Test Report

Ink Information

Customer	TaiYo Inks	Contact	
Ink Type	Photoimageable	Model Name	PSR2000
Brand	Taiyo	Test Date	21st-Dec-2018

More details

Purpose	Final cure	Exposure Energy (surface of inks)	350mJ/cm2
Colour	Gloss Green	Pre-Dry	75° C
Thickness	30um	Final Cure	150° C with 30min

Test Equipment listing

UV Cure Machine	Viking UV-LED curing machine Model: S600 Wavelength: 385nm + 395nm + 405nm; 3UV-LED lamps
Oven	Convection Oven with 50~300° C setting
Screen Printer	Manual type
Energy Meter	LS-128 Model specially for UV-LED light source measuring
Tin Furnace	Room~400° C setting

Test Requirement

UV Bump after developing	✔
Final cure after pre-dry	✔
UV bump for anti-etching resistance	
UV bump for legends	

Advanced UV-LED technology
PCB Field Cure System

Test Procedure

Preparation	Colour	Gloss Green	✔
	Main Agent	Datasheet attached	✔
	Hardner	Datasheet attached	✔
	Mixing Ratio	85|15 by weight	✔
	Holding Time	10min	✔
Screen Print	Screen Mesh	36T	✔
	Thickness	30um	✔
	Single side print	YES	✔
	Holding Time	10min	✔
Pre-dry	Temp	75° C	✔
	Time	25min	✔
	Temp Drop to Room Temp	Wait 15min	✔
Exposure	Energy Requirement	350mJ	✔
	Step Wedge	9	✔
	Machine Settings	10% output, 3m/min	✔
	holding time	15min	✔
UV bump	Energy Requirement	1000mJ/cm2	✔
	Machine Settings	50% and 100% output, 3m/min	✔
Post Cure	Temp	150° C	✔
	Time	30 min	✔

Advanced UV-LED technology
PCB Field Cure System

UV bump Test

Batch	Pre-dry	Exposure	UV bump	Final oven	Tin (288° C)	Result
1	75° C 25min	Yes	3m/min 100%	30min	30 sec	PASS
3	75° C 25min	Yes	3m/min 100%	30min	30 sec	PASS
4	75° C 25min	Yes	3m/min 50%	30min	30 sec	PASS
5	75° C 25min	No	3m/min 50%	30min	30 sec	PASS

Final cure Test

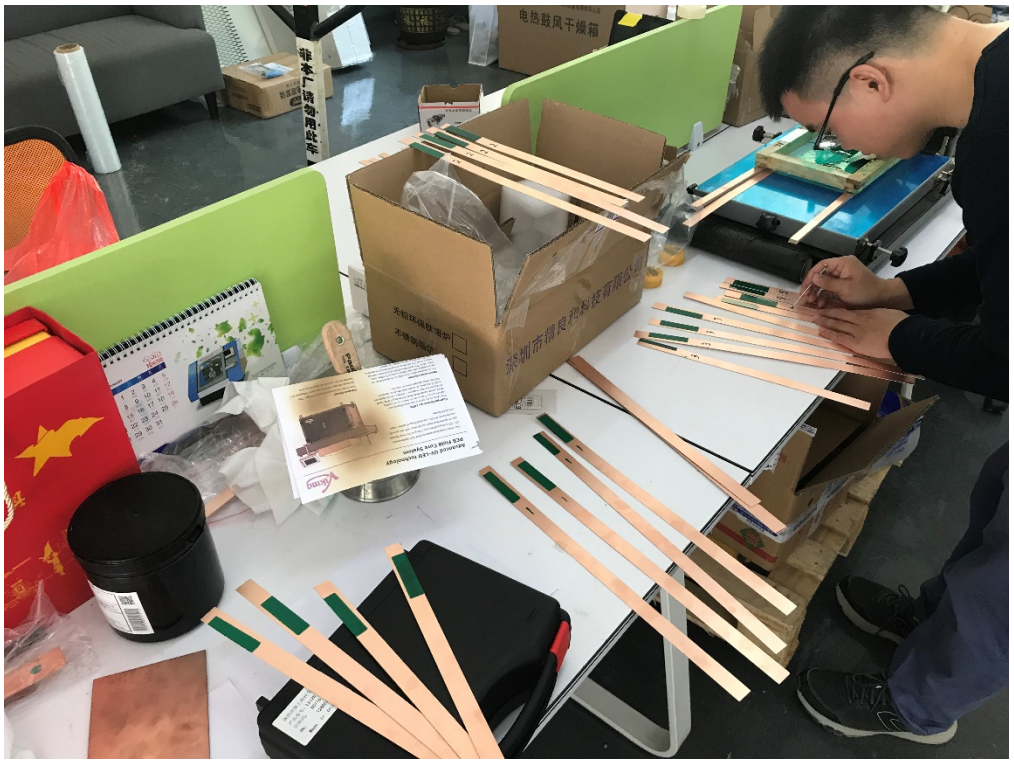
Pre-dry	Final Cure	Tin (288° C)	Result
75° C 25min	3m/min 100%	10 sec	FAIL
75° C 25min	1m/min 100%	30 sec	PASS
75° C 25min	1m/min 100%	30 sec	PASS
75° C 25min	1.5m/min 50%	30sec	PASS

