

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<sup>46</sup> EPIC, 653 F.3d at 10.

<sup>47</sup> Id. at 10-11.

<sup>48</sup> City of Ontario v. Quon, 560 U.S. 746, 761 (2010) (internal quotation marks omitted).

<sup>49</sup> EPIC, 653 F.3d at 10.

search, there is no effective means of detecting which airline passengers are reasonably likely to hijack an airplane.”<sup>50</sup>

Commenters’ claims and citations to support the position that the least intrusive search method must be adopted are contrary to U.S. Supreme Court precedent in Quon, as well as the EPIC decision. In fact, the court in EPIC specifically rejected the argument that U.S. v. Hartwell, cited in many of the comments, stands for the proposition that AIT scanners must be minimally intrusive to be consistent with the Fourth Amendment.<sup>51</sup> Moreover, especially following the universal deployment of ATR software, TSA believes that the use of AIT as a primary screening method is not intrusive. The scan and the results require just a few seconds. Passengers are not subjected to any physical intrusion. The only potential for invasiveness occurs when AIT alarms, thereby requiring additional screening to verify whether a threat item is present.<sup>52</sup> Passengers are instructed through TSA’s website and cautioned before they enter the AIT unit to remove all items from their pockets to prevent an alarm.

TSA is not required to use any of the alternatives to AIT mentioned in the comments to achieve the legal requirements of a valid search. For example, all baggage, whether checked or carry-on, is already screened as required under 49 U.S.C. 44901. Limiting an airport search to baggage, however, would not address the threat that a person could conceal an explosive on his or her person. The government has latitude under the Fourth Amendment to choose among reasonable alternatives for conducting an

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<sup>50</sup> See Singleton v. Comm’r of Internal Revenue, 606 F.2d 50, 52 (3d Cir. 1979). See also U.S. v. Marquez, 410 F.3d 612, 616 (9th Cir. 2005) (“Little can be done to balk the malefactor after weapons or explosives are successfully smuggled aboard, and as yet there is no foolproof method of confining the search to the few who are potential hijackers.” (quoting Davis, 482 F.2 at 910)).

<sup>51</sup> EPIC, 653 F.3d at 10-11.

<sup>52</sup> In other limited circumstances, based on the particular item of clothing, TSA may require additional screening even if the AIT does not alarm.

administrative search.<sup>53</sup> AIT is the only technology that will find both metallic and non-metallic items, and will find both explosives and non-explosives items. The WTMD only finds metallic items, thus does not find such threats as explosive devices made without metal, or other non-metallic items. The ETD will find only explosives, not metallic items (such as firearms) or non-metallic items that are not explosives (such as ceramic knives); the same is true for explosives detection canines. Pat-down screening is useful for finding both metallic and non-metallic items, and will find both explosives and non-explosives items, however, that method is slower than AIT and many persons consider pat downs to be more intrusive than AIT.

The other cases cited in the comments, particularly those relating to whether consent is required for airport screening, are inapplicable. Both U.S. v. Davis, 482 F.2d 893 (9th Cir. 1973) and U.S. v. Pulido-Baquerizo, 800 F.2d 899 (9th Cir. 1986) regarding whether a passenger must consent to a search, have been superseded by the decision of the U.S. Court of Appeals for the Ninth Circuit in U.S. v. Aukai.<sup>54</sup> In Aukai, the court confirmed that airport screening searches are constitutionally reasonable administrative searches and clarified that the reasonableness of such searches does not depend, in whole or in part, upon the consent of the passenger being searched.<sup>55</sup> U.S. v. Skipwith, 482 F.2d 1272 (5th Cir. 1973), deals with a law enforcement search based on suspicion, which is not required for the administrative search performed by TSA. Neither Camara v. Municipal Court, 387 U.S. 523 (1967), Missouri v. McNeely, 133 S. Ct. 1552 (2012), nor Katz v. U.S., 389 U.S. 347 (1967) involves the administrative search conducted by

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<sup>53</sup> Quon, 560 U.S. at 764 (“Even assuming there were ways that [the government] could have performed the search that would have been less intrusive, it does not follow that the search conducted was unreasonable.”).

<sup>54</sup> U.S. v. Aukai, 497 F.3d 955 (9th Cir. 2007) (en banc).

<sup>55</sup> Aukai, 497 F.3d at 957.

TSA at airport security checkpoints, which courts have consistently found is justified by the compelling government interest in protecting the traveling public.<sup>56</sup> Finally, the reference to strip search cases by a commenter is not applicable to AIT given the privacy restrictions TSA used when it first deployed AIT and even more so now that all AIT units are equipped with ATR software and do not display an individual image. In addition, the AIT units do not have the ability to store, print, or transmit any images. As noted previously, a TSO does not usually touch a passenger's body unless the AIT alarms. With ATR, there is no individual image of a traveler; the generic outlines produced are so innocuous that they are displayed publicly at the airport.

#### I. Other Legal Issues

Comments: Commenters raised other legal issues in opposing AIT. Several individual commenters, a non-profit organization, and several advocacy groups stated that AIT scanning and/or opt-out process violates rights guaranteed by the First, Second, Fifth, Sixth, Eighth, Ninth, Tenth, and Fourteenth Amendments, respectively. Commenters did not generally provide further substantive legal arguments in support of these constitutional claims. An advocacy group, however, cited a Supreme Court case, Aptheker v. Sec'y of State, 378 U.S. 500, 505 (1964), which held that if a law "too broadly and indiscriminately restricts the right to travel" it "thereby abridges the liberty guaranteed by the Fifth Amendment." The commenter further stated that the court

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<sup>56</sup> See generally Marquez, 410 F.3d 612,618 ("It is hard to overestimate the need to search air travelers for weapons and explosives") and Singleton, 606 F.2d 50, 52 ("the government unquestionably has the most compelling reasons...for subjecting airline passengers to a search for weapons or explosives that could be used to hijack an airplane."). The facts in Camara involved the attempted search of a home without a warrant. The Supreme Court found that the government was not able to articulate a special need or legitimate public interest to justify dispensing with the requirement to obtain a warrant. In McNeely, a blood test of a person suspected of driving while intoxicated was obtained without a warrant. In Katz, the Supreme Court held that electronically listening to and recording an individual's conversation at a public telephone booth without a warrant violated the Fourth Amendment.

considered relevant “that Congress has within its power ‘less drastic’ means of achieving the congressional objective of safeguarding our national security.” An individual commenter cited U.S. v. Guest, 383 U.S. 745 (1966) and Shapiro v. Thompson, 394 U.S. 618 (1969) in opposing the use of AIT. Another advocacy group cited 49 U.S.C. 40101, 40103, and the International Covenant on Civil and Political Rights, a treaty that the U.S. has ratified, as further reinforcing the right to travel. The commenter remarked that the NPRM does not recognize that travel by air and, specifically, by common carrier, is a right and that TSA must evaluate its proposed actions within that context. Similarly, an individual commenter stated that TSA’s use of AIT involves limitations on constitutional rights and, therefore, strict scrutiny should be the judicial review standard applied. Another individual commenter stated that implementation of AIT scanners assumes travelers’ guilt, which is in violation of the principle of the presumption of innocence.

One individual commenter stated that it is outside of TSA’s mission to identify and confiscate items that are not a threat (e.g., illegal drugs) and that such “mission creep” is an inappropriate use of Federal funds and distracts TSA staff from their actual mission. Other individual commenters stated that AIT and pat-downs violate laws prohibiting sexual molestation. A non-profit organization suggested that TSA review and modify its policies to ensure that they do not conflict with existing state law procedures protecting children from physical and sexual assault or with existing child protective services legislation.

TSA Response: As to the claims of violations of the Constitution, as explained in the response to the previous grouping of comments, in recognition of the importance of the safety concerns at issue, courts have regularly upheld airport screening procedures

against constitutional challenges. Thus, it is well settled as a matter of law that an airport screening search conducted to protect the safety of air travelers is a legitimate exercise of government authority and does not impinge on any of the constitutional amendments listed in the comments. Passengers are on notice that their persons and their property are subject to search prior to entering the sterile area of the airport or boarding an aircraft. Federal law requires “the screening of all passengers and property” before boarding an aircraft to ensure no passenger is “carrying unlawfully a dangerous weapon, explosive, or other destructive substance.” 49 U.S.C. 44901(a) and 44902(a). Federal law also requires commercial air carriers to prevent anyone from boarding who does not submit to security screening. 49 U.S.C. 44902(a).

The use of AIT to conduct passenger screening does not implicate any constitutional rights in the manner described in the comments. Passengers are not restricted regarding their speech or right to assemble so long as they do not interfere with screening.<sup>57</sup> Passengers may transport unloaded firearms in checked baggage in a locked, hard-sided container, thus, there is no infringement of Second Amendment rights. 49 CFR 1540.111. In general, the Fifth, Sixth, and Eighth Amendments have to do with the rights of persons accused of a crime and have no relevance to airport security screening conducted by TSA. Federal law requires that screening be conducted on all passengers and property prior to boarding an aircraft, and rights reserved for citizens or the states,

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<sup>57</sup> Interference with screening is prohibited by 49 CFR 1540.109. TSA defines interference in part as that which “might distract or inhibit a screener from effectively performing his or her duties,” to include verbal abuse of screeners by passengers or air crew, but not good-faith questions from individuals seeking to understand the screening of their persons or property. See 67 FR 8340, 8344 (Feb. 22, 2002). Interference with screening might also include passenger activity that requires a screener to “turn away from his or her normal duties to deal with the disruptive individual,” or might “discourage the screener from being as thorough as required.” See *id.*; 49 CFR 1540.109; *Rendon v. TSA*, 424 F.3d 475 (6th Cir. 2005) (constitutional rights not infringed when penalty was imposed on traveler who became loud and belligerent after he set off metal detector alarm which required screener to shut down his line and call over his supervisor).



discussed in the Ninth and Tenth Amendments respectively, are not impacted by airport screening. Comments invoking the Fourteenth Amendment generally did so without specifying which clause of the Amendment is at issue the or how it was implicated by AIT, or invoked it in connection with non-AIT aspects of TSA screening.

Federal courts have long held that airport screening searches do not violate a traveler's right to travel.<sup>58</sup> "Air passengers choose to fly, and screening procedures . . . have existed in every airport in the country since at least 1974."<sup>59</sup> The holding in Aptheker, cited by a commenter, pertained to whether Section 6 of the Subversive Activities Control Act of 1950, which restricted members of Communist organizations in obtaining or using a passport, was constitutional. It has no application to the use of AIT to conduct airport screening, which does not restrict a person's right to travel, the ability to obtain a passport, or the ability to obtain documentation necessary to enter a country legally. Further, the Ninth Circuit Court of Appeals has held that TSA's regulation requiring passengers to present identification prior to entering a sterile area or boarding an aircraft, 49 CFR 1540.107(b), does not violate any Constitutional rights.<sup>60</sup>

As to the comment regarding the confiscation of items that are not a security threat such as illegal drugs, the purpose of TSA screening is to prevent weapons, explosives, and other items that could pose a security threat (prohibited items) from being carried into the sterile area of the airport or onboard an aircraft in order to ensure the freedom of movement for people and commerce. 49 CFR 1540.111. TSA's mission has

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<sup>58</sup> U.S. v. Davis, 482 F.2d 893 (9th Cir. 1973).

<sup>59</sup> Hartwell, 436 F.3d at 174.

<sup>60</sup> Gilmore v. Gonzales, 435 F.3d 1125, 1136-1137 (9th Cir. 2006) ("We reject Gilmore's right to travel argument because the Constitution does not guarantee the right to travel by any particular form of transportation . . . . Gilmore does not possess a fundamental right to travel by airplane even though it is the most convenient mode of travel for him.").

not changed. TSOs do not search for other illegal items. When searching for prohibited items, however, it is not unusual for TSOs to uncover items that may be evidence of criminal activity. When that happens, the TSO turns such matters over to law enforcement officers to resolve, consistent with applicable criminal statutes. TSOs do not take possession of such items. In addition, once an anomaly is detected by AIT, or a metal object is detected by a WTMD, or either screening system misalarms, additional screening must take place to determine whether there is an item, and if so, if the item detected is a threat to aviation security. As the court in Hartwell noted, “Even assuming that the sole purpose of the checkpoint was to search only for weapons or explosives, the fruits of the search need not be suppressed so long as the search itself was permissible . . . . Since the object in Hartwell’s pocket could have been a small knife or bit of plastic explosives, the TSA agents were justified in examining it.”<sup>61</sup>

TSA’s pat-down procedures are designed to ensure that any touching of the body by a TSO is minimally intrusive while effectively screening for prohibited items. A TSO does not touch a passenger’s body unless necessary to resolve an AIT alarm, or unless the passenger has opted for a pat-down, and the procedures are largely similar to those employed to resolve WTMD alarms. Touching of the body to perform this essential security function is fully within the scope of TSA’s authority, and TSA’s procedures are consistent with civil and criminal state laws. Sexual molestation or inappropriate touching of a passenger by an employee is strictly prohibited and TSA has procedures in place to investigate any allegations of such conduct thoroughly. TSA takes all allegations of misconduct seriously.

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<sup>61</sup>Hartwell, 436 F.3d at 181 n.13. See also Marquez, 410 F.3d at 617 (“The screening at issue here is not unreasonable simply because it revealed that Marquez was carrying cocaine rather than C-4 explosives.”).

Passengers who believe they have experienced unprofessional conduct at a security checkpoint may request to speak to a supervisor at the checkpoint or write to the TSA Contact Center at TSA-ContactCenter@dhs.gov. Passengers who believe they have been subject to discriminatory treatment at the checkpoint may file a complaint with TSA's Office of Civil Rights & Liberties, Ombudsman and Traveler Engagement (OCRL/OTE) at TSA-CRL@tsa.dhs.gov, [or submit an online complaint at https://www.tsa.gov/contact-center/form/complaints](#).<sup>62</sup> The Office of Inspection, in addition to OCRL/OTE and management, may investigate misconduct allegations. Travelers may also file discrimination complaints concerns with the DHS Office for Civil Rights and Civil Liberties (CRCL) via CRCL's website at <http://www.dhs.gov/complaints>. In addition, as discussed further below, TSA has amended its screening procedures to modify the pat-down used when necessary to screen children age 12 and under and adults age 75 and older and has reduced the instances where such passengers would be subject to a pat-down.

#### J. Evolving Threats to Security

Comments: Commenters also addressed the evolving threats to aviation security discussed by TSA in the NPRM. Some commenters stated that TSA's screening efforts are not linked to the decrease in aircraft-related terror attempts since September 11, 2001. For example, individual commenters and a non-profit organization stated that the threat attempts listed in the NPRM were thwarted by intelligence efforts, not TSA screening. Other individual commenters, however, supported TSA's efforts to deploy tools like AIT scanners to detect and deter future attacks. Individual commenters credited secured

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<sup>62</sup> More information on TSA Civil Rights is available at <https://www.tsa.gov/travel/passenger-support/civil-rights>.

cockpits and stricter policies for cockpit access with preventing terrorist attacks on commercial airlines since September 11, 2001. Furthermore, a few individual commenters suggested that in addition to enhanced cockpit security, passengers' awareness and willingness to fight back deters terrorists from targeting planes.

Several commenters discussed the evolving threat from nonmetallic explosives. A few individual commenters suggested that TSA's response to the increased threat of nonmetallic explosives is not sustainable because terrorists will find other ways to hide devices. A few individual commenters disagreed with TSA's focus on nonmetallic threats, because these types of weapons have been used for several decades.

A few individual commenters suggested that the long lines at checkpoints, which the commenters stated are caused by TSA screening, are more attractive targets to terrorists than airplanes. Lastly, several individual commenters stated there is no evidence indicating that terrorist threats similar in magnitude to September 11, 2001, are increasing.

TSA Response: TSA agrees that the threat to aviation security by terrorists continues to evolve as terrorists test current security measures to uncover vulnerabilities to exploit. Terrorist groups remain focused on attacking commercial aviation. The primary threat from these groups is from explosive devices, as we have seen in incidents originating abroad, such as the non-metallic bomb used by the Christmas Day bomber in 2009, the toner cartridge printer bombs from Yemen placed on two cargo aircraft destined for Chicago in 2011, and the improved "next generation" underwear bomb also from Yemen, recovered by a foreign intelligence service in April 2012. The incidents abroad inform us of terrorists' intentions and capabilities, and are lessons that TSA must

learn from to prevent terrorists from attempting such an act here. These examples show that terrorists continue to attack aviation, are capable of constructing non-metallic explosive devices, and continue to develop new ways to do so. Open source information indicates that terrorists continue to intend violence against aviation within the United States. TSA does not agree that intelligence reporting alone is responsible for thwarting terrorist threats. TSA agrees that improvements in intelligence gathering and sharing such information, along with other layers of security, including as mentioned in the comments, hardened cockpit doors and assistance from passengers, contribute greatly to aviation security. The combination of security layers, both seen and unseen, provides the best opportunity to detect and deter a terrorist attack.

TSA also agrees that security procedures and equipment must continue to evolve as the threat evolves. As discussed above, AIT is the most effective technology currently available to detect both metallic and nonmetallic threats, both explosive and non-explosive, concealed under passenger clothing, TSA continues to research and test new equipment and procedures to stay ahead of evolving threats.

TSA agrees that long lines at the checkpoints could pose a security risk and has taken steps to address long lines by monitoring throughput. However, TSA remains focused on the fundamentals of security, and strives to strike a balance between security effectiveness and line efficiency. Passengers can obtain information before they leave for the airport on what items are prohibited; acceptable ID; rules for liquids, gels and aerosols; and traveling with children. Guidance for travelers with disabilities, medical conditions or medical devices, tips for dressing and packing, and information on traveling with food and gifts is provided. In addition, as noted in the NPRM, the website contains

instructions on AIT screening procedures. 78 FR 18296. Preparing in advance for security screening and following the instructions of the TSOs are the most effective ways to reduce lines at the checkpoint.

K. TSA's Layers of Security

Comments: Commenters addressed the TSA layers of security discussed in the NPRM. A privacy advocacy group suggested that the layered approach discussed by TSA is not supported by data and, therefore, does not justify the need for AIT. The commenter also recommended that TSA revise the layered approach so weaknesses in security can be identified. Furthermore, a few commenters suggested that TSA focus on other security methods, such as profiling, interviewing, and "Pre-check" screening programs to identify dangerous individuals. An individual stated that the efficacy of AIT screening has not been scientifically proven. The commenter further suggested that since there are other approaches used by TSA to identify potential threats, AIT would be most useful as a secondary screening method instead of as the primary screening method. A professional association, however, stated that because of the advanced methodologies of adversaries, technologies like AIT scanners are needed to secure air travel. The commenter suggested that techniques involving human intervention, such as Screening Passengers by Observation Techniques, the Behavioral Detection Officer program, and passenger screening canines would also be useful. Many commenters mentioned their support for the use of racial profiling tactics instead of AIT, and argued that such measures would be more efficient and effective.

An advocacy group alleged that TSA's "trusted traveler program" approach would weaken security because it can eliminate entire classes of passengers from AIT

screening. The commenter recommended that TSA consider other, less invasive and cost-effective screening procedures that would allow TSA to implement AIT as a secondary, rather than a primary, screening tool. Furthermore, the commenter suggested that TSA enhance layers of security by testing canine bomb detection, face recognition, and explosives residue machines, in an effort to reduce the need for AIT scanning.

TSA Response: TSA believes that a comprehensive security system is the most effective means to address potential terrorist threats, since no single security measure may be sufficient by itself. TSA also agrees that ETD, behavior detection and passenger screening canine are valuable tools to address terrorist threats, and TSA uses these at airports.

TSA does not agree with commenters that using AIT, as a secondary screening method, would be as effective as currently deployed. Limiting its use to resolve alarms of the WTMD, which can only detect metallic threats, would severely restrict our ability to prevent adversaries from smuggling non-metallic weapons and explosives on board an aircraft.

As discussed above, AIT is the best technology currently available to detect both metallic and nonmetallic threats, and explosives as well as non-explosives. TSA has tested the effectiveness of the technology, and the equipment must meet TSA detection standards to be deployed in an airport. In addition, testing is conducted by the DHS Transportation Security Laboratory (TSL). The TSL Independent Test and Evaluation group provides certification and qualification tests and laboratory assessments on explosive detection capability. TSA procurement specifications require that any AIT system must meet certain thresholds with respect to the detection of items concealed

under a person's clothing. While the detection requirements of AIT are classified, the procurement specifications state that any approved system must be sensitive enough to detect smaller items.

Regarding the comments recommending racial profiling, transportation security screening is regulated by the Constitution, federal law, and applicable DHS and component policies setting forth the appropriate limits on use of race, ethnicity, and other characteristics. In addition, racial profiling is not an effective security measure and can easily be defeated. It is premised on the erroneous assumption that any particular individual of one race or ethnicity is more likely to engage in misconduct than any particular individual of another race or ethnicity. In addition to being ineffective, profiling violates DHS policies and ultimately undermines the public trust. TSA disagrees with the commenter who wrote that TSA's trusted traveler program would weaken security. The TSA Pre✓™ program is based on the premise that most passengers do not pose a risk to aviation security. This program will permit those passengers who voluntarily provide information for a security risk assessment to undergo expedited screening and allow TSOs to devote more time to screening unknown passengers.

L. Effectiveness of AIT Screening

Comments: Many commenters made general statements that AIT scanners are not effective in addressing security threats. An individual commenter stated that because TSA has not released data regarding the effectiveness of AIT scanners and the number of prohibited items detected by AIT, the NPRM would not be taken seriously. Some commenters, including a privacy advocacy organization and a community organization, stated that TSA has not provided enough information about what AIT can detect. The



commenter stated that the agency has not made a distinction between an “anomaly” and a “threat.” Commenters also stated that the use of AIT scanners makes air travel more vulnerable to terrorism.

Many submissions discussed the efficacy of AIT to detect anomalies concealed under the clothing of a passenger. Some commenters stated that AIT scanners are not effective because they cannot detect items that are concealed under fake skin, under skin folds, or under shoes, implanted bombs, and objects hidden inside of a person. A few individuals stated that objects are not detected if concealed on the side of the body. A commenter stated that a passenger was able to bring an empty metal box concealed under clothing through AIT units without detection. The commenter believed that the metal box was not detected because the rate at which the AIT beams reflect off the metal is the same rate at which beams reflect the background. The commenter stated that if an object like the metal box were placed at the side of a body, the object beam reflection would look no different from the blackened background. According to another individual commenter, a peer-reviewed publication in the Journal of Homeland Security stated that explosives with low “Z” like plastics look like flesh to the scanner because flesh is also low “Z.” A few individual commenters referred to a video posted by a blogger that the commenters stated portrayed a man who was able to conceal objects (both metal and nonmetal) from an AIT scanner by sewing the objects into the lining of his shirt.

Some commenters discussed the ability of AIT to detect plastic, powder, and liquid explosives. One individual commenter stated that a 2007 government audit found that agents were able to pass through security checkpoints with explosives and bomb parts. Commenters stated that the explosives used by the “underwear bomber” and “shoe

bomber” would not be detected by AIT. A commenter stated that a 2010 Government Accountability Office (GAO) report indicated that it remains unclear whether the AIT would have detected the weapon used in the December 2009 Christmas Day bomber incident based on the preliminary information GAO had received. An advocacy group also expressed concern that AIT scanners cannot detect pentaerythritol tetranitrate (the powder explosive the group states was used by the Christmas Day bomber), and claimed that this chemical continues to be used in other domestic and international terror attempts. An individual commenter alleged AIT could not detect explosives molded into specific shapes. Another individual commenter stated that since there are claims that AIT cannot detect powder explosives, AIT scanners are not fulfilling the statutory provision at 49 U.S.C. 44925 which TSA has used as justification for deploying AIT.

