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### **European Space Agency (ESA) Requirements for IST Coupon Micro Via testing**

Historically, microvia structures have not shown a wear out type failure mode as seen with other via structures found in modern PWB designs.

When testing microvias structures, PWB Interconnect Solutions (PWB<sub>i</sub>) has recommended validating that the test vehicle did not contain a failure mode which would be considered infant mortality. The recommended test setting is a temperature closer to the material T<sub>g</sub> and for a lower number of cycles (typical 190C for 100 cycles for FR4). Testing through the wear out zone of the failure curve was considered an unnecessary utilization of test time.

Recent developments both at PWB<sub>i</sub> and as reported by some IST system owners have shown a microvia failure which we have not seen in the past. We have been noticing microvia structures showing wear out type failures after the initial short-term testing. PWB<sub>i</sub> will continue to investigate this both internally and in collaboration with IST system owners to understand this change in test result.

It is recommended by PWB<sub>i</sub> that short term microvia testing be extended to capture any wear out failures. The new acceptance criteria shall be in conformance with requirement 9.5.5.4.3.c of ECSS-Q-ST-70-60.

PWB<sub>i</sub> will continue to investigate this shift in test result, determine the root cause / impact and work towards a consistent test protocol for HDI testing.

For questions or concerns please contact PWB<sub>i</sub>.

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