

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF A SEALED SOURCE
(AMENDED IN ITS ENTIRETY)

No.: NR-0155-S-115-S

DATE: March 7, 2006

PAGE 1 OF 3

SOURCE TYPE: Radioluminous Lamp

MODEL: 11739555

MANUFACTURER/DISTRIBUTOR: Department of the Army
U.S. Army TACOM Life Cycle
Management Command
AMSTA-CS-CZR
(Previously U.S. Army Tank-
Automotive & Armaments Command)
Rock Island, IL 61299-7630

ISOTOPE:

Hydrogen-3

MAXIMUM ACTIVITY:

0.8 Curie (29.6 GBq)

LEAK TEST FREQUENCY:

As specified in the user's materials
license

PRINCIPAL USE:

(R) Gas Sources for use in Models M64 and
M64A1

CUSTOM SOURCE: YES NO

CUSTOM USER: U.S. Department of Defense

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DESCRIPTION:

The Model 11739555 radioluminous lamp is a glass vial filled with tritium gas, and is painted on the inside surface with phosphorescent paint. The cross-section of the vial is 0.10 x 0.14 inch (2.54 x 3.56 mm), with a nominal wall thickness of 0.03 inch (0.76 mm). The vial is bent in a 170 or 180 degrees are around the longer axis, with a radius of curvature of 0.5 inch (12.70 mm).

LABELING:

Marking and labeling shall be in accordance with MIL-STD-1458.

DIAGRAM:

See Attachments 1 & 2.

CONDITIONS OF NORMAL USE:

The source will be used in ambient environments throughout the world, which may include extreme temperature, humidity, or other environmental factors. The sources will be used on military weapons which may be subject to harsh handling conditions.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- The device shall be distributed by the Department of the Army, U.S. Army TACOM Life Cycle Management Command (Previously Tank-Automotive & Armaments Command), AMSTA-CS-CZR, Rock Island, IL 61299-7630, for use by the U.S. Department of Defense anywhere in deemed acceptable by the licensee.
- Handling, storage, use, transfer, and disposal shall be determined by the licensing authority.

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- This registration sheet and the information contained within the references shall not be changed without the written consent of the NRC.

SAFETY ANALYSIS SUMMARY:

Based on the review of the information and test data cited in the references, we continue to conclude that the Model 11739555 radioluminous lamp is acceptable for licensing purposes. Furthermore, we continue to conclude that the sources would be expected to maintain their containment integrity for the uses specified in this certificate.

REFERENCES:

The following supporting documents for the Model 11739555 radioluminous lamp are hereby incorporated by reference and are made a part of this registry document:

- Department of the Army letter dated March 20, 1995, requesting changes to specific certificates, and letters dated January 22, 2001, May 23, 2001, and March 24, 2004, with enclosures thereto.
- Department of the Army email received September 23, 2005, with enclosures thereto.
- Department of the Army facsimile dated December 12, 2005, with enclosures thereto.
- U.S. Department of the Army License No. 12-00722-06.

ISSUING AGENCY:

US Nuclear Regulatory Commission

Date: March 7, 2006

Reviewer: Tomas Herrera
Tomas Herrera

Date: March 7, 2006

Concurrence: John P. Jankovich
John P. Jankovich

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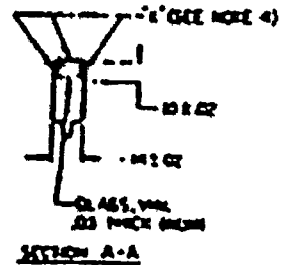
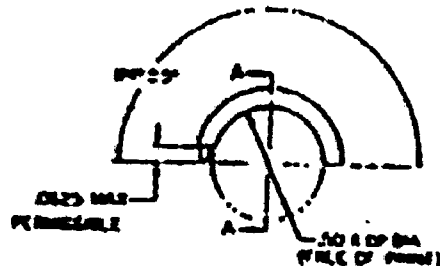
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ATTACHMENT 1 OF 2

TEST METHODS

- 1-QUALITY CONTROL: MANUFACTURER'S PROTECTIVE AND CONTAINMENT SHALL BE IN A CONTACT WITH THE USER.
- 2-HEAT TREATMENT: THE SOURCE SHALL BE HEATED TO A MINIMUM OF 100°C FOR A PERIOD OF 2 HOURS AT EACH INTERVAL.
- 3-AFTER SEPARATION, THE SOURCE SHALL BE IMMERSIVE IN ROOM TEMPERATURE WATER FOR 4 HOURS. RADIOACTIVE CONTENT OF THE WATER SHALL BE DETERMINED BY THE USER.
- 4-VIAL FILLER WITH 99% (MIN) PURE TITANIUM OXIDE (TiO₂) SHALL BE USED.
- 5-PLAN TO MAKE BRIGHTNESS MEASUREMENTS. LAMPS SHALL BE ALLOWED TO STABILIZE FOR A PERIOD OF 25 DAYS FROM MANUFACTURE.
- 6-FOLLOWING THE STABILIZATION PERIOD AND UP TO 100 DAYS FROM DATE OF MANUFACTURE, BRIGHTNESS MEASUREMENTS SHALL BE TAKEN AT 10 DAY INTERVALS OF 2.5% WITH MEASUREMENTS OVER ANY CONFORMANCE TO 50 DAY PERIOD. FURTHER, THE FINAL BRIGHTNESS MEASUREMENT AT TIME OF ACCEPTANCE SHALL BE 4.10 MICROLAMPS/CM².
- 7-INTERNAL PRESSURE 2.30 ATMOSPHERES NOMINAL AT 30°C.
- 8-COLOR OF PROSTHESIS: YELLOW, SPECTRAL PEAK 5750Å ± 50Å, 1/2 PEAK WIDTH 200Å ± 50Å.
- 9-SURFACE FINISH: 70% PEARL (POCK, MIL-PRC-138, TYPE 1) COLOR WHITE. SURFACE OF PCB-570-345, FULL LENGTH OF VIAL, APPLY TWO COATS PER DAY.