An individual commenter suggested that, although the AIT scanners can adequately detect metal in firearms and concealed knives, security screening should also be able to detect explosives with negligible false negative rates and low false positive rates. The commenter recommended that a reasonable detection limit would be no lower than 20 percent of the amount of the explosive needed to bring an airplane down. The commenter suggested that systems that detect significant quantities of explosives or detonators should be used for screening baggage and items concealed under clothing.

A few individuals expressed concern that because AIT on its own cannot differentiate between threatening objects and non-threatening objects, passengers carrying non-threatening objects are subject to more intrusive, secondary searches including pat-downs. A community organization stated that travelers of the Sikh religion are often subject to secondary searches even when the AIT scanner did not identify any

anomalies. Similarly, an individual commenter stated that, although AIT scanners can detect anomalies, often times a pat-down could not resolve whether the anomaly is a threat. An individual commenter, however, remarked that continued use of AIT would reduce the number of pat-downs as well as enhance detection of nonmetallic weapons, because AIT is effective in detecting threats. The commenter suggested that AIT checkpoints be re-designed to minimize the level of intrusion and embarrassment associated with scanned images.

Many commenters wrote that AIT scanners are no more effective at addressing security threats than other, less invasive screening methods. A few individual commenters and advocacy groups suggested that the NPRM has not adequately justified the ability of AIT to reduce significantly the threat of terror attacks on aircraft compared to alternative screening practices. Some individual commenters stated that the WTMD is more effective at detecting metallic items than AIT. A few of these individual commenters remarked that WTMD is as effective as AIT overall, but they preferred WTMD because it is less invasive than AIT. An advocacy group suggested that a cost-benefit analysis of AIT would certainly justify the scanners if they were effective in deterring terrorism compared to screening alternatives. An individual commenter also stated there is not enough evidence of increased threats using nonmetallic objects to justify the need for body scanners. The commenter explained that prior to AIT, nonmetallic objects were addressed by less-invasive means including WTMDs, bomb-sniffing dogs, Federal Air Marshals, and explosives detection machines. The commenter also stated that nonmetallic weapons that are small enough to conceal on the body do not pose a threat. One individual commenter, however, discussed examples where the use of

the AIT scanner was instrumental in identifying weapons concealed under clothing. The commenter stated that there is no alternative technology that can assist in detecting explosives and other harmful objects that can be used to harm travelers.

Many commenters, including a non-profit organization, an advocacy group, and individual commenters, made general statements that AIT scanners are ineffective because of reported high false positive rates. An individual commenter stated that travelers might be more accepting of the invasiveness of AIT scanners if TSA revealed data regarding the effectiveness of the technology (i.e., false positives and false positive rates). Several commenters, including a non-profit organization and a community organization, stated that the false detection of non-threatening objects leads to pat-downs where passengers are subjected to unnecessary, invasive screening. An individual referenced incidents which, the commenter stated, caused passengers embarrassment when their medical device raised a false positive. An individual commenter argued that the high rate of false positives causes security checkpoint lines to move slowly, which subsequently requires TSA to use WTMDs to relieve the backup. A few individuals expressed concern regarding a false sense of security created for TSA officers and passengers by the large volume of false alarms caused by AIT scanners. The commenters concluded that this false sense of security weakens security. Similarly, an individual commenter remarked that the process of responding to false positives (searching for non-threatening objects) takes TSA's focus off identifying actual threats.

An individual commenter stated that AIT scanners are not effective in identifying a passenger with a threatening weapon because passengers can travel from airports or terminals that do not use AIT scanners. The commenter stated that passengers could also

avoid detection by placing a weapon on a companion passenger under 12 years of age or on a pet. The commenter also stated that AIT scanners are ineffective at making air travel safer because the long lines make passengers more vulnerable to terror attacks. An individual commenter, however, wrote that the AIT scanners are more effective as a deterrent to terrorists than random pat-downs or profiling because of the expectation that the AIT will scan all passengers entering the sterile area.

TSA Response: TSA cannot fully address the specific detection capabilities of AIT in the final rule, because much of the information is classified. As explained in the NPRM, AIT is able to detect both metallic and nonmetallic items concealed under an individual's clothing. The NPRM describes some of the items concealed under clothing that have been detected by AIT. 78 FR 18297. AIT equipment must meet detection specifications and overall performance standards established by TSA. The AIT machines are tested regularly to ensure that the detection capabilities and performance standards are maintained. After years of testing and operational experience at the airport, TSA maintains that AIT provides the best opportunity currently available to detect both metallic and nonmetallic threats concealed under a person's clothing. TSA procurement specifications require that any AIT system must meet certain thresholds with respect to the detection of items concealed under a person's clothing. While the detection requirements of AIT are classified, the procurement specifications require that any approved system be sensitive enough to detect smaller items. Prior to deployment, the machines are tested in the laboratory and in the field to certify that the detection standards are met. In addition, the DHS Transportation Security Laboratory (TSL) also tests the equipment to verify detection capability. After deployment, testing continues as

TSA regularly conducts both overt and covert detection tests. In addition, AIT detection capability has been tested by DHS and the GAO.

The millimeter wave AIT equipment currently deployed at airports to screen passengers uses ATR software that enables the AIT automatically to identify irregularities on passengers using imaging analysis techniques based on contour, pattern, and shape. The AIT is designed to detect irregularities concealed under clothing; therefore, commenters are correct that it may detect items that do not pose a threat. Commenters also are correct that in order to determine whether AIT has alarmed on a threat item, a TSO will conduct further screening at the location where the AIT has indicated that there is an anomaly, thereby eliminating the need to pat-down the entire body. Generally, a passenger is only touched if an anomaly is indicated by AIT, and only the part of the body where the machine has indicated an anomaly is located is touched during the pat-down. At times, ETD or other forms of additional screening may be employed to resolve an alarm and to clear a passenger for entry into the sterile area after AIT screening. Passengers are advised to avoid wearing clothing with large metal embellishments and large metal jewelry and to remove all items in their pockets to reduce the possibility that the AIT will alarm on innocuous items.

TSA is aware of the audits conducted by the GAO on the effectiveness of screening measures. However, AIT was not in use at the checkpoint when the GAO tested security procedures described in the 2007 report cited by a commenter.<sup>63</sup> The 2010 report cited by a commenter did not contain any recommendations regarding the use of

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<sup>63</sup> U.S. Government Accountability Office, "Aviation Security Vulnerabilities Exposed Through covert Testing of TSA's Passenger Screening Process," GAO-08-48T (Nov. 15, 2007).

AIT, but did state that a cost/benefit analysis would be beneficial.<sup>64</sup> The RIA includes an extensive analysis of the costs of AIT and a qualitative discussion of its benefits. In addition, the RIA discusses the alternatives to AIT considered by TSA.

TSA disagrees with the comments alleging that because there is no direct evidence that AIT has prevented a terrorist attack on its own, the technology is not effective. As the Supreme Court pointed out in rejecting a similar argument in Von Raab, the validity of a screening program does not turn on “whether significant numbers of putative air pirates are actually discovered by the searches conducted under the program.” Given the government’s interest “in deterring highly hazardous conduct,” the Supreme Court emphasized, “a low incidence of such conduct, far from impugning the validity of the scheme . . . is more logically viewed as a hallmark of success.” 489 U.S. at 675 n.3.<sup>65</sup> In Corbett, the Court of Appeals upheld the use of AIT and found that “the scanners effectively reduce the risk of air terrorism . . . the Fourth Amendment does not require that a suspicionless search be fool-proof or yield exacting results.”<sup>66</sup>

Further, the fact that AIT, or any single security measure, may not be completely foolproof does not mean that it is ineffective and should not be used at all. A discussion of the alternatives to AIT considered by TSA is included in the RIA. TSA has always maintained that AIT is the best technology currently available to detect the threat of nonmetallic and other dangerous items and that a comprehensive security system is the best means to detect and deter terrorist attacks as no single layer by itself, including AIT,

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<sup>64</sup> U.S. Government Accountability Office, “Aviation Security TSA is Increasing Procurement and Deployment of the Advanced Imaging Technology, but Challenges to This Effort and Other Areas of Aviation Security Remain,” GAO-10-484T (Mar. 17, 2010).

<sup>65</sup> See also MacWade v. Kelly, 460 F.3d 260, 274 (2d Cir. 2006) (holding that the deterrent effect of an anti-terrorism screening program in the New York subway system “need not be reduced to a quotient” to satisfy 4th Amendment balancing.) and Cassidy v. Chertoff, 471 F.3d 67, 83 (2d Cir. 2006) (government is not required to “adduce a specific threat” to ferry system before engaging in suspicionless searches).

<sup>66</sup> Corbett, 767 F.3d at 1181.

may be sufficient. Accordingly, TSA agrees with commenters that other security measures, including those mentioned in the comments such as canine, Federal Air Marshalls, and explosive detection systems, should also be deployed to increase the chance that a threat will be detected. TSA does in fact employ all of those measures. However, TSA does not agree that any of those measures should replace AIT because AIT provides stand-alone value as well.

In response to a comment regarding the redesign of the checkpoint to minimize embarrassment of passengers during the screening process, TSA points out that since May 2013, TSA has only deployed AIT with ATR software at the airport. ATR eliminates the individual image and produces a generic outline that is visible to the passenger and the TSO. In addition, TSA offers passengers who must undergo a pat-down the opportunity to have the pat-down conducted in a private screening location that is not visible to the traveling public.

Currently there are approximately 793AIT machines located at almost 157airports nationwide. Given limited resources, TSA uses a risk-based approach to deploy AIT and continues to assess and test “next generation” AIT systems, which TSA anticipates will improve anomaly detection capability, decrease processing time, and better suit the physical constraints of airport checkpoints.

#### M. Screening Measures Used in Other Countries

Comments: Commenters discussed screening measures used in foreign countries. The majority of these comments recommended that TSA consider implementing a screening system similar to the one used by Israel. In addition to individual commenters, a privacy advocacy group stated that in 2011 the European Union (EU) issued a ruling



banning the use of backscatter body scanners in all airports; that Italy discontinued its use of millimeter wave scanners because they were found to be slow and ineffective; and that Germany and Ireland discontinued use of AIT because of concerns regarding efficacy. A few individual commenters stated that the AIT scanners were removed from other countries because of health and safety concerns.

TSA Response: AIT is used in airports and mass transit systems in many countries, including in Canada, the Netherlands, Australia, Nigeria, and the United Kingdom.<sup>67</sup> TSA works directly with foreign governments and through the International Civil Aviation Organization (ICAO) to share information on AIT as well as other security measures.<sup>68</sup> TSA continues to believe that AIT provides the most effective technology currently available to detect metallic and nonmetallic threats. As was explained in the NPRM and discussed below, AIT has been tested for safety by both TSA and independent entities. The results confirm that AIT is safe for individuals being screened, equipment operators, and bystanders. See 78 FR 18294-18296.

TSA is aware that the European Commission adopted a legal framework on security scanners.<sup>69</sup> That framework states that the use of security scanners is optional, and that only security scanners which do not use ionizing radiation can be deployed and used for passenger screening. It also specifies that the scanners shall not store, retain, copy, print, or retrieve images. However, the Commission also found that “[s]ecurity scanners are an effective method of screening passengers as they are capable of detecting

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<sup>67</sup> <http://science.howstuffworks.com/millimeter-wave-scanner4.htm>; <http://cnsnews.com/news/article/us-paid-full-body-scanners-nigeria-s-four-international-airports-2007>.

<sup>68</sup> ICAO recognizes that AIT may be used as a primary screening measure for passengers. ICAO “Aviation Security Manual,” Doc 8973/8 Restricted (2011).

<sup>69</sup> European Commission, Press Release, “Aviation Security: Commission Adopts New Rules on the Use of Security Scanners at European Airports,” Brussels, Belgium (Nov. 14, 2011). The countries referenced by several commenters (Germany, Ireland, and Italy) are members of the European Union.

both metallic and non-metallic items carried on a person. The scanner technology is developing rapidly and has the potential to significantly reduce the need for manual searches (“pat downs”) applied to passengers, crews and airport staff.”<sup>70</sup>

N. Laboratory and Operational Testing of AIT Equipment

Comments: Some submissions discussed testing of AIT scanners for operational effectiveness. Several commenters stated that no testing has been conducted by independent parties, or they expressed concern that TSA did not publicly release the results of AIT equipment testing. A few individual commenters objected to having TSA test the scanners on the traveling public. An individual commenter suggested that validation tests should include evidence of attempts to defeat a screening technique and recommended that if the results indicate that AIT is less effective for screening than other devices, TSA should discontinue use of AIT in favor of technology that the results favor.

An individual commenter stated the need for long-term studies, including potential effects of the AIT equipment if it were to malfunction, become “out of spec,” or suffer from poor maintenance.

TSA Response: The FAA began testing AIT when it was responsible for passenger screening at airports prior to the creation of TSA. TSA continued laboratory testing of AIT as the threat from nonmetallic substances increased. To better assess the application of AIT to the airport environment, TSA conducted limited field trials of different types of AIT equipment at several airports. Throughout 2007 and 2008, AIT was piloted in the secondary position for these trials. In 2009, in response to the Christmas Day bomber, TSA began to evaluate using AIT in the primary screening position since there are no other currently deployed technologies in the primary screening

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<sup>70</sup> Id.

position that can detect nonmetallic threats concealed under a passenger's clothing. When conducting tests both in the laboratory and in the field, TSA evaluated the equipment for safety, detection capability, operational efficiency, and passenger impact. Because of the successful results observed during testing and the need to address the threat from nonmetallic explosives concealed under clothing, TSA decided to procure AIT units for use in the primary position at airport checkpoints.

All of the AIT units are regularly inspected by the manufacturer to ensure that they operate effectively and meet TSA specifications. In addition, the units are tested each day prior to use at the checkpoint. If the equipment does not meet operational specifications, it cannot be used.

The GAO released a report, "Advanced Imaging Technology: TSA Needs Additional Information before Procuring Next-Generation Systems," in March 2014 describing the types of tests TSA conducts on AIT.<sup>71</sup> As explained in the report, TSA conducts the following five tests to evaluate the performance of AIT equipment: 1) Qualification testing in a laboratory setting at the TSA Systems Integration Facility to evaluate the technology's capabilities against TSA's procurement specification and detection standard to include testing of false alarm rates; 2) Operational testing at airports to evaluate system effectiveness and suitability for the airport environment; 3) Covert testing to identify vulnerabilities in the technology, operator use, and TSO compliance with procedures; 4) Performance Assessments to test TSO compliance with Standard Operating Procedures (SOPs); and 5) Checkpoint drills to assess TSO compliance with

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<sup>71</sup> U.S. Government Accountability Office Report to Congressional Requesters, "Advanced Imaging Technology: TSA Needs Additional Information before Procuring Next-Generation Systems," GAO-14-357, March 2014.

SOPs and ability to resolve anomalies identified by AIT.<sup>72</sup> Qualification testing is conducted when a technology is first considered for deployment and for subsequent upgrades to the technology. The TSL also conducts certification testing on detection capability. In addition to these tests, the actual units are subjected to a factory acceptance test at the manufacturer's facility and a site acceptance test at the airport. TSA also tests the units for radiation exposure as described in the NPRM and in response to additional comments described below. Covert testing is also conducted by the Inspector General of DHS and GAO.<sup>73</sup> TSA studies the results of laboratory and covert tests closely, and modifies procedures as appropriate. TSA believes that the testing described above adequately supports the use of AIT as a primary screening mechanism.

O. Radiation Exposure

Comments: The effects of radiation associated with AIT use was also addressed by commenters. A professional association stated its belief that AIT emissions present a negligible health risk to passengers, airline crewmembers, airport employees, and TSA staff. Numerous commenters, however, expressed concern regarding exposure to radiation. Some of these commenters suggested that no dose of radiation is safe. Many individual commenters and an advocacy group expressed concern about the radiation from backscatter scanners, which they stated could lead to the development of cancer.

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<sup>72</sup> The report also contained recommendations to improve TSO performance on AIT and resource effectiveness, and to ensure that next generation AIT units meet mission needs. TSA generally concurred in the recommendations and noted that it will review its screening assessment programs, monitor, update and report efforts to capture operational data on screening, improve its assessment of overall effectiveness of next-generation AIT and complete a more comprehensive technology roadmap.

<sup>73</sup> The Inspector General of DHS recently conducted covert testing of TSA aviation security screening and the Secretary has directed TSA to undertake a number of steps to enhance security capabilities and techniques. See, e.g., Statement by Secretary Jeh C. Johnson On Inspector General Findings on TSA Security Screening, Press Release, Jun. 1, 2015. TSA's response to the Inspector General's findings and the changes TSA has implemented to address those findings were discussed in the testimony of TSA Administrator, Peter V. Neffenger, before the Senate Committee on Appropriations, Subcommittee on Homeland Security on Sep. 29, 2015. See <https://www.tsa.gov/news/testimony/2015/09/29/testimony-tsa-efforts-address-oig-findings>.

Many individuals also warned that exposure to millimeter wave radiation could hold the potential for long-term health effects and that additional studies are needed. Some commenters concluded that, even if the current x-ray scanners were removed, the proposed rule would not prevent their reintroduction should software become available to address privacy issues.

Several commenters, including a privacy advocacy organization, a non-profit organization, and individual commenters, cautioned that TSA screeners could be at risk and should be provided with dosimeters to ensure that their exposure is within acceptable limits. An individual commenter stated that, although TSA claimed that the radiation scan only affects the surface of the skin, skin cancer is the largest incidence of cancer in the world, and it is caused by radiation exposure on the skin. Another commenter stated that eyes are particularly susceptible to radiation. A few individuals suggested that imaging technology using radiation should not be used at all since alternatives exist. Other commenters stated that the question that needs to be asked with respect to the safety of AIT scanning is not whether the increase in deaths is below some arbitrary value, but whether the lives saved through avoiding a terrorist attack are greater than the lives lost through an increased incidence of cancer or other diseases arising from the use of AIT scanners. Lastly, a few individuals mentioned that because of their exposure to radiation for medical treatment, they are not comfortable getting further, unnecessary exposure from AIT scanners.

TSA Response: In compliance with the statutory requirement that all AIT machines used for screening be equipped with and employ ATR software, TSA removed

the general-use backscatter AIT units from the checkpoint.<sup>74</sup> TSA notes that it is adopting the statutory requirement mandating the use of ATR software on AIT used to conduct screening in the regulatory text.

Contrary to assertions by some commenters and as discussed in the NPRM, general-use backscatter units were independently evaluated and found to be within national standards for acceptable radiation exposure by the Food and Drug Administration (FDA)'s Center for Devices and Radiological Health (CDRH), the National Institute of Standards and Technology, the Johns Hopkins University Applied Physics Laboratory and the U.S. Army Public Health Command.<sup>75</sup> A report issued by the DHS Office of Inspector General in 2012 confirms that prior to the deployment of general-use backscatter units, TSA conducted four radiation safety assessments and the results of each study concluded that the level of radiation emitted was below ANSI's acceptable limits.<sup>76</sup>

In addition, in June 2013, the American Association of Physicists in Medicine released the results of an independent study of the general-use backscatter units previously used by TSA for screening passengers.<sup>77</sup> The study measured exposures across multiple scanners in both the factory and in real-time use at airports, including organ doses. This study also found that radiation doses were below the ionizing radiation limits set by the American National Standards Institute and Health Physics Society

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<sup>74</sup> 49 U.S.C. 44901(l).

<sup>75</sup> 78 FR 18295. See also <https://www.tsa.gov/FOIA>.

<sup>76</sup> Department of Homeland Security, Office of Inspector General, "Transportation Security Administration's Use of Backscatter Units," OIG-12-38, Feb. 2012 at p. 5.

<sup>77</sup> "Radiation Dose from Airport Scanners," American Association of Physicists in Medicine, AAPM Report No. 217 (2013). Available at <http://www.aapm.org/pubs/reports>.

(ANSI/HPS) and were safe for employees and passengers, including children, pregnant women, frequent flyers and individuals with medical implants.

In the NPRM, TSA noted that DHS had requested the National Academies of Sciences, Engineering, and Medicine to review previous studies as well as current processes to estimate radiation exposure resulting from the general-use backscatter equipment. That study was released in October 2015 and confirms that radiation doses did not exceed the ANSI/HPS standard.<sup>78</sup>

As explained in the NPRM, the ANSI/HPS standard takes into consideration individuals who may be more susceptible to radiation health effects, such as pregnant women, children, and persons who receive radiation treatments, as well as the general exposure to ionizing radiation present in the environment. 78 FR 18295. In fact, the radiation emissions from the general-use backscatter equipment were so low that they were below the environmental radiation emissions that individuals are exposed to every day, and individuals would have to be screened more than 200 times a year to exceed the negligible individual dose, which is still below the ANSI/HPS standard.<sup>79</sup> 78 FR 18296.

As explained in the NPRM, the millimeter wave equipment uses non-ionizing radio frequency energy. 78 FR 18294-18295. The millimeter wave equipment used by TSA must comply with the 2005 Institute of Electrical and Electronics Engineers, Inc. Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields (IEEE Std. C95.1™-2005) as well as the International

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<sup>78</sup> National Academies of Sciences, Engineering, and Medicine. Airport Passenger Screening Using Backscatter X-Ray Machines: Compliance with Standards (2015), available at <http://www.nap.edu/21710>.

<sup>79</sup> TSA disagrees with the comments that attempted to link AIT to skin cancer, for the reasons explained in this preamble. TSA notes that according to the Stanford Medicine Cancer Institute, ultraviolet radiation from the sun is the main cause of skin cancer. <http://stanfordhealthcare.org/medical-conditions/cancer/skin-cancer/causes-skin-cancer/ultraviolet-radiation.html>. There is no evidence that AIT is related to the incidence of skin cancer.

Commission on Non-Ionizing Radiation Protection Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields, Health Physics 74(4); 494-522, published April 1998. The equipment also is consistent with Federal Communications Commission and Health Canada Safety Code regulations. 78 FR 18295. The FDA confirmed that millimeter wave security systems that comply with the IEEE Std.C95.1™-2005 cause no known health effects.<sup>80</sup> TSA has posted a compilation of emission safety reports of the millimeter wave technology system.<sup>81</sup>

TSA implemented safety protocols to ensure that AIT is safe for passengers and the TSA workforce. When backscatter machines were still in use, each individual AIT machine was tested once a year to verify that radiation emitted fell within the national safety standards. Regular testing is also conducted on checkpoint machines that use x-ray technology, such as baggage scanners. This testing is performed by the manufacturers or maintenance providers in accordance with their TSA contracts. Because of the regular testing of TSA equipment, there is no need for operators to wear dosimeters to measure radiation emissions. In the event that a radiation test was to reveal that the emission was above the standard, the machine would be immediately taken out of service and TSA would conduct a system-wide review.

#### P. Other Health and Safety Issues

Comments: Commenters also mentioned other safety and health concerns related to AIT. Numerous individual commenters generally stated that they consider the safety of the AIT scanners to be uncertain and that they are concerned that AIT is harmful to their health. Some individuals suggested that the machines amount to a medical

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<sup>80</sup> FDA, "Products for Security Screening of People," available at <http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/SecuritySystems/ucm227201.htm>.

