



NATIONAL PHYSICAL LABORATORY

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Certificate of Calibration

Determination of the shielding properties of Lead vinyl samples

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FOR:

Kemmetech Ltd
Unit 4 Arnold Business Park
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Kent
TN12 5HE

DESCRIPTION:

Determination of Lead equivalence of Lead vinyl samples in accordance with BS EN 61331-1:2002

DATE OF MEASUREMENTS: 4 June 2013

Reference: 2013070243-14

Date of Issue: 15 July 2013

Checked by: 



Signed: 

Name: G A Bass

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(Authorised signatory)

on behalf of NPLML

CONDITIONS:

Distance from x-ray tube to target sample: 0.5m
 Distance from x-ray tube to detector: 1.1m
 Ionisation chamber used: TS100M

All equipment associated with the measurements performed in this report has direct traceability to UK national standards or UKAS accredited calibration facilities. The samples were circular in cross section with a diameter of approximately 110mm.

Table I
61331-1:2002 X-ray beam qualities

<u>X-ray Tube Voltage</u> kV	<u>Additional filtration</u> mmCu
60*	0.075
80	0.15
100	0.25
120*	0.35

*These qualities are in addition to BS EN 61331-1:2002

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Continuation Sheet

RESULTS:

Table II

Galena Scanner Curtain vinyl sheet G5000, 0.275mm nominal Lead equivalent

<u>kV</u>	<u>Equivalent Lead thickness</u> mm	<u>Attenuation</u> %
60	0.2553	97.9
80	0.2623	90.4
100	0.2649	80.8
120	0.2622	74.6

Table III

Galena Scanner Curtain vinyl sheet G7200, 0.400mm nominal Lead equivalent

<u>kV</u>	<u>Equivalent Lead thickness</u> mm	<u>Attenuation</u> %
60	0.3849	99.4
80	0.3981	95.5
100	0.3986	89.5
120	0.3973	85.8

Attenuation = $1 - \text{attenuated/un-attenuated} \times 100$

UNCERTAINTIES:

The uncertainty in the Lead equivalence is 5%. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

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Checked by: 