TEST METHOD	REFERENCE
1-QUALITY CONTROL	NOT AVAILABLE
2-HEAT TREATMENT	NOT AVAILABLE
3-AFTER SEPARATION	NOT AVAILABLE
4-VIAL FILLER WITH 99% (MIN) PURE TITANIUM OXIDE (TiO ₂)	NOT AVAILABLE
5-PLAN TO MAKE BRIGHTNESS MEASUREMENTS	NOT AVAILABLE
6-FOLLOWING THE STABILIZATION PERIOD	NOT AVAILABLE
7-INTERNAL PRESSURE 2.30 ATMOSPHERES NOMINAL AT 30°C	NOT AVAILABLE
8-COLOR OF PROSTHESIS	NOT AVAILABLE
9-SURFACE FINISH	NOT AVAILABLE



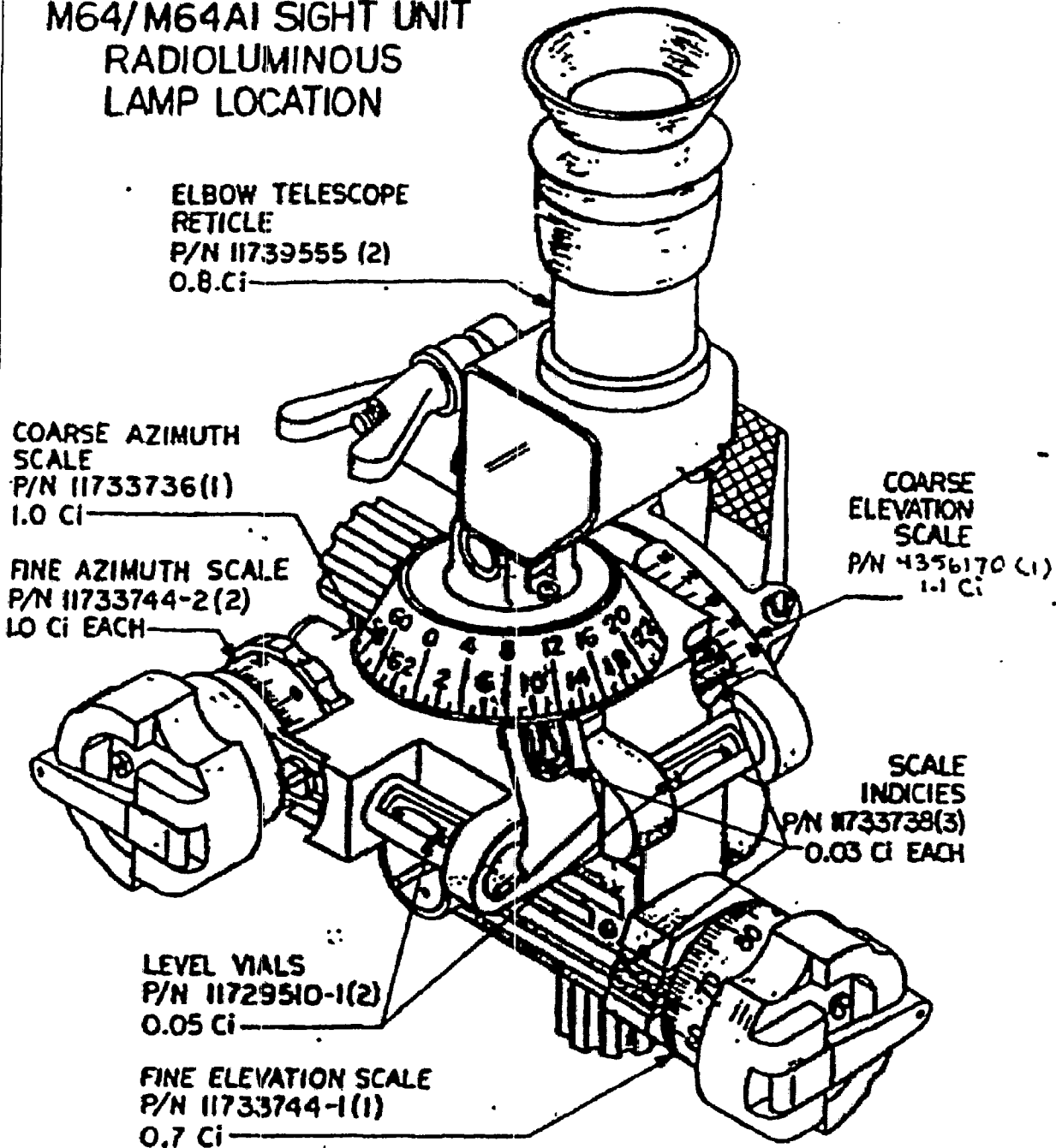
SOURCE USED ON:
M54 Sight Unit
(Telescope Article)

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M64/M64AI SIGHT UNIT
RADIOLUMINOUS
LAMP LOCATION



TOTAL TRITIUM PER SIGHT UNIT 6.69 CURIES