<sup>81</sup> <https://www.tsa.gov/FOIA>.



examination performed by someone who is not a trained medical professional. A few individual commenters expressed concern about the maintenance and calibration of the scanners. According to another individual commenter, the AIT scanners and pat-downs are a physical and psychological attack on an individual, and the passenger must restrain himself or herself from natural instincts to move away from harmful physical contact to ensure their privacy and to avoid health risks.

TSA Response: All AIT units are tested for safety, detection capability, operational efficiency, and impact on passengers prior to deployment. The millimeter wave units currently in use at the airports do not use ionizing radiation. Federal law requires that all AIT units be equipped with ATR software, which does not produce an individual image, only a generic outline that is visible on the machine. TSA permits passengers generally to opt out of AIT screening and receive a thorough pat-down instead. TSA has also instituted the TSA Pre✓™ program, which allows known and trusted travelers an opportunity to undergo expedited screening, which sometimes includes screening by WTMD. This program increases throughput (among other changes) and improves the screening experience of frequent, trusted travelers. Of course, in order to maintain comparable security, no passenger is guaranteed expedited screening, and program participants may be required to undergo regular screening on a random basis.

Q. Backscatter Technology

Comments: Some submissions specifically addressed backscatter technology. Many individual commenters opposed the use of backscatter technology because of the alleged health impact. According to several commenters, x-ray radiation is cumulative,

and the effects over a lifetime are not well known. A few individual commenters added that the people who may be most at risk are TSA personnel working near the scanners and frequent flyers, who are already exposed to radiation from high altitude flying. In addition, another individual commenter suggested that, even if the risk to one individual is small, when the machines are used on hundreds of millions of people, the probability that some set of individuals acquire cancer is significant.

One commenter warned that ionizing radiation might cause deoxyribonucleic acid (DNA) damage that leads to carcinogenesis and that a model used by the health physics community would predict the probability of a fatal cancer about the same as the probability of being killed by a terrorist in an airplane. However, the commenter expressed the belief that the real danger is very high local radiation exposures if the mechanical scanning mechanism and associated systems for shutting off the x-ray beam fail. Another individual disputed TSA's statement that independent tests had been conducted on backscatter technology, and the commenter stated that subsequent information showed that the tests were flawed, their results were misused, or they were not conducted by truly independent entities.

A few commenters, including an individual commenter and a privacy advocacy group, remarked on the ineffectiveness of backscatter machines. One of them suggested that the x-ray beam might not be able to distinguish between explosives and tissue when an explosive package is shaped to fit in with natural body contours. An individual commenter stated that even though TSA is removing backscatter scanners from airports, until the process is complete, they would continue to be used at some airports. Another individual recommended that TSA investigate the bad management decision that led to a

waste of tax dollars on what the commenter described as an obviously unacceptable technology. Another commenter suggested that backscatter technology was adopted because of lobbying by politically connected individuals with a financial interest in the machines. A few commenters discussed TSA's selection to use Rapiscan as the vendor for AIT scanners. According to some individual commenters, the choice of using Rapiscan as the vendor is inappropriate because a former DHS Secretary was reported to have lobbied for Rapiscan and AIT prior to his departure from the agency.

TSA Response: As discussed above, the general-use backscatter AIT equipment deployed by TSA was tested for safety, detection capability, operational efficiency, and passenger impact before deployment.<sup>82</sup> Independent testing confirmed that the x-ray emissions from the general-use backscatter units were so low as to present a negligible risk to passengers, airline crew, airport employees, and TSA employees. 78 FR 18294-18296. Any future backscatter AIT units would also be tested to ensure compliance with applicable safety standards.

Regarding the marginal effects of x-ray radiation, as TSA noted in the NPRM, 78 FR 18295-18296, the ANSI/HPS standard reflects the standard for a negligible individual dose of radiation established by the National Council on Radiation Protection and Measurements at 10 microsieverts per year. Efforts to reduce radiation exposure below the negligible individual dose are not warranted because the risks associated with that level of exposure are so small as to be indistinguishable from the risks attendant to environmental radiation that individuals are exposed to every day. The level of radiation

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<sup>82</sup> All general-use backscatter AIT units were removed from screening checkpoints as of May 16, 2013, to comply with the statutory requirement that any AIT used to screen passengers be equipped with and employ ATR software. 49 U.S.C. 44901(l). The backscatter AIT units in use at the time were unable to employ ATR software.

emitted by the Rapiscan Secure 1000 is so low that most passengers would not have exceeded even the negligible individual dose. The European Commission released a report conducted by the Scientific Committee on Emerging and Newly Identified Health Risks on the risks related to the use of security scanners for passenger screening that use ionizing radiation such as the general-use backscatter AIT machines.<sup>83</sup> The health effects of ionizing radiation include short-term effects occurring as tissue damage. Such deterministic effects cannot result from the doses delivered by security scanners. In the long term, it found that the potential cancer risk cannot be estimated, but is likely to remain so low that it cannot be distinguished from the effects of other exposures including both ionizing radiation from other natural sources, and background risk due to other factors.

Regarding commenters' concerns that ionizing radiation might cause deoxyribonucleic acid (DNA) damage, as TSA noted in the NPRM, the annual dose limits in ANSI/HPS N43.17 are based on dose limit recommendations for the general public published by the National Council on Radiation Protection and Measurements in Report 116, "Limitations of Exposure to Ionizing Radiation." The dose limits were set with consideration given to individuals, such as pregnant women, children, and persons who receive radiation treatments, who may be more susceptible to radiation health effects. Further, the standard also takes into consideration the fact that individuals are continuously exposed to ionizing radiation from the environment. ANSI/HPS N43.17 sets the maximum permissible dose of ionizing radiation from a general-use system per

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<sup>83</sup> The SCENIHR is an independent committee that provides the European Commission with the scientific advice it needs when preparing policy and proposals relating to consumer safety, public health, and the environment. The committee is made up of external experts. See SCENIHR (Scientific Committee on Emerging and Newly Identified Health Risks), Health effects of security scanners for passenger screening (based on X-ray technology), 26 April 2012.

security screening at 0.25 microsieverts. The standard also requires that individuals should not receive 250 microsieverts or more from a general-use x-ray security screening system in a year.

Regarding comments about whether AIT can distinguish between explosives and tissue when an explosive package is shaped to fit in with natural body contours, the AIT equipment is designed and tested to find such items.

Regarding comments about the procurement of backscatter technology and Rapiscan, all TSA acquisitions were in compliance with Federal procurement standards. TSA issued a competitive solicitation for companies to submit AIT machines for qualification testing, and while competitive pricing was submitted by two vendors, only Rapiscan was qualified and placed on the Qualified Product List before the planned award date of September 2009. The award was then made to Rapiscan for the initial order.

#### R. Millimeter Wave Technology

Comments: Some submissions specifically addressed millimeter technology. Many commenters, including individual commenters and non-profit organizations, stated that although TSA claims that millimeter wave scanners are safe, they were unconvinced. Several of these commenters stated TSA had not conducted long-term, independent testing of millimeter wave equipment. Others noted that the scanners still emit a form of radiation and may be harmful. A non-profit organization added that babies, small children, pregnant women, the elderly, and people with impaired immunity would be at a higher risk from non-ionizing radiation than others would. An individual commenter remarked that studies have shown a trend toward higher rates of brain and other tumors in

those who use cell phones, which produce a similar form of non-ionizing radiation. Two other individuals suggested that millimeter wave exposure could be harmful to human DNA because of resonance effects.

Although some commenters supported the use of millimeter wave technology over backscatter technology, an individual and an advocacy organization stated they were disinclined to take the government at its word with regard to health assurances because the government has been wrong before, including TSA assurances about Rapiscan machines. An individual commenter stated that millimeter wave machines are no more acceptable than other scanners, but those who must fly will choose them to avoid a pat-down.

One individual commenter recommended another technology for detecting explosives – passive Terahertz (THz) imaging. According to the commenter, there would be no probing radiation, but the warm body emits sufficient THz radiation to form an image, with high explosives standing out in the image as a dark patch.

TSA Response: As discussed in the NPRM, millimeter wave imaging technology used by TSA to screen passengers meets all known national and international health and safety standards. 78 FR 18295. Millimeter wave units are tested for electromagnetic emissions prior to acceptance. The FDA examined the exposure to non-ionizing electromagnetic energy and found that the short duration of screening, approximately 1.5 seconds, and the very low levels of emissions showed that the energy emitted by millimeter wave technology systems is approximately a thousand times less than the limit set by the Institute of Electrical and Electronics Engineers (IEEE). FDA evaluated the Millimeter Wave AIT to determine if the RF emissions met the safety levels established

for the general public in C95.1-2005. The exposure a person receives during one scan at a worst-case distance of 10 cm from the inner wall of the unit is on the order of 1000 times less than the IEEE standard's limit for the public exposure. IEEE Std 95.1 defines general public as "individuals of all ages and varying health status . . . Generally, unless specifically provided for as part of an RF safety program, the general public includes, but is not limited to, children, pregnant women, individuals with impaired thermoregulatory systems, individuals equipped with electronic medical devices, and persons using medications that may result in poor thermoregulatory system performance." [IEEE Std 95.1-2005, page 7, 3.1.26]. TSA has posted a report on its website that includes the evaluation performed by the FDA.<sup>84</sup>

TSA is aware of the paper cited by commenters that reportedly found that THz radiation could affect biological function, but only under specific conditions and extended exposure. The paper, "DNA Breathing Dynamics in the Presence of a Terahertz Field," was published by scientists from the Theoretical Division and Center for Nonlinear Studies at Los Alamos National Laboratory in 2010. The millimeter wave machines deployed by TSA do not operate in the THz range, or at the power level referenced in the paper, and the exposure time for passengers screened by AIT is approximately 1,000 times less than the exposure time referenced in the paper.

TSA has evaluated other technologies to assess whether they are safe, meet all applicable government and industry standards, are effective against known and anticipated threats, and require the least disruption and intrusion on passenger privacy possible. For example, TSA has tested passive THz systems in the past and found that

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<sup>84</sup> "Compilation of Emission Safety Reports on the L3 Communications, Inc. ProVision 1000 Active Millimeter Wave Advanced Imaging Technology (AIT) System," Sept. 2012. [See, www.dhs.gov/advanced-imaging-technology-documents](http://www.dhs.gov/advanced-imaging-technology-documents).

they were not effective in detecting explosive threats in an airport environment.

Likewise, TSA considered Infrared technology but found that detection capability and operational effectiveness were limited. However, TSA continues to research and assess engineering developments and new technologies for use in the airport.

#### S. Concerns Regarding Privacy

Comments: Many submissions addressed concerns related to privacy. Many individual commenters, a non-profit organization, and advocacy groups expressed the opinion that the devices should be called “Nude Body Scanners” or “Naked Body Scanners” to indicate specifically how TSA uses them, and other commenters preferred “Electronic Strip Searches” or “virtual strip searches” or “nude-o-scopes.” Numerous individuals insisted that AIT scanners violate an individual’s right to privacy, that TSA’s privacy safeguards are inadequate, and that the scanners should not be used on children. Some commenters stated that if scanners are viewing anything under a person’s clothing, then that person’s privacy is not being protected, because anything under the clothing is intentionally hidden and not meant to be viewed by man or machine. An advocacy group agreed that AIT defeats the privacy-protecting function of clothing and allows an image of the unclothed person to be created. An individual commenter remarked that the problem with TSA’s use of AIT for primary screening is it teaches people it is normal and acceptable for the government to use technology to look under their clothing. The commenter added that the body beneath one’s clothing and the contents of one’s pockets traditionally have been understood as among the most important and intimate zones of privacy.



One commenter noted that passengers must reveal private medical conditions to TSA officers who are not trained in medicine, and others stated that investigating private details of passengers' bodies is deeply offensive and has no security value. A community organization agreed that privacy is invaded when a passenger is forced to share personal secrets that are not otherwise observable in public—especially sensitive medical and gender identity issues. One commenter, however, expressed the opinion that over the years, TSA staff has become more respectful of individual passenger privacy.

A privacy advocacy group pointed out that since January 2008, TSA has published four Privacy Impact Assessments (PIAs) regarding the agency's deployment of body scanners at U.S. airports. The commenter opined that all of these have failed to identify the numerous privacy risks to air travelers. An individual commenter suggested that TSA should be required to regularly report to Congress about its efforts to discover weaknesses in its mechanisms to protect the privacy of individuals scanned by its systems.

Some submissions suggested other technologies and procedures for safeguarding privacy. Among the procedures recommended by one individual were: (1) providing a generic image of all scanned passengers and (2) allowing a person to leave if selected for a manual search, provided the person exhibits no other suspicious behavior. One commenter suggested that if the AIT screening procedures detect potentially dangerous objects hidden in passengers' private areas, the passengers should be allowed to remove the suspicious objects, show them to TSA officers, and be rescreened using AIT. Another individual suggested developing technology to combat scanner fatigue,

providing oversight in screening rooms, and addressing the threat of privacy or security breaches when the status of a passenger is relayed by two-way radio.

TSA Response: As stated previously, Federal law requires that all AIT equipment used to screen passengers must be equipped with and employ the use of ATR. The ATR software produces a generic outline that is publicly displayed on the equipment. The use of ATR mitigates privacy concerns because there is no individual image of a passenger's body, only a generic outline that is the same for passengers based on gender. The AIT equipment used by TSA is not able to store, transmit, or print any images. After each passenger is screened using the AIT, the TSO clears the generic outline of any alarms so that the next passenger may be screened. Signs are posted at the checkpoint and information is available on TSA's website showing a sample of the ATR generic outline and advising passengers that they may decline AIT and receive a thorough pat-down. The court in Corbett found that the "scanners pose only a slight intrusion on an individual's privacy, especially in the light of the automated target recognition software installed in every scanner. The scanners now create only a generic outline of an individual, which greatly diminishes any invasion of privacy."<sup>85</sup>

TSA has posted information on AIT technologies and ATR on its website, and published a PIA in January 2008 with subsequent updates. TSA also conducted outreach with national press and privacy advocacy groups to discuss AIT. While most PIAs are required on information systems that collect information in identifiable form, which AIT does not, DHS nevertheless conducted PIAs on TSA's use of AIT. As explained in the PIA, "the operating protocols of remote viewing for AIT machines that were not equipped with ATR software, coupled with no image retention, are strong privacy

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<sup>85</sup> Corbett, 767 F.3d at 1181.

protections . . . ATR software provides even greater privacy protections by eliminating the human image . . . .<sup>86</sup>

TSA disagrees with the alternate procedures suggested by some of the commenters. Federal courts have upheld TSA's procedure to require passengers to complete the screening process once it has been initiated by the passenger. As the U.S. Court of Appeals for the Ninth Circuit explained in Aukai,

The constitutionality of an airport search, however, does not depend on consent . . . and requiring that a potential passenger be allowed to revoke consent to an ongoing airport security search makes little sense in a post-9/11 world. Such a rule would afford terrorists multiple opportunities to attempt to penetrate airport security by 'electing not to fly' on the cusp of detection until a vulnerable portal is found. This rule would also allow terrorists a low-cost method of detecting systematic vulnerabilities in airport security, knowledge that could be extremely valuable in planning future attacks.

U.S. v. Aukai, 497 F.3d 955, 960-61 (9th Cir. 2007) (en banc) (internal citations omitted).

Finally, TSA's procedures permit passengers generally to opt out of AIT screening and receive a thorough pat-down instead, which may be conducted in private and in the presence of a companion of the passenger's choosing.

#### T. Use of ATR Software

Comments: Some submissions discussed TSA's use of ATR software. Numerous submissions from individual commenters remarked that even though ATR software displays a generic outline on the screen at the checkpoint, ATR does not eliminate air travelers' privacy concerns. Many of these commenters, including individuals and advocacy groups, expressed opposition to the use of ATR because, according to the commenters, ATR can be disabled and the scanners are capable of producing explicit,

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<sup>86</sup> Privacy Impact Assessment Update for TSA Advanced Imaging Technology, Jan. 25, 2011, [www.dhs.gov/xlibrary/assets/privacy/privacy-pia-tsa-ait.pdf](http://www.dhs.gov/xlibrary/assets/privacy/privacy-pia-tsa-ait.pdf).

nude pictures that may be viewed by TSA staff. Individual commenters and an advocacy group stated that ATR does not alleviate concerns about the intrusiveness of scanning, its ineffectiveness, the violation of privacy, and possible health effects. A few individuals and a professional association, however, expressed support for the use of ATR because the technology helps mitigate passengers' privacy concerns. An individual commenter stated that TSA took a year longer than legally allowed to cease use of AIT scanners without ATR software.

TSA Response: TSA's deployment of ATR software was completed in accordance with Federal law and before the established deadline. TSA agrees with commenters that the use of ATR software addresses privacy concerns since there is no individual image, and there is no need for a TSO to view an individual image. In addition, TSA believes that the ATR detection capability is commensurate to that of a TSO review and is likely faster, thereby decreasing the amount of time passengers must spend at the checkpoint. TSOs are not able to disable the software, and each AIT unit is delivered to the airport with software that precludes placing the unit into a mode that would allow TSOs to obtain unfiltered, passenger-specific images. Further, the equipment cannot store, transmit, or print individual images, and TSOs are not able to install or activate any such capability on the equipment.

#### U. Protection of Images

Comments: Commenters also addressed the issue of image protection controls. Numerous individual commenters suggested that they were not convinced by TSA's assertions regarding image protection. Several individual commenters mentioned reports of incidents involving recorded and leaked images from scanners, such as the reported

release of 35,000 images created by a Rapiscan machine at a courthouse in Florida. Other individuals and advocacy groups warned that because the scanners have the capability to store and transmit images, at least some storage of images by TSA and viewing by others is likely. Some of these commenters alleged that TSA had falsely stated that previous imaging machines could not store, transmit, or print images.

A privacy advocacy group pointed out that the scanners were designed to include Ethernet connectivity, Universal Serial Bus access, and hard disk storage, but the proposed rule does not include safeguards against storing, copying, or otherwise circulating images. An advocacy group added that the scanners are worse than a physical strip-search because they produce an image that can be stored indefinitely, transferred around the globe in seconds, and copied an infinite number of times without the copies degrading. According to an individual commenter, law enforcement officers can record images without the passenger's knowledge. Some commenters, including individuals and a privacy advocacy association, recommended that TSA clarify what happens to the images captured, who gets to see them, and whether the practice of deleting the image after each screening is absolute. A couple of individual commenters also suggested that TSA should show the public exactly how detailed the image seen in the screening room is, or allow passengers being scanned to observe the personnel monitoring the images. A few individuals, however, expressed support for TSA's efforts to protect passenger privacy by ensuring that the images are anonymous and are automatically deleted from the system after the remotely located security officer clears them.

TSA Response: Federal law requires that all AIT equipment used to screen passengers be equipped with and employ ATR. TSA removed all AIT equipment that

could not use ATR software by May 16, 2013, in advance of the statutory deadline. The ATR software does not produce an individual image but instead produces a generic outline that is publicly displayed on the equipment. A picture of the generic outline is posted at the checkpoint and on TSA's public website.<sup>87</sup> Consequently, the individual image has been eliminated and there is no longer any need for a TSO in a remote location to view the image.

Initial versions of AIT were manufactured with storage and transmittal functions that TSA required manufacturers to disable prior to installation at airports. TSA confirmed that these functions were disabled during factory acceptance testing and site acceptance testing. The TSOs were not able to activate the functions. As explained in the NPRM, images were transmitted securely between the unit and the viewing room so they could not be lost, modified, or disclosed.<sup>88</sup> The images produced were encrypted during this transmission and were completely deleted in the viewing room once the individual was cleared. The TSO in the viewing room was prohibited from bringing electronic devices such as cameras, cell phones or other recording devices into the viewing room. Violations of these procedures would subject the TSO to disciplinary action, up to and including termination. Note that the current versions of AIT do not have the capability to create an image; rather, they create internal code of the passenger using proprietary software that it analyzes and uses to show an alarm box on the generic outline, if appropriate.

The AIT devices at airports do not have the ability to transmit, store, or print images. While use of AIT in other locations, such as courthouses, was discussed in the

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<sup>87</sup> <https://www.tsa.gov/travel/travel-tips>.

<sup>88</sup> 78 FR 18294.

comments, TSA does not operate AIT in those locations. AIT that is equipped with ATR software does not produce an individual image; even prior to the use of ATR, TSA's privacy safeguards, detailed in the NPRM, would have prevented the production, let alone release, of images described in the comments.<sup>89</sup>

#### V. Conducting a Pat-Down as the Alternative to AIT

Comments: Comments also addressed the use of the pat-down as the alternative to AIT. Many individual commenters and an advocacy group stressed the importance of having TSA retain the option to undergo a pat-down instead of AIT; although some pointed out that many passengers select the pat-down over AIT only because they consider it the lesser of two evils. Many individual commenters expressed a strong preference for the pat-down; many also stated that they always request a pat-down in lieu of AIT screening. Some individual commenters, however, expressed strong opposition and criticism of current pat-down procedures. Some individual commenters expressed their preference to receive a pat-down, but stated that they feel "punished" by TSA staff when requesting the alternative screening measure. Several commenters opined that TSA screeners deliberately make the opt-out unpleasant so that passengers will use the AIT scanners.

Submissions included remarks about the adequacy of information and signs at screening checkpoints about the AIT screening process. For example, multiple commenters stated that TSA currently lists the scanner as optional, in small print on an 11 x 14 inch poster at a crowded checkpoint. Commenters suggested there is a lack of adequate signage informing passengers of the right to opt-out of AIT. One of these

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<sup>89</sup> 78 FR 18294.

individual commenters suggested that, in order to allow passengers adequate time to read about their right to opt-out of AIT, these signs should be posted throughout the security waiting area instead of in the area where passengers are being called forward for screening. A commenter stated that different airports want people to indicate that they are opting out at different times, but passengers have no way of knowing when to opt out. An advocacy group stated that notification of the opt-out option is not large enough and is placed in an area where passengers will not see the notice. A non-profit organization stated that passengers continue to report that signs are not available, even though TSA stated in the NPRM that detailed explanation of AIT procedures is available on its website, and signs are posted at checkpoints.

Other individuals and a privacy advocacy group emphasized that the pat-down is not a reasonable alternative. Many individual commenters remarked that when they choose to opt-out of AIT, they are treated with suspicion, public ridicule, hostility, and retaliation (e.g., long and intentional delays) by the screener, and often are unable to monitor their belongings. Other individuals and advocacy groups objected to the manner in which some TSA staff conduct pat-downs, stating they are more invasive and intrusive than necessary to detect weapons or explosives.

Numerous commenters, including a community organization, a non-profit organization, and individual commenters, characterized the pat-down as groping or sexual assault that involves touching or rubbing of the breasts and genitals of passengers. The pat-downs were referred to as rough, painful, invasive, offensive, intrusive, humiliating, demeaning, and degrading. Some commenters provided anecdotal accounts related to their experiences being screened by TSA. The majority of these comments



referred to personal accounts of pat-downs, including statements that the pat-downs were abusive and extended wait times. Other individual commenters stated that because of their negative pat-down experiences, they have cancelled air travel plans. A number of individual commenters stated that in their experience, TSA employees generally treat passengers in a courteous and professional manner.

