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DOES THE TSA HAVE STAGE FRIGHT? THEN WHY ARE THEY PICTURING YOU NAKED?

JULIE SOLOMON*

YOU ARE STANDING in the endless security line at the Dallas/Fort Worth International Airport. After you have presented your boarding pass and picture identification to a seemingly bored Transportation Security Administration (“TSA”) officer, you proceed to unpack your quart-sized plastic bag with your liquids and gels that are less than three ounces and take your laptop computer out of its case and place it in a bin. After unloading your bags, you start the undressing process: you take off your shoes, jacket, belt, watch, and anything else that might have enough metal to set off the magnetometer through which you are about to be paraded. You send your carry-on baggage, plastic bag of travel-sized toiletries (purchased from the sample section of Target just for your trip), de-cased laptop computer, and bin of clothing and shoes through the x-ray machine. Now it is your turn.

With your boarding pass in hand, you close your eyes and take a deep breath as a security officer waves you through a grey archway. As you cross the threshold of the magnetometer, you pray that the underwire of your bra is insufficient to set off the metal detector. Unfortunately, you are not that lucky, and you hear the foreboding beep that alerts you that, despite your efforts to dress in your least metallic clothing, you will now have to stand aside barefoot and shivering (because someone has confiscated your belongings, including your sweater and shoes from the conveyer belt) in front of another security officer while he passes the “wand” over every square inch of your body. After the zipper of your beltless jeans sets off the magnetometer again, you know that you are not getting off so easy—it is time for you

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go through a pat-down frisk by your friendly TSA officer.¹ After being groped and coming out clean, you head to your assigned gate, feeling completely violated, wondering if that whole process makes you feel any safer about the flight you are about to board. At this point, you may begin to think that with the extra time and hassle it takes to go through this extensive security regimen, you may have been better off braving a few extra hours in the comfort (and privacy) of your own car.

The TSA is aware of the hassle of its current screening process and is committed to experimenting with new technologies that will increase the effectiveness and efficiency of its security screening.² The two newest technologies that have been put into use by the TSA are types of whole body imaging: backscatter x-ray and millimeter wave imaging.³ Both types of imaging are already in their pilot phases at the Phoenix Sky Harbor Airport and the TSA has plans to extend the trials of these new technologies in the near future.⁴ There is much debate surrounding the privacy implications of these two new technologies because of their ability to see much more in-depth than the security measures, namely the magnetometer x-ray machine, currently in place at airports across the nation.⁵ Backscatter technology uses low energy x-rays that penetrate one quarter of an inch of the

¹ For a complete description of the standard process for passengers going through a security checkpoint, see generally TSA: Passenger Security Checkpoints, http://www.tsa.dhs.gov/travelers/airtravel/assistant/editorial_1049.shtm (last visited Jan. 15, 2008).

² Press Release, Transp. Sec. Admin., TSA Tests Second Passenger Imaging Technology at Phoenix Sky Harbor Airport (Oct. 11, 2007), http://www.tsa.gov/press/releases/2007/press_release_10112007.shtm [hereinafter TSA Tests]. TSA administrator Kip Hawley asserted that the TSA is "committed to testing technologies that improve security while protecting passenger privacy." *Id.*

³ See *id.*

⁴ See TSA: Whole Body Imaging, http://www.tsa.gov/approach/tech/body_imaging.shtm (last visited Nov. 6, 2007). The backscatter x-ray passenger imaging technology has been in place at Phoenix Sky Harbor International Airport since February 2007 and the millimeter wave technology testing began in October 2007 at the Phoenix Sky Harbor Airport as well. *Id.* The TSA plans to further test these technologies at New York's JFK International Airport and Los Angeles' LAX International Airport in the upcoming months. See TSA Tests, *supra* note 2.

⁵ See *Principles for Evaluating Physical Screening Techniques and Technologies Consistent with Constitutional Norms: Hearing Regarding the U.S. Transportation Security Administration's Physical Screening of Airline Passengers and Related Cargo and Airport Screening Before the S. Comm. on Commerce, Science, and Transportation*, 109th Cong. (2006) [hereinafter *Hearing*] (statement of Timothy D. Sparapani, Legislative Council, American Civil Liberties Union) (expressing concerns that the x-ray backscatter is too invasive of personal privacy).

body and scatter back to create a digitized, high-contrast display on a monitor viewed by TSA agents.⁶ The millimeter wave machines may be considered even more intrusive since they use reflections of beams of radio frequency that are projected over the body's surface to create a three-dimensional image of the body for agents to monitor.⁷ Both machines are currently being used as voluntary alternatives to pat-down searches to help detect the presence of both metallic and non-metallic devices that could pose a security threat.⁸

Courts have generally "upheld the right of the [Federal Aviation Administration] to institute airline passenger screening procedures, even when those procedures reveal more than just the presence or absence of dangerous materials or threat objects" under the U.S. Constitution, federal, and state law.⁹ The Ninth Circuit has held that "airport screening searches . . . are constitutionally reasonable administrative searches because they are 'conducted as part of a general regulatory scheme in furtherance of an administrative purpose, namely to prevent the carrying of weapons or explosives aboard aircraft, and thereby to prevent hijackings.'" ¹⁰ However, there is a limit on the scope of such searches, and once the scope is exceeded, a violation of the Fourth Amendment has occurred.¹¹ In considering whether an airport screening search violates the Fourth Amendment, the federal courts have relied on the reasonableness of the search.¹²

⁶ See TSA: CastScope, <http://www.tsa.gov/approach/tech/castscope.shtm> (last visited Nov. 6, 2007).

⁷ See TSA: Millimeter Wave, <http://www.tsa.gov/approach/tech/mwave.shtm> (last visited Nov. 6, 2007).

⁸ *Id.*; TSA: CastScope, *supra* note 6.

⁹ COMM. ON COMMERCIAL AVIATION SEC., NAT'L RESEARCH COUNCIL, AIRLINE PASSENGER SECURITY SCREENING: NEW TECHNOLOGIES AND IMPLEMENTATION ISSUES, 34 (1996), available at <http://www.nap.edu/openbook/0309054397/html/34.html>.

¹⁰ *United States v. Aukai*, 497 F.3d 955, 960 (9th Cir. 2007) (quoting *United States v. Davis*, 482 F.2d 893, 908 (9th Cir. 1973)).

¹¹ U.S. CONST. amend. IV.

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Id.

¹² See, e.g., *Aukai*, 497 F.3d at 957; *United States v. Albarado*, 495 F.2d 799, 806 (2d Cir. 1974) ("[T]o be reasonable the search must be as limited as possible commensurate with the performance of its functions."); see also *United States v. Skipwith*, 482 F.2d 1272, 1275 (5th Cir. 1973) ("Necessity alone, however,

As the threats of an increasingly technological society build up, courts are more apt to find that security measures, which protect the traveling public, are reasonable even if the measures come at the expense of some of the traveling public's privacy.¹³ Currently, the test to determine whether an airport security checkpoint search is reasonable enough to pass Fourth Amendment muster involves the weighing of three factors: "public necessity, efficacy of the search, and degree of intrusion."¹⁴

The purpose of this comment is to explore the current state of the law for airport security and determine how the new technologies being utilized by the TSA fit within the confines of the Fourth Amendment's limit on unreasonable searches. In this comment, I will discuss the backscatter x-ray and millimeter wave imaging devices in depth and analyze them under the three prong reasonableness test. Further, I will discuss the privacy implications of the potentially more invasive imaging systems and what the TSA plans to do to make the new screening devices fit within the aforementioned framework.

I. REASONABLENESS OF THE AIRPORT SCREENING PROCESS

It is universally known that a passenger cannot board a commercial airplane at any airport in the United States without first going through the standard three step security screening process.¹⁵ For the purposes of this comment, I will explore the screening process as it pertains to a person, not his baggage, and therefore Step 1 of the process, where a passenger places his

whether produced by danger or otherwise, does not in itself make all non-probable-cause searches reasonable.").

¹³ In the post-9/11 world, courts have found that the constitutionality of airport screening does not depend on the consent of the passenger. See *Aukai*, 497 F.3d at 960. This represents a shift in case law which has found a passenger's consent is not a factor to be considered when determining the reasonableness of a screening search, as airport screening is standard in today's world where air piracy is a constant threat. *Id.*

¹⁴ *Skipwith*, 482 F.2d at 1275; *United States v. Hartwell*, 296 F. Supp. 2d 596, 602 (E.D. Pa. 2003).

