SOMACIS

Corporate Presentation

because we Know how

SOMACIS pcb industries

SOMACIS Organisation

SOMACIS GROUP

SOMACIS pcb industries

PCBs

DIVISION

Tastitalia
Membrane switches and touch screen

Membrane Switches and Touch Screen

DIVISION

SOMACIS INTERNATIONAL SGHKASIA

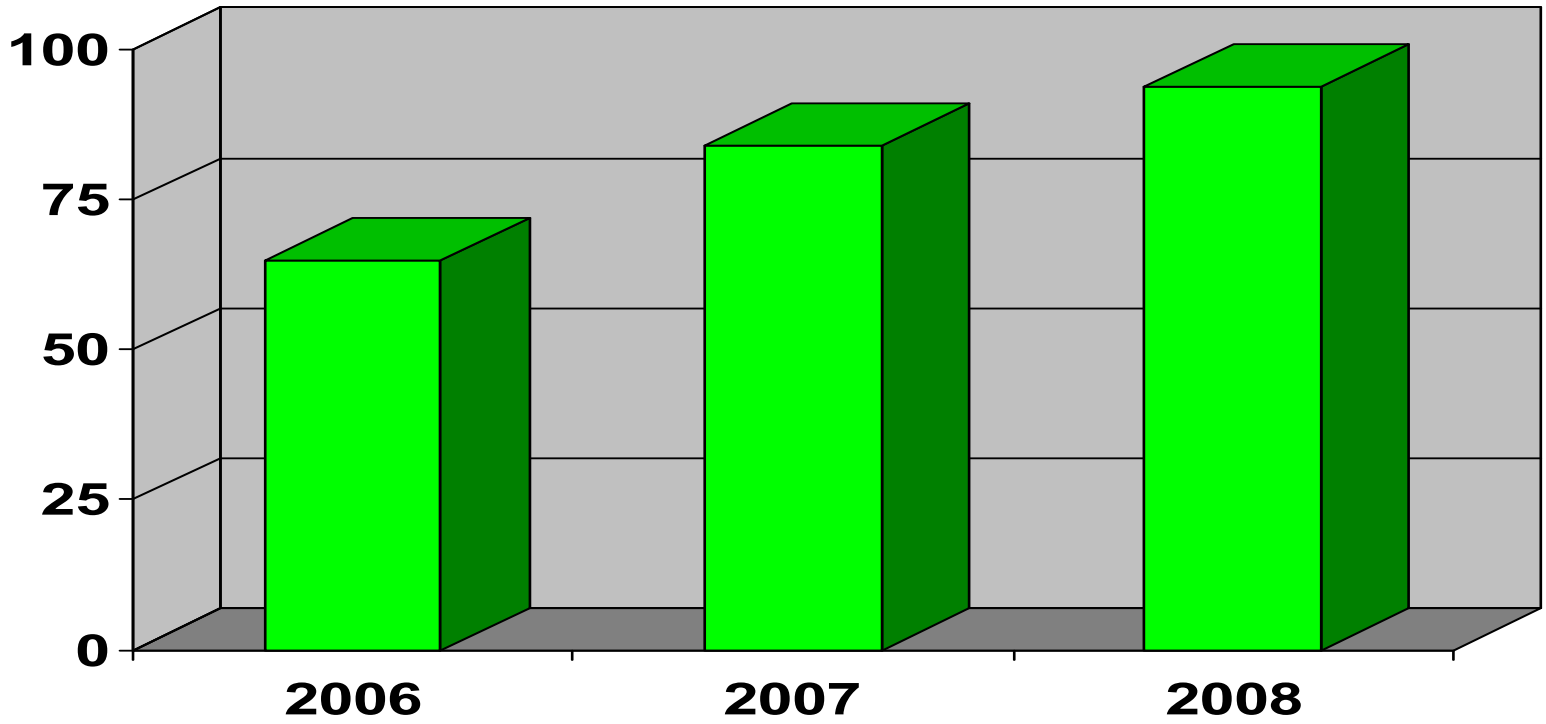
Trading

DIVISION

Global Presence

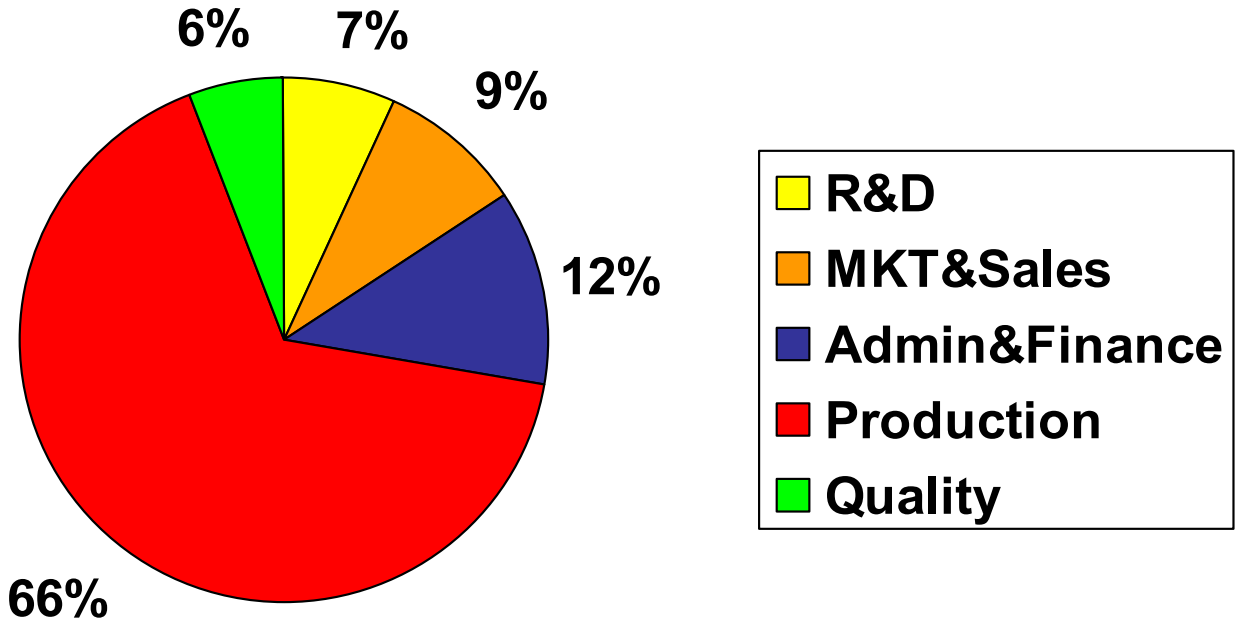
- Founded in 1972
- Head Quarters: Castelfidardo, Ancona, Italy
- Employees ~ 600
- FY08 Revenues (PCB Division) ~ 100M USD
- Production Capacity ~ 150k m^2/month
- 5 Production Plants in 3 Continents
  - 3 in Europe (Italy): Somacis SpA
  - 1 in Asia (China): Dongguan Somacis Graphic PCB Co.Ltd
  - 1 in South America (Brazil): Somacis&Cosmotech do Brasil Circuitos Ltda
- 7 Sales Offices/Branches
  - 2 in Italy (HQ and Milano), 1 in Brazil, 1 in France
  - Somacis UK Ldt, Somacis GmbH, Somacis USA inc.
- 2 Trading Companies (1 in Italy, 1 in Hong Kong)
- 2 Strategic Partners (GRAPHIC plc, UK, and COSMOTECH, Korea)

PCB Division Turnover (M USD)



Note: the turnover reported in the graph refers only to the companies currently joining the brand SOMACIS pcb industries. They've been removed contributions of companies (like, for example, SOMACIS Korea and CSN) that in the past had a significant role into the PCB division, but that are not part of the brand anymore.