Commenters also expressed concerns regarding profiling. A few individual commenters, for example, stated that TSA staff intentionally chose young, female travelers for pat-downs at a higher rate than other travelers. Other commenters suggested that TSA staff discriminate against children and elderly women. It was the concern of an individual commenter that an enhanced pat-down of a child can be detrimental to the child's understanding of the appropriateness of an adult touching them. Furthermore, the individual commenter remarked that the separation of the child from their parent for screening results in distress for both the parent and child. Several individuals, a non-profit organization, and an advocacy group expressed concern for children that must undergo touching during pat-downs. Many individuals and an advocacy group also mentioned psychological trauma caused by pat-downs, particularly for rape survivors and victims of sexual abuse. A few individual commenters noted that pat-downs impose unnecessary risks, given that most TSA screeners do not change their gloves often enough to prevent the spread of disease.

TSA Response: TSA allows individuals generally to opt out of AIT screening and undergo a thorough pat-down instead. TSA has no requirement as to when a passenger should indicate that he or she does not wish to undergo AIT screening. Generally, passengers should make their request for a pat-down when they are directed to the AIT

and prior to entering the AIT machine. Such requests can also be made earlier in the screening process. While AIT has been used to conduct primary passenger screening since 2009 and millions of passengers are aware of and have been screened by AIT, TSA posts signs to inform passengers that they may opt-out of AIT screening. TSA places these signs in the checkpoint prior to the AIT machine. Generally, the signs are 11 x 14 inches to avoid impeding the flow of passengers, because the signs are located in an area where passengers walk to enter the AIT unit. However, TSA permits signs that are 22 x 28 inches. TSA appreciates the commenters' input on the placement and font size associated with the signs, and may in the future revise signage practices to make this information even more prominent to passengers.

While commenters wrote that the thoroughness of the pat-down is inappropriate, it would not make sense to allow passengers to opt out of AIT unless the alternative has similar ability to detect both metallic and non-metallic threat items. The pat-downs are tailored to address the known threat posed by concealed metallic or non-metallic explosives or other weapons, including those concealed on culturally sensitive areas of the body in order to evade detection. The court in the Corbett decision upheld the constitutionality of the pat-down. "The pat-downs also promote the governmental interest in airport security because security officers physically touch most areas of passengers' bodies . . . . Undeniably, a full-body pat-down intrudes on privacy, but the security threat outweighs that invasion of privacy."<sup>90</sup> The court noted that TSA's procedures when conducting a pat-down reduce the invasion of privacy.<sup>91</sup>

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<sup>90</sup> Corbett, 767 F. 3d at 1182.

<sup>91</sup> Id.

The pat-down procedures are described on TSA's website.<sup>92</sup> A pat-down is performed if a passenger cannot undergo WTMD or opts out of AIT screening. A pat-down is also performed to resolve alarms or anomalies. A less invasive pat-down may be performed on a random basis. TSA advises individuals entering the checkpoint to divest all items on their person and in their pockets to reduce the likelihood that an alarm will occur. A pat-down is conducted by a TSO of the same gender as the passenger. A passenger may request that the pat-down be performed in private. During a private screening, another TSA employee will always be present and a companion of his or her choosing may accompany the passenger. In addition, the passenger is permitted to bring his carry-on baggage to the location where the pat-down will take place, including any private screening area. A passenger may ask for a chair if he or she needs to sit down. Ordinarily a passenger will not be asked to remove or lift any article of clothing to reveal a sensitive body area. TSA has modified its pat-down procedures for children age 12 and under and adults age 75 and over to be less invasive and to reduce the likelihood that a pat-down is performed.<sup>93</sup> Further, TSA will not separate parents from their children during the screening process. Passengers may request that TSOs change their gloves before performing a pat-down. Since a pat-down is conducted to determine whether prohibited items are concealed under clothing, sufficient pressure must be applied in order to ensure detection. TSOs are trained to inquire whether a passenger has an injury or tender area prior to initiating the pat-down so that such areas are treated accordingly.

TSOs are trained to be courteous and respectful to all passengers and to provide assistance to facilitate the screening process. TSA will make every effort to be respectful

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<sup>92</sup> <https://www.tsa.gov/travel/frequently-asked-questions>.

<sup>93</sup> <https://www.tsa.gov/travel/special-procedures/traveling-children> and <https://www.tsa.gov/travel/special-procedures/screening-passengers-75-and-older>.

of passengers' concerns, including those who have particular sensitivities to physical touching and to accommodate a person's needs. TSOs may not deliberately delay or modify a pat-down in order to convince passengers to choose AIT screening; such activity may subject a TSO to discipline, up to and including termination.

As explained on TSA's website, TSA has established a national hotline for passengers with disabilities, medical conditions, or other circumstances to assist passengers to prepare for the screening process prior to flying.<sup>94</sup> TSA recommends that passengers call the toll-free TSA Cares hotline, at 1-855-787-2227, 72 hours in advance of their flight for information about what to expect during screening.

Passengers who believe they have experienced unprofessional conduct at a security checkpoint may request to speak to a supervisor at the checkpoint or write to the TSA Contact Center at [TSA-ContactCenter@dhs.gov](mailto:TSA-ContactCenter@dhs.gov). Passengers who believe they have been subject to discriminatory treatment at the checkpoint may file a complaint with TSA's Office of Civil Rights and Liberties, Ombudsman and Traveler Engagement at [TSA-CRL@tsa.dhs.gov](mailto:TSA-CRL@tsa.dhs.gov), or submit an online complaint at <https://www.tsa.gov/contact-center/form/complaints>.<sup>95</sup> Finally, travelers may also file discrimination complaints with DHS CRCL via CRCL's website at <http://www.dhs.gov/complaints>.

#### W. AIT Screening Procedures at the Checkpoint

Comments: Many submissions discussed AIT screening procedures at security checkpoints. Some comments suggested that AIT screening increases the wait time at security checkpoints. Specifically, a few individual commenters stated that the

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<sup>94</sup> <https://www.tsa.gov/travel/passenger-support>.

<sup>95</sup> More information on TSA Civil Rights is available at <https://www.tsa.gov/travel/passenger-support/civil-rights>.

requirement to remove shoes, articles of clothing, belts, and other items slows the process of screening. Commenters generally stated that AIT machines are slow.

According to an individual commenter, screening procedures are not implemented consistently at checkpoints and airports because TSA employees are not familiar with the procedures. Another individual commenter stated that since metal detectors and pat-downs are the screening methods used for TSA employees and passengers using TSA's "Pre-Check" screening process, the general public should be screened in the same manner. Similarly, a few individuals suggested there are several loopholes in the AIT screening process (groups of passengers that are ineligible for AIT) that render AIT useless.

Others provided comments regarding the non-public nature of TSA's Standard Operating Procedures (SOPs). Most commenters questioned why information about screening procedures is not released to the public. An individual commenter stated that because the AIT scanners have been deployed, and "enhanced pat-downs" are in effect, TSA should be able to release procedures for the screening process. An advocacy group stated that, if TSA does not provide its SOPs to the public, the public will be unaware of the checkpoint requirements and what, if any, guidelines there are for decision-making by TSA staff or contractors as to what constitutes a screening. The commenter suggested that TSA has kept the SOPs from the public so screening practices can be varied and unpredictable. The commenter stated that as a result, travelers could not distinguish legitimate demands from illegitimate or unauthorized demands.

An individual commenter suggested that the majority of passengers are uninformed about the risks associated with AIT and the screening process. This

commenter, as well as another individual, stated that passengers need to know what is expected of them at TSA checkpoints before they can give consent to how they will be searched. Similarly, another commenter stated that because TSA has the authority to fine passengers for refusing to complete screening, it is incumbent upon TSA to publish the details about the screening process.

A community organization stated that those with medical issues are often chosen for secondary screening at a higher rate than those without medical issues. According to a community organization, although the TSA website explains that the head coverings of travelers, including Sikh turbans, could be subject to additional security screening, TSA staff has advised Sikh travelers that screening of the turbans is mandatory, even if the screening device has not alarmed during screening. The same commenter also stated that Sikh travelers continue to experience disparate rates of secondary screening despite TSA's website stating that AIT scanners can detect threats under layers of clothing without physical inspection of the traveler. The commenter concluded that TSA should conduct public, independent audits of TSA screening practices to determine the extent of profiling based on race, ethnicity, religion and national origin. A non-profit organization, however, suggested that failure to profile passengers based on ethnicity, religion, and national origin would undermine risk-based security strategies.

Some commenters, including individuals and non-profit organizations, expressed concern regarding the potential theft of personal items during AIT screening. Several of these commenters suggested that alternatives like WTMD allow the passenger to maintain control of their non-metallic valuables during screening and that control is relinquished when a passenger is separated from their possessions to be screened by AIT.

TSA Response: TSA's procedures for checkpoint screening are described on TSA's website.<sup>96</sup> The description includes a specific explanation of AIT and pat-down procedures.<sup>97</sup> TSA uses AIT because it is the best technology currently available to address the known threat of nonmetallic explosives being concealed under clothing. Because the AIT alarms when it detects what it registers as an anomaly, at times additional screening must be performed to determine whether the is a threat. TSA advises passengers to remove all items from pockets to reduce the likelihood that the AIT will detect an item and that additional screening will be required. Passengers do not experience additional wait time due to use of AIT equipment because the x-ray screening of carry-on baggage affects the overall screening process; in sum, passengers wait for their personal belongings regardless of which passenger screening technology` is used. TSA encourages passengers to prepare for screening in advance by packing all personal items in their carry-on bag prior to entering the checkpoint in order to reduce the time spent in screening and to avoid the chance that such items will be left behind. As noted on the website, AIT screening is safe for all passengers and is generally available to all passengers.

TSA's SOPs are internal documents that contain instructions for TSOs on how to operate equipment and conduct screening. TSOs receive extensive training to perform screening as described in the SOPs. These documents are SSI and cannot be shared with the public. 49 CFR part 1520. The SSI status of these documents has been upheld by the

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<sup>96</sup> <https://www.tsa.gov/travel/security-screening>.

<sup>97</sup> Id.

courts and is outside the scope of this rulemaking.<sup>98</sup> However, public procedures and information regarding the screening process are described on TSA's website.

TSA's Pre✓™ program offers expedited screening for passengers identified as low-risk through pre-screening. For example, passengers who have a Known Traveler Number issued by TSA or U.S. Customs and Border Protection are considered lower risk because they have undergone a vetting process or background check. Because of the pre-screening, they are more likely to be eligible for expedited screening than passengers who have not undergone any type of pre-screening. TSA is encouraging all passengers to consider joining the program, and additional information is available on TSA's website.<sup>99</sup>

TSA does not engage in any type of religious profiling. Special consideration is given to passengers who wear religious head coverings. As explained on TSA's website, persons wearing any type of head covering may be subject to additional screening of the head covering if the TSO cannot reasonably determine that the head area is free of a threat item.<sup>100</sup> If it is necessary to remove the head covering, the passenger may request to remove it in a private screening area. All TSA employees are required to take religious and cultural awareness training, which includes information concerning certain types of head coverings. TSA's website also describes procedures for passengers with medical conditions.<sup>101</sup> While all passengers and items, including medical devices, must be screened prior to entering the sterile area of the airport, some medical devices must undergo additional screening in order to ensure that a threat item is not present. All such

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<sup>98</sup> *Blitz v. Napolitano*, 700 F.3d 733, 737 (4th Cir. 2012) (stating that "the specifics of [TSA's checkpoint screening] procedures constitute SSI).

<sup>99</sup> <https://www.tsa.gov/tsa-precheck>.

<sup>100</sup> <https://www.tsa.gov/travel/frequently-asked-questions>.

<sup>101</sup> <https://www.tsa.gov/travel/special-procedures>.



devices are permitted once cleared. Passengers with medical conditions may call the TSA Cares hotline to receive specific screening information.

TSA makes every effort to ensure that passengers are able to maintain sight of their carry-on baggage except while it is inside the x-ray machine. Generally, carry-on baggage is being x-rayed while the passenger undergoes AIT screening and usually the passenger completes AIT screening before the baggage screening is complete. TSA will cooperate with State and local law enforcement if a theft occurs. TSA has a zero-tolerance policy for theft by its officers. Any allegation of such activity is investigated, and if infractions are proven, offenders are disciplined, which can include removal from the agency's employment.<sup>102</sup>

#### X. AIT Technology Screening Procedures for Families and Individuals with Medical Issues

Comments: Some commenters discussed the adequacy of AIT screening procedures as they relate to families. Some individual commenters recommended that TSA not allow adults to conduct a pat-down on children. Furthermore, one of these commenters also stated that it is inappropriate for children under the age of 18 to be exposed to the AIT scanner. Although one individual commenter stated that children should never be separated from their parents, another individual commenter suggested that all travelers, including children and their families, should be subject to AIT because all other travelers are subject to AIT.

Many submissions addressed passengers with disabilities or medical conditions that make them ineligible for AIT screening. Several commenters expressed their general opposition to the use of AIT for those with medical conditions. Individual commenters

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<sup>102</sup> Since 2005, approximately 380 employees have been disciplined or terminated for theft.

explained that because of their insulin pumps they do not have a choice but to opt-out of AIT and therefore are subjected to invasive pat-downs and longer screening periods. Other commenters stated that the AIT scanners discriminate against those with a physical disability or medical issue. Some commenters suggested that travelers with physical disabilities should not be made to go through the often-tiring process of pat-down procedures. A privacy advocacy group stated that TSA has not considered the negative impact the proposed rule has on travelers with special needs, particularly those with medical devices. The commenter stated that aside from pat-downs, which the commenter described as embarrassing or humiliating, no alternative screening is discussed for those travelers who have medical devices, like prosthetics and pacemakers, which prevent them from being screened using an AIT scanner. An individual commenter expressed fear that the electromagnetic field of the AIT scanners may be calibrated to a level that would cause their heart pump to malfunction. An individual commenter stated that because the proposed rulemaking has not addressed the potential impacts that TSA screening activities may have on rape victims, TSA should stop using body imaging technology, cease the practice of pat-downs, and rely on the use magnetometers. An advocacy group and individual commenters expressed concern for the emotional effect that both pat-downs and body imaging technology can have on travelers who have experienced past emotional and physical trauma due to sexual assaults.

A number of individual commenters expressed concern regarding the AIT screening procedures and related privacy issues for transgender individuals. An advocacy group provided information regarding the term “transgender” and referred to Office of Personnel Management guidance on the process of gender transition. Several

commenters, including advocacy groups, stated that transgender individuals are concerned that the screening process will lead to discrimination, the revelation of their gender status to screeners and others at the checkpoint, and humiliation. An individual commenter stated that transgender people often receive heightened scrutiny of their bodies and documents because of a lack of education and prejudice by TSA screeners. Some individual commenters and advocacy groups explained that the screening process for transgender individuals with prosthetics could be difficult because the prosthetics are detected as anomalies by the AIT scanners, which leads to a more extensive search of their person and questioning from TSA staff. Some individual commenters and advocacy groups discussed the need for an alternative to pat-downs and AIT screening for transgender individuals.

Some commenters, however, expressed support for the use of AIT. For example, travelers with joint replacements stated a preference for AIT because a full body search would otherwise be required with WTMD screening. An individual commenter who expressed support for AIT also recommended that the scanners be enlarged to accommodate medical equipment carried by travelers.

TSA Response: TSA's website contains information regarding screening procedures for children, travelers with disabilities and medical conditions, and transgender individuals. TSA has implemented procedures to make it easier for children under 12 to complete the screening process. For example, as explained on TSA's website at [www.tsa.gov/travel/special-procedures/traveling-children](http://www.tsa.gov/travel/special-procedures/traveling-children), TSA will not separate adults from their children during screening. Children age 12 and under are allowed to leave their shoes on during screening. TSA has revised its pat-down procedures for children to

be less invasive and its screening procedures more generally, to reduce the likelihood that a pat-down must be performed.<sup>103</sup> Absent extraordinary circumstances, pat-downs are only performed by TSOs of the same gender as the passenger. As discussed previously, the AIT has been tested and is safe for all passengers, including children.

TSA has specific screening procedures for passengers with disabilities and medical conditions, and those procedures are described on TSA's website.<sup>104</sup> These passengers are screened by the same technology as passengers without disabilities and medical conditions; however, additional screening of a passenger's equipment may also be required. As explained previously, the TSA Cares hotline can provide specific information for persons with disabilities and medical conditions. Depending upon the complexity of a passenger's needs, TSA Cares may forward a caller to disability experts at TSA who may arrange assistance at the airport, if necessary. TSA suggests that passengers with disabilities or medical conditions inform the TSO prior to undergoing screening. Passengers who prefer not to discuss their condition can obtain a Notification Card for discrete communications. The card is available at [www.tsa.gov/sites/default/files/disability\\_notification\\_card\\_508.pdf](http://www.tsa.gov/sites/default/files/disability_notification_card_508.pdf). Passengers who have an insulin pump may be screened using AIT or may opt for a pat-down. The FDA millimeter wave report posted on TSA's website includes personal medical electronic device test results.<sup>105</sup> The FDA found that no effects were observed for any of the devices tested, including insulin pumps, pacemakers, neurostimulators, implantable cardio defibrillators, and blood glucose monitors, and that the risks that non-ionizing

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<sup>103</sup> TSA's screening procedures may be modified to respond to emerging threats and system vulnerabilities.

<sup>104</sup> <https://www.tsa.gov/travel/special-procedures>.

<sup>105</sup> 78 FR 18295. See also <https://www.tsa.gov/FOIA>.

millimeter wave emissions could disrupt the function of the tested devices is very low.<sup>106</sup>

TSA's website also advises that passengers with internal medical devices, such as a pacemaker or a defibrillator, should not be screened by a metal detector and should instead request to be screened using AIT or a pat-down. See [www.tsa.gov/travel/special-procedures](http://www.tsa.gov/travel/special-procedures).

TSA advises passengers to remove all items from their pockets to lessen the possibility that a pat-down will be needed to resolve an anomaly detected by AIT. All AIT units used for screening are equipped with ATR software, which eliminates the individual image and only reveals a generic outline.

TSA recognizes the concerns of the transgender community and provides information on the screening process for transgender travelers on its website at [www.tsa.gov/travel/frequently-asked-questions](http://www.tsa.gov/travel/frequently-asked-questions). TSA regularly meets with organizations representing the transgender community and works with them to discuss the screening process for transgender travelers. TSA notes that travelers may request a private screening with a witness or companion of the traveler's choosing at any point in the screening process. For travelers who have sensitivities to being touched, the majority of passengers can be screened without a pat-down so long as there is no need to resolve alarms. TSA is enhancing its training regarding the screening of transgender individuals to ensure that screening is conducted in a dignified and respectful manner.

TSA trains its officers to be courteous and to treat passengers with dignity and respect. Travelers who believe they have experienced unprofessional conduct at a

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<sup>106</sup> Compilation of Emission Safety Reports on the L3 Communications, Inc. ProVision 100 Active Millimeter Wave Advanced Imaging Technology (AIT) System, Version 2, DHS/ST/TSL-12/118, page v, September 1, 2012, available at <http://www.dhs.gov/sites/default/files/publications/tsa-compilation-of-emission-safety-reports-on-the-l3-communications-inc-ait-system.pdf>.

security checkpoint are encouraged to request a supervisor at the checkpoint to discuss the matter immediately or to submit a concern to TSA's Contact Center at [TSA-ContactCenter@dhs.gov](mailto:TSA-ContactCenter@dhs.gov). Travelers who believe they have experienced discriminatory conduct because of a protected basis may file a concern with TSA's Office of Civil Rights & Liberties, Ombudsman and Traveler Engagement (OCRL/OTE) at [TSA-CRL@tsa.dhs.gov](mailto:TSA-CRL@tsa.dhs.gov), or submit an online complaint at <https://www.tsa.gov/contact-center/form/complaints>.<sup>107</sup> Finally, travelers may also file discrimination complaints with DHS CRCL via CRCL's website at <http://www.dhs.gov/complaints>.

#### Y. Comments on the Proposed Regulatory Text

Comments: Many commenters addressed the regulatory text proposed in the NPRM. Many made the general assertion that the proposed rule is vague. Multiple commenters stated that the NPRM is not clear regarding a passenger's right to screening methods other than AIT. A few individual commenters suggested that, by not discussing alternative screening options, TSA is implying that passengers do not have a right to opt-out and be screened by a pat-down inspection. Further, an advocacy group requested that the language in the proposed rule should codify that all pat-down searches are to be conducted by officers of the same self-identified gender as the traveler, and not the gender listed on the identification document or the gender assigned to the passenger at birth. One of these commenters recommended that text be added to the regulation to specify alternatives for those with medical or other sensitive needs. An advocacy group stated that the failure to include information regarding an opt-out alternative in the proposed rule is in violation of the APA. An individual commenter suggested that text

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<sup>107</sup> More information on TSA Civil Rights is available at <https://www.tsa.gov/travel/passenger-support/civil-rights>.

also be included to require appropriate notice to passengers about the use of AIT and information about the opt-out option be more extensive and posted. One of these commenters stated that the NPRM suggests that a passenger who opts-out of AIT screening is perceived as disrupting the security system. An advocacy group and individual commenters stated that the NPRM language stating AIT screening is currently optional indicates that TSA may impose mandatory AIT screening for all passengers in the future.

A few individual commenters and advocacy groups stated that TSA should clarify key terms in the NPRM, including “anomaly.” A commenter stated that in the absence of any definitions of “submit” or “screening,” the rule would be unconstitutionally vague and overbroad. The commenter implied that such definitions are required in order for travelers to understand “what is prohibited or what is forbidden” by TSA. Similarly, an individual commenter and an advocacy group noted that the lack of details regarding screening and inspection leaves passengers uninformed regarding TSA’s authority and what options passengers have. The advocacy group suggested that the lack of clarity leaves TSA checkpoint procedures unpredictable and inconsistent. An advocacy group recommended that if the word “anomalies” were changed to the detection of prohibited foreign items that pose special risks of creating physical danger in the aviation environment, the public’s trust in TSA would increase.

Several commenters generally stated that the definition of AIT is ambiguous. A few commenters, including a privacy advocacy group, suggested that the definition of AIT was vague because it did not state that AIT involves the production of images. Similarly, a non-profit organization stated the definition of AIT is too broad in that it

allows TSA to use other tools and technologies in addition to AIT. An individual commenter noted that the vagueness of the regulation leaves the reader with limited understanding of the intention of the NPRM. One individual commenter stated that the proposed regulatory text in the NPRM is unconstitutionally vague.

Similarly, an advocacy group suggested that the proposed rule should be revised to clarify the rights and responsibilities of passengers and TSA with regard to AIT scanning. The commenter stated that the EPIC opinion provides more information about TSA policy than the proposed rule and that the proposed rule does not fulfill the court order. This commenter concluded that the rulemaking process for AIT scanning should begin anew. According to an advocacy group, clarifying the limits of screening objectives will enhance the public's trust in TSA's screening program. Another individual commenter stated that the EPIC decision required TSA to develop written rules for screening at checkpoints. The commenter stated that the terminology used in these rules should be more descriptive of what will, and will not, occur during pat-downs.

Some commenters provided suggestions as to how the proposed rule could include protections for passengers. A non-profit organization requested that a "code of conduct" towards passengers and a "passenger bill of rights" be included in the regulations. Furthermore, an advocacy group suggested that (1) passengers have the option to be screened in private and with a witness of the passenger's choosing; (2) there be a limitation on the requirement for a passenger to lift or remove clothing; and (3) pat-downs be limited to the areas on the body where an anomaly was detected by the AIT scanner. The same advocacy group recommended that the TSA Traveler's Civil Rights



Policy be codified in the final rule and should include nondiscrimination based on gender identity.

Some commenters recommended specific wording to be added to the proposed regulatory text to (1) allow TSA to search locations that are likely targets; (2) protect the Fourth Amendment concerns of private citizens; (3) eliminate costs associated with legal challenges; and (4) lower operational costs.

