

Appendix 2

**Answers to Written Questions on Notice from the
Department of Infrastructure and Transport**

30 April 2012

**Answers to Written Questions on Notice from the
Australian Radiation Protection and Nuclear Safety
Agency**

25 May 2012

Senate Rural and Regional Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Inquiry into the Aviation Transport Security Amendment (Screening) Bill 2012 [Provisions]

Department of Infrastructure and Transport

1) *Can the Department elaborate on the reasoning behind the Government's decision to withdraw the opt-out policy?*

There are three main reasons that led to the Government's decision to withdraw the opt-out policy.

- a) **Technology type:** From the time of the decision to introduce body scanners, the Government has been sensitive to the health and privacy concerns held by some members of the public in relation to the use of this technology. The Government determined that the best option to address these concerns was to limit the technology type to be used to millimetre-wave body scanners that are equipped with automatic threat recognition technology. This eliminates health concerns over the use of ionising radiation and also privacy concerns over the use of raw body images. It was felt that limiting the technology options in this manner alleviates the requirement for alternative screening arrangements to be offered.
- b) **Security outcome:** The objective of introducing body scanners is to detect items that are either difficult or impossible to detect by other means. Even where a passenger is frisk searched, the search would need to be highly intrusive to detect the type of items that a body scanner is designed to detect, but would be unlikely to be as effective. There has been extensive negative publicity in the United States about intrusive frisk searches. It is unlikely that frisk searches of the type used in the United States would be acceptable to the Australian public.
- c) **Cost effectiveness:** The Government and industry have made a considerable investment in this technology. This investment will only be justified if passengers who are selected to undergo a body scan have no general option to opt for an alternative means of screening.

The Office of Transport Security (OTS) has recently obtained a video showing the frisk searches used by the United States Transportation Security Administration to clear passengers who do not wish to undergo a body scan. This video contains 'sensitive security information' and has been released to OTS subject to certain restrictions on its storage and distribution. The video cannot be released to the public, however it may provide members of the committee with a better understanding of the sorts of alternative screening measures that have been applied elsewhere in countries where the 'no scan no fly' principle is not in place.

2) *Which overseas transport security regulators have implemented a no opt-out policy and which overseas transport security regulators provide an alternative screening option?*

The Government of the United Kingdom has a no-opt out policy applying to the use of body scanners. It has been reported that out of 1.5 million scans conducted in the UK, there have been 12 instances of passengers refusing to undergo a scan.

Transport Security Regulators in the United States, Canada, and the Netherlands use body scanners for security screening and allow passengers to opt-out in favour of an enhanced

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pat-down. Thailand also uses body scanners for aviation security screening on a purely voluntary basis.

3) *What is the Department's response to the following statement made by the Counter-Terrorism Unit, Department of Police and Emergency Management, Tasmania:*

Since there are major concerns with this technology in other countries it may be argued that it is an imposition on the freedom of Australians to be forced to use this technology. What makes this more problematic is the inclusion that 'a person is taken to consent to any screening procedure when at an aviation screening point'. This is a new definition of 'consent' that may need to be examined further. Consent is usually given by a person either verbally or in writing, it becomes difficult to administer if it is imposed by Parliament or occurs just from being at a specific location.

The 'major concerns' referred to in this submission relate to the detection capability of equipment that was used in a trial conducted in Germany using an early version of the automatic threat recognition software. The trial conducted at Sydney and Melbourne airports last year used a more advanced software version than the German trial. It is anticipated that a further upgrade will be available by the time the technology is rolled out at Australian airports.

The Department disagrees with the assertion made by the Department for Police and Emergency Management that "*This is a new definition of 'consent' that may need to be examined further. Consent is usually given by a person either verbally or in writing.*" Consent can take many different forms and can be express or implied depending on the circumstances.

The proposed consent provision seeks to ensure that passenger facilitation rates will be maintained by clarifying that a person does not need to consent expressly to a screening procedure. A person may, however, refuse a screening procedure.

The consent provision will also apply to other screening procedures such as a hand-held metal detector screening and explosive trace detection but will not apply to frisk searches. A passenger will still be asked for express consent before undergoing a frisk search.

4) *Can the Department provide details of studies that have been conducted in relation to the possible health impacts of body scanners on:*

a) airport workers who are required to pass through a full-body scanner on a regular basis;

No specific studies have been conducted on airport workers. However, individuals scanned by the L-3 millimetre-wave body scanner are exposed to exceptionally low levels of electromagnetic energy. These levels are thousands of times lower than that of a single mobile phone call and comparable to passive exposure from a mobile

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phone being used several metres away. The United States of America Transport Security Administration has stated that the technology emits 10,000 times less radio frequency energy than an average mobile phone call.