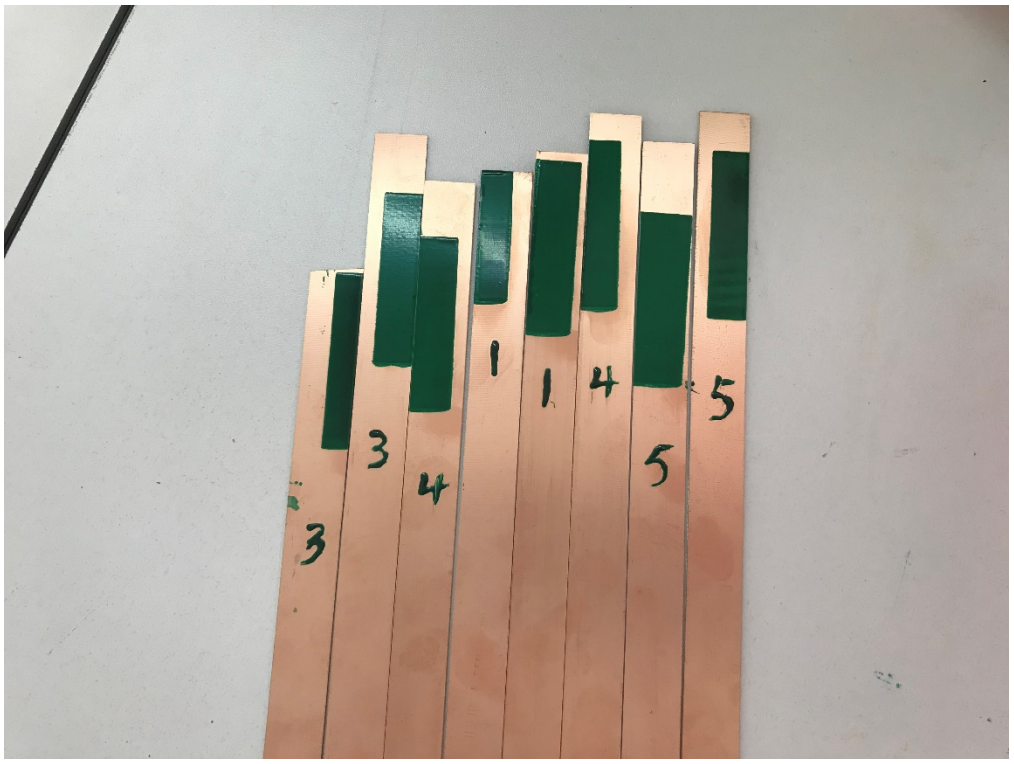
Machine Speed & Energy Spreadsheet

Viking Cure machine	power output percentage	LS128 Meter	Equal to ORC Meter	
Speed at 3.0m/min	100%	9400	2350	mJ/cm2
	50%	4700	1175	mJ/cm2
Speed at 2.7m/min	100%	9700	2425	mJ/cm2
	50%	4600	1150	mJ/cm2