An individual commenter proposed adding text to clarify that screening to detect anomalies will be conducted using the least intrusive means. A community organization recommended expanding the proposed regulation to include specifics regarding how and when AIT can be used; when enhanced pat-down searches are to be conducted; that information on AIT be provided to passengers prior to AIT screening; to codify a pat-down search option; and to address the images generated by AIT. A non-profit organization suggested that the proposed rule define AIT as “active” imaging technology as opposed to “advanced” so the technology can be differentiated from “passive” imaging technology.

An advocacy group suggested that in order to assure passengers that images from the AIT scanners will not be retained, the definition of the AIT scanners should describe the technology as one that allows screening without subsequent retention of individual passenger image data. The same commenter proposed that training regarding how to work with diverse populations be required in the final rule.

A few commenters, including individual commenters and a non-profit organization, stated that TSA’s summary of the proposed rule was a misrepresentation of the facts and screening options.

TSA Response: To address many of the comments on the proposed regulatory text, TSA is adopting the statutory definition of AIT codified at 49 U.S.C. 44901(l). The statute defines AIT more narrowly as “a device used in the screening of passengers that creates a visual image of an individual showing the surface of the skin and revealing other objects on the body; and may include devices using backscatter x-rays or millimeter waves and devices referred to as ‘whole-body imaging technology’ or ‘body scanning machines’.” The definition of AIT in the final rule now refers specifically to “a device used in the screening of passengers that creates a visual image of an individual showing the surface of the skin and revealing other objects on the body . . . .” In addition, in recognition of privacy concerns, TSA is adopting the statutory language requiring the use of ATR software on any AIT used to screen passengers. The regulatory text now specifies that AIT must be equipped with and use ATR software. The regulatory text defines ATR as software that produces a generic image that is the same as the image produced for all individuals. Consistent with many comments received, this definition ensures that there are no passenger-specific images. TSA believes that the final rule’s definition of AIT is more specific than the proposed definition in the NPRM and better ensures that the regulation is consistent with existing law. This definition also obviates the need for further requirements related to the potential storage and transfer of images, as the rule now requires images produced by AIT to be generic.

TSA declines to make a number of other changes to the regulatory text proposed by commenters. TSA does not refer to the option to undergo a pat-down instead of AIT in the regulatory text. As noted throughout this preamble, AIT use generally is optional. TSA recognizes that some passengers do not wish to be screened by AIT and generally,

they may choose to undergo a pat-down. Other screening options are not permitted as the pat-down has the similar capability to detect both metallic and non-metallic threats. TSA also recognizes that some passengers are ineligible for AIT (for example, they are not able to stand unattended or raise their arms in the manner required for AIT screening). These passengers must undergo a pat-down in lieu of AIT. TSA also notes that it may require AIT use, without the opt-out alternative, as warranted by security considerations in order to safeguard transportation security. Thus, TSA has not codified an opt-out alternative in this rule.

As discussed above, in response to comments, TSA has removed the term “anomaly” from the regulatory text to avoid confusion regarding the meaning of the term. However, TSA is not adopting comments regarding the use of the terms “screening” and “submit.” These terms are used throughout TSA regulations; in the NPRM, TSA did not propose to modify any other regulatory provisions that use these terms, and TSA believes that it could be confusing to add a general definition that would affect those provisions. Nor does TSA believe that a definition specific to this section would be particularly useful, given that relatively few commenters found material ambiguity in the terms “screening” and “submit.” TSA notes that a definition of “screening function” is contained in 49 CFR 1540.5. TSA does not intend to alter that definition in this rulemaking. TSA’s changes to the regulatory text are intended to maintain consistency with the definition of AIT developed by Congress to limit the use of AIT for screening passengers and to address privacy concerns. TSA believes that using a different definition or including terminology not used by Congress, such as “active” or “passive,” would not meaningfully enhance the clarity of the provision, and could create confusion

about what is meant by “active” and “passive.” In addition, by adopting the statutory definitions in the regulation, TSA will deploy the types of AIT equipment that Congress intended to be used to conduct passenger screening.

As discussed in previous responses and in the NPRM, TSA’s website provides a public description of AIT procedures for passengers. See 78 FR 18296-18297. The website also describes when a pat-down is performed, that a passenger may request private screening with a companion of the passenger’s choosing, and that ordinarily a passenger will not be requested to remove or lift clothing to reveal a sensitive body area. TSA’s screening procedures are sensitive security information, 49 CFR 1520.5(b)(9), and cannot be publicly divulged in significant additional detail. TSA strives to provide information on its website so that travelers will generally know what to expect when they arrive at an airport.

Congress has vested TSA with broad authority to use the equipment, measures and procedures TSA deems necessary to protect transportation security.<sup>108</sup> Current regulations already specify the responsibilities of passengers and other individuals who seek to enter the sterile area of an airport or board an aircraft. Regulations provide that “[n]o individual may enter a sterile area or board an aircraft without submitting to the screening and inspection of his or her person and accessible property in accordance with the procedures being applied to control access to that area or aircraft.” See 49 CFR

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<sup>108</sup> See 49 U.S.C. 114(e) (listing TSA’s responsibilities to include “day-to-day Federal security screening operations for passenger air transportation . . .”); 49 U.S.C. 114(f) (describing other TSA duties and powers to include “develop policies, strategies, and plans for dealing with threats to transportation security . . . enforce security-related regulations and requirements . . . identify and undertake research and development activities necessary to enhance transportation security . . . inspect, maintain, and test security facilities, equipment, and systems . . . and oversee the implementation, and ensure the adequacy, of security measures at airports and other transportation facilities”); and 49 U.S.C. 44925 (directing DHS to give a high priority to “developing, testing, improving, and deploying, at airport screening checkpoints, equipment that detects nonmetallic, chemical, biological, and radiological weapons, and explosives, in all forms, on individuals and in their personal property.”).

1540.107(a). These regulations do not detail every particular screening method, policy, or technology that TSA employs at the checkpoint.<sup>109</sup>

In the NPRM, TSA proposed to codify the use of AIT to conduct security screening to comply with the ruling in EPIC. TSA is not adopting comments requesting that TSA also codify alternative screening options in the final rule. TSA may be unable to disclose details about some alternative screening options publicly. Federal law requires TSA to promulgate regulations to prohibit the disclosure of information obtained or developed in carrying out security that TSA decides would be detrimental to the security of transportation. 49 U.S.C. 114(r). TSA cannot publicly disclose all the information that would be necessary to allow for complete public discussion of security procedures and equipment, as some of the relevant information is SSI as specified in TSA regulations. See 49 CFR part 1520. In addition, some relevant information is classified and further restricted from public disclosure. It would not be practical for TSA to make every security measure public, as that would certainly make it easier for terrorists to circumvent such measures in order to carry out an attack.

In addition, codification of alternative screening options would seriously impede the flexibility needed to respond to security threats. TSA's procedures and equipment are designed to assist in the detection of concealed items that individuals are attempting to

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<sup>109</sup> Before TSA was established, the FAA operated under a very similar broad regulatory framework that also afforded discretion with respect to the specifics of checkpoint screening. See, e.g., Airport and Airplane Operator Security Rules, 51 FR 1350 (Jan. 10, 1986) (final rule) (issuing former 14 CFR 107.20, which provided that “[n]o person may enter a sterile area without submitting to the screening of his or her person and property in accordance with the procedures being applied to control access to that area”). In addition, just as TSA does now, the FAA typically responded to evolving threats by making changes to checkpoint screening procedures under its broad regulatory authority rather than by issuing new regulations. Nader v. Butterfield, 373 F. Supp. 1175, 1177 (D.D.C. 1974) (explaining that the FAA responded to “an alarming rash of bomb threats and airplane seizures” in 1972 by implementing new checkpoint screening procedures through a telegram emergency order to the agency’s Regional Directors).

smuggle into the sterile area or on board an aircraft.<sup>110</sup> Depending on the circumstance, changes in certain procedures may be necessary on a global or case-by-case basis to respond in real-time to a threat, resolve an alarm, deal with equipment malfunctions, accommodate individuals with disabilities or other unique needs, or address other situations that could arise at the security checkpoint. For instance, sometimes types of clothing or physical attributes present particular challenges that require changes to screening techniques in order to conduct the thorough screening required to detect concealed items.

In short, TSA could not operate effectively if it was required to conduct notice and comment rulemaking whenever a change in a security equipment, policy, or procedure was needed. The APA generally does not require TSA to amend or issue regulations for most checkpoint screening equipment, policy, and procedure changes; for TSA to voluntarily submit to such a requirement would undermine TSA's ability to adapt quickly to new security threats and "mire the agency in fruitless delay, expense, and inefficiency."<sup>111</sup> Moreover, any additional regulatory text with sufficient flexibility for TSA to adapt quickly to new security threats would severely undercut the usefulness to the public of additional regulatory text. Instead, consistent with longstanding practice and the EPIC decision, TSA's regulations establish the requirement to undergo screening, and set the parameters under which TSA has the flexibility, within the bounds of its statutory mandate as well as other applicable Federal laws and policies, to choose

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<sup>110</sup> See George v. Rehiel, 738 F.3d 562, 578 (3d Cir. 2013) (noting that TSA operates in "a world where air passenger safety must contend with such nuanced threats as attempts to convert underwear into bombs and shoes into incendiary devices").

<sup>111</sup> Guardian Fed. Sav. & Loan Ass'n v. Fed. Sav. & Loan Ins. Corp., 589 F.2d 658, 668 (D.C. Cir. 1978).

screening equipment, adopt specific screening policies, and “prescribe the screening process.”<sup>112</sup>

In addition, although TSA has determined not to codify additional policies and procedures in the regulatory text, TSA advises the public on what to expect at the checkpoint, and constantly strives to improve the screening experience. When TSA policies affecting screening are modified, TSA provides additional information to the public through its website as appropriate. TSA acknowledges the concerns expressed by commenters seeking assurance that they are being treated in accordance with established policies and procedures. TSA has posted screening information on its website to facilitate the secure and efficient processing of passengers when they arrive at an airport.<sup>113</sup> As explained above, TSA also provides various opportunities for individuals to obtain help in understanding the screening process, to express concerns regarding screening, and to submit complaints regarding unprofessional conduct by TSA personnel. Finally, TSA’s training and procedures already require officers to treat every passenger with dignity and respect and make every effort to accommodate passengers’ needs while processing through screening. Violations of these standards subject officers to discipline, up to and including termination.

Finally, regulatory text is not needed to address commenters’ stated constitutional concerns as multiple courts of appeal have found that TSA’s airport screening protocols do not violate the Fourth Amendment. For example, the EPIC decision holds that TSA’s use of AIT is constitutional and meets legal requirements; although TSA’s screening operations are of course subject to certain legal constraints, TSA is not required to

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<sup>112</sup> EPIC, 653 F.3d at 3.

<sup>113</sup> See for example, [www.tsa.gov/travel/security-screening](http://www.tsa.gov/travel/security-screening) and [www.tsa.gov/travel/special-procedures](http://www.tsa.gov/travel/special-procedures).

describe or interpret every such constraint in this regulatory text. TSA has also explained its adherence to federal law and DHS policies regarding the use of race, ethnicity, gender, national origin, religion, sexual orientation, or gender identity in agency operations. To the extent that such generally applicable policies have applications in the checkpoint screening context, it would be unnecessary, unduly cumbersome, and outside the scope of this rule to reiterate such policies in the instant rulemaking in particular. Similarly, TSA adheres to the statutory requirements regarding the conduct of screening of persons and property and will not include SSI in its public rules. In response to the commenter who identified certain costs for TSA to include in the regulation, TSA notes that costs are described in the RIA accompanying this final rule.

#### Z. Costs of the Proposed Rule

Comments: Dozens of submissions addressed the overall costs associated with the proposed rule. Several individual commenters and a non-profit organization stated that AIT scanners would be too costly, and suggested that TSA invest in other, less expensive screening methods. Another individual commenter stated that the cost analysis should have included a rigorous probability and statistical analysis to estimate “difficult to compute” costs for sub-populations. For example, the commenter suggested that TSA include costs for travelers who are more vulnerable to radiation, immune-suppressed, or suffering from skin cancer. With regard to the RIA posted in the docket, an individual commenter asked TSA to clarify the units for the cost data included in Summary Tables 4 through 6.

TSA Response: TSA estimated the costs of AIT and compared to four and five other alternatives in the RIA for both the NPRM and final rule RIA, respectively. TSA



determined that AIT has a number of advantages over the other alternatives. AIT maintains lower personnel cost and a higher passenger throughput rate than other alternatives considered (for detailed description of alternatives see Chapter 3 in both the NPRM and final rule RIAs). After weighing the qualitative advantages and disadvantages of each alternative, TSA elected to maintain AIT as a means of screening passengers to mitigate the vulnerability that exists with the inability of WTMDs to detect non-metallic threats.

TSA performed its cost analysis using the most recent, comprehensive and readily available data. Federal law and regulations require all passengers to be screened prior to boarding an aircraft. There was no need to perform a probabilistic or statistical analysis to estimate the populations affected as TSA used its actual passenger screening records in its estimates. Furthermore, data used to determine AIT capabilities are based on years of tests on detection capabilities and performance standards. TSA did not include radiation-related costs in the RIA because the level of radiation from AIT was determined to be so low as to present a negligible risk to passengers, airline crew, airport employees, and TSA employees. The machines were tested, and doses were found to be below the ANSI/HPS standards. The standards consider the impact of radiation on individuals, such as pregnant women, children, and persons who receive radiation treatments, who may be more susceptible to radiation health effects. AIT equipment has been subject to extensive, independent testing that has confirmed that it is safe for individuals being screened, equipment operators, and bystanders. The exposure to ionizing x-ray beams emitted by the backscatter machines that were removed pursuant to statute, as well as the non-ionizing electromagnetic waves from the millimeter wave machines are well below

the limits allowed under relevant national health and safety standards<sup>114</sup> (See Chapter 2, page 104 of the NPRM RIA).

The cost estimates in the NPRM RIA Summary Tables 4 through 6 are displayed in thousands of dollars, as presented in the table titles as “Costs in \$ 1,000s.” For example, \$1 shown in Table 4 represents one thousand dollars. In the final rule RIA, costs are presented in millions of dollars throughout the document to avoid confusion.

AA. Passenger Opportunity Costs

Comments: Dozens of submissions directly addressed passenger opportunity costs associated with the proposed rule. Individual commenters and advocacy groups stated that TSA did not include adequate costs for passenger delays due to AIT. Using average time lost passing through security and average wage rates, several of these commenters estimated additional passenger opportunity costs ranging from \$450 million per year to \$15.2 billion per year. One commenter estimated the additional delay in terms of lost lifetimes and stated the proposed rule would lead to 18 lifetimes lost per year due to waiting in passenger screening lines. An advocacy group cited a 2008 report that found TSA security increased delays by 19.5 minutes in 2004. A commenter also suggested that TSA estimate other opportunity costs associated with opt-outs, including the cost of enduring the pat-down itself, because both the passenger and the TSA agent would prefer to avoid the pat-down.

Many other commenters, including a non-profit organization and individuals, suggested that the proposed rule would increase wait times at the security checkpoints,

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<sup>114</sup> The FDA has found that millimeter wave is safe and states on its website “[m]illimeter wave security systems which comply with the limits set in the applicable national non-ionizing radiation safety standard . . . cause no known adverse health effects.” <http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/SecuritySystems/ucm227201.htm>.

leading to passenger delays. At least one comment referenced an examination of AIT use in Australia that found that passenger screening time through the trial lane took slightly longer than the passenger screening time through a standard screening lane, most likely caused by the higher alarm rate, with the data suggesting that the average passenger is six times more likely to alarm in the body scanner than the standard lane. Some commenters estimated that the process of opting out—including waiting for a TSO of the same-sex to perform the pat-down—from AIT would delay a passenger by at least 15 minutes. The commenters urged TSA to account for the additional time spent by passengers waiting to pass through airport security. An individual commenter suggested that AIT would reduce wait times for screening, particularly for passengers with joint replacements that would otherwise trigger WTMDs.

TSA Response: Overall passenger screening system times do not increase with AIT. Passengers currently experience delays at the checkpoint attributable to the screening of carry-on luggage and personal belongings, which has been a Federal requirement even before the creation of TSA, and which was included as part of the baseline for the passenger opportunity cost assessment. For more information on equipment throughput rate, see Regulatory Impact Analysis Chapter 2: AIT Deployment Costs. Although the AIT with ATR (current AIT technology being used) throughput rate is lower than the WTMD, the passenger screening system and passengers are constrained by the x-ray machines that screen carry-on baggage and personal belongings. With regard to examination of AIT in Australia, the commenter failed to cite the full context of the findings which stated “This [additional seconds of delay] was caused by a number of factors, some of which can be mitigated through refining the process and procedures, and

some of which will be minimized as screening officers and passengers becoming more familiar with the new technology.”<sup>115</sup> Additionally, TSA’s security checkpoints and standard operating procedures may differ from the logistics exercised in the trial in Australia. TSA relies on its own findings from the field to make a determination of wait times in the RIA. The small percentage of passengers who choose to opt out of AIT screening will incur opportunity costs due to the additional screening time needed to receive a pat-down. In the NPRM RIA, TSA estimated that 1.8 percent of all passengers opt-out of AIT and receive a pat-down. Only a small percentage of passengers will experience an increased wait time. TSA agrees that it should add additional time to account for waiting for a same gender TSO to perform the pat-down. However, TSA disagrees that an average wait would be as long as 15 minutes. TSA has added an additional 70 seconds to the total pat down procedure time to account for the time spent waiting for the same gender TSO. In some instances, a same gender TSO is only seconds away from the passenger and in other cases, the wait is longer. Based on TSA field tests, TSA estimates an average additional wait of 70 seconds. TSA already estimates that the pat-down procedure itself takes 80 seconds. In total, TSA estimates that, on average, a passenger that opts-out of AIT screening will incur an additional wait time of 150 seconds (70 second average wait time for the same gender TSO to meet the passenger and 80 seconds to complete the pat-down procedure). TSA estimated per passenger opportunity cost of opting out of AIT by multiplying the additional wait time by the average passenger value of time,<sup>116</sup> estimated at \$43.44 per hour in the NPRM RIA. TSA

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<sup>115</sup> Department of Infrastructure and Transport, Australian Government, “Optimal Technologies Proof of Concept Trial Report,” Feb. 28, 2012.

<sup>116</sup> U.S. Department of Transportation, “Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis,” Sep. 28, 2011. DOT estimates an hourly rate of \$42.10 in table 4 of this report and

used expected wage rates to base the value of a person's opportunity cost, which is widely accepted as an appropriate valuation of a person's value of time. The Passenger Opportunity Cost section, found in Chapter 2, page 49 of the NPRM RIA, explains in further detail the opportunity cost estimate and methodology. TSA was unable to quantify or monetize other intangible costs relating to opting out of AIT screening and receiving a pat-down (e.g., personal preference). In the final rule RIA, the opt-out rate and passenger value of time have been revised to reflect the most recent data.

#### BB. Airport Utility Costs

Comments: A commenter suggested that TSA underestimated airport utility costs because the analysis uses a constant utility cost per unit installed over the 8-year lifecycle. The commenter stated that since electricity prices have increased at an average rate of 1.53 percent annually, if the analysis allowed for the price of electricity to grow at this rate, the total estimated utility cost would increase.

TSA Response: Energy cost fluctuations are driven by two factors: real changes in costs and inflation. In the NPRM RIA, TSA accounted for real changes in utility costs by averaging prices for years 2007-2011 as reported by the U.S. Energy Information Administration. TSA used this average to estimate utility costs for the years 2012-2015. TSA did not incorporate annual inflation increases for any costs in the RIA in accordance with Office of Management and Budget (OMB) Circular A-4 guidelines.<sup>117</sup> In the final rule RIA, TSA once again used the U.S. Energy Information Administration for its

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TSA inflated this estimate to 2011 dollars at \$43.44.

[http://www.dot.gov/sites/dot.dev/files/docs/vot\\_guidance\\_092811c.pdf](http://www.dot.gov/sites/dot.dev/files/docs/vot_guidance_092811c.pdf).

<sup>117</sup> Page 32 of OMB Circular A-4 states: "In presenting the stream of benefits and costs, it is important to measure them in constant dollars to avoid the misleading effects of inflation in your estimates."

historical energy prices in 2008-2012 and used their projections for real energy prices for 2013-2017.

CC. TSA Costs

Comments: Many comments addressed TSA's costs associated with the proposed rule. A commenter stated that by incurring \$1.5 billion in costs to-date without following the proper protocol under the APA, TSA has committed a gross breach of its fiduciary responsibility. Other commenters suggested that TSA's AIT-related costs are unjustifiably high. Another commenter urged TSA to document and disclose all AIT-related costs, including purchase price, maintenance costs, and personnel costs.

Some submissions addressed TSA's personnel costs associated with the proposed rule. Some commenters stated that AIT operation requires more TSOs than the WTMD, which results in larger payroll costs. Another commenter disputed TSA's estimates of personnel costs. Specifically referencing the constant salary used to estimate personnel costs in the RIA, the commenter stated that using a salary level that grows over time by 1.15 percent would increase personnel costs by \$33 million.

Many submissions addressed TSA's equipment costs associated with the proposed rule. A few commenters identified equipment costs that they stated were missing from the RIA. An individual commenter and a non-profit organization asked TSA to clarify whether the analysis accounts for the cost of installing AIT scanners in every security lane. One commenter compared TSA's equipment costs to independent estimates and concluded that TSA's lower cost estimates do not include an estimate of the number of AIT scanners needed nationwide. Another commenter stated that the analysis does not include the cost associated with replacing the AIT scanners every 8

years. An individual commenter asked TSA to provide detail on the maintenance cost assumptions in the analysis. The commenter urged TSA to base AIT maintenance costs on actual experience (e.g., total service calls required in recent years). Another commenter declared that the AIT machines are expensive and recommended other security-related equipment that TSA could invest in instead (e.g., improved sensors for baggage).

TSA Response: With respect to comments regarding TSA’s fiduciary responsibility, TSA has deployed AIT consistent with its statutory authority and as directed by Congress and the President. All costs incurred to deploy AIT have been accounted for and approved in the Federal budgeting process.

TSA estimated all personnel costs associated with the deployment of AIT. For the RIA, which accompanied the NPRM, TSA estimated this cost using assumptions from TSA’s Screener Allocation Model (SAM) that dictates the allocation of personnel to each airport. The SAM takes into account the number of personnel it takes to operate WTMDs and AITs and also the different configurations (or “modsets”) in which these machines are implemented. TSA based its estimation of personnel costs on the number of AIT machines that were forecasted to be deployed nationwide for years 2012-2015 and the number of personnel required to operate each machine. Finally, TSA applied the average TSO’s fully loaded wage rate to estimate costs.<sup>118</sup> TSA did not incorporate annual increases in inflation for any costs in the RIA, including personnel costs, in accordance with OMB Circular A-4 guidelines. A full description of these costs is in Chapter 2 in both the NPRM and final rule RIA.

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<sup>118</sup> A “fully loaded” wage rate includes the cost of wages paid to the employee plus the costs of employee benefits such as paid leave and health care.

TSA estimated the full life cycle costs relating to the use and deployment of AIT. TSA divided the cost components into four categories: acquisition, installation, and integration; maintenance; test and evaluation; and program management office (PMO) costs. With respect to the comment on the replacement costs, replacement costs are not included in a life-cycle analysis. The RIA analyzes costs and benefits for one life-cycle of AIT and therefore does not include replacement costs.