¹⁵ TSA: Passenger Security Checkpoints, *supra* note 1. According to the TSA, there is a three step process for passenger security checkpoints which a passenger "must pass through . . . to access [his] departure gate." *Id.* The TSA website sets out the three step policy and warns that "[i]f you refuse to be screened at any point during the screening process, the Security Officer will deny you entry beyond the screening area. You will not be able to fly." *Id.* The three steps include sending personal belongings through an x-ray machine (for carry-on baggage), walking through a metal detector, and additional screening. *Id.*

carry-on baggage through the x-ray machine, is not relevant to this discussion.¹⁶ Step 2 of the TSA's screening process involves walking through a metal detector, or an optional pat-down inspection.¹⁷ If a passenger sets off the metal detector, or is randomly chosen for additional screening, he will move on to Step 3 which "includes a hand-wand inspection in conjunction with a pat-down."¹⁸ There is no issue as to whether this process constitutes a search under the Fourth Amendment, as courts have consistently held that the airport screening process is in fact a search.¹⁹ The pat-down procedure, which has been compared to a frisk, has been subject to questions of constitutionality, yet courts repeatedly have found that so long as the proscribed process is followed and the intrusion is minimal, the benefit of safety outweighs the invasion of privacy.²⁰ In the landmark case, *Katz v. United States*, the Supreme Court began using Justice Harlan's privacy test which involved a twofold requirement: "first that a person have exhibited an actual (subjective) expectation of privacy, and second, the expectation must be one that society is prepared to recognize as 'reasonable.'"²¹ Thus, in order to be a violation of the Fourth Amendment, an intrusion would have to be violative of something that society is willing to recognize is a reasonable expectation of privacy.

¹⁶ *Id.*

¹⁷ *Id.* The TSA recommends that passengers pack all metal items, including those in the passenger's pockets, before walking through the metal detector in order to prevent setting off the alarm. *Id.*

¹⁸ *Id.* Additional screening is conducted by a screener of the same gender as the person being screened. *Id.* Further, the passenger may request that his search be conducted in private. *Id.* The pat-down inspection "may include sensitive areas of the body. *Id.* Security Officers are rigorously trained to maintain the highest levels of professionalism." *Id.*

¹⁹ See, e.g., *United States v. Albarado*, 495 F.2d 799, 803 (2d Cir. 1974) ("Even the unintrusive magnetometer walk-through is a search in that it searches for and discloses metal items within areas most intimate to the person where there is a normal expectation of privacy."); *United States v. Epperson*, 454 F.2d 769, 770 (4th Cir. 1972) ("[T]he use of the magnetometer . . . was a 'search' within the meaning of the Fourth Amendment.").

²⁰ *United States v. Hartwell*, 296 F. Supp. 2d 596, 602 (E.D. Pa. 2003) (citing *United States v. Davis*, 482 F.2d 893, 910 (9th Cir. 1973)). "Little controversy exists regarding . . . public necessity and efficacy of the [airport screening] search. The need to deter and prevent airplane hijacking is 'unquestionably grave and urgent.'" *Id.*

²¹ 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (expanding on the majority's holding that the "Fourth Amendment protects people, not places," and noting that what protection a person expects often hinges on what expectation of privacy is appropriate for the place of the alleged violation of privacy).

Courts engage in various balancing tests to determine whether an airport search is reasonable. Former judge, Justice Friendly, expressed his sentiments on the reasonableness of airport searches and the lower level of constitutional scrutiny they should be afforded in light of danger to passengers:

Determination of what is reasonable requires a weighing of the harm against the need. When the object of the search is simply the detection of past crime, probable cause to arrest is generally the appropriate test. . . . When the risk is the jeopardy to hundreds of human lives and millions of dollars of property inherent in the pirating or blowing up of a large airplane, the danger *alone* meets the test of reasonableness, so long as the search is conducted in good faith for the purpose of preventing hijacking or like damage and with reasonable scope and the passenger has been given advance notice of his liability to such a search so that he can avoid it by choosing not to travel by air.²²

The Fifth Circuit took Justice Friendly's good faith test one step further and judged reasonableness not just by necessity, but by balancing three generalized factors applicable to all passengers at the security checkpoint: (1) public necessity, (2) efficacy of search, and (3) degree of intrusion.²³ The court in *Skipwith* acknowledged that the intrusion that an "airport search imposes on the public is not insubstantial. It is inconvenient and annoying, in some cases it may be embarrassing."²⁴ The Fifth Circuit did not leave us to stew on how inconvenient and annoying airport searches are because it suggested several factors which mitigate the offensiveness of an airport screening search in relation to searches performed in other contexts,²⁵ which include: the "absence of any stigma" of being searched at an airport,²⁶ the

²² United States v. Bell, 464 F.2d 667, 675 (2d Cir. 1972).

²³ See United States v. Skipwith, 482 F.2d 1272, 1275 (5th Cir. 1973). The Fifth Circuit described its test for reasonableness of a search as follows:

Reasonableness requires that the courts must weigh more than the necessity of the search in terms of possible harm to the public. The equation must also take into account the likelihood that the search procedure will be effective in averting the potential harm. On the opposite balance we must evaluate the degree and nature of intrusion into the privacy of the person and effects of the citizen which the search entails.

Id.

²⁴ *Id.*

²⁵ *Id.* at 1275-76.

²⁶ *Id.* at 1275. All people who wish to board a commercial airplane are subject to the search, thus there is no stigma that would embarrass a passenger since all passengers are searched. See *id.*

choice of a passenger to put himself in a position where he would be searched (by choosing to fly), and the circumstances under which an airport search occurs.²⁷

In application, courts have generally held that the TSA's screening process is reasonable under the Fourth Amendment so long as the security officers follow the proscribed procedure to the extent that they attempt to use the least intrusive path.²⁸ In a post-9/11 world, society no longer has a reasonable expectation of *complete* privacy at the airport;²⁹ however, it is only fair that passengers be able to maintain some degree of privacy, as can be achieved when screeners use the least intrusive means available. The Second Circuit ruled that even at a pre-boarding checkpoint, the government must utilize the least intrusive means available to resolve the single alarm; it is only when they have exhausted other means of searching that a frisk is appropriate.³⁰ In the event that a frisk is deemed to be necessary by the TSA agents, there is no violation of the Fourth Amendment for such a search in the absence of a warrant because, in the case of airport security, courts lower the standard and find exceptions to the Warrant Clause of the Fourth Amendment³¹ due to the "compelling need for a search to detect weapons before they are brought on an airplane."³² The court in *Albarado* summed up the balance:

²⁷ *Id.* at 1275–76. Unlike searches by the police outside of the airport context (which are subject to the standard Fourth Amendment protections), where subjects are often searched in dark isolated areas and the only witnesses are the party being searched and the officer, in the airport context, the searches are made under the "scrutiny of the traveling public." *Id.*

²⁸ See, e.g., *United States v. Albarado*, 495 F.2d 799, 809 (2d Cir. 1974) (holding that frisking of defendant immediately after he activated a magnetometer, rather than requesting him to remove metal objects and walk through the magnetometer a second time, was unlawful under the Fourth Amendment because the search was not minimally intrusive); *United States v. Roman-Marcon*, 832 F. Supp. 24, 27 (D.P.R. 1993) (holding that there was no violation of a defendant's Fourth Amendment rights when, after he activated the magnetometer on a walk-through and also activated the hand-wand magnetometer, a security officer touched defendant's clothing where there was a bulge from the object that set off the magnetometers).

²⁹ Roger Clark, *The Inalienable Right to Fly*, 29 L.A. LAW. 60 (2006). ("[O]ur 'societal expectations' have changed. . . . We now accept what is essentially a micro-police state in an airport, giving up our right of free speech and giving up our right to be free of search except upon probable cause.").

³⁰ *Albarado*, 495 F.2d at 808.

³¹ U.S. CONST. amend. IV.

