AMPEREX TYPE 5942
PERMANENT SENSITIVITY BETA-GAMMA COUNTER

DESCRIPTION:

The type 5942 is a thin, stainless steel wall counter tube whose characteristics are similar to those of the 30 mg/cm^2 glass wall tubes. However, the materials used in this tube and their special processing permits the use of the halogen-quenched Neon filling which has permanent characteristics. The metal wall of this tube is also mechanically stronger than the fragile thin glass walls of comparative types.

This tube is commonly used in survey instruments for Beta and Gamma detection and in hand and foot monitoring instruments where it is necessary to measure Beta in the presence of Gamma radiation.

GENERAL DATA:

Operating temperature range	-55° to+ 75°C
Gas filling	Neon plus halogen admixture
Length of thin wall section (Cathode wall thickness 30-40 mg/cm^2)	3 inches total
Cathode material	stainless steel 28% chromium, 72% iron)
Overall cathode dimensions	3½" long x .607" I.D. (3" of 30-40 mg/cm^2+ ½" of 176 mg/cm^2)

PERFORMANCE DATA:

Operating voltage 1,3,	700 volts D.C.
Plateau length 1	in excess of 200 volts
Slope of plateau 1,4	10% per 100 volts max.
Starting voltage (0.3 volt pulses)1	825 volts max.
Capacity at terminals	2.4 mmf
Radial sensitivity (approx.)	80%
Dead time (approx.)	100 microseconds
Maximum counting rate 5	1700 counts per second
Background (Shielded 2" lead and 1/8" aluminum)	50 counts per minute max.
Life expectancy in counts 2	unlimited by use
Roentgen energy dependence 6	±20%

NOTES:

1 This data is obtained from an automatic plateau trace run on each tube. A print of this trace is shipped with each tube.
2 Guaranteed 5 x 10^{10} counts minimum.
3 These tubes will operate satisfactorily anywhere on the plateau.
4 At an average counting rate of 100 counts per second.
5 For 20% dead time correction (approx.).
6 Calculated value based on radiocobalt gamma center value with 100KV to 3 M.E.V. extremes, with gamma shield equivalent to 1/16" thick steel.

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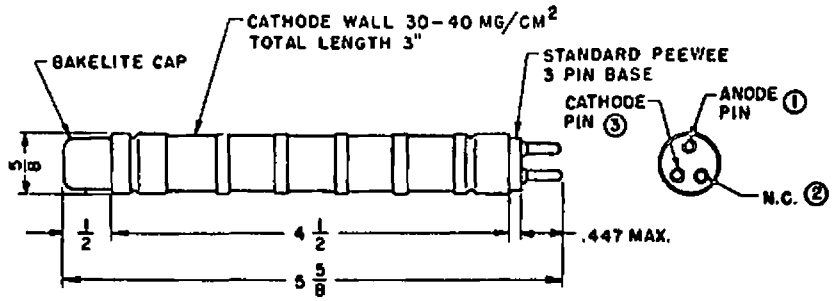

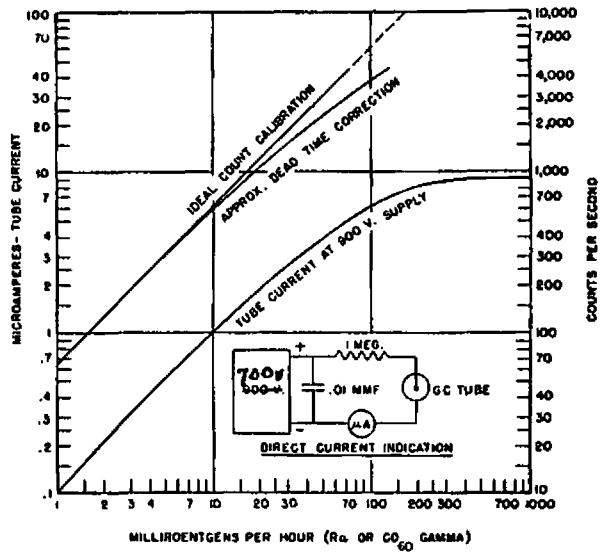
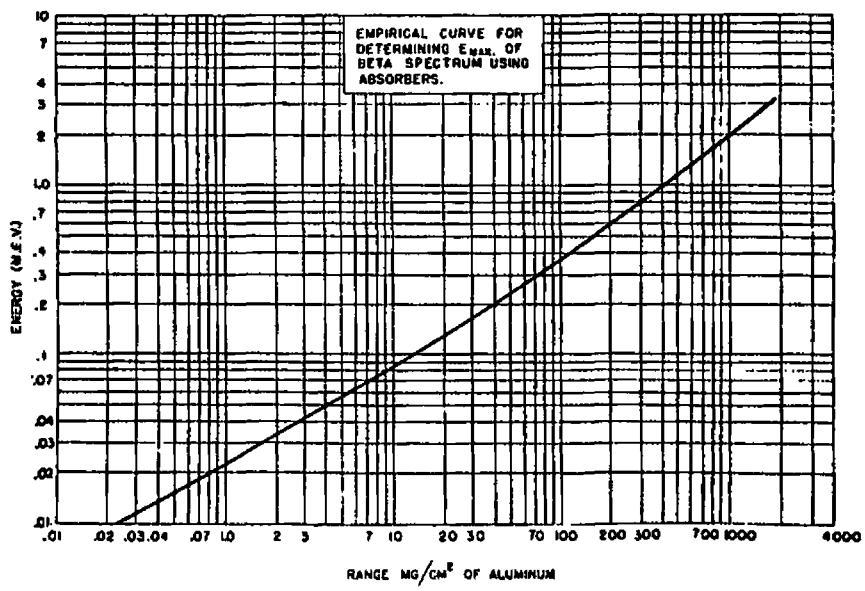
TYPICAL OPERATION