



CERTIFICATE FOR RADIOACTIVE SEALED SOURCE

Manufacturer: Communications & Power Industries, LLC
Model Designation: VDS1630
Serial Number(s): 2081, 2082, 2258, 2259, 2080
Product Description: Receiver protector device containing a TR tube and pre-TR subassemblies

The TR tube contains H3 gas inside of a brazed low vacuum sealed assembly.

The pre-TR contains an individually low vacuum sealed quartz cylinder whose inside walls are coated with solid Pm147. The cylinder is enclosed in an aluminum housing.

Damage to the device may compromise the vacuum integrity, drawing air into the device and not expelling radioactive material from it.

This device is manufactured to comply with 10 CFR 30.15(a)(8). This device may be received, possessed, used, transferred, owned, or acquired without requiring a license and with exemption to parts 20, 30 through 36, and 39 of Title 10, Chapter I, of the *Code of Federal Regulations*.

Shelf Life: 25 years

TR Tube

Radionuclide: H3 as Tritium Gas
Activity Content: 70 μCi (2.6×10^6 Bq) – Assayed at date of manufacture

Pre-TR(/Limiter)

Radionuclide: Pm147 as Solid Promethium Chloride
Activity Content: 30 μCi (1.1×10^6 Bq) – Assayed at date of manufacture

Standards Compliance

ISO2919 Classification: ISO/12/C11111
Exposure @ 10cm: <0.02 mR/hr per periodic Ludlum Model 3 GM Detector measurements taken of a sample of manufactured devices
Surface Contamination: <25 dpm/100cm² per periodic scintillation counting measurements taken of a sample of manufactured devices
Leakage: Quartz cylinders require testing with a modified volumetric test method which demonstrates compliance to ISO9978:2020(E) 6.1.3. Method ensures that each cylinder can maintain vacuum integrity of $<5.0 \times 10^{-6}$ torr. This method indirectly guarantees a leak rate of $<0.01 \mu\text{Pa} \cdot \text{m}^3 \cdot \text{s}^{-1}$.
Brazed TR assembly tested beyond ISO9978:2020(E) 6.1.3 acceptance criteria to $<1.0 \times 10^{-4} \mu\text{Pa} \cdot \text{m}^3 \cdot \text{s}^{-1}$ with helium mass spectrometry.
Temperature Cycling: 0°C to +55°C. Failure is determined via RF performance testing which will fail in the event of a compromised seal.

Engineering Signature: _____

Date: _____

5/17/22

Communications & Power Industries, LLC
Beverly Microwave Division
150 Sohier Rd | Beverly, MA 01915 USA Phone: +1 (978) 922-6000
www.cpii.com/bmd