Speed at 1.5m/min	100%	16000	4000	mJ/cm2
	50%	9000	2250	mJ/cm2
Speed at 1.0m/min	100%	25500	6375	mJ/cm2
	50%	13600	3400	mJ/cm2
Speed at 0.7m/min	100%	37000	9250	mJ/cm2

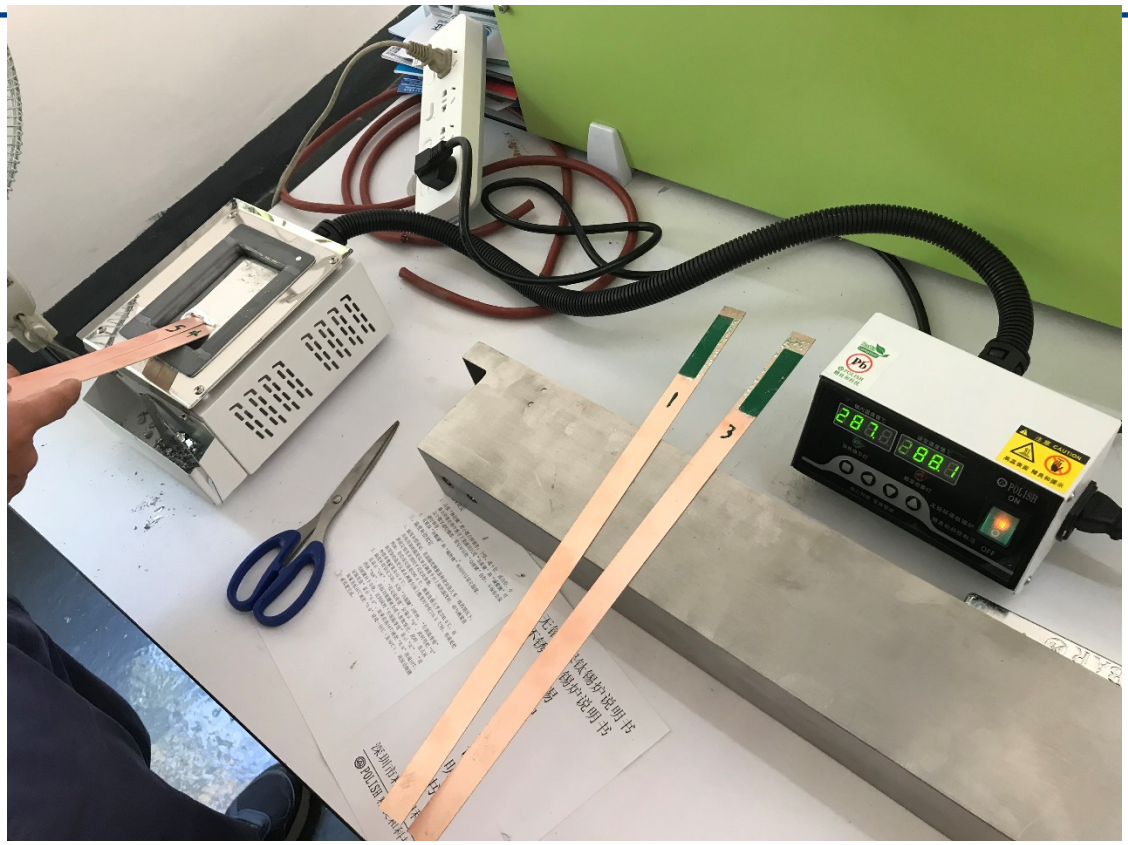
Advanced UV-LED technology
PCB Field Cure System