³² *Albarado*, 495 F.2d at 805. In the past, scholars and courts have tried to fit airport security into one of the recognized exceptions to the Warrant Clause of

[N]either component of the usual airport search of the person—the use of the magnetometer or the frisk—seems to fit readily within any of the traditional exceptions to the warrant requirement, and yet each seems reasonable in light of the overwhelming public acceptance of the search, and the necessity for it.³³

Thus, the public necessity factor of the balancing test is usually persuasive enough to tip the scales in favor of more intrusion than is traditionally allowed under the Fourth Amendment.³⁴

However, the Second Circuit does not automatically give license for TSA officers to do whatever they wish—there is only a window of reasonableness: “[w]hile this [compelling need] might justify some search of all prospective passengers at an airport, the question becomes whether it will justify in any give case the search as carried out.”³⁵ This weighs in to the degree of intrusion factor from *Skipwith*.³⁶ If the search is carried out in a manner that is too intrusive, the compelling need may not be strong enough to justify more than a minimal invasion of a pas-

the Fourth Amendment. These include the “Terry Stop-and-Frisk Exception,” the “Consent Exception,” the “Katz Expectation of Privacy Exception,” and the “Border Search Exception.” But courts have found that these are hard to apply to airport security issues because of the unique nature of air piracy and the compelling need for heightened security of all passengers. See Steven R. Minert, Comment, *Square Pegs, Round Hole: The Fourth Amendment and Preflight Searches of Airline Passengers in a Post-9/11 World*, 2006 B.Y.U. L. REV. 1631, 1637–60 (2006) for an in-depth analysis of each exception and the reasons why each is inapplicable in the airport security context. Further, courts have acknowledged that passenger consent is no longer necessary for a search to be reasonable. See *United States v. Aukai*, 497 F.3d 955, 957 (9th Cir. 2007).

³³ *Albarado*, 495 F.2d at 803-04.

³⁴ See *United States v. Skipwith*, 482 F.2d 1272, 1275 (5th Cir. 1973). Courts have allowed more leniency for airport searches because they are handled as “administrative, ‘special governmental need’” searches. See David A. Harris, *Superman’s X-ray Vision and the Fourth Amendment: The New Gun Detection Technology*, 69 TEMP. L. REV. 1, 49 (1996). The public’s interest in the government’s screening is strong:

Of course, a special need to search everyone, beyond the needs of normal law enforcement, virtually leaps out of the cases on magnetometer searches: the special need to prevent and deter air piracy. Simply put, there is no other way to come close to avoiding completely the extremely dangerous prospect of an airline hijacking or the planting of an explosive on an aircraft. . . . [C]ourts have found that airport security searches of all passengers using magnetometers meet the requirements of the Fourth Amendment.

Id. at 49–51.

³⁵ *Albarado*, 495 F.2d at 805; see also, *Aukai*, 497 F.3d at 962 (“[T]he constitutionality of airport screening . . . is not limitless.”).

³⁶ See *Skipwith*, 482 F.2d at 1275.

senger's privacy.³⁷ Although the fact that all passengers are subject to a frisk, or pat-down, does not make the pat-down any less of an invasion of privacy, several courts have noted that the invasiveness may be mitigated because being searched at an airport does not carry the stigma that exists in other search contexts.³⁸

While a frisk is subject to analysis under the degree of intrusion factor, the walk-through magnetometer itself does not pose such a problem, as it is generally recognized as minimally invasive to the privacy of a passenger:³⁹ there is no "probing into an individual's private life and thoughts"⁴⁰ and "[t]he use of the device does not annoy, frighten or humiliate those who pass through it."⁴¹ However, the magnetometer alone is inefficient and needs to be used in conjunction with more intrusive screening methods to maximize its effectiveness.⁴² The ineffectiveness of the magnetometer makes the use of more intrusive screening tactics more justifiable:

There is, of course, a compelling need for further investigation after an initial magnetometer reading showing metal. Without further investigation the magnetometer would not serve any valid purpose. It would be absurd to require the airlines either to deny passage to everyone activating [sic] the magnetometer or to allow passage to any without discovering what the metal was.⁴³

³⁷ *Albarado*, 495 F.2d at 799. The Second Circuit felt that by immediately frisking Mr. Albarado after he set off the magnetometer only once without sending him through the machine again nor screening him with the "wand," the TSA agents had been overly intrusive upon his person and thus, found that the frisk was in violation of the Fourth Amendment. *Id.* However, in *United States v. Hartwell*, the Third Circuit held that a search of a passenger was minimally invasive since it was "well-tailored to protect personal privacy, escalating in invasiveness only after a lower level of screening disclosed a reason to conduct a more probing search." 436 F.3d 174, 180 (3d Cir. 2006).

³⁸ See, e.g., *Albarado*, 495 F.2d at 807; *Skipwith*, 482 F.2d at 1275.

³⁹ See *United States v. Bell*, 464 F.2d 667, 673 (2d Cir. 1972). ("In view of the magnitude of the crime sought to be prevented, the exigencies of time which clearly precluded the obtaining of a warrant, the use of the magnetometer is in our view a reasonable caution."); *United States v. Roman-Marcon*, 832 F. Supp. 24, 26 (D.P.R. 1993) ("[S]ince the invasion of the privacy constituted by a measuring of the distortion of magnetic waves around their body is so minimal, courts have found that an administrative search with a magnetometer does not constitute a constitutional violation.").

⁴⁰ *Davis v. Mississippi*, 394 U.S. 721, 727 (1969).

⁴¹ *Albarado*, 495 F.2d at 806.

⁴² *Id.* at 805. "[A]ll passengers are searched, but only a fraction of one per cent [sic] have weapons. The magnetometer, although calibrated supposedly to be activated by a mass of metal approximating a .25 calibre pistol, often is activated by car keys, ladies' sewing scissors, briefcase hinges and latches." *Id.*

⁴³ *Id.* at 808.

It is clear that courts approve of the TSA conducting further screening in excess of just a one-time magnetometer walk-through. Now the question becomes how far the TSA can intrude into a passenger's privacy in its attempt to find more effective ways to serve the compelling purpose of protecting the traveling public.

II. THE NEW TECHNOLOGY: MORE EFFICIENT AND EFFECTIVE, BUT MORE OR LESS INTRUSIVE?

In order to keep pace in a world where dangers are "not confined to the cumbersome gun or knife,"⁴⁴ the TSA is faced with the challenges of meeting the security needs of the traveling public and trying to prevent air terrorism while at the same time attempting to stay within the confines of the Fourth Amendment. The TSA is stuck in a "catch-22" where people are resentful of the intrusion upon their privacy presented by airport security screening, yet when a security crisis strikes, it is the TSA who has not fulfilled its duty of properly screening passengers. The TSA is charged with ensuring "the safety of all passengers and [maintaining] the integrity of the sterile area, which cannot be accomplished unless all alarms triggered at the checkpoint are resolved prior to permitting a passenger to leave the secure area."⁴⁵

In order to ensure the safety and maintain the integrity of the sterile area,⁴⁶ the TSA has crafted new ways which it believes will serve to better screen passengers. The backscatter and millimeter wave scanners are two new technologies currently being tested by the TSA to detect contraband on passengers during secondary screening as a voluntary alternative to a pat-down

⁴⁴ *United States v. Moreno*, 475 F.2d 44, 49 (5th Cir. 1973) ("[M]odern technology has made it possible to miniaturize to such a degree that enough plastic explosive to blow up an airplane can be concealed in a toothpaste tube. A detonator planted in a fountain pen is all that is required to set it off. . . . It is in this context that we must assess the constitutionality of the search.").

⁴⁵ *United States v. Hartwell*, 296 F. Supp. 2d 596, 605 (E.D. Pa. 2003). Since 2001, the TSA has been mandated by federal law to screen passengers to ensure that prohibited people and items do not board commercial airliners. See TSA: Passenger Screening, http://www.tsa.dhs.gov/what_we_do/screening/security_checkpoints.shtml (last visited Jan. 18, 2008).

⁴⁶ 49 C.F.R. § 1540.5 (2007). The "secured area" is the "portion of an airport, specified in the [TSA] airport security program . . . where aircraft operators and foreign air carriers . . . enplane and deplane passengers." *Id.* The "sterile area" is the area within the secured area that "provides passengers access to boarding aircraft and to which the access generally is controlled by TSA . . . through the screening of persons and property." *Id.*

search.⁴⁷ This section will discuss these new technologies, the various privacy measures in place to protect passengers, as well as the criticisms and problems related to each device.

