# RELIABILITY TEST *(Lockheed Martin—ATE Probability)*

# NC-SMQ®92J Solder Paste

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**Product Assurance Analysis Report** **Customer: LMCE**

**Prepared By: Paul Bodmer** **Date: 5/1/97** **Report No.: FA9740** **Product: Solder Paste**

## BACKGROUND

Three solder paste sample assemblies (SIR Test Vehicle) were supplied to Product Assurance for SIR Test and a measurement of ATE Probability. The cards were identified only as samples A, B and C. A blank SIR card was also included in the SIR test as a reference. The SIR test was reduced to 5 days (120) hours at 50ºC at 85% RH due to PA Lab rearrangement.

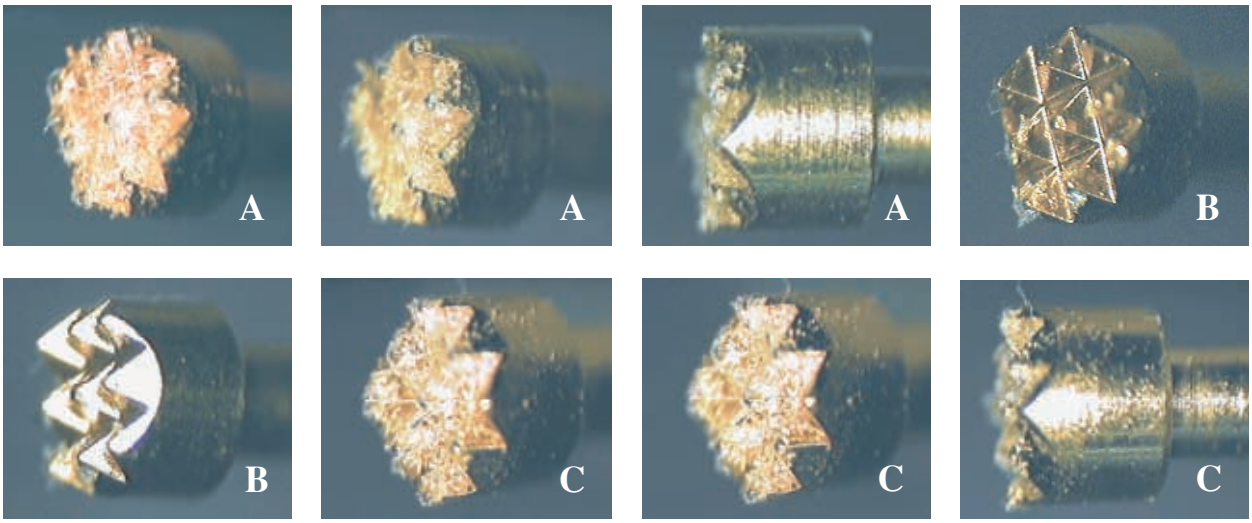
## RESULTS

**SIR TEST** – The three test cards and the bare board reference had very similar resistance readings. There were no individual site failures and there was no significant difference between the four cards. The average for the last four readings at 50ºC / 35% RH were: A: 8.32E11, B: 6.92E11, C: 6.84E11, D: 5.75E11

**TEST PROBE (POGO) FLUX PENETRATION** – Flux penetration and test probe contamination was checked with an IDI SR25 (9 Point) POGO Pin. The force required to make electrical contact through the flux residue was measured and the flux buildup on the POGO contact was photographed after 100 contact with the SMT pads.

The force required to contact the pads varied slightly between the three fluxes. Card “C” had the lowest contact force requirement at < 10 gms. Card “B” was slightly higher at 10 gms and Card “A” averaged 31 gms. It was not possible to obtain accurate readings below 5 gram due to the resolution of the force gage.

The flux residue buildup on the test probes was significant for Cards “A” and “C”. The amount of flux picked up by the probe from card “B” was much less. Photos below show the residue on the POGO pins after 100 contacts with the SMT pads. The first three photos show the residue from Card “A”, the next two are from Card “B”, and the last three are residue from Card “C”.




***Solder pastes supplied by three different vendors were tested. Only Indium Corporation’s NC-SMQ®92 paste did not clog the test probe, as shown in photos marked “B”.***