Wavelength REFERENCES

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MTBF Statement for Gas Cells

Wavelength References' Gas Cell Products, including Fiber Coupled Reference Cells and Free Space Reference Cells do not have a measurable/predicted Mean Time Between Failures (MTBF). They are expected to last > 10 years with no undo strain or improper handling.

MTBF is a statistical/probabilistic determination of the unplanned failure rate of a product. In the case of gas cells, these would be driven by the materials that comprise the product, mainly the gas, the sealed gas cell, the collimator assemblies and relevant adhesives.

1. Gas: Acetylene (C_2H_2) shows no rate of decomposition within the cell.

2. Sealed gas cell: Leak rate of < 1x10^-10 cc-atm/sec. Measured independently at < 1x10^-11 cc-atm/sec. Suggests lifetimes of >> 10 years.

3. Collimator assemblies: no mechanism for predicting future rate of failure. Failures limited to mechanical breakdown due to external forces.

4. Relevant structural adhesives: Silicone and epoxy adhesives have a long lifetime (>10 yrs), undergo little to no strain and are not exposed to contaminants outside of the housing.