A. X-RAY BACKSCATTER

Since February 2007, the Phoenix Sky Harbor International Airport has been testing the x-ray backscatter machine.⁴⁸ One year later, approximately seventy-nine percent of passengers had opted to undergo the new backscatter imaging screening in lieu of the traditional pat-down search upon setting off the walk-through magnetometer.⁴⁹ According to the TSA, “[t]his new technology can detect weapons, explosives and other metallic and non-metallic threat items concealed under layers of clothing without physical contact” and they have “applied multiple protections for passengers’ privacy.”⁵⁰ The x-ray backscatter screening process takes less than one minute and consists of two separate scans in which a passenger stands in front of the x-ray backscatter unit and remains still for approximately ten seconds as the technology scans the passenger’s body to create an image of the body and objects located upon it (with one scan facing the machine and one scan facing away).⁵¹ TSA Administrator Kip Hawley sees the x-ray backscatter as having “potential to be a valuable tool in our layered security approach.”⁵²

1. *How X-ray Backscatter Technology Works*

The backscatter unit scans a narrow, low-intensity x-ray beam over the passenger’s body at a high speed.⁵³ The radiation from the x-ray is reflected (scattered) back from the passenger’s body and other objects that may be carried on the passenger’s body and is converted into a high-contrast computer image and displayed on a monitor.⁵⁴ The computer image is embedded with a modesty filter and is viewed from a remote location.⁵⁵ All

⁴⁷ See TSA: Whole Body Imaging, *supra* note 4.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ Press Release, Transp. Sec. Admin., TSA Unveils Backscatter Technology Testing at Phoenix Sky Harbor Airport (Feb. 23, 2007), http://www.tsa.gov/press/releases/2007/press_release_02232007.shtm.

⁵¹ See *id.*

⁵² *Id.*

⁵³ TSA: Backscatter, <http://www.tsa.gov/approach/tech/bscatter.shtm> (last visited Jan. 18, 2008).

⁵⁴ *Id.*

⁵⁵ *Id.*

items that a passenger is carrying on his body, including both metallic and non-metallic objects, will be displayed on the monitor.⁵⁶

The radiation involved is low intensity and the amount emitted during one scan of the backscatter x-ray portal is "equivalent to approximately 15 minutes of exposure to naturally-occurring background radiation from sources such as the sun's rays."⁵⁷ Backscatter x-rays differ from medical x-rays, because unlike medical x-rays that penetrate the entire body, backscatter x-rays only penetrate approximately one quarter of an inch of the body before the rays are scattered.⁵⁸ This results in significantly less exposure to radiation, so passengers can leave their lead vests at home!

2. *Privacy Measures*

The TSA has put several privacy measures in to place for the implementation of this new technology. The image displayed on the screen does not show much more than an outline of the passenger's body; the TSA has worked closely with the vendors of the backscatter machines to modify the image of a passenger that is taken to ensure the image produced is not too detailed an image of the personal details of a passenger's anatomy and unique physical characteristics.⁵⁹ And, the officer on-site at the machine that has contact with the passenger does not see the image—only an officer in a remote location is able to view the image, and even then, is unable to associate the image displayed with the passenger being screened.⁶⁰ Further, the device is not capable of storing, printing, or transmitting the image; once the officer has viewed the image and resolved any issues with the passenger's scan, the picture is erased permanently and the remote officer signals to the on-site officer with a green light.⁶¹ The TSA Office of Privacy Policy and Compliance claims that because the backscatter limits the need for a pat-down during

⁵⁶ Press Release, TSA Unveils Backscatter Technology Testing at Phoenix Sky Harbor Airport, *supra* note 50. "TSA's privacy-filtered image looks like a chalk outline of the person's body, and shows any concealed items including weapons, explosives and other metallic and non-metallic threat items." *Id.*

⁵⁷ *Id.*

⁵⁸ TSA: CastScope, *supra* note 6.

⁵⁹ TSA: Office of Privacy Policy and Compliance, <http://www.tsa.gov/research/privacy/backscatter/shm> (last visited Jan. 15, 2008).

⁶⁰ Press Release, TSA Unveils Backscatter Technology Testing at Phoenix Sky Harbor Airport, *supra* note 50.

⁶¹ TSA: Whole Body Imaging, *supra* note 4.

secondary screenings, this technology is actually less invasive since it minimizes the need for physical contact.⁶²

3. *Criticisms of Backscatter Technology*

Many people are concerned that the backscatter technology is overly invasive. The American Civil Liberties Union ("ACLU") Legislative Council, Timothy D. Sparapani, testified before the U.S. Senate Committee on Commerce, Science, and Transportation about the ACLU's concerns regarding these searches, equating the technology to "Superman's X-ray vision" which is "capable of projecting a high-resolution image of a passenger's naked body."⁶³ The ACLU urged Congress to prohibit this new technology as a part of TSA's screening process, arguing that "[p]assengers expect privacy underneath their clothing and should not be required to display highly personal details of their bodies—such as evidence of mastectomies, colostomy appliances, penile implants, catheter tubes, and the size of their breasts or genitals—as a prerequisite to boarding a plane."⁶⁴

Critics also argue that the backscatter is not going to be any more effective than the current screening process, so the efficiency does not help counterbalance the intrusion on privacy.⁶⁵ Their concern is that the x-ray backscatter will lead to an increase in the number of passenger screening delays and will prompt more subsequent searches of passengers.⁶⁶ In its testimony to Congress, the ACLU illustrated this concern:

[A]n image projected by X-ray backscatter that may look like a concealed gun or explosive device carried on a person will require TSA screeners to put the person through: (a) a conventional metal detector; (b) an explosives detection "puffer" machine; or (c) both. Further, even if an object is identified, TSA screeners will then need to pat the individual in question down and likely ask them to remove their clothing to verify what the object in question may be. Even the presence of a seemingly innocuously shaped item, such as a prosthetic device or implant, will require subsequent (and potentially humiliating) verification.⁶⁷

⁶² TSA: Office of Privacy Policy and Compliance, *supra* note 59.

⁶³ *Hearing, supra* note 5.

⁶⁴ *Id.* While Sparapani urges Congress to prohibit the backscatter technology for individual screening, he recognizes the "tremendous potential to screen carry-on bags, luggage, and cargo." *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

Thus, the ACLU contends that the “backscatter requires a tremendous invasion of privacy with little speed or efficiency gains.”⁶⁸ If the ACLU’s contentions are true, this may diminish the constitutionality of the backscatter under the Fourth Amendment because it weakens the benefit element while increasing the intrusion element of the *Skipwith* balancing test.⁶⁹

B. MILLIMETER WAVE

The TSA began its pilot program of the millimeter wave technology at the Phoenix Sky Harbor International Airport on October 11, 2007.⁷⁰ It has been popular with the traveling public, with an approximately ninety percent acceptance rate thus far.⁷¹ Like the x-ray backscatter, this machine will be a voluntary alternative to a passenger undergoing a pat-down during secondary screening.⁷² The millimeter wave unit is a machine that a passenger must step into and remain still for a few seconds in two different positions as two antennas rotate around the body to create a three-dimensional image.⁷³ This screening process will be able to “detect weapons, explosives and other threat items concealed under layers of clothing without physical contact.”⁷⁴ Craig Coy, the President of L-3 Communications’ Homeland Security Group, which makes the machine being tested in Phoenix, claims the machine is “fast and effective and has the potential to strengthen security at the nation’s transportation hubs, while protecting passengers’ privacy.”⁷⁵

⁶⁸ *Id.*

⁶⁹ See *United States v. Skipwith*, 482 F.2d 1272, 1275 (5th Cir. 1973).

⁷⁰ TSA Tests, *supra* note 2. The TSA plans to test this technology further at Los Angeles International Airport and New York’s John F. Kennedy International Airport. See *id.* The millimeter wave technology is already in place in several international transportation settings, including airports in the U.K., Spain, Japan, Australia, Mexico, Thailand, and the Netherlands. TSA: Millimeter Wave, *supra* note 7. The technology is also being used in various government locations across the United States, including the Federal Courthouse in Virginia, the Colorado Springs Courthouse, the Department of Corrections facility in Pennsylvania, the Los Angeles County Courthouse, and the Cook County Courthouse in Illinois. *Id.*

⁷¹ TSA Chief’s Goal: Win Back the Passengers, CONG. Q., Jan. 18, 2008, http://www.tsa.gov/press/happenings/tsa_wins_passengers.shtm.

⁷² See TSA Tests, *supra* note 2.

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ Press Release, L-3 Commc’ns, TSA to Test L-3 Millimeter Wave Portals at Phoenix Sky Harbor Airport (Oct. 11, 2007), <http://www.globalsecurity.org/security/library/news/2007/10/sec-071011-l-3comm01.htm>.

