Test Report

Ink Information

Customer	KuangShun INK	Contact	
Ink Type	UV Curable Soldermask	Model Name	KSM-180
Brand	KuangShun	Test Date	30th-Sep-2019

More details

Purpose	Final cure	Curing Energy	Above 1200mJ/cm2
Colour	Gloss Green	Pre-Dry	N/A
Thickness	30um with 36T mesh	Final Cure	Direct UV curing

Test Equipment listing

UV Cure Machine	Viking LED-UV curing machine Model: S600 Wavelength: 385nm + 395nm + 405nm; 3xLED-UV lamps 1Kw Mercury lamp unit at 44w/cm light density.(1kw at 230mm total lamp length)
Oven	Convection Oven with 50~300° C setting
Screen Printer	Manual type
Energy Meter	EIT Power Puck II Model
Tin Furnace	Room~400° C setting

Test Requirement

UV Bump after developing	
UV Bump after final baking oven	
Direct UV Cure after screen printing	✔

Test Place

Viking China Factory

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PCB Field Cure System

Test Procedure

Preparation	Colour	Gloss Green	✔
	Main Agent	Datasheet attached	✔
	Holding Time	10min	✔
Screen Print	Screen Mesh	36T	✔
	Thickness	30um	✔
	Single side print	YES	✔
	Holding Time	10min	✔
UV Curing	Energy Requirement	Above 1000mJ/cm2	✔
	Machine Settings	1 Mercury Lamp 3 LED-UV lamps	✔
Scratch testing	Sharp Nail	Several times	✔
	Finger Press	Several times	✔
Thermal Shock	Temp	288° C	✔
	Time	10secs by three times	✔

Final cure Test

Screen Print	Final Cure	Tin (288° C)	Result
36T mesh	Mercury*100% 3 LED UV*100% 3 m/min	10 sec	FAIL Brittlement by over Cured
36T mesh	Mercury*100% 3 LED UV*50% 3 m/min	10 sec	FAIL Brittlement by over Cured
36T mesh	Mercury*100% 2 LED UV*50% 3 m/min	10 sec	FAIL Brittlement by over Cured
36T mesh	Mercury*100% 2 LED UV*40% 3 m/min	10 sec	FAIL Surface tacky but still over cured
36T mesh	Mercury*100% 2 LED UV*30% 2 m/min	10sec	PASS
36T mesh	Mercury*100% 1 LED UV*40% 2 m/min	10sec	FAIL Easy to make a scratch
36T mesh	Mercury*100% 2 LED UV*40% 2 m/min	10sec	PASS

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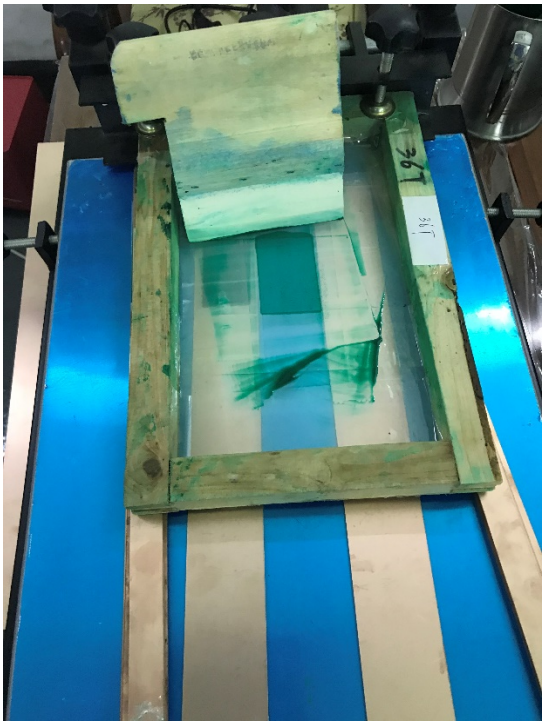
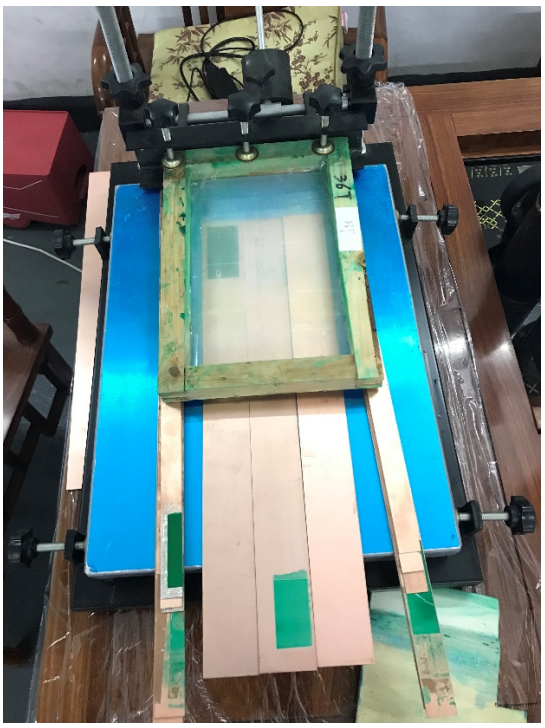
Pictures