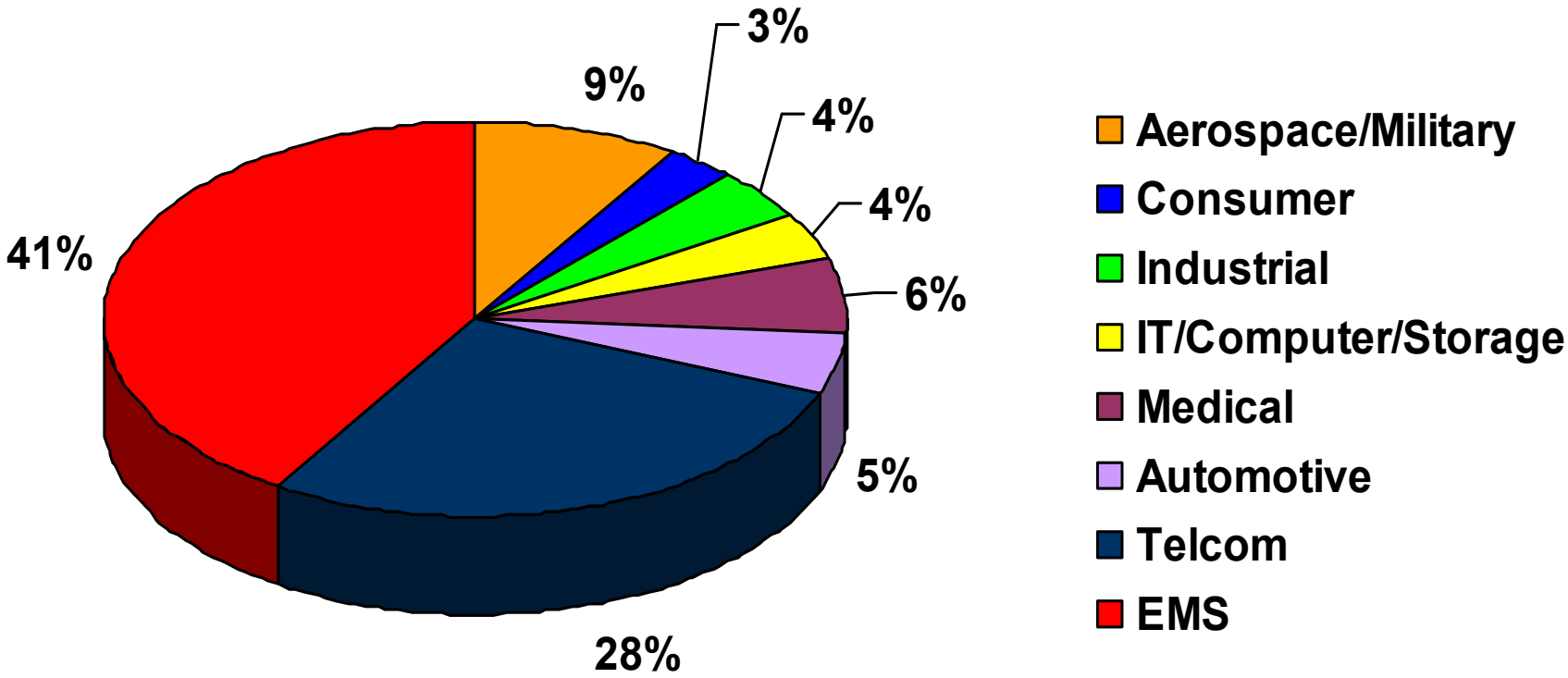
Human Resources Distribution



The percentage of employees not directly involved in PCB production is higher than 30% (*)

(*) HR Distribution data of SOMACIS SpA

FY 2008 Turnover Breakdown by sector



… certifications …

- **UNI EN IS0 9001:2000**
- **UNI EN 9100:2003**
- **UNI EN ISO 13485:2004 (*specific for medical*)**
- **UNI EN ISO 14001:2004**
- **UL E79889**
- **UL E211432**
- **UL E315722**
- **ISO/TS 16949**
- **Nadcap AS7003**

… M.I.U.R. High Qualified Research Laboratory …

SOMACIS pcb industries received this prestigious certification from the Italian *Ministero dell'Università e della Ricerca* (M.I.U.R.) thanks to its continuous dedication to the optimisation of processes and products, for both the technical-qualitative and environmental aspects.




… EIPC member …

SOMACIS is member of the Board of Directors of the European Institute of Printed Circuits (EIPC).

The EIPC is a network of more than 130 PCB professionals providing platforms to exchange business and technology information for the success of the European electronics industry.

The EIPC membership allows to SOMACIS to permanently be on top of technology and up to the time.

…and Nadcap ETG member

SOMACIS is member of the Nadcap Electronic Task Group (ETG).

The Nadcap ETG is the task group dedicated to the definition of both the specifications and the documentation necessary to the evaluation of PCB supplier Companies for the Aerospatial market during the Nadcap certification audits.

Main Customers

Technological Capabilities

because we Know how

SOMACIS pcb industries

Capabilities

SOMACIS pcb industries		Standard (2009)		Advanced (2009)		Roadmap (2010)	
		µm	mils	µm	mils	µm	mils
INNER LAYER	Tracks	50	2	25	1	20	0.8
	Insulation	50	2	25	1	20	0.8
OUTER LAYER	Tracks	75	3	50	2	25	1
	Insulation	75	3	50	2	25	1
LASER VIA PADS	External	250	10	200	8	180	7.2
	Internal	250	10	200	8	180	7.2
MECHANICAL VIA PADS	External	450	18	300	12	200	8
	Internal	500	20	400	16	250	10
ASPECT RATIO	Blind Vias	1:1		1:1		1:1.1	
	Through holes	1:11		1:12		1:13	
SOLDER GAP		38	1.5	25	1	20	0.8

Capabilities

SOMACIS pcb industries		
COPPER THICKNESS	Inner	12÷210 µm (1/3÷6 oz)
	Outer	3÷140 µm (1/12÷4 oz)
MIN DIELECTRIC THICKNESS	Inner	50 µm (2 mils)
	Outer	50 µm (2 mils)
HDI		4+N+4
MAX PANEL SIZE		640 X 540 mm
MAX PANEL THICKNESS		4.2 mm (165 mils)
MAX LAYER COUNT		36 layers
MIN DIAM MECHANICAL HOLE		100 µm (4 mils)
MIN DIAM LASER VIA		75 µm (3 mils)
MECHANICAL DEPTH CONTROL		+/- 10 µm (+/- 4 mils)
IMPEDANCE CONTROL		+/- 7%

