

SCHEDULE 7(B)

[Regulation 50(2)(c)]

This Attachment should be read in conjunction with the log sheet for the combined test piece. A tick on the log sheet should be used to record each correct image.

Together, tests 3 and 5 will also demonstrate the machine's dynamic range.

Test 1A: Single Wire Resolution

The Requirement is to Display the 33 Gauge Wire not Covered by the Step Wedge.

(A tick should be used on the log sheet to indicate visible wires.)

This test defines the ability of the system to display a single thin wire, 33 SWG (standard wire gauge, 0.254 mm). The composition of the wire should be un-insulated tinned copper wire. Wires of 25 SWG (0.508 mm), 33 SWG (0.254 mm), 36 SWG (0.193 mm), and 40 SWG (0.122 mm) are included in the CTP to demonstrate whether the X-ray machine single wire resolution capability surpasses that required or if its performance has deteriorated with time. The wires are laid out in "S" shaped curves.

Test 1B: Useful Penetration

The Requirement is that the 25 Swg Wire be seen under the Second Step of the Wedge (5/16").

This test defines what level of detail should be seen behind a thickness of a known material. The CTP has different gauges of wire behind varying thicknesses of aluminium. This is similar to the American Society for Testing and Materials (ASTM) step wedge that has wires behind the steps.

Test 2: Material Discrimination

The Requirement is that Different Colours be Allocated to the Sample of Organic and Inorganic Substances.

With multi-energy X-rays, it is possible to distinguish between materials of different average atomic number. This means that organic and inorganic substances can be differentiated. (Multi-energy, dual - energy and materials differentiation are considered synonymous in the present context.) The use of sugar and salt samples encapsulated on the test piece, as well as the various materials used in the construction of the CTP, will check the material discrimination facility. The present requirement is to allocate different colours to different types of material. This test is applicable only to those machines with this facility. A tick will indicate that the two samples are shown in different colours.

Test 3: Simple Penetration

The Requirement is that the Lead be Visible beneath 14 Mm of Steel.

This test defines what thickness of steel the machine should be able to penetrate. The steel step wedge on the CTP begins with a 12 mm depth, with 2 mm increments per step up to 24 mm. A lead strip runs under the length of the wedge to check the capability of the machine. Ticks should indicate where the lead strip is visible.

Test 4: Spatial Resolution

The Requirement is that a Vertical and Horizontal Grating be seen.

This test defines the ability of the system to distinguish and display objects which are close together. The CTP tests this aspect of performance by using 16 copper sheet gratings at right angles to each other. A tick on the log sheet will indicate that gaps in the gratings are visible.

Test 5: Thin Metal Imaging

The Requirement is to Image Steel 0.1 Mm thick.

This tests the machine's ability to image thin metal.

The staff should be rotated regularly among the positions during a tour of duty. No person should be required to scrutinize X-ray images continually for more than 20 minutes and should not resume this duty again for a further 40 minutes. This rotation can be easily achieved if the X-ray operator and bag searchers operate as a separate working unit with each X-ray operator actually searching the items he or she selects for hand search. This also serves to improve their X-ray image interpretation knowledge base.

In lieu of the general guidance provided above, a precise formula for determining passenger security screening area staffing requirements may be developed by States. Such a formula should take into account anticipated passenger flow, flight schedules, type of aircraft and the possible requirement for the screening of persons other than passengers.