Change Evaluation Report (CER)
Sample Report (extract)

Title of Change: Change from ink to laser mark for leaded packages for PLX customer

Process/ Module: Marking

Change Description: Propose to convert from currently ink mark to laser mark.

Reason for Change: Standardization and productivity

Package Affected: *List all platforms affected (include downstream platforms).*

[ ] PBGA	[ ] HSBGA	[ ] Viper BGA	[ ] VFBGA	[ ] TFBGA	[ ] LFBGA
[ ] LBGA	[ ] SCSP	[ ] SNW SCSP	[ ] MCM SCSP	[ ] FC-BGA	[ ] FC-CSP
[ ] FILM BGA	[ ] BCC	[ ] BCC+	[ ] BCC++	[ ] QFP	[ ] LQFP
[ ] TQFP	[ ] SOP	[ ] TSOP I	[ ] TSOPII	[ ] PLCC	[ ] P-DIP
[ ] TCP	[ ] CPBGA	[ ] LGA	[ ] QFN	[**X**] Others **All PLX leaded packages**	

Technology Envelope for Change

Factor *(die size, pkg. size, etc.)*	**Range Covered by this CER** *(list specific range, e.g. up to 500x500 mils die size, etc.)*
Package	PLX
Lead count	All leaded packages
Customer	PLX only

Process Change Checklist: This checklist is to document all the key process items / specification / document including tool drawing and fixture design that required changes (if applicable). QA will monitor/audit the items to validate the effectiveness.

Note : All the documents which related to laser mark processes has already been established.

Evaluation Strategy

1. The objective of this experiment are:
   - To verify the capability of laser marking and do comply with current laser mark acceptance criteria.

2. Experimental materials to be used in this experiment are:
   - QFP 160 dummy lots – 20 strips (40 units)

3. Experiment design
   All marking criteria within current parameter setting shall be considered for this evaluation. (Lamp current, velocity and power measurement)
4. Key measurements
   Perform standard measurement for laser depth by using Hisomet toolmaker,

5. Visual inspection
3X Magnification Luxo lamp for visual inspection.

6. Experiment flow
No experimental flow required as the process already established

Summary of Results:

Machine : MIT 22
Lamp current : 25.6 A
Power : 12 W
Frequency ; 30K

ORIGINAL MARK
WITH INK

LASER MARK

Dummy	Laser depth (micron)	Final visual inspection
	Spec < 40 micron	
1	26	pass
2	24	pass
3	25	pass
4	27	pass
5	26	pass
6	24	pass
7	27	pass
8	25	pass
9	26	pass
10	25	pass
11	24	pass
12	25	pass
13	28	pass
14	25	pass
15	27	pass
16	26	pass
17	23	pass
18	25	pass
19	24	pass
21	25	pass
22	25	pass

23	24	pass
24	27	pass
25	23	pass
26	25	pass
27	25	pass
28	24	pass
29	24	pass
30	26	pass
31	26	pass
32	26	pass
33	26	pass
34	25	pass
35	24	pass
36	25	pass
37	25	pass
38	25	pass
39	25	pass
40	24	pass

Conclusions:
Based on the result as above, ASEM has a capability to run laser mark for PLX product.

ESD Concern/Consideration

Are below items applied:

#	Items	Yes/No	If yes - Requirement	Results/Action
1	Is change/modification of component has direct contact with device (Ex: suction cup, Conveyor belt, socket, core picker, etc)?	No	To check the voltage and ensure is within the requirement level. If not ionizer is deem necessary to control the voltage.	
2	Is there any change of component is within 12” from device during normal operation	No	To check the voltage and ensure is within the requirement level. If not ionizer is deem necessary to control the voltage.	
3	Does this change impact Relative Humidity (RH), lower or increase, at the module during normal production operating condition (based on RH meter nearest to the module)?	No	To check the impact of Relative Humidity (RH) and measure the voltage	
4	Does this change impact the duration of the device or module component exposure to ionization?	No	To measure the voltage if the device expose more than the standard.	
5	Does this change involve a tooling for a product that already has a qualified tooling?	No	To check ESD level requirement for new product and confirm the level on the qualified tooling	
6	Does this change involve extension of existing packaging technology (ex: bigger form factor, different lead count etc)?	No	To check ESD level and it must compatible with the existing product	
7	Is there any change of manufacturing indirect material and/or indirect material supplier (gloves, tray, work surface, Conductive chairs, trolley wheels etc)?	No	To check ESD level on the product once the indirect material use changed.	