A full description of these costs is in Chapter 2 of both the NPRM and final rule RIA.

TSA compared AIT to other alternatives and concluded that AIT is the alternative that represents the best technology, currently available, to detect metallic and nonmetallic threats to commercial air travel.

#### DD. Other Costs

Comments: Hundreds of submissions addressed other costs associated with the proposed rule. Several commenters identified additional costs that they stated should have been included in the RIA. A few commenters, including an individual commenter and advocacy groups, suggested that the use of AIT would have a cost impact on the aviation and travel industries, which the RIA does not quantify. Some commenters cited a 2007 study that shows demand for air travel could decline by 6 percent on all flights and by about 9 percent on flights departing from the nation's 50 busiest airports, reduce airline revenue, and increase airline costs and passenger fees. Approximately 80 submissions addressed other travel impacts associated with the proposed rule. Many commenters, including non-profit organizations, an advocacy group, and individual commenters stated that the traveling public would avoid air travel, causing individuals to



drive or take the train. Some of these commenters stated that there would be increased roadway fatalities because of the increase in motor vehicle travel (some estimated as many as 500 additional deaths per year). The commenters suggested that the analysis should account for the cost associated with these additional fatalities. Other commenters indicated that reduced air travel, including from international tourists, would affect the airline industry, and TSA should estimate these financial impacts.

Other commenters recommended that TSA include estimates for legal costs in the cost-benefit analysis because of the likelihood of further litigation regarding the use of AIT. An individual commenter suggested that AIT scanners would result in medical equipment costs to passengers (e.g., damage to insulin pumps). An advocacy group urged TSA to include costs associated with infringement on civil liberties and on privacy, but acknowledged that these costs are not easily quantifiable. An advocacy group urged TSA to include passenger privacy impacts in the cost-benefit analysis.

A commenter requested that TSA provide clarification on the assumptions used to develop the AIT program management costs (e.g., 10 percent of passenger screening costs). Another individual commenter suggested that TSA consider using a random selection AIT screening process in order to reduce the costs of the rule.

TSA Response: With respect to quantifying any loss from a decline in the demand for travel, TSA reviewed the study<sup>119</sup> cited in the comments. The study was published in 2007—before AIT was deployed—and therefore did not provide estimated impacts on airline revenues and passenger demand related to AIT. The study’s results appear to have been based on security measures well outside the scope of AIT, such as the federalization

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<sup>119</sup> Blalock, Garrick, Kadiyali, Vrinda, Simon, and Daniel H., “The Impact of Post 9/11 Airport Security Measures on the Demand for Air Travel,” *Journal of Law and Economics*, Apr. 30, 2007, [http://dyson.cornell.edu/faculty\\_sites/gb78/wp/JLE\\_6301.pdf](http://dyson.cornell.edu/faculty_sites/gb78/wp/JLE_6301.pdf).

of passenger security screening at all U.S. commercial airports and the requirement to begin screening all checked baggage in 2002. As TSA previously explained, the baseline from which the costs and benefits of this rule are estimated is not “no TSA screening” or “no screening at all.” The baseline of this rule is how TSA would accomplish screening without AIT. TSA used WTMD as the primary passenger screening technology at passenger screening checkpoints prior to the deployment of AIT. Therefore, the costs and benefits of this rule are compared to WTMD as the primary screening tool. Although it is possible that a security measure could be implemented that would have a measurable impact on the commercial aviation demand, in this case, TSA has not seen credible evidence that AIT is such a security measure.

TSA analyzed the potential cost impacts associated with the implementation of AIT in its cost analysis. TSA concluded that there are no additional legal costs to stakeholders for the deployment and use of AIT pursuant to TSA regulatory requirements. Litigation costs are not a direct cost of the rule because such costs do not result from compliance with the rule. Additionally, any estimate of litigation expenses would be highly speculative and would not inform TSA’s decision of AIT deployment. However, TSA acknowledges that to the extent parties choose to enter into litigation on AIT, there are indirect costs associated with that litigation.

The most significant advantage of using AIT is the enhancement of air transportation security because AIT can detect nonmetallic threats concealed under clothing. It also reduces the need for a pat-down, which would be required with the WTMD for individuals with medical implants such as a pacemaker or a metal knee replacement. Thus, AIT reduces the cost and inconvenience to passengers with this

medical equipment. As explained in a previous response, the FDA tested the effect of AIT on different types of medical devices, including insulin pumps, and found no impact. Thus, TSA does not include costs of medical devices in the analysis.

Before the development of the ATR software, TSA instituted rigorous safeguards to protect the privacy of individuals who are screened using AIT. The DHS Chief Privacy Officer conducted several PIAs to ensure that TSA adequately addressed privacy concerns related to AIT screening. The PIA describes the strict measures TSA uses to protect privacy. While TSA was unable to produce a quantitative impact of perceived privacy issues, TSA included a thorough qualitative discussion regarding this issue in the NPRM RIA (Chapter 2, page 99). Additionally, TSA did not receive any public comments providing a methodology to be used on the economic valuation of how perceived privacy issues could be calculated. Finally, the use of AIT to screen passengers has been upheld by the courts as reasonable under the Fourth Amendment, even prior to the mandatory use of ATR.

To run the passenger screening program, TSA provides internal PMO support and contractor support. Because PMO support reflects the day-to-day support of the entire screening program, TSA is unable to identify PMO spending allocated to AIT specifically. To account for these costs to AIT, TSA assumed that the PMO cost was 10 percent of the total cost of AIT in the NPRM RIA, based on subject matter expert estimates from other technology contracts. For the final rule, TSA revised this estimate to 15 percent based on an internal Life Cycle Cost Estimate analysis of the passenger screening program.

Finally, TSA addresses the use of random selection in its discussion of alternatives considered, apart from AIT, in Chapter 3 of the final rule's RIA.

EE. Benefits of the Proposed Rule

Comments: Approximately 20 submissions directly addressed the benefits associated with the proposed rule. Many individual commenters and a non-profit organization stated that TSA did not quantify the benefits of AIT or provide documentation to support the claims made in the benefits analysis. One of the commenters stated that it is not acceptable for TSA to keep its risk-based benefits analysis confidential, and urged TSA to assess the risk of a terrorist attack relative to the risks associated with AIT (e.g., cancer and increased roadway fatalities). Another commenter recommended that TSA provide an estimate of how much AIT reduces the probability of a successful terrorist attack, or provide a break-even analysis that would estimate the number of terrorist threats that must be prevented in order to cover the costs of the AIT. A non-profit organization stated that the risk reduction benefits that TSA claims in the analysis are not attributable to AIT because there have been no successful terrorist attacks originating from U.S. airports since September 11, 2001, even before TSA began deploying AIT scanners. Another commenter stated that AIT scanners provide negligible security benefits.

Several individual commenters and a non-profit organization discussed benefits in terms of the number of attacks that need to be thwarted in order to justify the costs of the AIT rule. Some of these commenters, including two non-profit organizations, cited a research study that concluded AIT would need to avert more than one attack originating from a U.S. airport every 2 years in order to justify the cost of the scanners. The

commenters stated that AIT would not achieve this threshold. An individual commenter suggested that had AIT scanners been used over the last 12 years, only two attacks would have been avoided. The commenter stated this would not have justified the cost. Another individual commenter stated that people are more at risk of dying in motor vehicle accidents than in a terrorist attack on an airplane originating in the United States. The commenter concluded that AIT would not be the most efficient approach to reducing risk. Other commenters stated that AIT would not increase security to the degree TSA claims until deployed in every airport and every security lane. A commenter argued that because “a potential terrorist intent on downing an airliner with body-borne explosives would need only to observe which airports or security areas lack [AIT] scanners to defeat the security measure.” The commenter suggested that the absence of an attack could not be attributed to AIT.

Some commenters recommended types of benefits that should be analyzed. An individual commenter suggested that TSA quantify the benefits of the rule in terms of lives saved and avoided disruptions to the economy. Another commenter stated that the analysis should consider the potential benefits of reallocating the costs associated with AIT to other screening methods.

TSA Response: TSA disagrees that AIT provides no security benefits. Contrary to commenters’ belief that the lack of successful attacks shows AIT offers no security benefits, TSA believes the lack of successful attacks actually lends support to the opposite conclusion. Given the continued threat to commercial aviation from terrorist attacks, and the fact that the shift to nonmetallic explosives by terrorists presents a serious threat to homeland security, TSA needs technology capable of detecting non-

metallic objects. AIT is a proven technology based on laboratory testing and field experience that provides the best opportunity to detect metallic and non-metallic anomalies concealed under clothing without the need to touch the passenger. In addition to AIT's ability to detect concealed objects, TSA also believes AIT offers a powerful deterrence effect. Morral and Jackson (2009) stated, "Deterrence is also a major factor in the cost-effectiveness of many security programs. For instance, even if a radiation-detection system at ports never actually encounters weapon material, if it deters would be attackers from trying to smuggle such material into the country, it could easily be cost-effective even if associated program costs are very high."<sup>120</sup> Given the demonstrated ability of AIT to detect concealed metallic and non-metallic objects, it is reasonable to assume that AIT acts as a deterrent to attacks involving the smuggling of a metallic or non-metallic weapon or explosive on board a commercial airplane. As an essential component in airports' comprehensive security system that can detect a non-metallic weapon or explosive concealed under a person's clothing, AIT plays a vital role in decreasing the vulnerability of commercial air travel to a terrorist attack.

Other commenters stated that AIT might provide some level of security benefits, but that it was not worth the cost. Commenters stated the risk reduction benefits of AIT in particular made it a poor investment and that people are more at risk of dying in motor vehicle accidents than in a terrorist attack on an airplane originating in the United States. One commenter stated that risk of a terrorist attack to commercial aviation is so low that it is a risk that can be endured by the public. TSA disagrees that the risk reduction attributable to AIT does not make AIT worth using. TSA is charged with safeguarding

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<sup>120</sup> Andrew R. Morral, Brian A. Jackson., "Understanding the Role of Deterrence in Counterterrorism Security," 2009, Rand Homeland Security Program, [http://www.rand.org/content/dam/rand/pubs/occasional\\_papers/2009/RAND\\_OP281.pdf](http://www.rand.org/content/dam/rand/pubs/occasional_papers/2009/RAND_OP281.pdf).

the travelling public with respect to aviation and fulfilling legal mandates. Risk and national security are complex issues and commenters may not be considering that a perceived low level of risk may be due to deterrence provided by AIT or other national security efforts to prevent such attacks.

Another commenter stated that the benefits from AIT would not be fully realized until AIT is deployed at every airport and in every checkpoint lane. While TSA did not provide monetized benefits or “degree of benefits,” TSA did describe the fact that AIT is the only technology currently available for field deployment that can detect both metallic and non-metallic weapons and explosives. Additionally, implementing an “all or nothing” strategy for airport security ignores the fact that some airports are at a higher risk for a terrorist attack than others are. TSA uses a risk-based approach to deploy AIT machines in airports that are considered higher-risk in order to try to minimize risk to commercial air travel given TSA’s finite resources. Other commenters stated that AIT is a poor investment for screening and that TSA should use its funds in another technology or manner altogether. Another commenter argued that the baseline security infrastructure (pre-AIT) is capable of handling the current level of risk to commercial air travel. Both conclusions discount the fact that currently, AIT is the only screening technology able to detect a non-metallic weapon or explosives concealed under a person’s clothing. Eliminating AIT would increase the risk to successful terrorist attacks than what is currently incurred because it would leave commercial air travel more vulnerable to an attack with a non-metallic weapon or explosive. The commenters also stated that the risk of a terrorist attack to commercial air travel was less than that of a fatal motor vehicle accident. It is unclear to TSA how the risk associated with motor vehicles should

influence TSA's decision making on airport screening practices. Regardless of the safety or security risks associated with other modes of transportation, TSA should pursue the most effective security measures reasonably available so that the vulnerability of commercial air travel to terrorist attacks is reduced.

Commenters that consider only the most easily quantifiable impacts of a terrorist attack, such as the direct cost of an airplane crashing, are only considering a portion of the impacts of an attack. As TSA explained in the NPRM's Initial RIA, terrorist attacks not only cause direct costs in lives lost and property damage, but also cause substantial indirect effects and social costs (such as fear) that are harder to measure but which must also be considered by TSA when deciding whether an investment in security is cost-beneficial. For example, Ackerman and Heinzerling state “. . . terrorism ‘works’ through the fear and demoralization caused by uncontrollable uncertainty. Efforts to offset this fear by attaching necessarily arbitrary numbers to the probabilities of being harmed by a terrorist seem, especially in a post-September 11 world, ridiculous.”<sup>121</sup> In addition, Pidgeon, Kasperson and Slovic state the 9/11 attacks had consequences that spanned “a range of behavioral, economic, and social impacts.”<sup>122</sup>

In addition, AIT use is fully consistent with TSA's mandate. The Administrator of TSA has overall responsibility for civil aviation security, and Congress has conferred on him authority to carry out that responsibility.<sup>123</sup> Federal law requires that he “assess threats to transportation,” and “develop policies, strategies, and plans for dealing with

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<sup>121</sup> Frank Ackerman and Lisa Heinzerling, “Priceless: On Knowing the Price of Everything and the Value of Nothing,” 136-137 (2004).

<sup>122</sup> Nick Pidgeon, Roger E. Kasperson, and Paul Slovic, “The Social Amplification of Risk,” p. 16, 2003.

<sup>123</sup> 49 U.S.C. 114(d).



threats to transportation security.”<sup>124</sup> TSA agrees that it should incorporate consideration of costs and other factors into its risk management practices, see, e.g., 49 U.S.C. 44903(b), but notwithstanding the suggestion of a number of commenters, it would be plainly contrary to congressional intent for TSA to ignore known terrorism risks to aviation security by relying on outdated screening practices until the next attack proves the commenters wrong. Based on TSA’s experience using AIT in the airport environment, TSA believes that the use of AIT satisfies the express mandate of Congress.

TSA has added break-even analysis to the benefits section in the final rule. According to OMB Circular No. A-4, “Regulatory Analysis,” the break-even analysis answers the question, “How small could the value of the non-quantified benefits be (or how large would the value of the non-quantified costs need to be) before the rule would yield zero net benefits?”<sup>125</sup> In both the NPRM and final rule RIAs, TSA also provided a qualitative assessment of the benefits of AIT. Low probability, high consequence events such as terrorist attacks are difficult to measure with any level of certainty. TSA analyzed the threats to the aviation sector and found that the use of AIT reduces the risk of metallic and non-metallic threats to airport security as described in Chapter 4 in both the NPRM and final rule RIAs. Both RIAs also qualitatively described some of the indirect impacts from a successful attack on commercial air travel. Specifically, TSA noted how the 9/11 attacks caused a negative impact on gross domestic product growth and that fear, a social cost, can lead to other social costs which would cause the economy to suffer if people are afraid to fly.

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<sup>124</sup> 49 U.S.C. 114(f).

<sup>125</sup> [http://www.whitehouse.gov/omb/circulars\\_a004\\_a-4/](http://www.whitehouse.gov/omb/circulars_a004_a-4/).

#### FF. Other Impacts of the Proposed Rule

Comments: Many submissions addressed health impacts associated with the proposed rule. Several individual commenters identified alleged health impacts that TSA should have accounted for in the cost-benefit analysis. The commenters suggested that the analysis should include costs or risk information for radiation-related illness, emotional distress, and special medical conditions.

Commenters also stated that using AIT scanners would lead to lost or stolen property. Another commenter stated that the RIA failed to account for decreases in economic productivity because of the rule. Further, an individual commenter suggested that the proposed rule is not justified because the investment in AIT scanners would not reduce mortality by as much as other government programs or initiatives. In particular, the commenter suggested that AIT would not prevent terror attacks but would instead redirect them to alternate locations. Another commenter stated that the analysis should consider the use of newer technologies that might work better and cost less.

TSA Response: With regard to comments on health concerns, the millimeter wave AIT systems used by TSA comply with the 2005 IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields (IEEE Std.C95.1TM–2005) as well as the International Commission on Non-Ionizing Radiation Protection Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields, Health Physics 74(4); 494–522, published April 1998. TSA’s millimeter wave units are also consistent with Federal Communications Commission OET Bulletin 65, Health Canada Safety Code, and RSS–102 Issue 3 for Canada. The

FDA also confirmed that millimeter wave security systems that comply with the IEEE Std. C95.1TM–2005 cause no known adverse health effects.

TSA also addressed potential health concerns regarding the ionizing radiation emitted by general-use backscatter technology. The radiation dose a passenger receives from a general-use backscatter AIT screening has been independently evaluated by the FDA's Center for Devices and Radiological Health, the National Institute for Standards and Technology, the Johns Hopkins University Applied Physics Laboratory, and the American Association of Physicists in Medicine. All results affirmed that the radiation dose for individuals being screened, operators, and bystanders was well below the dose limits specified by ANSI/HPS N43.17.

TSA does not believe, and no compelling evidence has been submitted, that AIT increases the risk of lost or stolen property. Passengers are able to monitor their bags prior to submission into the x-ray machine and after x-ray screening is completed. The deployment of AIT does not create vulnerabilities in the security system since testing and experience have shown that AIT is the best technology currently available to detect metallic and nonmetallic threats (see Chapter 4 of both the NPRM and final rule RIA).

TSA does not believe, and no credible evidence has been submitted, that AITs reduce economic productivity. With regard to comments that AIT does not reduce mortality rates as much as other government programs or initiatives, the funding of other government programs is beyond the scope of this rule. Regardless of the effectiveness of other governments programs, TSA should pursue the most effective security measures so that the vulnerability of commercial air travel to terrorist attacks is reduced. TSA conducted an alternatives analysis and found AIT to be the most effective

countermeasure for both metallic and non-metallic items concealed under a person's clothing. With respect to AIT redirecting attacks to other targets, TSA does not believe that the existence of other targets precludes TSA from ensuring the security of commercial air travel, which has a high level of risk. TSA included the costs of research and development for AIT and for the deployment of AIT technology (see Chapter 2 in both the NPRM and final rule RIA). TSA will continue to conduct research and evaluate new technologies to enhance transportation security.

#### GG. Regulatory Alternatives

Comments: Some submissions commented on Alternative 1 (no action). Several individual commenters and non-profit organizations expressed support for Alternative 1, and urged TSA to revert to the use of metal detectors as the primary screening method.

Multiple submissions also commented on Alternative 2 (combination of WTMD and pat-down). Several commenters suggested that screening consisting of pat-downs and metal detectors would be sufficient. A few commenters suggested that because AIT scanners are not effective and are intrusive, a combination of WTMD and pat-down screening should be used instead.

Many submissions commented on Alternative 3 (combination of WTMD and ETD screening). Individual commenters, a non-profit organization, and advocacy groups expressed support for Alternative 3 without providing additional substantive comment. Commenters suggested that the use of ETDs and WTMDs are more effective, less costly, and less intrusive.

Many submissions discussed other alternatives for TSA consideration. A non-profit organization, a privacy advocacy group, and individual commenters recommended

that TSA return to using WTMDs and hand-wand metal detectors during the screening process. Other commenters urged TSA to rely on traditional police and intelligence work and canine explosives detection teams to detect and deter threats. A commenter recommended that TSA use mass spectrometry methods to detect threats in air samples. Other commenters suggested TSA explore other technologies to reduce reliance on AIT and pat-downs and to be able to detect explosives within body cavities. A non-profit organization recommended that TSA consider testing face recognition, explosives residue machines, and suspicious behavior systems for secondary screening. Another non-profit organization urged TSA to use less invasive screening technologies such as infrared imaging.

TSA Response: With regard to Alternative 1, recent events demonstrating that terrorists may use nonmetallic explosives to take down an aircraft highlight the need for a technology capable of detecting non-metallic threats concealed on passengers. Alternative 1 fails to address that threat. It also fails to meet the instruction provided in the Presidential Memorandum Regarding 12/25/2009 Attempted Terrorist Attack, issued January 7, 2010 as well as congressional directives. While this alternative imposes no additional cost burden, it does not mitigate the threat to aviation security posed by nonmetallic explosives and weapons. For this reason, TSA rejected this alternative in favor of deploying AIT to screening checkpoints.

Alternative 2 is more physically intrusive than AIT, significantly increases the wait times and opportunity costs for the traveling public, and is more costly with respect to personnel because it requires more TSOs to meet the high volume of passengers. In addition, this alternative does not provide the same level of screening as AIT in detecting

nonmetallic threats because not every passenger would receive a pat-down, particularly when used only on a random basis. Based on field tests, TSA estimates the pat-down procedure takes 150 seconds to perform (70 second average wait time for the same gender TSO to meet the passenger and 80 seconds to complete the pat-down procedure). Therefore, performing pat-downs on a significant number of passengers necessitates either a substantial increase in staffing levels to maintain the current passenger throughput level (approximately 150 passengers per hour per lane) or abandonment of that throughput target altogether, with the attendant consequences for passengers described above. Finally, AIT is a machine-based methodology for detecting non-metallic threat items, which provides a more consistent outcome over time. TSA anticipates future advancements to AIT in detection capability, throughput, and privacy protection. Due to the reasons outlined above, TSA rejected Alternative 2.

With regard to Alternative 3, although ETDs would help reduce the risk of nonmetallic explosives being taken through the checkpoint, ETDs cannot detect other dangerous items such as weapons and improvised explosive device components made of ceramics or plastics, whereas AIT is capable of detecting anomalies concealed under clothing. Second, incorporating ETD screening into the current checkpoint screening process would negatively affect the passenger's screening experience. ETD screening—from swab to test results—takes approximately 20-30 seconds. The mid-point of this range (25 seconds) would slow passenger throughput levels below the current rate of 150 passengers per hour per lane, thereby possibly increasing passenger wait times and the associated opportunity cost. Third, while mechanical issues with ETDs are rare, throughput depends on the reliability and mechanical consistency of these machines.

Additionally, alarms can and do occur from some innocuous products that may contain trace amounts of chemicals found in explosive materials, which may also impede throughput until the alarm is resolved. Finally, this alternative requires an increase in ETD consumables, including swabs and gloves. This imposes costs to keep sufficient amounts of these consumables in stock at all airports where TSA conducts screening. The logistical concerns of implementing this alternative, in addition to the limited capability of ETD screening to detect other non-explosive threats, are the reasons TSA rejected this alternative in favor of deploying AIT to mitigate the threat to aviation security posed by both metallic and nonmetallic weapons and explosives.

Some of the other alternatives discussed in the comments, such as explosives detection canine and behavior detection screening, are not as effective as AIT in screening a large volume of passengers in the least amount of time and require additional costs; however, TSA does use such alternatives whenever available as added layers of security at the airport.

#### HH. Comparative Analysis Between AIT and Alternatives

Comments: Many submissions addressed the adequacy of TSA's comparative analysis between AIT and the alternatives. Several commenters suggested that TSA did not provide an adequate justification for AIT relative to the alternatives. For example, a commenter stated that AIT is approximately 10 times more expensive than magnetometers, but that the analysis does not evaluate the costs and benefits of AIT against magnetometers. Another commenter recommended that TSA quantitatively compare the benefits of AIT to the baseline condition (e.g., by how much does AIT reduce the probability of a successful terrorist attack). A privacy advocacy group

suggested that TSA does not adequately characterize AIT's effectiveness in comparison to the alternatives. The commenter also stated that the analysis does not support TSA's conclusions that AIT is more effective than the alternatives, and does not identify AIT's weaknesses relative to the alternatives. This privacy advocacy group and a non-profit organization both suggested that the analysis does not adequately compare the effectiveness of AIT to Regulatory Alternative 3. As a result, TSA does not acknowledge that WTMD and ETD can be just as effective as AIT, and in terms of shortcomings, ETD and AIT share some of the same disadvantages. An advocacy group suggested that the NPRM describes the proposed alternatives in "all or nothing" terms, rather than proposing a layered approach using a variety of the screening methods described in the alternatives.