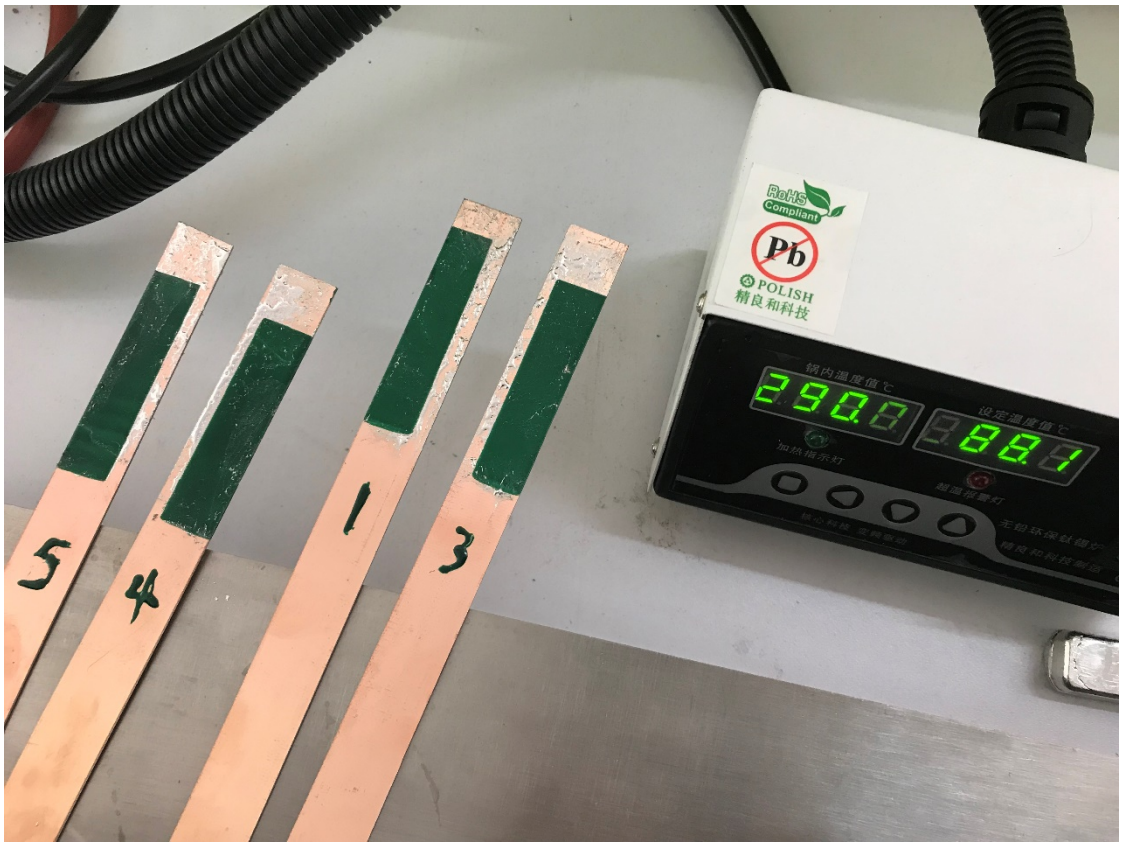
Pictures





