



Interwest Health Physics

RESPONSE FOR PANCAKE TUBE SURVEY METER

Response data for the 2" T-1190 GM Pancake Tube instruments follow:

The graph represents data gathered from eighteen different calibrations on different instruments. Five instruments were calibrated two times each. The rest were calibrated one time. Three curves are present in the graph, the highest, lowest, and average responses.

Calibration conditions, limitations, and assumptions (caveats) are listed below:

1. Backscatter from aluminum backing of sources is not accounted for.
2. The apparent activity is derived from the actual activity of the sources by accounting for the attenuation of 0.9 mg/cm² aluminized mylar covering over the source material by using the following correction factors.

ISOTOPE	AVERAGE BETA KEV	TRANSMISSION FACTOR
C-14	49.5	0.80
Pm-147	62	0.88
Tc-99	84.6	0.92
Cl-36	251.3	0.97
Sr-90/&-90	565.3*	0.99

* Arithmetical average of the average energy of Sr-90 and Y-90.

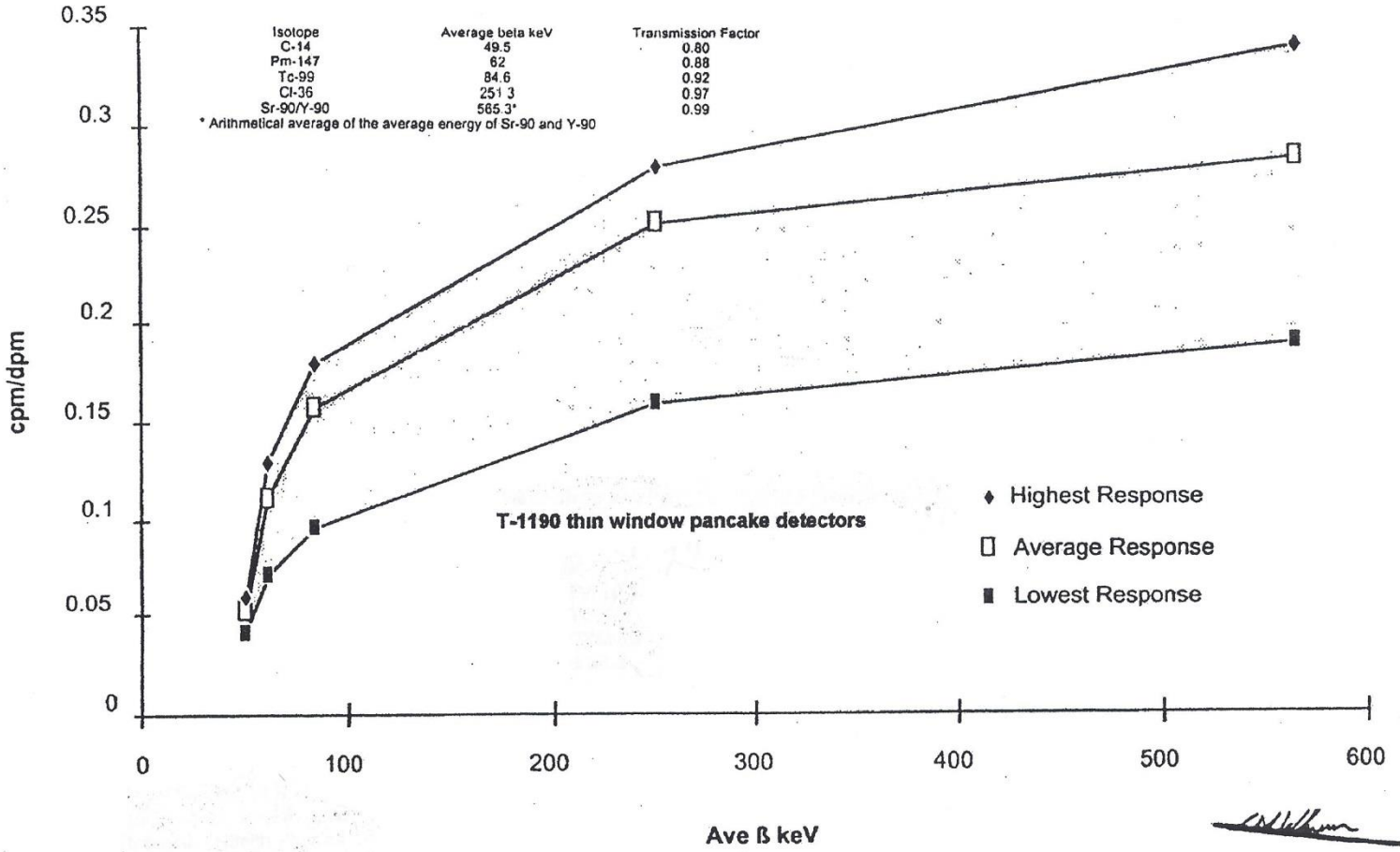
3. Average energy reduction not accounted for by mylar covering.
4. Point source is centered on the tube face and is nominally 0.5 cm from grid covering the GM tube.
5. Sources are New England Nuclear NES-269 Multimount Sources.