A few commenters made other recommendations to TSA with regard to alternatives. For example, an individual commenter urged TSA to conduct research on alternative screening technology, provide educational outreach on the security measures to the public, and train flight attendants and inform passengers of what to do in response to suspicious activity. A commenter recommended using AIT as a secondary screening method on a more limited basis. Another individual commenter asked why TSA does not require travelers to go through both AIT and WTMD. The commenter suggested that travelers should be subjected to both technologies.

TSA Response: Chapters 3 in both the NPRM and final rule RIA list the advantages and disadvantages of each alternative and explain the basis for TSA's finding that none of the alternatives was preferable to AIT in addressing the threat of nonmetallic explosives concealed under clothing. For example, WTMDs (Alternative 1) and ETDs



(Alternative 3) are not as effective as AIT in detecting non-metallic anomalies. Pat-downs (Alternative 2) may be effective at detecting nonmetallic weapons but would place a greater burden on passengers as they are more physically intrusive and would increase wait times at the checkpoint.

TSA does not use an “all or nothing” approach, as alleged in a comment. TSA uses a number of security measures to prevent attacks on commercial air travel. AIT is another security measure included in the multiple layers of security currently deployed. WTMDs, ETDs, and pat-downs are also used for screening. TSA reviewed these alternatives with respect to risk reduction, cost, impact on passengers and operational feasibility and determined that AIT is the best technology currently available to detect metallic and nonmetallic threats concealed under clothing.

## II. Other Comments on the Regulatory Impact Analysis

Comments: Many commenters cited existing research on the costs and benefits of AIT, or recommended new research on the costs and benefits of AIT. Individual commenters and an advocacy group recommended that TSA conduct a study of the various impacts of AIT, including privacy impacts. Another commenter referred to an analysis of AIT, which, according to the commenter, found that AIT would need to prevent two or three terrorist attacks comparable to the September 11, 2001, attacks each year in order to be cost effective. An individual commenter cited a cost-benefit analysis conducted by the Journal of Homeland Security and Emergency Management and questioned the cost-effectiveness of AIT. An advocacy group concluded that independent, scholarly risk management and cost-benefit analyses of AIT have been conducted. According to the commenter, these studies have found that AIT scanners do

not reduce risk sufficient to justify the costs. Another advocacy group suggested that a cost-benefit analysis of AIT would identify how effective the scanners are at deterring terrorism compared to screening alternatives. Another commenter requested that an independent party analyze the costs compared to other possible investments, such as traffic safety or cancer research.

Several commenters declared that the cost-benefit analysis in the NPRM is insufficient and inadequate and referred to AIT as costly. The commenters suggested that the analysis does not justify the cost relative to the risks or improvement in TSA's ability to detect threats to safe air travel. A privacy advocacy group stated that TSA did not fully evaluate the costs and benefits of AIT as compared to WTMDs and ETDs, as required under Executive Orders (E.O.s) 13563 and 12866. An individual commenter urged TSA to account for all of the risks associated with AIT and include difficult-to-quantify costs in the analysis. A non-profit organization stated that despite their cost, AIT scanners are cost-beneficial in deterring aviation terrorism when compared to pat-downs.

TSA Response: TSA conducted a comprehensive cost-benefit analysis supported by the best available data. TSA was unable to quantify a dollar value for the perceived loss of privacy. While TSA was unable to produce a quantitative impact of perceived privacy issues, TSA included a discussion of the measures it took to mitigate the privacy concerns of AIT (Chapter 2 in both the NPRM and final rule RIA). In addition, Federal law requires all AIT to be equipped with and deploy ATR software, which does not produce an individual image, but instead displays a generic outline. TSA reviewed other cost-benefit analyses on AIT, including the ones cited by commenters, to inform its own

cost-benefit analysis. TSA has included a break-even analysis in this final rule, which answers the question, “How small could the value of the non-quantified benefits be (or how large would the value of the non-quantified costs need to be) before the rule would yield zero net benefits?” and provides a qualitative assessment of the benefits of AIT. Low probability, high consequence events such as terrorist attacks are difficult to measure with any level of certainty. TSA analyzed threats to the aviation sector and found that the use of AIT reduces the risk of metallic and nonmetallic threats as described in the RIA. The RIA also qualitatively described some of the indirect impacts from a successful attack on commercial air travel (Chapter 2, page 98 in the NPRM RIA and Chapter 4 in the final rule RIA). TSA included a full RIA in the docket folder.

#### JJ. Initial Regulatory Flexibility Analysis

Comments: Individual commenters and an advocacy group commented on TSA’s Initial Regulatory Flexibility Analysis (IRFA). A couple of commenters recommended that the analysis estimate the costs incurred by small business entities, such as sole proprietors. The commenters stated that the impacts on small entities would include time lost as well as lost revenue from tourists (e.g., fewer air travelers, both foreign and domestic). An advocacy group urged TSA to withdraw the NPRM, prepare an RFA analysis that accounts for the impacts on small entities, and provide another opportunity for comment. The commenter suggested that the NPRM erroneously excludes individuals from the definition of “small entities.” The commenter stated that many individual travelers are self-employed individuals and sole proprietors that qualify as small entities. The commenter estimated that the impact on “small entities” is at least \$2.8 billion per year.

TSA Response: Individuals are not considered “small entities” based on the definitions in the Regulatory Flexibility Act (5 U.S.C. 601) and therefore were not considered in our IRFA. The definition of “small entities” in the RFA comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000. The RFA does not state the definition of “small entities” extends to “individuals.” TSA does agree as a general matter that a sole proprietor could be a small business if the individual is acting as a business, potentially generating revenues and incurring business costs. Nevertheless, TSA considered individuals in Chapter 6 of the RIA and determined that the main impact on a person traveling would be the extended wait time if that person opts out of AIT screening and undergoes a pat-down. As stated in both the NPRM and final rule RIA, AIT does not increase wait time for the general traveling public. TSA measured the ratio of individuals who opt-out of AIT to be approximately one percent of the total volume of passengers screened. Additionally, the pat-down for individuals who opt-out is estimated to be 150 additional seconds per screening and would not reflect a significant opportunity cost impact (\$1.88 per screening).

#### KK. Other Regulatory Analyses

Comments: A few individual commenters suggested that TSA should have performed an Unfunded Mandates Reform Act (UMRA) analysis. A commenter stated that the proposed rule would affect State, local, and tribal governments because of the increased road traffic caused by the rule (i.e., travelers substituting motor vehicle travel for air travel). The commenter explained that TSA failed to account for costs associated

with State, local, and tribal governments responding to additional motor vehicle accidents and providing additional road maintenance. Another commenter stated that the costs of the rule would be passed onto passengers in the form of the September 11th Security Fee, which would be a burden triggering an analysis under the Unfunded Mandates Reform Act.

A non-profit organization and an individual commenter suggested that the proposed rule would have a substantial direct effect on States under E.O. 13132, Federalism. Both commenters discussed the experience of Texas, which attempted to pass an anti-groping law that would have affected TSA's screening process. According to the commenters, news reports stated that TSA sent the Texas legislature a letter threatening to close all Texas airports if the bill passed. The commenters suggested that TSA's interference with a State legislature's activity demonstrates the substantial direct effect AIT would have on States. A commenter also explained that States are responsible for inspecting radiological devices and licensing unit operators. As a result, the commenter suggested that the rule would require State governments to inspect the AIT units and license operators of AIT units, which would have a direct effect on States.

Two individual commenters stated that TSA must prepare an environmental impact statement in accordance with National Environmental Protection Act (NEPA). One of the commenters urged TSA to assess the human health impacts associated with AIT. The other commenter explained that the environmental impact statement would need to assess the impact of increased motor vehicle travel (e.g., air pollution, traffic, and car accidents) on the environment.

TSA Response: TSA disagrees with comments regarding the UMRA. TSA determined that an UMRA analysis is not needed for the AIT NPRM as such an analysis is required if a proposed rulemaking “results in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100,000,000 or more (adjusted annually for inflation) in any 1 year.” As described in the RIA, 98 percent of the cost of AIT falls on the Federal Government. The remaining costs fall on airports who do not receive reimbursement for their utilities. These entities have an estimated utilities cost of \$1.63 million (Chapter 2, of the final rule RIA). In addition, the Passenger Civil Aviation Security Service fee is set in statute and in TSA’s regulations. See 49 U.S.C. 44940 and 49 CFR 1510.5. TSA did not propose to increase the fee in the NPRM.

TSA disagrees with comments claiming that deployment of AIT has a federalism impact. Federal law requires that screening be carried out by a Federal Government employee. 49 U.S.C. 44901(a). Prior to the creation of TSA, passenger screening was the responsibility of air carriers pursuant to regulations issued by FAA. Passenger screening is not conducted by State employees, and the final rule does not have a substantial direct effect on the states, the relationship between the Federal Government and the states, or on the distribution of power among the various levels of government. As to the proposed state legislation referred to by some commenters, note that Congress by statute made TSA responsible for passenger screening. 49 U.S.C. 114 and 44901. This AIT rulemaking does not alter that relationship.

Finally, an environmental impact statement under NEPA is not required. There is no evidence that use of AIT to screen passengers will have a non-negligible impact on motor vehicle travel. In addition, independent studies have confirmed that the exposure

to non-ionizing electromagnetic waves from the millimeter wave AIT machines is below the limits allowed under relevant national health and safety standards and cause no known adverse health effects.

LL. Comments on the Risk Analysis

Comments: Many commenters addressed the issue of risk, risk management, and risk-reduction analysis. Some commenters suggested that the risks AIT is meant to mitigate do not justify the costs associated with AIT. One commenter stated that over the past 12 years, AIT scanners would not have prevented enough attacks to justify the costs (i.e., only two bombings in the past 12 years and a cost of \$3.6 billion). A non-profit commenter, an advocacy group, and an individual commenter all referenced a recent study to explain that the existing risk of a terrorist attack on an airliner does not justify the costs of AIT.

Another set of commenters urged TSA to provide a detailed risk reduction analysis to support the rulemaking, such as the classified version that TSA cited in the NPRM. The commenters suggested that TSA at least release a redacted version or a summary of its risk-reduction analysis of AIT. A non-profit organization stated that TSA is obligated to disclose whether AIT would be cost-effective in reducing this risk. The commenter cited another risk-reduction analysis that was published by academic researchers in a peer-reviewed journal to indicate that these analyses can be published without revealing technical details or threat information that may legitimately be kept confidential.

An individual commenter recommended that TSA design the AIT rule so that the agency would be able to conduct a “look back” analysis after the rule is implemented.

The commenter explained that TSA would be able to collect empirical data on impacts such as AIT's effectiveness of detecting various security threats, and the amount of time added to the security screening process. Another individual commenter referenced the report and suggested that TSA analyze the cost and benefits of AIT in the areas of personal privacy, freedom, and convenience.

TSA Response: TSA uses internal information on screening capability, effectiveness, feasibility of airport screening, and costs to determine the implementation of security technology and procedures. Because of the sensitive nature of information on screening standard operating procedures, this information and any corresponding policy decisions remain classified and unavailable to the public. TSA included a break-even analysis in the final rule RIA that answers the question, "How small could the value of the non-quantified benefits be (or how large would the value of the non-quantified costs need to be) before the rule would yield zero net benefits?" This methodology is used in peer-reviewed journals and recommended by OMB Circular A-4 when benefits are difficult to quantify. In addition, given that TSA piloted and deployed AIT in 2007 and 2008, TSA has already conducted "look-back" analysis and has implemented program changes based on optimal risk-reduction.

MM. Other Comments on the NPRM

Comments: Some individual commenters made statements that because air travel is not as dangerous as other modes of transportation, resources should be directed to other transportation safety and high-profile events. Individual commenters suggested that the use of AIT might become common in other venues where security searches occur including courthouses, schools, stadiums, political rallies, and other places. An



individual commenter stated that since TSA staff does not follow the “liquid policy,” it should be eliminated for travelers. According to the same commenter, the “shoe policy” could also be eliminated because shoes can be screened with WTMDs. A community organization provided a list of goals for airport security.

Some individual commenters stated that TSA staff is not trained in screening techniques or on how to behave professionally. A few individual commenters suggested that TSA create a process to hold TSA employees accountable for their actions. Individual commenters recommended that employees wear badges with contact information, such as their full name and badge number. A commenter also recommended that TSA place employees on probation for receiving three or more customer service reports within 6 months. Another individual commenter suggested that TSA publicize any existing processes for anonymous reporting. A few individual commenters expressed concern and provided information regarding the reported off-duty criminal activities of TSA screeners. Several commenters stated generally that the security at airports has not increased the safety of air travel.

TSA Response: The information TSA receives from intelligence-gathering agencies confirms that civil aviation remains a favored target for extremists and terror organizations. However, TSA has authority over all modes of transportation. With respect to maritime and surface transportation, TSA has always applied a risk-based approach to safeguard the movement of people and commerce. Such an approach provides flexibility to adjust to changing travel patterns and the ever-shifting threat environment. TSA conducts Visible Intermodal Prevention and Response operations across the country to prevent or disrupt potential terrorist planning activities. In addition,

TSA often works with other Federal, State, and local government agencies to enhance security during special events, such as the Super Bowl and presidential inaugurations.

TSA is continually updating and enhancing the training of its TSOs to improve effectiveness and to reinforce that screening be conducted in a professional and courteous manner. TSA investigates all allegations of misconduct and takes appropriate action, which can include referral to law enforcement and termination of employment. TSOs wear identification badges. TSA's website, at [www.tsa.gov/contact-us](http://www.tsa.gov/contact-us), provides information on various ways to contact TSA to ask questions and provide feedback. The TSA Contact Center is open seven days a week, and individuals may call 1-800-289-9673 or email at [TSA-ContactCenter@dhs.gov](mailto:TSA-ContactCenter@dhs.gov). There is a direct link to an on-line form that travelers may fill out and submit.

TSA believes that its layers of security have vastly improved the security posture of the Nation's transportation systems. A terrorist has to overcome multiple security measures in order to carry out an attack and is more likely to be pre-empted, deterred, or fail during the attempt.

### **III. Rulemaking Analyses and Notices**

#### **A. International Compatibility**

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is TSA policy to comply with ICAO Standards and Recommended Practices to the maximum extent practicable. TSA determined that there are no ICAO Standards and Recommended Practices that correspond to this regulation.

## B. Economic Impact Analyses

### 1. Regulatory Impact Analysis Summary

Changes to Federal regulations must undergo several economic analyses. First, E.O. 12866, Regulatory Planning and Review (58 FR 51735, October 4, 1993), as supplemented by E.O. 13563, Improving Regulation and Regulatory Review (76 FR 3821, January 21, 2011), directs each Federal agency to propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq., as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (19 U.S.C. 2531-2533) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. Fourth, the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531-1538) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of \$100 million or more annually (adjusted for inflation).

In conducting these analyses, TSA has determined:

1. This rule is a significant regulatory action that is economically significant under sec. 3(f)(1) of E.O. 12866. Accordingly, the OMB has reviewed this regulation.
2. A Final Regulatory Flexibility Analysis suggests this rulemaking would not have a significant economic impact on a substantial number of small entities.
3. This rulemaking would not constitute a barrier to international trade.

4. This rulemaking does not impose an unfunded mandate on State, local, or tribal governments, or on the private sector.

These analyses, available in the docket, are summarized below.

2. Executive Orders 12866 and 13563 Assessment

Executive Orders 12866 and 13563 direct agencies to assess the costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility.

When estimating the cost of a rulemaking, agencies typically estimate future expected costs imposed by a regulation over a period of analysis. For this RIA, TSA uses a 10-year period of analysis to align with the 10-year AIT life cycle from deployment to disposal.<sup>126</sup> TSA has revised the NPRM RIA assumption of an 8-year life cycle for AIT units to 10 years based on a recent LCCE report<sup>127</sup> from the OSC, which evaluated the performance metrics, and maintenance data from AIT units at airports. AIT deployment began in 2008, and TSA, therefore, includes costs that have already been borne by TSA, the traveling public, industry, and airports. Consequently, the RIA takes into account costs that have already occurred—in years 2008-2014—in addition to the projected costs

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<sup>126</sup> In the NPRM RIA, the AIT life cycle was estimated to be eight years. Therefore, the period of analysis for the RIA was also eight years.

<sup>127</sup> TSA's Office of Security Capabilities (OSC), "Life Cycle Cost Estimate for Passenger Screening Program" March 10, 2014. Lifecycle revisions are based on recent a useful life study for each type of transportation security equipment. These are TSA internal sensitive information reports based on OSC technology assessments.

in years 2015-2017. By reporting the costs that have already happened and estimating future costs in this manner, TSA accounts for the full life-cycle of AIT machines.

TSA presents AIT costs in tables 2 through 4. Table 2 reports the total costs from 2008-2014 to be \$1,439.32 million (undiscounted).

**Table 2: Cost Summary from 2008-2014 by Cost Component  
(in \$millions, undiscounted)**

Year	Passenger Opportunity Costs	Airport Utilities Costs	TSA Costs				Industry Costs Backscatter Removal	Total
			Personnel	Training	Equipment	Utilities		
2008	\$0.01	\$0.01	\$10.27	\$0.00	\$34.04	\$0.02	\$0.00	\$44.34
2009	\$0.02	\$0.01	\$12.05	\$0.57	\$28.01	\$0.02	\$0.00	\$40.69
2010	\$0.42	\$0.13	\$57.20	\$33.64	\$118.66	\$0.23	\$0.00	\$210.28
2011	\$3.17	\$0.15	\$201.83	\$57.06	\$76.86	\$0.26	\$0.00	\$339.33
2012	\$5.28	\$0.28	\$219.75	\$23.31	\$101.59	\$0.37	\$0.00	\$350.58
2013	\$4.45	\$0.25	\$197.77	\$14.37	\$46.70	\$0.34	\$1.90	\$265.79
2014	\$3.05	\$0.18	\$131.22	\$12.21	\$41.28	\$0.37	\$0.00	\$188.31
<b>Total</b>	<b>\$16.40</b>	<b>\$1.02</b>	<b>\$830.09</b>	<b>\$141.16</b>	<b>\$447.14</b>	<b>\$1.61</b>	<b>\$1.90</b>	<b>\$1,439.32</b>

Note: Totals may not sum exactly due to rounding.

Table 3 reports total costs for projected years 2015-2017 to be \$706.99 million (undiscounted), \$666.47 million discounted at three percent, and \$618.18 million discounted at seven percent.

**Table 3: Costs Summary from 2015-2017 by Cost Component  
(in \$millions)**

Year	Passenger Opportunity Costs	Airport Utilities Costs	TSA Costs				Total
			Personnel	Training	Equipment	Utilities	
2015	\$4.12	\$0.20	\$141.96	\$41.25	\$49.75	\$0.40	\$237.68
2016	\$4.20	\$0.20	\$141.96	\$54.89	\$25.06	\$0.40	\$226.72
2017	\$4.28	\$0.20	\$141.96	\$69.30	\$26.45	\$0.41	\$242.60
<b>Total</b>	<b>\$12.59</b>	<b>\$0.61</b>	<b>\$425.89</b>	<b>\$165.45</b>	<b>\$101.25</b>	<b>\$1.20</b>	<b>\$706.99</b>
<b>Total (Discounted at 3%)</b>	<b>\$11.87</b>	<b>\$0.57</b>	<b>\$401.55</b>	<b>\$155.22</b>	<b>\$96.12</b>	<b>\$1.13</b>	<b>\$666.47</b>
<b>Total (Discounted at 7%)</b>	<b>\$11.01</b>	<b>\$0.53</b>	<b>\$372.55</b>	<b>\$143.07</b>	<b>\$89.97</b>	<b>\$1.05</b>	<b>\$618.18</b>

Note: Totals may not sum exactly due to rounding.

Table 4 reports total costs for years 2008-2017 to be \$2,146.31 million (undiscounted). During 2008-2017, TSA estimates that personnel and equipment life cycle costs are the largest categories of expenditures.

**Table 4: Total Cost Summary from 2008-2017 by Cost Component  
(in \$millions, undiscounted)**

Year	Passenger Opportunity Costs	Airport Utilities Costs	TSA Costs				Industry Costs Backscatter Removal	Total
			Personnel	Training	Equipment	Utilities		
2008	\$0.01	\$0.01	\$10.27	\$0.00	\$34.04	\$0.02	\$0.00	\$44.34
2009	\$0.02	\$0.01	\$12.05	\$0.57	\$28.01	\$0.02	\$0.00	\$40.69
2010	\$0.42	\$0.13	\$57.20	\$33.64	\$118.66	\$0.23	\$0.00	\$210.28
2011	\$3.17	\$0.15	\$201.83	\$57.06	\$76.86	\$0.26	\$0.00	\$339.33
2012	\$5.28	\$0.28	\$219.75	\$23.31	\$101.59	\$0.37	\$0.00	\$350.58
2013	\$4.45	\$0.25	\$197.77	\$14.37	\$46.70	\$0.34	\$1.90	\$265.79
2014	\$3.05	\$0.18	\$131.22	\$12.21	\$41.28	\$0.37	\$0.00	\$188.31
2015*	\$4.12	\$0.20	\$141.96	\$41.25	\$49.75	\$0.40	\$0.00	\$237.68
2016*	\$4.20	\$0.20	\$141.96	\$54.89	\$25.06	\$0.40	\$0.00	\$226.72
2017*	\$4.28	\$0.20	\$141.96	\$69.30	\$26.45	\$0.41	\$0.00	\$242.60
<b>Total</b>	<b>\$28.99</b>	<b>\$1.63</b>	<b>\$1,255.98</b>	<b>\$306.61</b>	<b>\$548.39</b>	<b>\$2.81</b>	<b>\$1.90</b>	<b>\$2,146.31</b>

Note: Totals may not sum exactly due to rounding.

Implementing AIT into the passenger screening program is beneficial because it enhances commercial aviation security. AIT improves security by assisting TSA in the detection of non-metallic, as well as metallic, explosives concealed under the clothing of passengers. Terrorists continue to test our security measures in an attempt to find and exploit vulnerabilities (see the Background section in this preamble). The threat to aviation security has evolved to include the use of non-metallic explosives, non-metallic explosive devices, and non-metallic weapons. The examples presented below highlight the increased real world threats of non-metallic explosives to commercial aviation:

- On December 22, 2001, on board an airplane bound for the United States, Richard Reid attempted to detonate a non-metallic bomb concealed in his shoe.
- On December 25, 2009, a bombing plot by AQAP culminated in Umar Farouk Abdulmutallab's attempt to blow up an American aircraft over the United States using a non-metallic explosive device hidden in his underwear.
- In October 2010, AQAP attempted to destroy two airplanes in flight using non-metallic explosives hidden in two printer cartridges.
- In May 2012, AQAP developed another non-metallic explosive device that could be hidden in an individual's underwear and detonated while on board an aircraft.