The power density that a person could be exposed to within the ProVision body scanner is significantly less than the maximum permissible exposure levels for the public specified in the Australian Radiation Protection and Nuclear Safety Agency's (ARPANSA) Radiation Protection Standard: *Maximum Exposure Levels to Radiofrequency Fields – 3 kHz – 300 GHz*. This standard sets a maximum permissible exposure level for members of the public, including children, of 10 watts per square metre. In comparison, the power density of the ProVision body scanner has been measured to be between 40 and 640 micro-watts per square metre (or between 0.00004 (4×10^{-5}) and 0.00064 (6.4×10^{-4}) watts per square metre), which is several thousand times less than the maximum exposure levels set in these standards. In addition, these measurements are taken at the closest accessible point, between 2-3 cm, to the antennas. Under standard operating conditions, the individual being scanned is about 30 – 60 cm from the antenna.

b) airport workers who are required to work in close proximity to a body scanning device for long periods of time.

The waves emitted during a scan are directed towards the interior of the body scanner. Outside the scanner, the exposure of aviation security screeners responsible for operating millimetre-wave body scanners working everyday in close proximity to these machines is considered to be insignificant.

5) Can the Department explain why the legislation as drafted, does not specifically rule out or limit the use of ionising radiation?

Specifications for equipment used in aviation screening are typically outlined in an Aviation Screening Notice under Section 4.17 of the Aviation Transport Security Regulations 2005. The requirement for airports to implement body scanners that use non-ionising radiation will be included in this Notice. The reason for detailing equipment specifications in a Notice rather than in the Act is that screening technology capabilities continually evolve and new, improved technologies continue to emerge. The Screening Notice provides the flexibility to update technology requirements in accordance with the latest developments.

6) What assurance can the Department provide that appropriate assessments of new body scanning technologies would be conducted prior to their future introduction?

It is a requirement that all equipment introduced at Australian airports is approved by an overseas transport security regulator that is recognised by the Australian Government. This means that the equipment must meet certain standards in terms of its ability to detect aviation security threats. The Government does not intend to allow the introduction of equipment that is not appropriately certified.

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7) *Can the Department provide the Committee with a copy of the final report in relation to the Trial?*

The Committee was provided with a copy of the trial report on Thursday, 29 March as part of the Department's submission to this inquiry. A copy of this report has also been made available to the public on the Department's TravelSECURE website.

8) *Can the Department also provide the Committee with detailed information regarding:*

a) the numbers of passengers who volunteered to take part in the Trial as opposed to those who voiced concerns about the new technology;

A total of 23,577 scans were conducted during the trial held at Sydney and Melbourne international airports.

Refusal data was only captured at the Sydney Airport trial. During this phase of the trial 4,542 scans were conducted and 437 passengers who were approached to take part in the trial declined to volunteer. Of those passengers who declined to participate, their reasons were as follows:

- 67% indicated they were in a hurry and did not have time to participate in the trial.
- 11% were unable to participate due to language difficulties.
- 11% cited health related concerns;
- 8% cited privacy concerns; and
- 3% cited other reasons.

b) the average and the maximum time taken to process passengers using the new technology and how that compares with existing screening methods;

Data captured during the trial indicates that the average time for a person to be processed (from divesting at the X-ray machine to being reunited with their belongings) through the body scanner lane was 122 seconds compared with an average time of 97 seconds through the walk-through metal detector lane. The maximum time recorded for processing a passenger through the body scanner lane was 606 seconds compared with 224 seconds for the walk-through metal detector.

Part of the reason that processing was longer in the body scanner lane is that each passenger required a briefing on the new technology to ensure they understood the process and could give informed consent to participate in the trial. They were also required to divest more items than they were accustomed to divesting at aviation screening points. It is anticipated that as the travelling public becomes familiar

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with the technology, this processing time will decrease. It was also noted that when the body scanner alarmed and a frisk search was required to resolve the alarm, that search took less time than a frisk search to resolve a walk-through metal detector alarm, because the body scanner pinpoints the location of the item whereas the walk-through metal detector does not.

c) *the percentage of “false alarms” triggered during the trial and level of delay created by “false alarms”.*

As expected, due to its ability to detect both metallic and non-metallic items, passengers alarmed considerably more frequently when screened by the body scanner than the walk-through metal detector, with the data suggesting that the average passenger is six times more likely to alarm in the body scanner. The trial involved 23,577 body scans, with 57 percent of passengers cleared to proceed immediately after being scanned.

Due to the ability of the body scanner to detect a greater range of items than the walk-through metal detector, passengers were required to divest items that they were not accustomed to divesting at aviation screening points, such as tissues, pills etc. A divestible item is any personal effect within or underneath a person's clothing, or on a person's body, which can be easily removed by the person and screened by X-ray equipment. On average, the body scanner detected 230 divestible items per 1000 passengers compared with 49 divestible items per 1000 passengers for the walk-through metal detector. The five most common divestible items detected by the body scanner were high boots with buckles, currency, hairclips, watches and jewellery including bangles, bracelets and necklaces. As watches and many jewellery items are worn on the wrist or hand, body scanner alarms resulting from these items could usually be resolved by a quick visual inspection.