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Certified Health Physicist

Average Beta Pancake Response

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C-14	49.5	0.80
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Sr-90/Y-90	565.3*	0.99

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William

SENSITIVITY OF 2" T-1190 GM PANCAKE TUBE FOR GAMMAS OF I-125

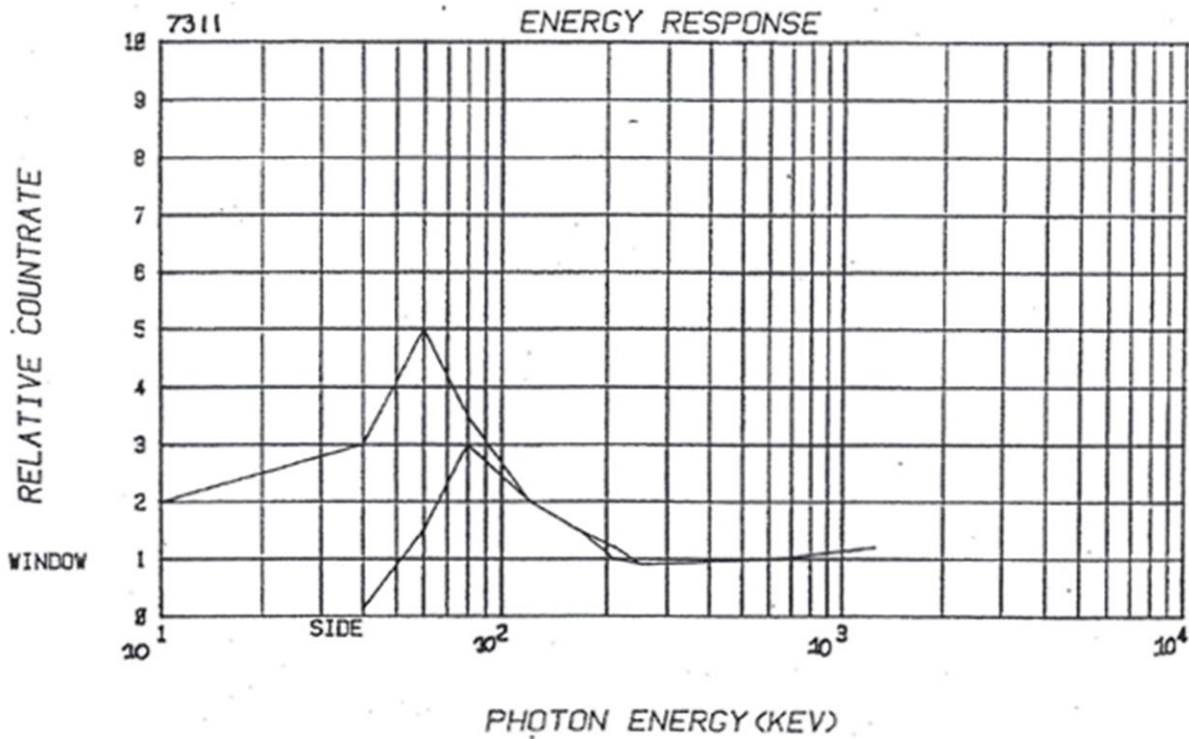
1. By measurement using I-129 surrogate.
130 cpm net from 0.05 μCi -I-125 @ 30% geometry.
2. By chart p16 Radiation health Handbook US HEW:PHS 1957 as amended.
 3×10^6 photons / $\text{cm}^2/\text{s}/\text{r}/\text{hr}$ for 30 KeV Gammas.
3. $\frac{15.5 \times 10^6}{1000} = 4.6 \times 10^4$ photons strike detector window normal to
1mR/hr flux for I-125.
4. $4.6 \times 10^4 \times 0.03 \times 60 = 8400$ cpm/mR/hr for I-125.

TECHNICAL ASSOCIATES INSTRUMENTS USING THE 2" T-1190 GM PANCAKE TUBE

MODEL	TITLE
AIR-TBM	Air Monitor Multi-Use Radiation Monitor - Alpha, Beta Gamma
TBM-3	Surface Contamination Monitor - Alpha, Beta, Gamma, X-Ray
TBM-3S	Surface Contamination Monitor - Alpha, Beta, Gamma, X-Ray
TBM-3SR	Surface Contamination Monitor - Alpha, Beta, Gamma, X-Ray
TBM-3SR-D	Digital Contamination Monitor - Alpha, Beta, Gamma, X-Ray
TBM-15	Frisker - Alpha, Beta, Gamma, X-Ray
TBM-15C	Wide Range Frisker - Alpha, Beta, Gamma, X-Ray
FM-9-AB2	Alpha, Beta, Gamma Air Monitor
FM-9-M2	Beta Particulate Air Monitor
FM-9-ABGN	Beta, Gamma Particulate Air Monitor
FM-9-XE	Xenon Air Monitor
P8-NEON	Quick Scan X-Ray Detector - Alpha, Beta, Gamma, X-Ray
HSM-10B	Hand & Shoe Monitor – Alpha, Beta, Gamma
ABF-M-5	Floor Monitor – Alpha, Beta, Gamma
MEDA-SP	Radiation Safety Water Monitor – Alpha, Beta, Gamma
P-15	Alpha, Beta, Gamma Probe
P-28	Long Arm Alpha, Beta, Gamma Probe
P28-4	Long Arm Alpha, Beta, Gamma Probe – (4) T-1190 GM Pancake Detectors

Designers & Manufacturers of **LND, INC.** Nuclear Radiation Detectors

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GAMMA & X-RAY