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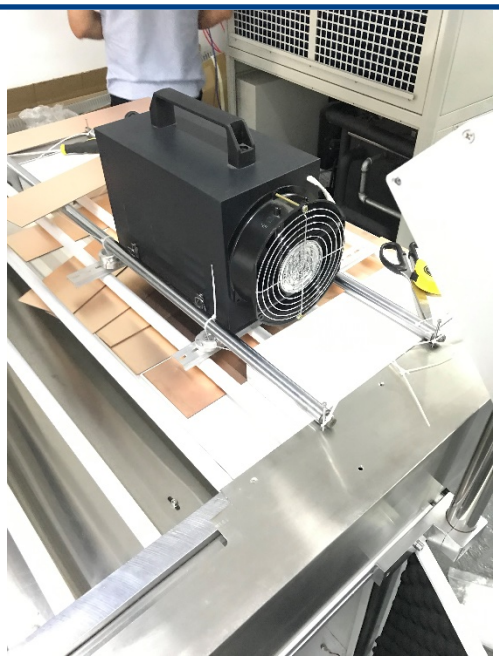

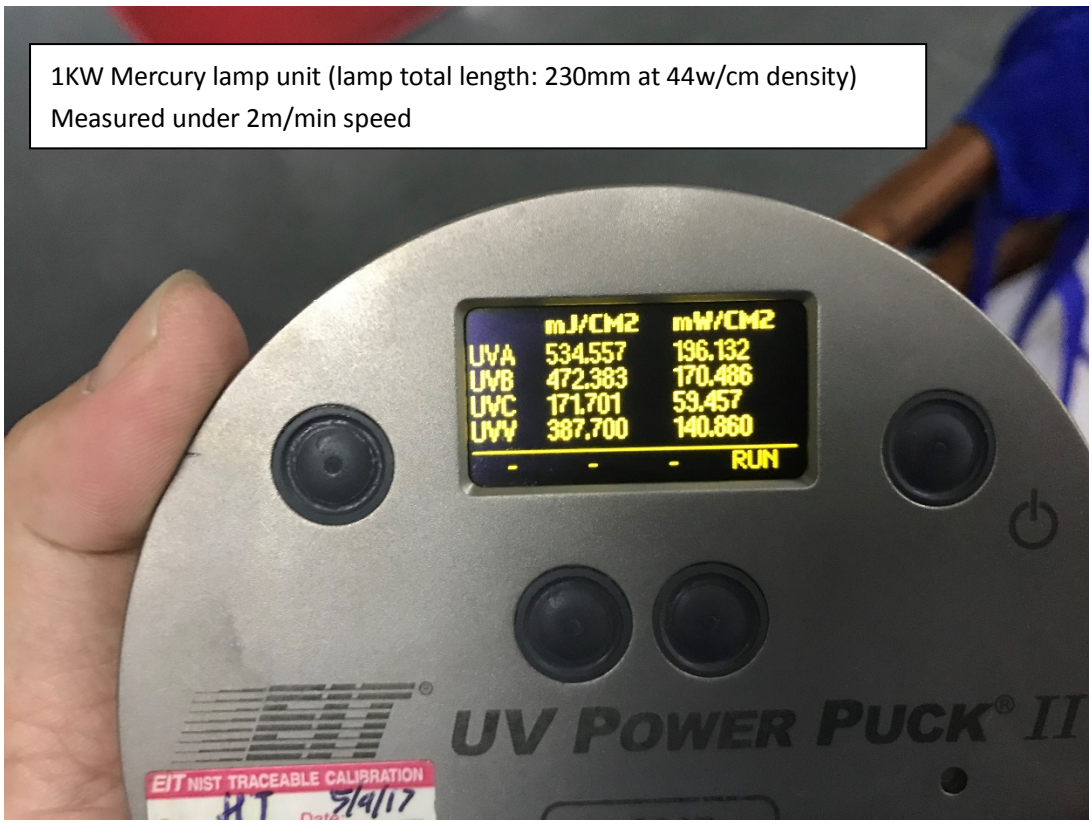

1KW Mercury lamp unit (lamp total length: 230mm at 44w/cm density)
Measured under 2m/min speed