1. *How the Millimeter Wave Technology Works*

The millimeter wave portal projects beams of radio frequency energy in the millimeter wave spectrum over a passenger's body at a high speed via two rotating antennas.⁷⁶ The radio frequency energy is then reflected back off of the body or other objects on a person's body to create a three-dimensional image which is displayed on a remote monitor.⁷⁷ Millimeter waves bounce back to create the image in only 1.8 seconds.⁷⁸ The device "measur[es] the differences in the passive millimeter waves as the waves pass through an individual's body" and can detect the differences in flesh, metal, and plastic shapes.⁷⁹ The image looks like a "fuzzy photo negative"⁸⁰ and outlines a person's body in light gray, while shapes of weapons and other foreign objects appear in a darker shade.⁸¹

The process involves a passenger walking into the millimeter wave portal and standing still in two different positions for a few seconds while the antennas rotate around the passenger and create "a three-dimensional image of the passenger in real-time."⁸² Once the scan is complete, the passenger may exit the opposite side of the portal.⁸³ The three-dimensional image of the passenger will blur out facial features and be displayed on a remote monitor for analysis.⁸⁴ After it has been viewed, the image will be deleted immediately.⁸⁵ The millimeter wave portal used in the pilot at the Phoenix Sky Harbor International Airport uses millimeter wave technology that:

[P]inpoints objects made of any material, including liquids, rubber, wire, plastic, and metal, to quickly and easily locate weapons, contraband, and other threats concealed under an individual's clothing. The portals detect concealed and hidden objects such

⁷⁶ See TSA: Millimeter Wave, *supra* note 7.

⁷⁷ *Id.*

⁷⁸ See Cullen Dirner, *TSA Rolls Out New Screening Technology*, ABC NEWS, Oct. 11, 2007, <http://abcnews.go.com/technology/story?id=3716917&page=1>.

⁷⁹ Alyson L. Rosenberg, Comment, *Passive Millimeter Wave Imaging: A New Weapon in the Fight Against Crime or A Fourth Amendment Violation?*, 9 ALB. L.J. SCI. & TECH. 135, 139 (1998). Different materials emit at different strengths: "[f]or instance, metal objects are poor emitters while flesh is an especially good emitter." *Id.*

⁸⁰ TSA Tests, *supra* note 2.

⁸¹ Harris, *supra* note 34, at 11.

⁸² TSA: Millimeter Wave, *supra* note 7.

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

as metallic and non-metallic weapons and virtually all known explosives, and other contraband in seconds.⁸⁶

The electromagnetic waves emitted over the body are harmless; millimeter wave energy is emitted by everyday objects, such as cell phones, televisions, radios, and even the sun.⁸⁷ In fact, the energy emitted by the millimeter wave portal is "10,000 times less than a cell phone," which nearly all passengers expose themselves to much more frequently than airport screening devices.⁸⁸ Further, this technology uses low energy radio waves instead of high energy x-rays used by the x-ray backscatter.⁸⁹ The radiation emitted from the millimeter wave portal is non-ionizing and thus does not cause tissue damage; therefore, it is arguably superior to the x-ray backscatter in regard to individuals who are repeatedly inspected,⁹⁰ such as pilots, flight attendants, and other airport personnel who may be scanned several times a day.

2. *Privacy Measures*

The TSA is committed to testing technology that will improve the level of security offered to the traveling public while at the same time protecting their privacy. TSA administrator Kip Hawley explained that "[p]rivacy is ensured through the anonymity of the image: It will never be stored, transmitted, or printed, and it will be deleted immediately once viewed."⁹¹ Thus, to ensure privacy, TSA officers will view the images (which are embedded with a security algorithm to mask the face of each passenger) from a remote location where they can communi-

⁸⁶ Press Release, L-3 Commc'ns, *supra* note 75.

⁸⁷ See TSA: Millimeter Wave, *supra* note 7. The TSA's spokeswoman, Elle Howe, has called the process harmless and more effective than a magnetometer in that "[a] magnetometer only picks up metal or weapons, so this could see other materials that might be hidden on the body and it also produces an image' rather than just a beep." Richard Koman, *New Airport Scanning Tech Might be a Little Too Revealing*, ZDNET, Oct. 11, 2007, <http://government.zdnet.com/?p=3436>.

⁸⁸ TSA Tests, *supra* note 2.

⁸⁹ See *Amsterdam Airport Says Introduction of Radio Wave Security Scanners Has Gone Smoothly*, INT'L HERALD TRIB., May 16, 2007, <http://www.iht.com/bin/print.php?id=5737469>.

⁹⁰ COMM. ON ASSESSMENT OF SEC. TECHS. FOR TRANSP., NAT'L RESEARCH COUNCIL, ASSESSMENT OF MILLIMETER-WAVE AND TERAHERTZ TECHNOLOGY FOR DETECTION AND IDENTIFICATION OF CONCEALED EXPLOSIVES AND WEAPONS 54 (2007), available at http://books.nap.edu/openbook.php?record_id=11826&page=54.

⁹¹ Thomas Claburn, *TSA Promises Privacy for Subjects of Clothing-Penetrating Scans*, INFO. WK., Oct. 11, 2007, <http://www.informationweek.com/news/security/government/showArticle.jhtml?articleID=202401630>.

cate with the on-site officer if that person presents a potential threat.⁹²

The fuzzy, three-dimensional image created by the millimeter wave technology is a lower resolution than the image created by the x-ray backscatter discussed above.⁹³ Thus, privacy may be less of a concern for travelers. However, although faces are blurred, chests and crotches are not, since according to Amsterdam Schiphol Airport's spokeswoman Miriam Snoerwang, otherwise "women could just hide things by stuffing them in their bras."⁹⁴ Thus, while the millimeter wave technology has the capability to create a potentially necessary vivid image of passengers, the TSA has attempted to ensure that passengers' privacy will be protected by both the privacy algorithm and the process by which the technology will be used.

3. Criticisms of Millimeter Wave Technology

ACLU Director, Barry Steinhardt has equated a scan in the millimeter wave portal to "virtual strip-searches."⁹⁵ The National Research Council issued a report entitled *Airline Passenger Security Screening: New Technologies and Implementations Issues* which discussed the privacy issues:

[T]he images produced by these technologies are of sufficiently high quality to make them effective for screening passengers. However, when the perceived level of threat is low, passengers, crews, and others passing through screening checkpoints are likely to object to having images of their bodies displayed. There are also likely to be concerns about the use and storage of the data used to generate the images. Procedures, such as having operators of same sex view the images or moving operators away from the screening checkpoints, could allay concerns. However, for financial and logistical reasons, these procedures are likely to make imaging technologies extremely unattractive for use as primary screening systems at all checkpoints. Quantifying the level of threat at which people are likely to accept this kind of invasion of privacy is difficult but necessary prior to mandating the use of any imaging technology for screening passengers at airports.⁹⁶

⁹² TSA Tests, *supra* note 2.

⁹³ See TSA: Millimeter Wave, *supra* note 7.

⁹⁴ *Amsterdam Airport Says Introduction of Radio Wave Security Scanners Has Gone Smoothly*, *supra* note 89. Snoerwang also contends that the images generated by the millimeter wave portal in use at the Amsterdam Airport are not like photographs, but are "kind of futuristic. There's nothing sexy about it." *Id.*

⁹⁵ See Dirner, *supra* note 78.

⁹⁶ COMM. ON COMMERCIAL AVIATION SEC., *supra* note 9, at 4.

Steinhardt expressed his concern about the “strikingly graphic images of passengers’ bodies” which “reveal not only our private body parts, but also intimate medical details like colostomy bags. That degree of examination amounts to a significant—and for some people humiliating—assault on the essential dignity of passengers that citizens in a free nation should not have to tolerate.”⁹⁷ Steinhardt and others do not find the TSA’s assurances of privacy persuasive, as they caution the public to be wary of the graphic images obtained by a millimeter wave scan and of the possibility that the TSA officers would save “images of celebrities” or the possibility that TSA may “unilaterally decide to stop blurring faces.”⁹⁸

Critics also challenge the voluntariness of the scan.⁹⁹ TSA assumes that people who consent to the use of the millimeter wave alternative to a pat-down “understand what they’re consenting to, and that it will long remain something over which passengers will be allowed to exercise any choice at all.”¹⁰⁰ Thus, to preserve the Fourth Amendment constitutionality of the millimeter wave portal, it would be wise for Congress to provide some sort of restrictions on the TSA and their policies surrounding this new screening device. ACLU Director of Technology and Liberty Program, Barry Steinhardt, said that the ACLU would “like to see strong independent and legally binding assurance that the [privacy] policy will be enforced and unchanged.”¹⁰¹ It is likely that passengers would also like to see such assurances.