The deployment of AIT generates benefits that come from reducing security risks through AIT, which is capable of detecting both metallic and non-metallic weapons and explosives.<sup>128</sup> Terrorists continue to test our security measures in an attempt to find and exploit vulnerabilities. The threat to aviation security has evolved to include the use of

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<sup>128</sup> Metal detectors and AITs are both designed to detect metallic threats on passengers, but go about it in different ways. Metal detectors rely on the inductance that is generated by the metal, while AIT relies on the metal's reflectivity properties to indicate an anomaly. AIT capabilities exceed metal detectors because it can detect metallic/non-metallic weapons, non-metallic bulk explosives and non-metallic liquid explosives.

non-metallic explosives. AIT is a proven technology based on laboratory testing and field experience and is an essential component of TSA's security screening because it provides the best opportunity to detect metallic and non-metallic anomalies concealed under clothing without the need to touch the passenger.

TSA uses a break-even analysis to frame the relationship between the potential benefits of the rulemaking and the costs of implementing the rule. When it is not possible to quantify or monetize a majority of the incremental benefits of a regulation, OMB recommends conducting a threshold, or "break-even" analysis. According to OMB Circular No. A-4, "Regulatory Analysis," such an analysis answers the question, "How small could the value of the non-quantified benefits be (or how large would the value of the nonquantified costs need to be) before the rule would yield zero net benefits?"<sup>129</sup> In the break-even analysis, TSA compared the annualized cost for the deployment of AIT to the major direct benefits of preventing several potential terrorist attack scenarios.

TSA used five types of aircrafts to represent five different scenarios where an attacker detonates a body-bomb on a domestic passenger aircraft, the type of attack AIT is meant to mitigate. The five types of aircraft fall into two assigned categories: high-capacity, long range aircraft typically used for international travel; and medium-capacity and long-range aircraft typically used for cross-country travel or popular routes. TSA used the Bureau of Transportation Statistics' T-100<sup>130</sup> data bank from 2014 to determine

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<sup>129</sup> [http://www.whitehouse.gov/omb/circulars\\_a004\\_a-4/](http://www.whitehouse.gov/omb/circulars_a004_a-4/).

<sup>130</sup> U.S. Department of Transportation, Bureau of Transportation Statistics, "T-100 Data bank." [http://www.transtats.bts.gov/DatabaseInfo.asp?DB\\_ID=111](http://www.transtats.bts.gov/DatabaseInfo.asp?DB_ID=111).



the most popular aircraft models for the two categories of aircrafts.<sup>131,132</sup> TSA also used the T-100 from 2014 to determine the average load factor for each aircraft type.<sup>133</sup> These aircrafts were used in the break-even analysis and are listed below along with their specifications:

### High Capacity

- Airbus A380–Airbus’ long-range aircraft with a 544 seat capacity<sup>134</sup> and an average crew size of 13 (557 occupancy total)<sup>135</sup> with a market value of \$428.0 million.<sup>136</sup>
- Boeing 777-200LR–Boeing’s long-range aircraft with 317 seat capacity<sup>137</sup> and an average crew size of 9 (323 occupancy total)<sup>138</sup> and a market value of \$305.0 million.<sup>139</sup>

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<sup>131</sup> U.S. Department of Transportation, Bureau of Transportation Statistics, “T-100 Domestic Segment (All carriers) Data bank,”

[http://www.transtats.bts.gov/DL\\_SelectFields.asp?Table\\_ID=311&DB\\_Short\\_Name=Air](http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=311&DB_Short_Name=Air). Selected fields: DepPerformed, Aircraft Type, and Year = 2014, All months.

<sup>132</sup> Boeing 737-700/700LR, Boeing 737-800, and Airbus A320-100/200 are the first-, fourth-, and fifth-most often-used aircrafts in 2014, respectively.

<sup>133</sup> U.S. Department of Transportation, Bureau of Transportation Statistics, “T-100 Domestic Segment (All carriers) Data bank,”

[http://www.transtats.bts.gov/DL\\_SelectFields.asp?Table\\_ID=311&DB\\_Short\\_Name=Air](http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=311&DB_Short_Name=Air). Selected fields: Seats, Passengers, Aircraft Type, and Year = 2014, All months.

<sup>134</sup> Airbus.com, “A380 Dimensions & Key Data.” Accessed Aug. 12, 2015.

<http://www.airbus.com/aircraftfamilies/passengeraircraft/a380family/specifications/>.

<sup>135</sup> Estimated thirteen crew members is a TSA assumption. This estimate is based on the crew consisting of a pilot, copilot, flight engineer, and ten flight attendants. The number of flight attendants is based on the minimum requirements from 14 CFR 121.391, which state there must be at least one flight attendant per 50 passenger seats.

<sup>136</sup> Airbus.com, “New Airbus aircraft list prices for 2015,” <http://www.airbus.com/newsevents/news-events-single/detail/new-airbus-aircraft-list-prices-for-2015/>.

<sup>137</sup> Boeing.com, “777-200/-200ER Technical Characteristics.” Accessed Aug. 12, 2015.

[http://www.boeing.com/boeing/commercial/777family/pf/pf\\_200product.page](http://www.boeing.com/boeing/commercial/777family/pf/pf_200product.page).

<sup>138</sup> Estimated nine crew members is a TSA assumption. This estimate is based on the crew consisting of a pilot, copilot, flight engineer, and six flight attendants. The number of flight attendants is based on the minimum requirements from 14 CFR 121.391, which state there must be at least one flight attendant per 50 passenger seats.

<sup>139</sup> Boeing.com, “Commercial Airplanes Jet Prices, 2014 price,”

<http://www.boeing.com/boeing/commercial/prices/>.

## Medium Capacity

- Boeing 737-700—A medium-range aircraft with a seating capacity range between 126 and 149 (median of 138 used to represent passengers and crew)<sup>140</sup> and a market value of \$78.3 million.<sup>141</sup>
- Boeing 737-800—A medium-range aircraft with a seating capacity range between 162 and 189 (median of 176 used to represent passengers and crew)<sup>142</sup> and a market value of \$93.3 million.<sup>143</sup>
- Airbus A320-100/200—A medium-range aircraft with a 150 seat capacity<sup>144</sup> and crew size of 6 (156 occupancy total)<sup>145</sup> and a market value of \$97.0 million.<sup>146</sup>

To conduct the break-even analysis, TSA estimated the major direct costs for these attack scenarios, which can be viewed as the benefits of avoiding an attack. The break-even analysis does not include the macroeconomic impacts that could occur due to a major attack. In addition to the direct impacts of a terrorist attack in terms of lost life and property, there are other more indirect impacts, particularly on aviation based terrorist attacks that are difficult to measure. As noted by Cass Sunstein in the Laws of Fear, “. . . fear is a real social cost, and it is likely to lead to other social costs. If, for

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<sup>140</sup> Boeing.com, “737-700 Technical Characteristics.” Accessed Aug. 12, 2015. [http://www.boeing.com/boeing/commercial/737family/pf/pf\\_700tech.page](http://www.boeing.com/boeing/commercial/737family/pf/pf_700tech.page).

<sup>141</sup> Boeing.com, “Commercial Airplanes Jet Prices, 2014 price,” <http://www.boeing.com/boeing/commercial/prices/>.

<sup>142</sup> Boeing.com, “737-800 Technical Characteristics.” Accessed Aug. 12, 2015. [http://www.boeing.com/boeing/commercial/737family/pf/pf\\_800tech.page?](http://www.boeing.com/boeing/commercial/737family/pf/pf_800tech.page?)

<sup>143</sup> Boeing.com, “Commercial Airplanes Jet Prices, 2014 price,” <http://www.boeing.com/boeing/commercial/prices/>.

<sup>144</sup> Airbus.com, “A320 Setting single aisle standards, Dimensions & Key Data.” Accessed August 12, 2015. <http://www.airbus.com/aircraftfamilies/passengeraircraft/a320family/a320/specifications/>.

<sup>145</sup> Estimated six crew members is a TSA assumption. This estimate is based on the crew consisting of a pilot, copilot, flight engineer, and three flight attendants. The number of flight attendants is based on the minimum requirements from 14 CFR 121.391, which state there must be at least one flight attendant per 50 passenger seats.

<sup>146</sup> Airbus.com, “New Airbus aircraft list prices for 2015,” <http://www.airbus.com/newsevents/news-events-single/detail/new-airbus-aircraft-list-prices-for-2015/>.

example, people are afraid to fly, the economy will suffer in multiple ways . . . .”<sup>147</sup>

Given the lack of information to quantify these more intangible, but real economic impacts of a terrorist attack, the full benefits of AIT screening are underestimated in this break-even analysis.

TSA assumed all the passengers and crew are killed in each scenario and used the value of statistical life (VSL) of \$9.1 million per fatality as adopted by the U.S. Department of Transportation (DOT)<sup>148</sup> to monetize the consequences from fatalities. TSA emphasizes that the VSL is a statistical value used here only for regulatory comparison and does not suggest that the actual value of a life can be stated in dollar terms.

The replacement cost of the aircraft and emergency response costs<sup>149, 150</sup> are added to the loss of life to sum up the total cost of each attack scenario. TSA then calculates the ratio between the estimated cost of a successful attack and the annualized cost of AIT using a seven percent discount rate.<sup>151</sup> By generating a ratio between these costs, TSA estimates how small the value of non-quantified benefits would need to be for the rule to yield zero positive benefits. Table 5 presents the number of attacks averted (expressed as a number of years between attacks) that would be required to break even for all five attack scenarios.

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<sup>147</sup> Cass R. Sunstein, “Laws of Fear,” p. 127, 2005.

<sup>148</sup> U.S. Department of Transportation, “Guidance on Treatment of Economic Value of a Statistical Life in U.S. Department of Transportation Analyses,” <http://www.dot.gov/sites/dot.dev/files/docs/VSL%20Guidance%202013.pdf>.

<sup>149</sup> TSA uses a proxy estimate of \$869,552 (inflated from \$800,000 in 2009 dollars) from a lawsuit filed by The County of Erie, New York to recuperate emergency response costs from Colgan Air, Inc., in response to the Colgan Air Flight 3407 crash. [These costs include overtime, removal of human remains, cleanup of the aircraft and chemical substances, counseling for the surviving family members, and acquiring special equipment.](#)

<sup>150</sup> McGrory, Michael, “Airlines Not Liable for Colgan Air Crash Clean-Up Costs; SmithAmunden Aerospace Report,” March 20, 2013, <http://www.salawus.com/insights-alerts-70.html>.

<sup>151</sup> TSA estimates the annualized net cost of AIT deployment to be \$204.57 million using a seven percent discount rate.

**Table 5: Frequency of Attacks Averted to Break-Even  
(in \$millions)**

<b>Aircrafts</b>	<b>Replacement &amp; Emergency Response Costs a</b>	<b>Total Passengers + Crew b</b>	<b>Load Factor c</b>	<b>Total Consequence d = a + (b x c x VSL)</b>	<b>Attacks Averted by AIT to Break-Even: Total Consequence / \$204.57M e = d ÷ \$204.57M</b>
<b>High Capacity</b>					
Airbus A380	\$428.9	557	86%	\$4,811	1 attack per 23.52 yrs
Boeing 777-200	\$305.9	326	84%	\$2,791	1 attack per 13.64 yrs
<b>Medium Capacity</b>					
Boeing 737-700/700LR	\$79.2	138	80%	\$1,075	1 attack per 5.25 yrs
Boeing 737-800	\$94.2	176	84%	\$1,434	1 attack per 7.01 yrs
Airbus Industries A320-100/200	\$97.9	156	85%	\$1,305	1 attack per 6.38 yrs

In Table 6 and Table 7, TSA presents annualized cost estimates and quantitative benefits of AIT deployment and operation. In Table 6, TSA shows the annualized net cost of AIT from 2015 to 2017. As previously explained, costs incurred from 2008-2014 occurred in the past. However, given that the life cycle of the AIT technology considered in this analysis is 10 years, TSA has also added Table 7 showing the annualized net cost of AIT from 2008-2017.

**Table 6: OMB A-4 Accounting Statement for 2015-2017 (in \$millions)**

<b>Category</b>	<b>Primary Estimate</b>		<b>Minimum Estimate</b>	<b>Maximum Estimate</b>	<b>Source Citation (Final RIA, preamble, etc.)</b>
<b>BENEFITS</b>					
Annualized monetized benefits (discount rate in parentheses)	(7%)	N/A			Final RIA
	(3%)	N/A			Final RIA
Unquantified benefits	The operations described in this rule produce benefits by reducing security risks through the deployment of AIT that can detect non-metallic weapons and explosives.				Final RIA
<b>COSTS</b>					
Annualized monetized costs (discount rate in parentheses)	(7%)	\$235.56			Final RIA
	(3%)	\$235.62			
Annualized quantified, but unmonetized, costs	0		0	0	Final RIA
Qualitative costs (unquantified)	N/A				Final RIA
<b>TRANSFERS</b>					
Annualized monetized transfers: "on budget"	0		0	0	Final RIA
From whom to whom?	N/A		N/A	N/A	None
Annualized monetized transfers: "off-budget"	0		0	0	Final RIA
From whom to whom?	N/A		N/A	N/A	None
<b>Miscellaneous Analyses/Category</b>	<b>Effects</b>				<b>Source Citation (Final RIA, preamble, etc.)</b>
Effects on state, local, and/or tribal governments	None				Final RIA
Effects on small businesses	No significant economic impact. Prepared FRFA.				FRFA
Effects on wages	None				None
Effects on growth	None				None

**Table 7: OMB A-4 Accounting Statement for 2008-2017 (\$millions)**

Category	Primary Estimate		Minimum Estimate	Maximum Estimate	Source Citation (Final RIA, preamble, etc.)
<b>BENEFITS</b>					
Annualized monetized benefits (discount rate in parentheses)	(7%)	N/A			Final RIA
	(3%)	N/A			Final RIA
Unquantified benefits	The operations described in this rule produce benefits by reducing security risks through the deployment of AIT capable of detecting non-metallic weapons and explosives.				Final RIA
<b>COSTS</b>					
Annualized monetized costs (discount rate in parentheses)	(7%)	\$204.57			Final RIA
	(3%)	\$210.47			
Annualized quantified, but unmonetized, costs	0		0	0	Final RIA
Qualitative costs (unquantified)	N/A				Final RIA
<b>TRANSFERS</b>					
Annualized monetized transfers: “on budget”	0		0	0	Final RIA
From whom to whom?	N/A		N/A	N/A	None
Annualized monetized transfers: “off-budget”	0		0	0	Final RIA
From whom to whom?	N/A		N/A	N/A	None
<b>Miscellaneous Analyses/Category</b>	<b>Effects</b>				<b>Source Citation (Final RIA, preamble, etc.)</b>
Effects on state, local, and/or tribal governments	None				Final RIA
Effects on small businesses	No significant economic impact. Prepared FRFA.				FRFA
Effects on wages	None				None
Effects on growth	None				None

As alternatives to the preferred regulatory proposal presented in the NPRM and final rule, TSA examined three other options. The following table briefly describes these options, which include use of WTMD only (no action), increased use of physical pat-down searches that supplements primary screening with WTMDs, and increased use of ETD screening that supplements primary screening with WTMDs. These alternatives, and the reasons why TSA rejected them in favor of the rule, are discussed in detail in Chapter 3 of the regulatory impact analysis located in this docket and summarized in Table 8.

**Table 8: Advantages and Disadvantages of Regulatory Alternatives**

Regulatory Alternative	Name	Description	Advantages	Disadvantages
1	WTMDs Only	The passenger screening environment remains unchanged. TSA continues to use WTMDs as the primary passenger screening technology and to resolve alarms with a pat-down.	<ul style="list-style-type: none"> <li>• No additional cost burden.</li> <li>• No additional perceived privacy concerns.</li> </ul>	<ul style="list-style-type: none"> <li>• Fails to meet the January 7, 2010 Presidential Memorandum and statutory requirement in 49 USC 44925.152</li> <li>• Does not mitigate the non-metallic threat to aviation security.</li> </ul>
2	Pat-Down	TSA continues to use WTMDs as the primary passenger screening technology. TSA supplements the WTMD screening by with a pat-down on a randomly selected portion of passengers.	<ul style="list-style-type: none"> <li>• Thorough physical inspection of metallic and non-metallic items.</li> <li>• Uses currently deployed WTMD technology.</li> <li>• Minimal technology acquisition costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Employs a substantial amount of human resources.</li> <li>• Increase in number of passengers subject to a pat-down.</li> <li>• Increased wait times.</li> </ul>
3	ETD Screening	TSA continues to use WTMDs as the primary passenger screening technology. TSA supplements the WTMD screening by conducting ETD screening on a randomly selected portion of passengers after screening by a WTMD.	<ul style="list-style-type: none"> <li>• Somewhat addresses the threat of non-metallic explosive threats.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not detect non-explosive non-metallic potential threats.</li> <li>• Increased wait times and associated passenger opportunity cost of time.</li> <li>• Increase in ETD consumable costs.</li> </ul>
4	AIT as Secondary Screening	TSA continues to use WTMDs as the primary screening technology. TSA supplements the WTMD screening by conducting AIT screening on a randomly selected portion of passengers after screening by a WTMD.	<ul style="list-style-type: none"> <li>• Somewhat addresses non-metallic explosive threats.</li> </ul>	<ul style="list-style-type: none"> <li>• Primary screening does not detect non-metallic weapons or explosives.</li> <li>• Incremental cost of acquisition of AIT.</li> </ul>

<sup>152</sup> <http://www.whitehouse.gov/the-press-office/presidential-memorandum-regarding-12252009-attempted-terrorist-attack>.

Regulatory Alternative	Name	Description	Advantages	Disadvantages
5	AIT	TSA uses AIT as a passenger screening technology. Alarms resolved through a pat-down.	<ul style="list-style-type: none"> <li>• Addresses the threat of non-metallic explosives hidden on the body by safely screening passengers for metallic and non-metallic threats.</li> <li>• Maintains lower personnel cost and higher throughput rates than the other alternatives.</li> <li>• Adds deterrence value—the effect of would be attackers becoming discouraged as a result of AIT.</li> </ul>	<ul style="list-style-type: none"> <li>• Incremental cost of acquisition to TSA.</li> <li>• Incremental personnel cost to TSA.</li> <li>• Incremental training cost to TSA.</li> </ul>

### 3. Regulatory Flexibility Act Assessment

The Regulatory Flexibility Act (RFA) of 1980 requires agencies to consider the impacts of their rules on small entities. Under the RFA, the term “small entities” comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000. Individuals and States are not considered “small entities” based on the definitions in the RFA (5 U.S.C. 601).

This final rule codifies the use of AIT to screen passengers boarding commercial aircraft for weapons, explosives, and other prohibited items concealed on the body. The only additional direct cost small entities incur due to this rule is for utilities, because of increased power consumption from AIT operation. TSA identified 106 small entities (105 small governmental jurisdictions and one small privately-owned airport) based on



the Small Business Administration size standards that potentially incur additional utilities costs due to AIT. Of the 106 small entities, seven currently have AITs deployed and are not reimbursed by TSA for the payment of utilities. Consequently, AIT causes seven small entities, or 1.5 percent (7/460) of all airports, to incur additional direct costs during the period of analysis.

These entities incur an incremental cost for utilities from an increased consumption of electricity from AIT operation. To estimate these costs, TSA uses the average kilowatts (kW) consumed per AIT unit on an annual basis. Depending on the size of the airport, TSA estimates the average additional utilities costs to range from \$290 to \$921 per year while the average annual revenue for these small entities ranges from \$8.4 million to \$213.3 million per year.<sup>153</sup> TSA estimates that the cost impact of AIT to affected small entities is less than one percent of their annual revenue. Therefore, TSA's Final Regulatory Flexibility Analysis suggests that this rule would not have a significant economic impact on a substantial number of small entities under section 605 (b) of the RFA.

#### 4. International Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

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<sup>153</sup> TSA has changed the way that utilities costs were calculated from the NPRM in order to match the operating time of an AIT with its associated cost for additional utilities consumption. The change in the revenue range for small entities from the NPRM is due to the population of airports which has been adjusted to include all airports that are regulated under 49 CFR Part 1542 since publication of the NPRM.

TSA has assessed the potential effect of this rulemaking and has determined that it will have only a domestic impact and therefore no effect on any trade-sensitive activity.

#### 5. Unfunded Mandates Assessment

The UMRA is intended, among other things, to curb the practice of imposing unfunded Federal mandates on State, local, and tribal governments. Title II of the UMRA requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in a \$100 million or more expenditure (adjusted annually for inflation) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a “significant regulatory action.”

This rulemaking does not contain such a mandate. The requirements of Title II of the UMRA, therefore, do not apply and TSA has not prepared a statement.

#### C. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501. et seq.) requires that TSA consider the impact of paperwork and other information collection burdens imposed on the public and, under the provisions of PRA sec. 3507(d), obtain approval from the OMB for each collection of information it conducts, sponsors, or requires through regulations. The PRA defines a “collection of information” to be “the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public, of facts or opinion by or for an agency, regardless of form or format...imposed on ten or more persons.” 44 U.S.C. 3502(3)(A). TSA did not receive any comments regarding the PRA. TSA has determined that there are no current or new information collection requirements associated with this rule. TSA’s use of AIT to screen passengers does not

constitute activity that would result in the collection of information as defined in the PRA.

As protection provided by the PRA, as amended, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

D. Executive Order 13132, Federalism

TSA has analyzed this rulemaking under the principles and criteria of E. O. 13132, Federalism. TSA determined that this action will not have a substantial direct effect on the States, or the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government, and, therefore, does not have federalism implications.

E. Environmental Analysis

TSA has reviewed this rulemaking for purposes of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321-4347) and has determined that this action will not have a significant effect on the human environment. This action is covered by categorical exclusion (CATEX) number A3(b) and (d) in DHS Management Directive 023-01 (formerly Management Directive 5100.1), Environmental Planning Program, which guides TSA compliance with NEPA

F. Energy Impact Analysis

The energy impact of this rulemaking has been assessed in accordance with the Energy Policy and Conservation Act (EPCA), Pub. L. 94-163, as amended (42 U.S.C. 6362). TSA has determined that this rulemaking is not a major regulatory action under the provisions of the EPCA.

## List of Subjects in 49 CFR Part 1540

Air carriers, Aircraft, Airports, Civil Aviation Security, Law enforcement officers, Reporting and recordkeeping requirements, Screening, Security measures.

### The Amendment

For the reasons set forth in the preamble, the Transportation Security Administration amends Chapter XII of Title 49, Code of Federal Regulations, as follows:

#### **PART 1540—CIVIL AVIATION SECURITY: GENERAL RULES**

1. Revise the authority citation for part 1540 to read as follows:

**Authority:** 49 U.S.C. 114, 5103, 40113, 44901-44907, 44913-44914, 44916-44918, 44925, 44935-44936, 44942, 46105.

2. In § 1540.107, add paragraph (d) to read as follows:

#### **§ 1540.107 Submission to screening and inspection.**

\* \* \* \* \*

(d) The screening and inspection described in paragraph (a) of this section may include the use of advanced imaging technology. Advanced imaging technology used for the screening of passengers under this section must be equipped with and employ automatic target recognition software and any other requirement TSA deems necessary to address privacy considerations.

- (1) For purposes of this section, advanced imaging technology—

- (i) Means a device used in the screening of passengers that creates a visual image of an individual showing the surface of the skin and revealing other objects on the body; and

(ii) May include devices using backscatter x-rays or millimeter waves and devices referred to as whole body imaging technology or body scanning machines.

(2) For purposes of this section, automatic target recognition software means software installed on an advanced imaging technology device that produces a generic image of the individual being screened that is the same as the images produced for all other screened individuals.

Dated: February 23, 2016.

Peter V. Neffenger,

Administrator.

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