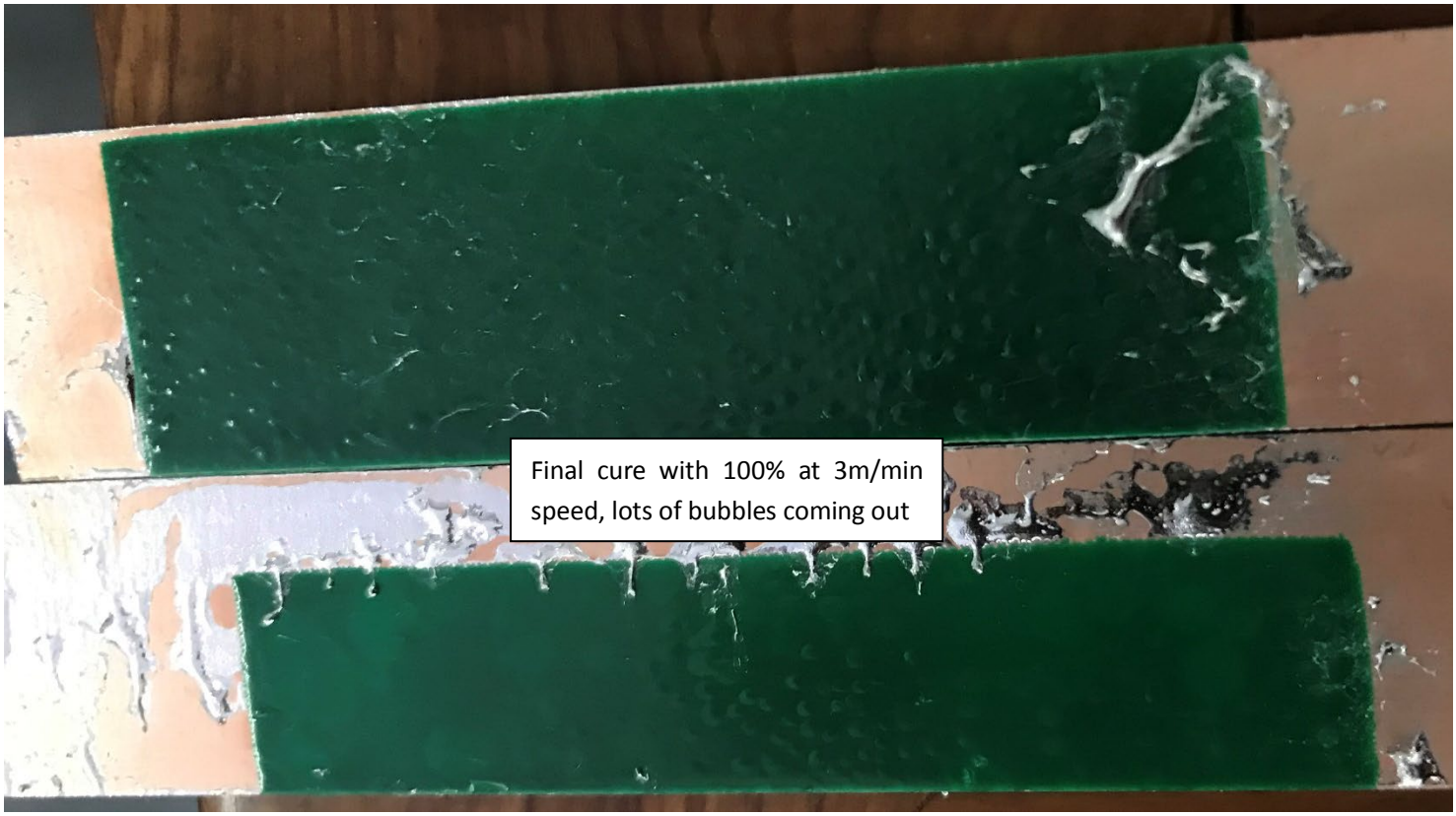
Advanced UV-LED technology
PCB Field Cure System