Critics are also concerned that the technology is a waste of money “because the results will be minimally better than the current screening process.”¹⁰² TSA has stated that it will

⁹⁷ Claburn, *supra* note 91.

⁹⁸ Koman, *supra* note 87; *see also* Dirner, *supra* note 78. Steinhardt has been quoted with his concerns that “[t]hey say that they are obscuring faces, but that is just a software fix that can be undone as easily as it is applied, [a]nd obscuring faces does not hide the fact that the rest of the body will be vividly displayed.” Monisha Bansal, *Full Body Airport X-Rays Expensive, Raise Privacy Concerns*, CNS NEWS.COM, Oct. 15, 2007, <http://www.cnsnews.com>. Jim Harper, Director of Information Policy Studies at Cato Institute, agrees with Steinhardt: “Over time, the personnel operating this system will get mischievous, and it will be misused in ways that are very offensive.” *Id.*

⁹⁹ Press Release, Barry Steinhardt, Dir. of ACLU Tech. and Liberty Program, New Airport Body Scanners Troubling to ACLU Privacy Expert (Oct. 11, 2007), <http://www.aclu.org/privacy/gen/32142prs20071011.html>.

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *See* Bansal, *supra* note 98. James Carafano, a senior research fellow at the Heritage Foundation, is not concerned that there is a civil liberties issue here; he

purchase eight millimeter wave imaging units for \$1.7 million to use for additional pilot tests (including tests at New York's John F. Kennedy Airport and Los Angeles International Airport).¹⁰³ However, people are concerned that the additional security layer from the millimeter wave portal will fail to make air travel that much safer because it is impossible "to keep every bad thing off a plane—unless people fly naked and are asleep, [t]here are still people that could use their thumb and could kill you."¹⁰⁴

Thus, it is clear from this section's demonstration of the technology, the privacy safeguards and concerns over these safeguards, and costs, that the use of this new technology in airports will unleash much legal debate and give cause for much greater analysis under a reasonableness standard.

III. APPLYING THE BALANCING TEST TO THE NEW SCREENING TECHNOLOGIES

There has already been commentary on the use of backscatter x-ray and millimeter wave technology in the context of gun detection by police outside the airport setting. This technology was first proposed for use by local law enforcement agents to establish probable cause of someone possessing a weapon in order to obtain a search warrant.¹⁰⁵ Professor James Wilson was the first to encourage scientists to create a device to be able to detect weapons on people or in their homes.¹⁰⁶ After President Clinton read Wilson's article he sent it to Attorney General Janet Reno, who then brought it to the attention of the National Institute of Justice ("NIJ").¹⁰⁷ In 1995, the NIJ, a subsection of the Department of Justice that awards grants to assist in research and development for law enforcement,¹⁰⁸ awarded a grant of \$2.15 million to three companies to develop new technology for

is more worried about the expense of the technology in relation to its effectiveness. *Id.*

¹⁰³ TSA Tests, *supra* note 2.

¹⁰⁴ Bansal, *supra* note 98. Carafano does not believe that we should rely on TSA agents to prevent every bad or dangerous object from getting on an airplane. *Id.* He does not believe this is "the biggest bang for [our] security buck." *Id.*

¹⁰⁵ Roberto Iraola, *New Detection Technologies and the Fourth Amendment*, 47 S.D. L. REV. 8, 11 (2002).

¹⁰⁶ James Q. Wilson, *Just Take Away Their Guns*, N.Y. TIMES, Mar. 20, 1994, at 647, available at 1994 WLNR 3506775.

¹⁰⁷ See Harris, *supra* note 34, at 6–7.

¹⁰⁸ See *id.* at 7.

gun detection.¹⁰⁹ One of these companies, Millitech Corporation, created a millimeter wave scanner.¹¹⁰

The original use for the millimeter wave scanner was very controversial because police were scanning people on the street and in their homes.¹¹¹ Because there is not a compelling or special governmental need cited as there is in the airport context, it is hard to justify the use of this technology because it is not likely to be found within society's reasonable expectations.¹¹² It is unlikely that people will think it is reasonable to expect to be arbitrarily searched by millimeter wave technology while walking down the street or in the privacy of their home by a machine that can penetrate clothes and walls.¹¹³ When a court applies the three factor reasonableness test, the degree of intrusion is likely too strong and outweighs the efficacy or public necessity in the setting for which the technology was originally developed.

However, while the new invasive technologies are probably not appropriate for cops wandering the streets to prey on unsuspecting citizens, they are likely appropriate for airport security screening purposes. Assuming Congress and the TSA heed to ACLU Director Barry Steinhardt's advice of placing stringent procedural limitations and legal assurances in place,¹¹⁴ this technology has the potential to be effective in serving the strong governmental need of keeping air travel safe, despite its infringement on passengers' privacy.

This section will weigh the three factors of reasonableness—degree of intrusion, public necessity, and efficacy—as they pertain to the whole body imaging technologies that are being implemented in airports across the country. While critics of the millimeter wave and backscatter technologies argue that it is overly intrusive, members of the public must look at this new technology in comparison with the current pat-down procedure that they would otherwise have to undergo. No doubt there is a public need not only for heightened security that is receptive to the threats of today, but also for technologies that are more ef-

¹⁰⁹ Rosenberg, *supra* note 79, at 138.

¹¹⁰ *Id.*

¹¹¹ *Id.* at 136.

¹¹² As presented in the privacy test of *Katz v. United States*, 389 U.S. 347, 361 (1967), and accompanying text.

¹¹³ Harris, *supra* note 34, at 9. The gun detectors operate from a remote location, are portable, and can "see" through clothing and sometimes other materials. *Id.*

¹¹⁴ Press Release, Barry Steinhardt, *supra* note 99.

fective and targeted than the current screening process. One of the main complaints of the traveling public is the hassle of the current screening process, which many passengers may view as a series of petty inconveniences. When going through security, it is hard to understand why it is safer for my mascara and lip gloss to be in a quart-sized bag with my three-ounce contact solution than in my makeup bag with my blush and eyeliner. And if I forget to take my rewetting drops out of my purse and put them in the bag, is it really necessary to hold up the entire line just so the TSA agent can go through the contents of my entire purse and either throw the drops away or place them in the Ziploc baggie for me? And what on earth could I possibly be smuggling in my thin little flip flops? Passengers are sick of the hassle and the TSA is sick of being the "bad guy." It is clear that the TSA has moved in the right direction in seeking out new technologies that will hopefully end the era of the Ziploc bag and the shoeless walk-through, and it is likely that the whole body imaging will pass constitutional muster under the reasonableness test.

A. DEGREE OF INTRUSION

There is no denying that the level of intrusion upon a passenger opting to be screened via the new x-ray backscatter machine or millimeter wave portal is high. But is it really higher than the privacy invasion a passenger experiences when he is selected for secondary screening and must undergo the pat-down search? To answer this, we must decide whether we would prefer to be violated by a TSA officer's hands or eyes. Do we want to look him or her in the eye as he or she runs his or her hands up and down our entire body? Or would we rather stand and chat with a TSA agent who is not touching us while his or her colleague in a remote location sees the outline of our body, implants, and medical devices, but not our faces?

On one hand, under the current pat-down system, a person runs the risk of feeling violated by a TSA officer's roaming hands. The passenger is publicly being "violated" or intruded upon,¹¹⁵ but if he had chosen the new technology method, it is unlikely that he would feel such a way because he would not be as aware of the fact that he is being searched in public. However, on the other hand, perhaps this person has medical

¹¹⁵ TSA: Passenger Security Checkpoints, *supra* note 1. The TSA allows passengers to request that their pat-downs be conducted in private. *Id.*

problems or is self-conscious of someone seeing what is going on under his clothes? What if a woman is very modest or comes from a religion where modesty is demanded of her? Unlike a pat-down where the TSA assigns an officer of the same gender to perform the pat-down,¹¹⁶ there is no guarantee that the person looking at your naked silhouette is of the same gender as you. One of the main complaints about the new technologies is that screening officers can see intimate details of a passenger's body, including breasts, genitalia, etc. However, TSA authorizes its agents performing a pat-down to include "sensitive areas of the body" to ensure security,¹¹⁷ and the TSA is no stranger to complaints of its officers' "groping of passengers breasts, buttocks, and genitalia."¹¹⁸

While it would be difficult to argue that either method (the old method of the pat-down or the new method of x-ray backscatter or millimeter wave scans) is minimally intrusive, it is hard to assess which method is the least intrusive.¹¹⁹ It is unclear whether a backscatter x-ray scan or millimeter wave scan would be "no more extensive nor intensive than necessary, in the light of current technology, to detect the presence of weapons or explosives[] [and] that it is confined in good faith to that purpose."¹²⁰ However, it is important to remember that this new technology is only being utilized for secondary screening, and not on all passengers.¹²¹ This is an example of the TSA trying to use new technology to find less intrusive, but more effective ways to detect the presence of threats after a passenger has set off the magnetometer or is randomly chosen for secondary screening.¹²²

The key for TSA to overcome arguments that its new development is more of an intrusion than the old pat-down method is to ensure travelers that they are using the technology in "good

¹¹⁶ See *id.*

¹¹⁷ See *id.*

¹¹⁸ *Hearing, supra* note 5.

