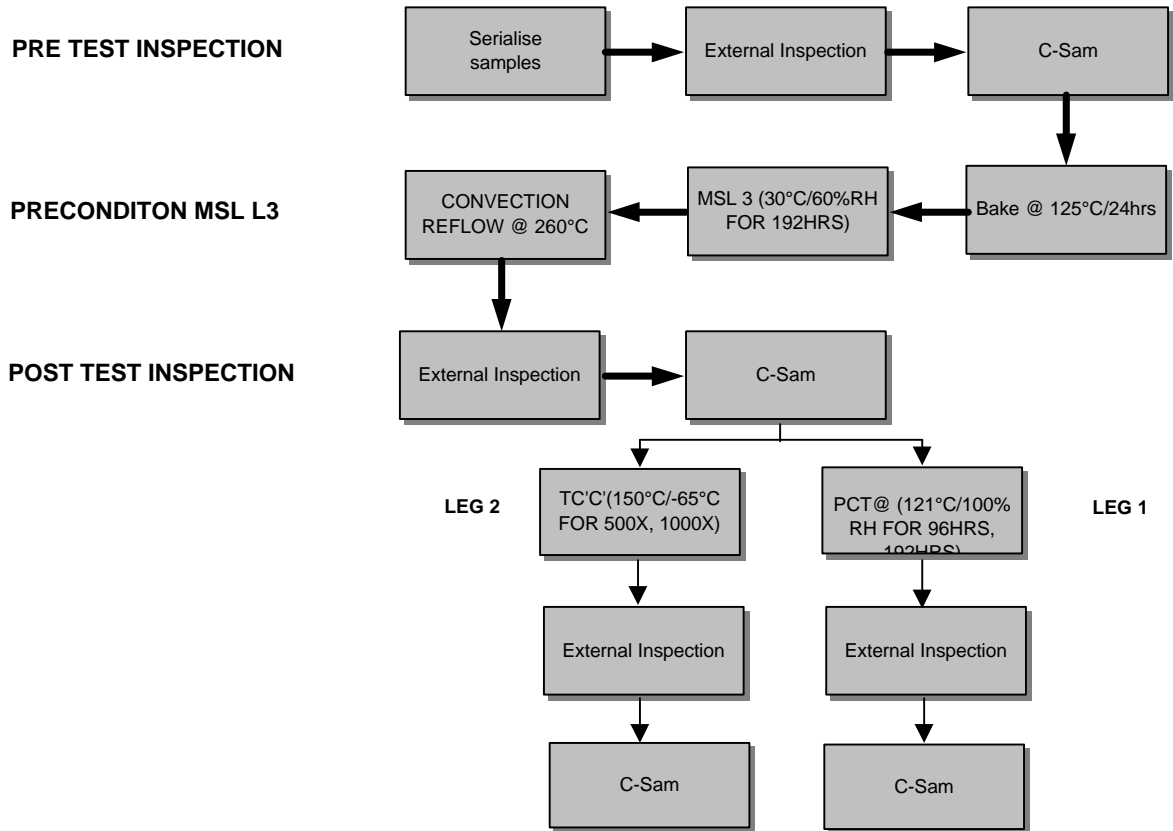


**RELIABILITY TEST FLOW**



**RELIABILITY TEST RESULTS**

**TEST RESULTS**

TESTS	CONDITION	RESULTS			REMARKS
		VI / S.SIZE	E.TEST/S.SIZE	C.SAM / S.SIZE	
MSL LEVEL 3 - LEG 1	(30°C/60%RH FOR 192HRS CR @260°C X3) + TC (500X, 1000X)	0/24	N/A	0/24	All units passed.
MSL LEVEL 3 - LEG 2	(30°C/60%RH FOR 192HRS CR @260°C X3) + PCT (96HRS, 192HRS)	0/24	N/A	0/24	All units passed.

- VI Criteria: : External visual on package at x30-x60
- C-SAM Criteria : i) Reject >0% on die surface area (top side) before and after stress.  
 ii) Reject >10% on D/A pad area (bottom side) .  
 iii) Reject if delamination >10% on die attach surface for post-test part (bottom side).

**C-SAM ANALYSIS**

**LEG 1 - PCT**

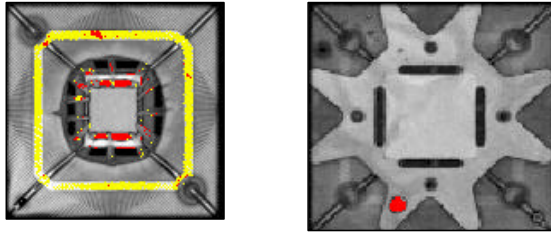


FIGURE 1a: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE, BUT ON HEAT SPREADER AT INITIAL STAGE.

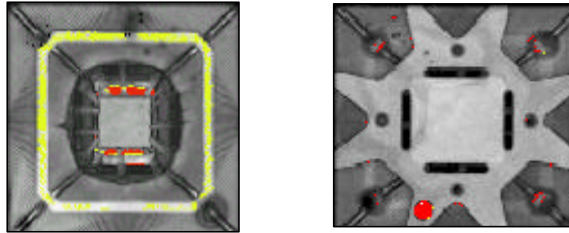


FIGURE 1b: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE BUT ON HEAT SPREADER AFTER PRECOND.

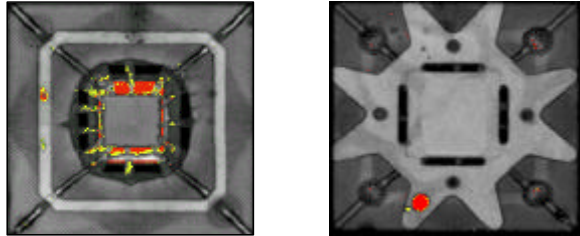


FIGURE 1c: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE BUT HEAT SPREADER AFTER PCT 96HRS.

