

Radiation Protection Act 2005 – Section 17

CERTIFICATE OF COMPLIANCE:

STANDARD FOR RADIATION APPARATUS

X-RAY INDUSTRY

(INDUSTRIAL RADIOGRAPHY)

SECTION 1: REQUIREMENTS FOR CERTIFICATES OF COMPLIANCE FOR
CLASSES OF RADIATION APPARATUS

SECTION 2: PARTS OF STANDARDS AND CODES OF PRACTICE ADOPTED BY
THIS STANDARD

This information can also be accessed at
http://www.dhhs.tas.gov.au/peh/radiation_protection

Section 1 – REQUIREMENTS FOR CERTIFICATES OF COMPLIANCE FOR CLASSES OF RADIATION APPARATUS.

This Standard is to be used when assessing Radiation Apparatus, classified by Radiation Protection Act 2005 licences as “X-ray industrial radiography”, for the purpose of issuing a certificate of compliance.

In order for a certificate of compliance to be issued the Radiation Apparatus must be shown to fully comply with the requirements in Section 2.

† Where an item was demonstrated to comply at the time of manufacture or supply, ongoing compliance for that item may be stated only if it is reasonable to assume there has been no change, modification, damage or unacceptable wear and tear to that item since the time of manufacture.

The requirements in Section 2 are taken from the following: Australian and New Zealand Standards that are listed as “requirements” in Section 2.

RHS 31

National Health and Medical Research Council “Code of Practice For the Safe Use of Industrial Radiography Equipment (1989)”

Section 2 – PARTS OF STANDARDS AND CODES OF PRACTICE ADOPTED BY THIS STANDARD.

ITEM	Requirements
Shielding	The X-ray tube must be contained in a housing that provides shielding from radiation in all directions other than the beam direction. The shielding must be sufficient to ensure that dose rates 1 m from the housing do not exceed 5000 $\mu\text{Sv/h}$ under conditions of continuous operation at maximum energy and output. Note this is to be measured remotely or by using a survey meter that integrates its readings. RHS 31 5.2.1.1
Filtration available	For X-radiography at an open site the X-ray tube must incorporate filtration to reduce scattered radiation. RHS 31 5.2.1.2
Key switch	A key switch must be fitted to the X-ray control panel to prevent unauthorized use. The key must be removable only when the switch is in the off position. The function of the key switch and its on and off positions must be clearly marked on the control panel. RHS 31 5.2.1.3
X-ray ON/OFF	X-ray on and off controls must be physically separate from the key switch. Their function, and the on and off positions, must be clearly marked on the control panel. RHS 31 5.2.1.4
Exposure termination	5.2.1.5 A device must be provided which must terminate the production of X-rays after a preset interval not exceeding 30 minutes. RHS 31 5.2.1.5
Exposure indication	A red or amber indicator lamp must be provided on the control panel and must be automatically illuminated when the X-ray tube is energised. This lamp must be duplicated on the X-ray tube housing and operate in parallel with its counterpart on the control panel and must be visible from a distance of at least 10 m. An interlock must be provided such that if either of the “beam on” indicator lamps fails, the X-ray tube cannot be energised, and replacement of the lamp will not automatically re-energise the X-ray tube. RHS 31 5.2.1.6
Indicators	The control panel must be equipped with a device or devices indicating the X-ray beam energy and output in terms of the X-ray tube potential difference (kV(peak)) and current (mA) or electron energy and dose rate, as appropriate. For equipment that is used at an open site, the values indicated must be clearly legible in bright sunlight. RHS 31 5.2.1.7
Remote warning lights	For open site radiography, the control panel must be fitted with a means of connecting a remote flashing light or a series of remote flashing lights which can be used to define a boundary or provide a visible warning when the equipment is energised. RHS 31 5.2.1.8

Cable length	The length of cable connecting the control panel with the X-ray tube must be not less than: 7 m for X-rays less than 100 kV(peak); 10 m for X-rays less than 200 kV(peak); 15 m for X-rays less than 250 kV(peak); and 20 m for X-rays over 250 kV(peak); unless the X-ray equipment is within, and operated from outside, a fully enclosed or partially enclosed site. RHS 31 5.2.1.9
Direct Viewing Fluoroscopy	Direct viewing fluoroscopy is prohibited by the Radiation Protection Regulations 2006.
Crawler Only	
Audible Warning	Each crawler must have a klaxon fitted to it. After the crawler has reached the exposure position, this klaxon must automatically operate continuously for a warning period of 10 seconds immediately prior to the commencement of the exposure. While the exposure is taking place, the klaxon must continue to operate in a manner distinguishable from the 10 second warning. RHS 31 5.2.2.1
Audible outside pipes and in an industrial site	The klaxon should be loud and distinctive enough to be heard clearly above all other noise sources in the vicinity of the crawler. In most cases, persons in the vicinity will be outside the pipe within which the crawler is operating and therefore the klaxon should be clearly audible through the pipe wall. RHS 31 5.2.2.2
Width of X-ray beam	The width of the useful X-ray beam must not exceed 200 mm at the circumference of the pipe within which the crawler is operating. RHS 31 5.2.2.3
Protection against unintended exposure by remote control	An X-ray crawler, for which exposures are initiated by remote control or by an automatic device such as a trip wheel, must have a safety device fitted to it which prevents the remote control or the automatic device from initiating an exposure unintentionally. RHS 31 5.2.2.4
Disconnect power if malfunction	An X-ray crawler must incorporate a safety device which disconnects power from the propulsion unit in the event of a malfunction during operation. RHS 31 5.2.2.5