

VISUAL INSPECTION USING HIGH INTENSITY WHITE LIGHT

PROCEDURE

M-CC-P-001 REVISION A

General Description

The purpose of this procedure is to identify the required steps to safely and accurately inspect the internal surfaces and components of the GCC for contamination using high intensity white light.

The effectiveness of visual inspection for fibers and particles on surfaces depends on the physical characteristics of the particle or fiber, the contrast with the background surfaces and the intensity of the light sources along with the experience of the operator. In general, such inspection is effective in viewing particles or fibers greater than 50 microns in diameter. In addition it is possible to view smaller particles and fibers if the conditions are favorable.

The commonly used IEST 1246D standard “100 A/10” requires that no particles greater than 100 microns in diameter are present on the part. The maximum dimension of particles is given by the first number in the designation and the residue requirement is given by the latter. For a part to pass the “100” surface particulate portion of the specification, there can be up to 1 particle of 100 micron dimension per square foot, 10 or less particles at 50 microns, and the specification also controls smaller particulate invisible to the naked eye. The visual inspection described herein is intended to be used to verify that no particles exceed 100 microns on any region of the clean part, and that particles of near 100 microns size are at less than 1/sqft concentration. If the part is failing on these relatively large particles, it is likely to also be failing the requirement on smaller, less visible to the naked eye, particles

Equipment and Materials

- Cleanroom approved gloves: VWR nitrile sterile gloves, Ultrapoly pure polyethylene gloves
- Cleanroom garments correct for the class of cleanroom
- Cleanroom wipes: TexWipe
- Contec pre-saturated 30/70 IPA/DI wipe
- Flashlight: Ultra-Stringer (Streamlight) 75,000 candlepower

Note: Ultra-Stringer is to be left in the charger in the Anteroom when not in use.

Material Wipe Down

Wipe down the Ultra-Stringer flashlight before entering into the cleanroom area. Wipe the flashlight using a pre-saturated Contec wipe, then wipe with a dry TexWipe. Visually inspect for any particles on the flashlight.

Note: Cleanroom gloves MUST be worn before wipe down begins.

Procedure

1.	Verify that the Ultra-Stinger flashlight is charged and focused to a spotlight (not floodlight).
2.	Hold the light at a 1-5° degree grazing incidence angle to the surface. The light shall not be more than 2 in. above the surface of the hardware. Exercise caution not to contact the light with any component being inspected, or any other equipment since contact could cause additional particles. This inspection should not put the part at significant risk of degradation due to carelessness or improper preparation.
3.	Starting at the interior of the hardware scan the surface. Optimum viewing range for particle and fiber detection is 12-24 in. from the light. Viewing should be done along the direction of the light beam.
4.	Move the light along a parallel line, sectioning off the inspection area and allowing to complete 100% inspection of the area using overlapping scans.
5.	The nominal rate that the light shall move across the surface of the hardware for inspection is 5 ft per minute, giving 5 sqft/min effective scan rate.
6.	If contamination is detected, notify the responsible engineer.
	End of Procedure

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Document Release:

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