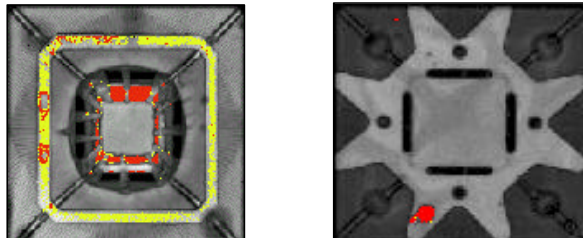


FIGURE 1d: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE BUT HEAT SPREADER AFTER PCT 192HRS.

**LEG 2 - TC'C'**

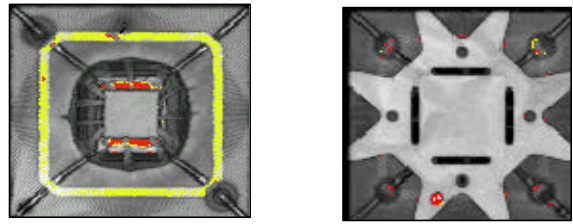


FIGURE 2a: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE, BUT AND HEAT SPREADER AT INITIAL STAGE.

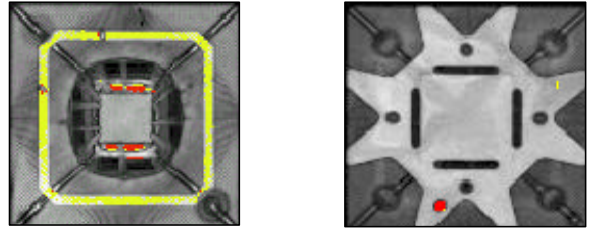


FIGURE 2b: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE BUT HEAT SPREADER AFTER PRECOND.

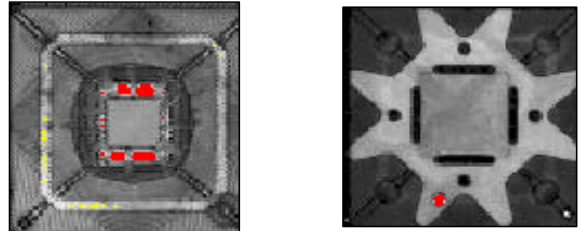


FIGURE 1c: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE BUT HEAT SPREADER AFTER TCC 500X.

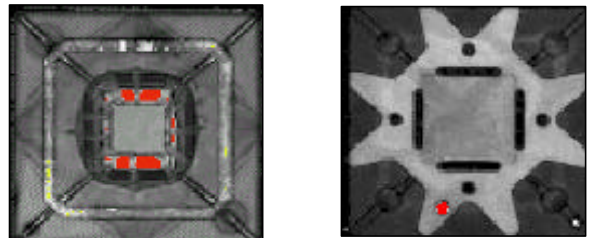


FIGURE 2d: CSAM SCANNING PHOTO SHOWS NO DELAMINATION NOTED ON DIE SURFACE BUT HEAT SPREADER AFTER TCC 1000X.

**C-SAM ANALYSIS**

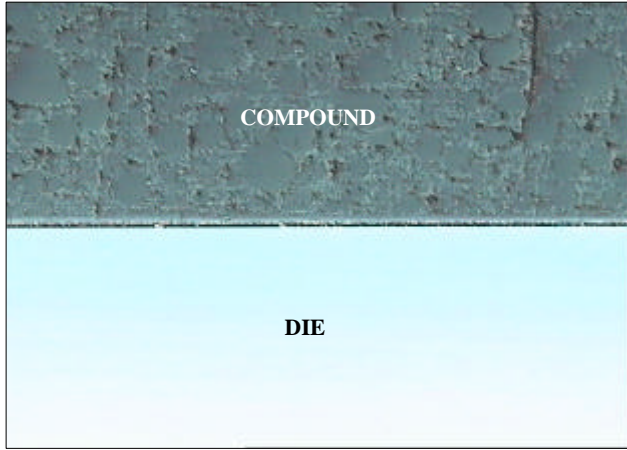


FIGURE 3: CROSS SECTIONAL PHOTO SHOWS NO GAP BETWEEN MOLD COMPOUND TO DIE SURFACE AFTER PRECOND L3 + PCT 192HRS.

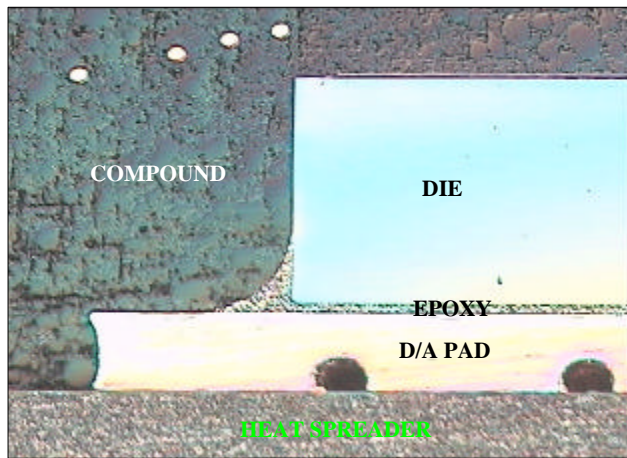


FIGURE 4: CROSS SECTIONAL PHOTO AT DIE EDGE SHOWS NO GAP BETWEEN THE INTERFACES OF THE PACKAGE, AFTER PRECONDITIONING MSL L3 + PCT 192HRS.