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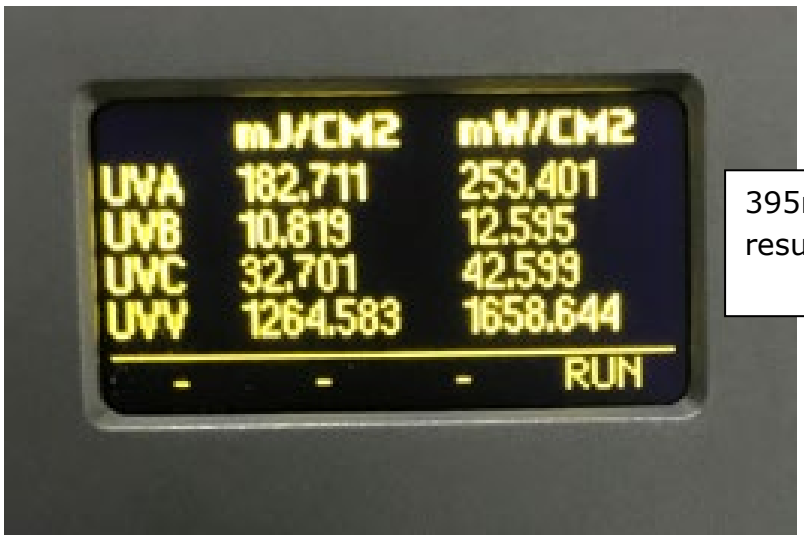
405nm wavelength light energy result at 30% output (2m/min)



395nm wavelength light energy result at 30% output (2m/min)

385nm wavelength light energy result at 30% output (2m/min)

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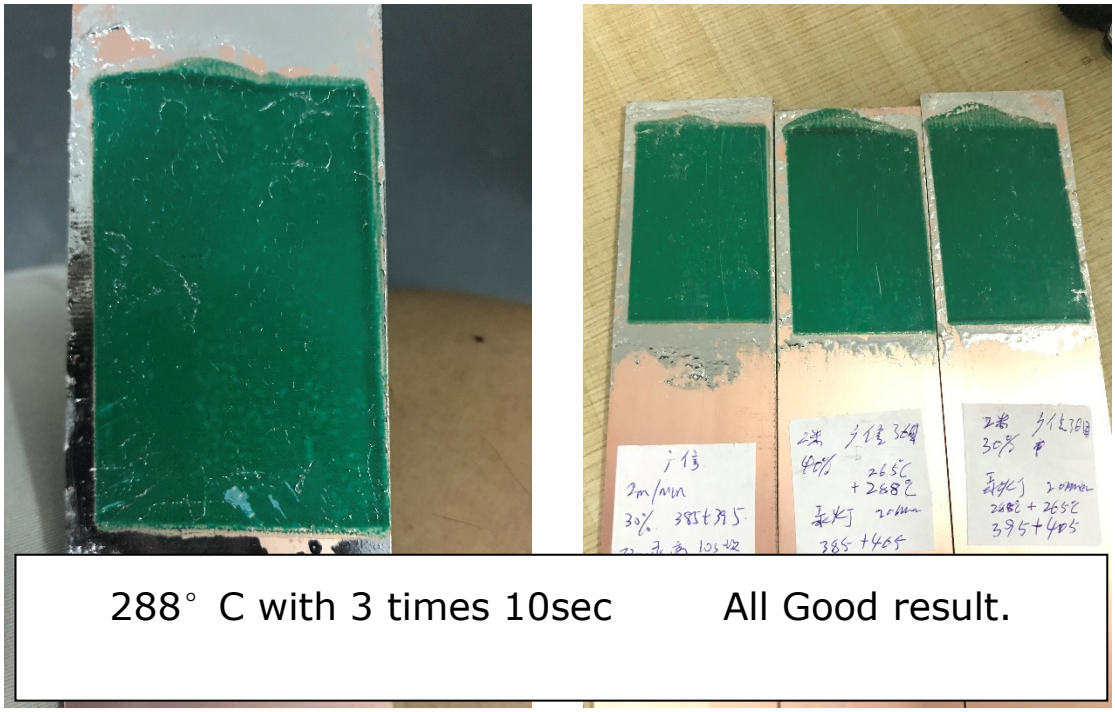

288° C with 3 times 10sec All Good result.

All Failed Testing Samples to Verify The Results.

Conclusion:

1. Hybrid machine with Mercury lamp and LED works very well.
2. With higher power Mercury lamp and wider UV window, curing speed can be much improved up to 4 M/min.
3. 1x Mercury Lamp plus 2x LED UV lamps is good combination.
4. Viking can design the machine within 1 month and delivery within two months based on PO.
5. Two years warranty provided.
6. Viking India team looking after services and supports.