¹¹⁹ *Id.* ("Because the application of administrative searches for aviation security burdens the constitutionally protected right to privacy, Congress must insist that all new physical screening techniques and technologies authorized be the *least intrusive* necessary to accomplish the screening of aviation passengers, their bags, and cargo.") (emphasis added).

¹²⁰ *United States v. Aukai*, 497 F.3d 955, 962 (9th Cir. 2007).

¹²¹ TSA Tests, *supra* note 2.

¹²² TSA: Office of Privacy Policy and Compliance, *supra* note 59 ("TSA has been testing various technologies that may enhance security without diminishing the personal privacy of passengers at the security screening checkpoint.").

faith” and only for the purposes stated (to prevent air piracy by preventing contraband from getting onto a commercial flight).¹²³ This can be done by more stringent guidelines, restrictions, and supervision of the TSA officers operating the x-ray backscatter unit, millimeter wave portal, or any other new technologies that are developed. This certainly would help appease Barry Steinhardt of the ACLU, who is calling for legally binding assurances that a privacy policy will remain intact.¹²⁴ If Congress develops such guidelines and assurances that the privacy policy will remain in place and strictly enforced, the degree of intrusion upon the traveling public’s privacy may be more reasonable.

B. PUBLIC NECESSITY

There is no question that the world changed on September 11, 2001. Although security measures were already in place in airports around the world,¹²⁵ the horrific events of that day showed the world just how important airport security is and how there was a need to strengthen the measures that were already in place. The fear and shock of that day has led to the acceptance of the idea that airport searches are administrative searches because the “post-9/11 world is now the same as a ‘highly regulated industry.’”¹²⁶ Many people believe that the “self-protective measures we have taken are reasonable and necessary given the threats we face.”¹²⁷

¹²³ The TSA screening process searches people and baggage for contraband such as guns, knives, and lighters. TSA: Screening Statistics, http://www.tsa.dhs.gov/research/screening_statistics.shm (last visited May 16, 2008). During 2006, the TSA screened 708,400,522 people, with an average wait time of 3.79 minutes and intercepted 13,709,211 prohibited items at security checkpoints. *Id.* Of these confiscated items, 11,616,249 were lighters and 1,607,100 were knives. *Id.*

¹²⁴ See Press Release, Barry Steinhardt, *supra* note 99 (“We [the ACLU] would like to see strong independent and legally binding assurance that the policy will be enforced and unchanged.”).

¹²⁵ Even before September 11, courts found that the need to deter and prevent airplane hijacking was “unquestionably grave and urgent.” *United States v. Davis*, 482 F.2d 893, 910 (9th Cir. 1973).

¹²⁶ See Post Details: Airport Screening Searches No Longer Considered a Matter of Implied Consent; They Are Regulatory Searches, and They Are Not Without Limits, http://fourthamendment.com/blog/index.php?blog=1&title=airport_screening_searches_no_longer_con&more=1&c=1&b=1&pb=1 (Aug. 11, 2007, 9:10 EST). See also *United States v. Aukai*, 497 F.3d 955, 962 (9th Cir. 2007) (holding that airport searches are limited by their justification—screening for terrorists).

¹²⁷ Clark, *supra* note 29. Justice Souter aptly expressed the current sentiment in his dissent in *United States v. Drayton*: “Anyone who travels by air today submits

The most recent case on this topic, *United States v. Aukai*, discussed the necessity of airport searches:

More than 700 million passengers board commercial aircraft in the United States each year. The Transportation Security Administration ("TSA") is given the task of ensuring their safety, the safety of airline and airport personnel and, as the events of September 11, 2001, demonstrate, the safety of the general public from risks arising from commercial airplane flights. To do so, the TSA conducts airport screening searches of all passengers entering the secured area of the airport.¹²⁸

Current metal detection is no longer sufficient to adequately safeguard passengers, as "hijackers . . . know of the existence of plastic explosives or even ordinary dynamite or contraband, and these items do not necessarily react to a magnetometer alarm."¹²⁹ Even in 1973, almost thirty years prior to 9/11, the technology was sufficient to push for new, more effective screening equipment, because at the time it was already possible to minimize the amount of plastic explosives needed to blow up an airplane and conceal such in a tube of toothpaste, using a fountain pen as a detonator.¹³⁰ Now, with the advances in science and technology, it is necessary to reform the current screening process, which seems antiquated, and consequently inadequate, considering it was put into place during a different era.

It is in the context of new technologies and their relationship to new dangers that society must assess the constitutionality of a search. Therefore, with the improvement of technology and the prevalence of public concern over air terrorism, it is highly necessary that the TSA continually adapt to society and evolve its own screening mechanisms in order to prevent substances that are undetectable under the current screening regime from posing a threat to passengers' safety. This argument alone is extremely persuasive in favor of balancing out the intrusion upon the privacy of the traveling public. Further, if the TSA does not try to utilize these new technologies, the commercial airline industry will likely suffer, as passengers either will be fearful that

to searches of the person and luggage as a condition of boarding the aircraft. It is universally accepted that such intrusions are necessary to hedge against risks that, nowadays, even small children understand." 536 U.S. 194, 208 (2002) (Souter, J., dissenting).

¹²⁸ *Aukai*, 497 F.3d at 956.

¹²⁹ James L. Buchwalter, Annotation, *Validity of Airport Security Measures*, 125 A.L.R. 5TH 281 (2005).

¹³⁰ *United States v. Moreno*, 475 F.2d 44, 49 (5th Cir. 1973).

the security is inadequate as terrorists find new ways to outsmart the outdated technology or will be just plain fed up with the shoes-off, Ziploc bag, and no water bottle routine. The need to revamp the screening process is apparent to both passengers and government officials alike, and the TSA has responded appropriately in trying to find a compromise between privacy, safety, and efficiency. Whole body imaging seems to be just that compromise.

C. EFFICACY

The final factor to weigh in analyzing the reasonableness of utilizing the backscatter x-ray and millimeter wave devices in airport screening is the new technologies' degree of efficacy.¹³¹ If the new technology cannot better serve the industry's heightened security needs, the intrusion upon individual liberty and privacy cannot be justified.¹³² Further, if the technology does not work, its ineffectiveness does not justify its cost.¹³³

There are concerns that the new technology is not any more efficient than the system currently in place. Barry Steinhardt of ACLU worries that a "very high percentage of the passengers who opt for a scan will still wind up being physically searched because TSA officials will have trouble distinguishing threatening objects from ordinary ones like a wallet."¹³⁴ While it would

¹³¹ See *United States v. Skipwith*, 482 F.2d 1272, 1275 (5th Cir. 1973).

¹³² One of ACLU's proposed principles of airline security is that "Physical Screening Techniques and Technologies Must be Effective, or they Should not be Utilized or Funded." In his statement before the U.S. Senate Committee on Commerce, Science, and Transportation, ACLU Legislative Council Timothy Sparapani testified that "Congress should not allow TSA to fund or implement physical [security] screening techniques and technologies that do not substantially advance passenger aviation security." *Hearing, supra* note 5.

¹³³ Just eight millimeter wave portals, such as the ones being tested in Phoenix, cost \$1.7 million, so to place these machines in airports across the country is a hefty investment. Dirner, *supra* note 78.