Advanced UV-LED technology
PCB Field Cure System

Final Cure

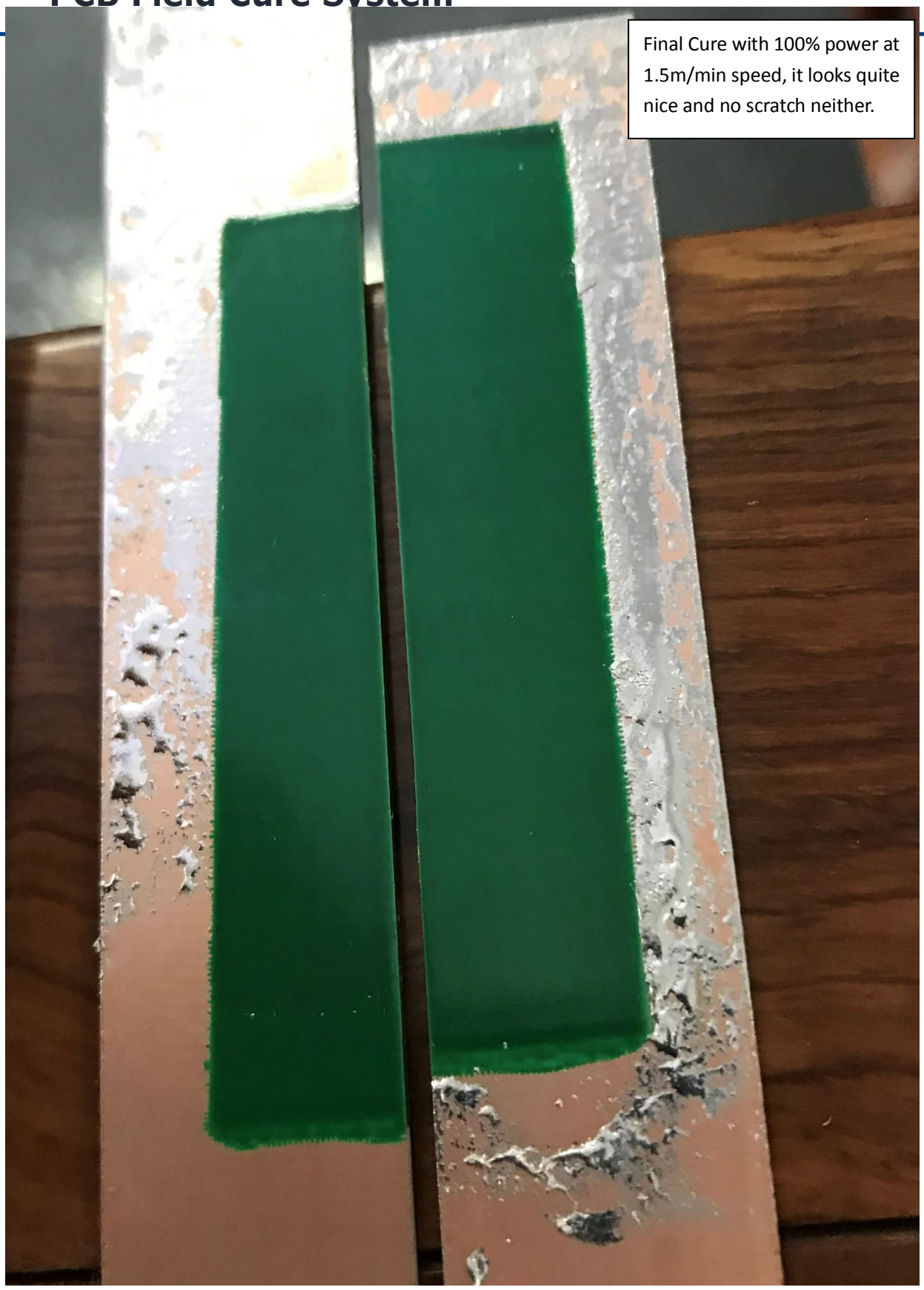


Final cure with 100% at 3m/min speed, lots of bubbles coming out

Advanced UV-LED technology
PCB Field Cure System

Final cure with 100% power at 1m/min speed
But the surface especially the edge is getting brittle. UV over-cured.

Advanced UV-LED technology
PCB Field Cure System



Final Cure with 100% power at 1.5m/min speed, it looks quite nice and no scratch neither.