A higher number of non-divestible items caused alarms on the body scanner than on the walk-through metal detector. The five most common non-divestible items detected by the body scanner during the trial were clothing items such as pockets on cargo pants, studs on jeans, additional zips and buttons, baggy clothes that created folds in the material and sequins on shirts. As the majority of these alarms occurred in the leg area, they could usually be resolved by a quick targeted frisk search to determine that there were no other items present. Once screening officers became familiar with these types of alarms, it was easier for them to identify the source of the alarm and quickly resolve it. As the technology is deployed, screening officers will become increasingly familiar with non-divestible items that may cause the body scanner to alarm.

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9) *How does the Department intend to ensure that the Government's policy in relation to the use of images is made widely known to Stakeholders, community organisations and the general public?*

The Aviation Transport Security Amendment (Screening) Bill contains a provision which specifies that any image of a person produced by a body scanner must be a generic body image that is gender-neutral and from which the person cannot be identified. The Department has released media statements which display the generic "stick figure" image that will be used to display the results of each scan. In addition, it has released a comprehensive Privacy Impact Assessment (PIA) outlining the Government's policy in relation to body scanner images. The PIA, along with answers to frequently asked questions about body scanners, is publicly available on the Department's TravelSECURE website.

10) *Is it the Government's intention to include a definitive statement to the effect that "the body scanners to be used at Australian airports will not be equipped with the imaging software or workstations, nor will they be physically able to store or transmit data collected from the scans, no images can be reconstructed"?*

This statement has been made in the Department's Privacy Impact Assessment. The Scrutiny of Bills Committee has also requested that the Aviation Transport Security Amendment (Screening) Bill be amended to include a provision that explicitly states that data from individual scans will not be stored or transmitted and the Department intends to comply with this request.

11) *What other signage or information will be provided to passengers in the vicinity of the body scanners?*

Changes will be made to the Aviation Transport Security Regulations 2005 to mandate that official signage be placed at screening points to inform passengers that it will be assumed that they consent to all screening process with the exception of a frisk search when they enter the screening point, unless they expressly state their refusal to undergo a particular screening procedure.

Informational signage will also be placed at screening points to inform passengers that body scanners are in operation and advise them of what they need to do to prepare to undergo a body scan.

Each airport will decide on the type of communications medium that is appropriate to their airport. Resources that will be made available to them by Government include:

- static signage for display at or near screening lanes outlining divesting procedures;
- dynamic signage for use on digital screens; and
- an instructional DVD assisting passengers to prepare for the screening process.

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12) Can the Department provide specific, detailed information regarding the type of training airport screening staff will be required to undertake, particularly in light of the Government's current policy in relation to a "No Opt-out policy", and issues that may be anticipated in conducting full-body scans of passengers with a disability and members of the transgender and intersex communities.

Regulation 5.06 of the Aviation Transport Security Regulations 2005 specifies the training and qualification requirements for screening officers. The Department works with the Transport and Logistics Industry Skills Council in developing screener competencies including the need for disability awareness and gender awareness.

The screening service provider companies are responsible for providing training for screening officers. During the body scanner trial conducted last year, the screening providers recognised the need for screening officer training to have an increased focus on factors such as tolerance, cultural and disability awareness, and conflict resolution. At least one screening provider has been in contact with members of Organisation Intersex International Australia to gain their assistance in developing training materials for screening officers.

The Department currently provides guidance for screening providers in relation to the screening of persons with a disability. The Department also engages regularly with disability groups through the Aviation Access Working Group in order to address stakeholder concerns.

SENATE RURAL AND REGIONAL AFFAIRS AND TRANSPORT COMMITTEE
Aviation Transport Security (Screening) Bill 2012

ANSWERS TO QUESTIONS ON NOTICE

HEALTH AND AGEING PORTFOLIO

Question no: 1

OUTCOME 1: Population Health

Topic: ARPANSA's view on research on millimetre wave findings

Written Question on Notice:

Senator Ludlam asked: What is ARPANSA's view on research conducted by Boian S. Alexandrov (and colleagues) at the Center for Nonlinear Studies at Los Alamos National Laboratory in New Mexico which found that millimetre waves could "...unzip double-stranded DNA, creating bubbles in the double strand that could significantly interfere with processes such as gene expression and DNA replication."?

Answer:

The Australian Radiation and Nuclear Safety Agency (ARPANSA) has considered the 2010 paper by Alexandrov and colleagues referring to the possibility that terahertz (THz) frequency electromagnetic waves of sub-millimetre wavelength could produce genetic damage.

The Alexandrov et.al. publication describes a theoretical investigation of a mathematical model of possible interactions between terahertz (1 THz = 1,000,000,000,000 Hz) electromagnetic fields and DNA. Because details of the exact physical interaction between the radiation and the DNA are not known, the study makes various assumptions that affect its conclusions but which may not apply in living human tissue. The potentially damaging effects on DNA discussed in the paper occurred at simulated exposure levels well above current safety limits.

ARPANSA does not consider that the Alexandrov research should raise concerns about the safety of the currently proposed scanning technology which uses very low level exposures of short duration in a much lower frequency range. It may, however, highlight the importance of research in the higher THz frequency region if technologies using this range are being considered.