¹³⁴ Press Release, Barry Steinhardt, *supra* note 99. Sparapani from the ACLU testified that:

X-ray backscatter technology's routine use likely will lead to increased passenger screening delays and will certainly require subsequent searches for numerous passengers. For example, an image projected by X-ray backscatter that may look like a concealed gun or explosive device carried on a person will require TSA screeners to put the person through: (a) a conventional metal detector; (b) an explosives detection "puffer" machine; or (c) both. Further, even if an object is identified, TSA screeners will then need to pat the individual in question down and likely ask them to remove their clothing to verify what the object in question may be. Even the

be nearly impossible to keep every bad thing off of an airplane or eliminate every threat to passengers, it is the TSA's proscribed duty to try.¹³⁵ However, one of the TSA's new technologies, the ShoeScanner, that was being tested at the Orlando International Airport, has already been nixed due to its ineffectiveness when it failed to find explosives hidden in shoes.¹³⁶ On one hand, it is reassuring that TSA is responding quickly to inadequacies in machines that are being tested, yet, on the other hand, it is worrisome that new technologies are failing to track materials that pose a threat to passengers' security. However, TSA is continuing its trial-and-error testing to find a solution that works. For example, the new technology has software that can constantly be upgraded as technology increases.¹³⁷ This will allow the TSA to continue to work out kinks in its system and also be more effective in tracking technology, thus allowing the machine to change with new developments, rather than adding more bothersome security obstacles.

Proponents of the x-ray backscatter and millimeter wave machines have predicted that these new technologies will be the solution to the delays and inefficiencies involved in the current screening process.¹³⁸ The walk-through magnetometer only beeps when it detects metal, and it does not assist the TSA of-

presence of a seemingly innocuously shaped item, such as a prosthetic device or implant, will require subsequent (and potentially humiliating) verification. Thus, X-ray backscatter requires a tremendous invasion of privacy with little speed or efficiency gains.

Hearing, supra note 5.

¹³⁵ TSA: Transportation Security Laws, http://www.tsa.gov/research/laws/law_regulation_rule_0010.shtm (last visited Jan. 21, 2008). The TSA was established on November 19, 2001, in the wake of 9/11 by the Aviation and Transportation Security Act. *Id.* The Aviation and Transportation Security Act gave the TSA three major mandates, which include: "responsibility for security for all modes of transportation; recruit, assess, hire, train, and deploy Security Officers for 450 commercial airports from Guam to Alaska in 12 months; and, provide 100 percent screening of all checked luggage for explosives by December 31, 2002." Aviation and Transportation Security Act, Pub. L. No. 107-71, 115 Stat. 597 (2001).

¹³⁶ Thomas Frank, *TSA Pulls Plug on Orlando's ShoeScanner*, ABC NEWS, <http://abcnews.go.com/travel/story?id=3710258&page=1> (last visited Nov. 6, 2007).

¹³⁷ Grace Jean, *Airports Test Alternative Technologies for Checkpoints*, NAT'L DEFENSE MAG., Oct. 2007, <http://www.nationaldefensemagazine.org/issues/2007/October/Airportstest.htm> ("Because of the rapidly evolving terrorist threats to commercial aviation, TSA is examining baggage and passenger screening technologies that can adapt quickly to changing security requirements in airports. . . . Such systems will have upgradeable software.").

¹³⁸ See Better Imaging May Be Best Hope for Shorter Checkpoint Lines, AIR SAFETY WK., Jan. 30, 2006, http://findarticles.com/p/articles/mi_m0UBT/is_5_20/ai_n16035538.

ficers in locating contraband on an individual. Because of the imprecise general alert signaled by the magnetometer, the use of this device often heightens delays in airports security lines:

[B]ecause of the tight quarters most airport checkpoints have been squeezed into, and the linear nature of their layouts, passengers who set off an alarm force the rest of the queue to wait. Even if a person is pulled aside for a secondary scan and the line can move, the search for the detected object has to start all over again. In most cases, screeners don't really know what they're looking for, or where exactly it is. Multiplied by hundreds of passengers and false alarms, this is a tremendous waste of time and resources.¹³⁹

By utilizing the new whole body imaging methods such as the ones discussed in this comment, screeners will not only be able to quickly identify the object underneath a passenger's clothing, but will know exactly where on the body to look for the object. This will serve to cut down the lines passengers detest. Further, if the whole body imaging devices can "see through" clothing, it will no longer be necessary that we take it off, thus decreasing the security wait time since passengers no longer have as many steps to take before they can walk through a screening device.

Another of the magnetometer's fatal deficiencies is that it only detects metal, yet we are now in an age where weapons are not made exclusively of metal—as evident by the recent concern over liquid explosives. Thus, having scanning devices that can track the new dangers in air travel is vital. As it is impossible to remove human error from the equation, TSA has sought to minimize such error by depending more on automated machines (such as the millimeter wave portal) and perfecting the glitches in such machines through trial and error.¹⁴⁰ Thus, it seems that there is a strong likelihood that in the long run, the whole body imaging will have a much higher efficacy than the current methods, therefore presenting a persuasive counterargument to the invasion of privacy.

Public acceptance is an essential part of dictating the efficacy of the new technology. Since it is currently voluntary, it cannot help prevent contraband if people are not willing to use it. A

¹³⁹ *Id.*

¹⁴⁰ *Id.* L-3 Communications, the company that manufactures the millimeter wave portal currently being tested by the TSA, is currently investing \$25 million each year for research and development and is working on new software algorithms that will produce better resolution images and lower the probability of false alarms. *Id.*

study at Gatwick Airport, conducted by QinetiQ, to gauge feasibility and public acceptance of new technology, similar to the machines discussed in this paper, has "indicated that public reaction to the possible introduction of this technology into UK airports has been favorable, and that the performance of this imager in detecting specific threat items concealed on passengers, such as metal or ceramic weapons has been very encouraging."¹⁴¹ The TSA's trial of the backscatter x-ray machine has already had favorable results, as they have reported that seventy-nine percent of the public has opted to try the new backscatter x-ray machine in lieu of the traditional pat-down secondary screening method.¹⁴² The millimeter wave machine has had an even higher acceptance rate than the backscatter x-ray, with acceptance falling somewhere in the ninety percent range.¹⁴³ The fact that the public has been so receptive to the new technology will help allay some of the criticism of ineffectiveness or intrusion upon privacy. With such a large percentage of the traveling public receptive to the new screening devices, it is likely that this will only strengthen the "reasonableness" of these searches since such a standard is based on society's expectations.

IV. CONCLUSION

Now imagine standing in a moving line at the Dallas/Fort Worth International Airport. After placing your bags on the conveyer belt, you walk through portals while hardly breaking pace. Your feet and body are warm because you are wearing your shoes and jacket. Your pants are still sitting on your waist because you do not have to take off your belt. Your wallet and keys are still in your pocket, so you do not have to worry about leaving anything important behind. You walk through a scanner, pause for a few seconds (only a fraction of the time it would have taken you to take off your shoes, jacket, belt, and empty your pockets) while you engage in friendly banter with the TSA agent who has escorted you. After the agent sees the green light go off, indicating that you do not pose any danger to your fellow travelers, you are ready to enjoy your vacation. You are once again innocent until proven guilty, unlike under the antiquated magnetometer system, which made you feel like a criminal suspect just for traveling on an airplane.

¹⁴¹ COMM. ON ASSESSMENT OF SEC. TECHS. FOR TRANSP., *supra* note 90, at 57.

¹⁴² TSA Tests, *supra* note 2.

¹⁴³ TSA Chief's Goal: Win Back the Passengers, *supra* note 71.

While you may have concerns with a TSA officer being able to see a detailed outline of your body and whatever you are carrying underneath your clothes, you know that he cannot see your face. Unlike the intrusive pat-down, involving physical contact, you can remain untouched while at the same time feel safer that someone is watching you and your fellow passengers to make sure that no one is carrying forbidden or dangerous items aboard the aircraft. As are most things in life, this is a tradeoff.

Undoubtedly, as new technology becomes more prominent in airports across the country, this particular issue will make it before the courts sometime soon. In order to ensure that these useful new technologies are not found to be violative of passengers' constitutional rights and that the TSA will be able to continue implementing new methods to make traveling safer, Congress needs to work with the TSA to set guidelines and assurances that the new technology remains respectful of passengers' personal privacy. Current public acceptance of the machines is promising at the outset of the implementation of this new technology and should help allay privacy concerns and show that the public appreciates the more efficient airport screening process and thinks that it is reasonable. Once the privacy measures that the TSA has in place are confirmed to be a substantial safeguard against abuses, the balance will remain in favor of allowing TSA to conduct secondary screening with new technologies, as there is no doubt that there is a great need for screening measures that have evolved to keep up with the increased technology in air terrorism.



Articles

