



**Radiological Protection Instrument  
Certificate of Calibration  
No. 5013**

CERTIFICATE OF TEST

**A. Name and address of user:**

**FCC Enviroment Ltd**  
Lillyhall Landfill Site  
Workington  
Cumbria  
CA14 4JP

FAO:Mr L Hornsby

**B. Details of instrument and use:**

Description: **TRACERCO T401-1**  
Serial No: **111317 FCCECUM007**  
Use: Detection of alpha and beta surface contamination

**C. Details of calibration:**

Date: **14 March 2017**  
Type of calibration: Annual calibration  
Calibration conditions: The instrument's linearity was determined using a range of <sup>90</sup>Sr + <sup>90</sup>Y ISO extended area contamination plaque sources. The response to a variety of other nuclides was also measured.  
Source to detector separation: 3 mm from the front of the detector  
Orientation: Radiation beam perpendicular to detector window  
Uncertainties: The uncertainties stated in this certificate are expressed at the 95% confidence level.  
Traceability: All source activities quoted in this certificate were derived from emission rate measurements using a P factor of 2. All emission rate measurements are directly traceable to national standards via UKAS accredited calibration facilities.

**D. Results of calibration:**

Satisfactory for measurements performed  
See over

**E. Compliance with the Ionising Radiations Regulations 1999:**

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by: Mr J Harrison

Signature: 

Approved by (Qualified Person): Mr J Harrison

Signature: 

Date of issue: 14 March 2017

PASS



**Radiological Protection Instrument  
Certificate of Calibration  
No. 5012**

CERTIFICATE OF TEST

**A. Name and address of user:**

**FCC Enviroment Ltd**  
Lillyhall Landfill Site  
Workington  
Cumbria  
CA14 4JP

FAO: Mr L Hornsby

**B. Details of instrument and use:**

Description: **TRACERCO T401-1**  
Serial No: **111316 FCCECUM004**  
Use: Detection of alpha and beta surface contamination

**C. Details of calibration:**

Date: **14 March 2017**  
Type of calibration: Annual calibration  
Calibration conditions: The instrument's linearity was determined using a range of <sup>90</sup>Sr + <sup>90</sup>Y ISO extended area contamination plaque sources. The response to a variety of other nuclides was also measured.  
Source to detector separation: 3 mm from the front of the detector  
Orientation: Radiation beam perpendicular to detector window  
Uncertainties: The uncertainties stated in this certificate are expressed at the 95% confidence level.  
Traceability: All source activities quoted in this certificate were derived from emission rate measurements using a P factor of 2. All emission rate measurements are directly traceable to national standards via UKAS accredited calibration facilities.

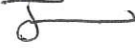
**D. Results of calibration:**

Satisfactory for measurements performed  
See over

**E. Compliance with the Ionising Radiations Regulations 1999:**

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by: Mr J Harrison

Signature: 

Approved by (Qualified Person): Mr J Harrison

Signature: 

Date of issue: 14 March 2017

PASS



**Radiological Protection Instrument  
Certificate of Calibration  
No. IT/3/29819**

**A. Name and address of user:**

FCC Environment Ltd  
Lillyhall Landfill Site  
Workington  
Cumbria  
CA14 4JP  
FAO: Mr L Hornsby

**B. Details of instrument and use:**

Description: LUDLUM MODEL 193-6 with 44-132  
Serial number: 281473 P:PR302842  
Reference: **FCCECUM003**  
Use: Detection of gamma/X-ray radiation dose rates above 60keV

**C. Details of calibration:**

Date: 13 March 2017  
Type: Periodic examination and calibration.  
Measurements performed: The instrument was calibrated over a range of ambient dose-equivalent rates using <sup>137</sup>Cs gamma radiation (662 keV). The response to <sup>241</sup>Am gamma radiation (60 keV) was also determined.  
Uncertainties: The uncertainties stated in this certificate are expressed at the 95% confidence level.  
Traceability: All the equipment associated with the measurements performed in this certificate have calibrations directly traceable to national standards via the National Physical Laboratory or UKAS accredited calibration facilities.

**D. Results of calibration:**

Satisfactory for the measurements performed.  
See page 2 for table of results and response factors.

**E. Compliance with the Ionising Radiations Regulations 1999:**

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by: K Whitfield

Signature:

Approved by (Qualified Person): J Harrison

Signature:

Date of issue: 13 March 2017

CERTIFICATE OF TEST

PASS



**Radiological Protection Instrument  
Certificate of Calibration  
No. IT/3/29820**

**A. Name and address of user:**

FCC Environment Ltd  
Lillyhall Landfill Site  
Workington  
Cumbria  
CA14 4JP  
FAO: Mr L Hornsby

**B. Details of instrument and use:**

Description: LUDLUM MODEL 193-6 with 44-132  
Serial number: 281534 P:PR302841  
Reference: **FCCECUM001**  
Use: Detection of gamma/X-ray radiation dose rates above 60keV

**C. Details of calibration:**

Date: 13 March 2017  
Type: Periodic examination and calibration.  
Measurements performed: The instrument was calibrated over a range of ambient dose-equivalent rates using <sup>137</sup>Cs gamma radiation (662 keV). The response to <sup>241</sup>Am gamma radiation (60 keV) was also determined.  
Uncertainties: The uncertainties stated in this certificate are expressed at the 95% confidence level.  
Traceability: All the equipment associated with the measurements performed in this certificate have calibrations directly traceable to national standards via the National Physical Laboratory or UKAS accredited calibration facilities.

**D. Results of calibration:**

Satisfactory for the measurements performed.  
See page 2 for table of results and response factors.

**E. Compliance with the Ionising Radiations Regulations 1999:**

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by: K Whitfield

Signature:

Approved by (Qualified Person): J Harrison

Signature:

Date of issue: 13 March 2017

CERTIFICATE OF TEST

PASS