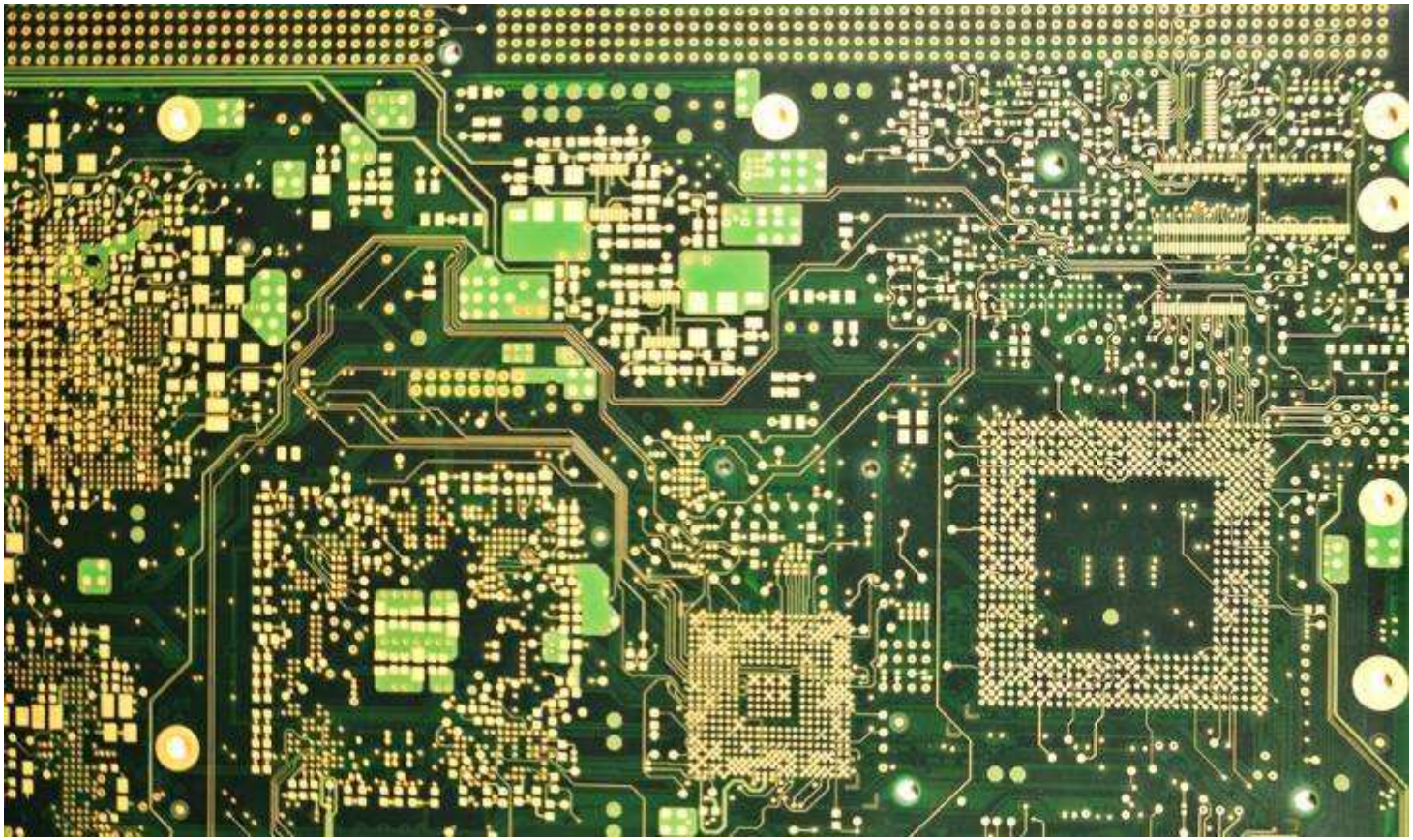
Capabilities

	SOMACIS pcb industries
Finishes	ENIG - Electroless Nickel Immersion Gold
	ENEPIG - Electroless Nickel Electroless Palladium
	OSP - Organic Solderability Preservative
	HAL/HASL Sn/Pb - Hot Air Levelling
	HAL/HASL Lead Free - Hot Air Levelling
	Immersion Tin
	Immersion Silver
	Electrolytic Gold
	Mixed Finishes (ex: OSP and chemical Gold, electrolityc Gold and chemical Gold, HAL and electrolityc Gold)

Capabilities

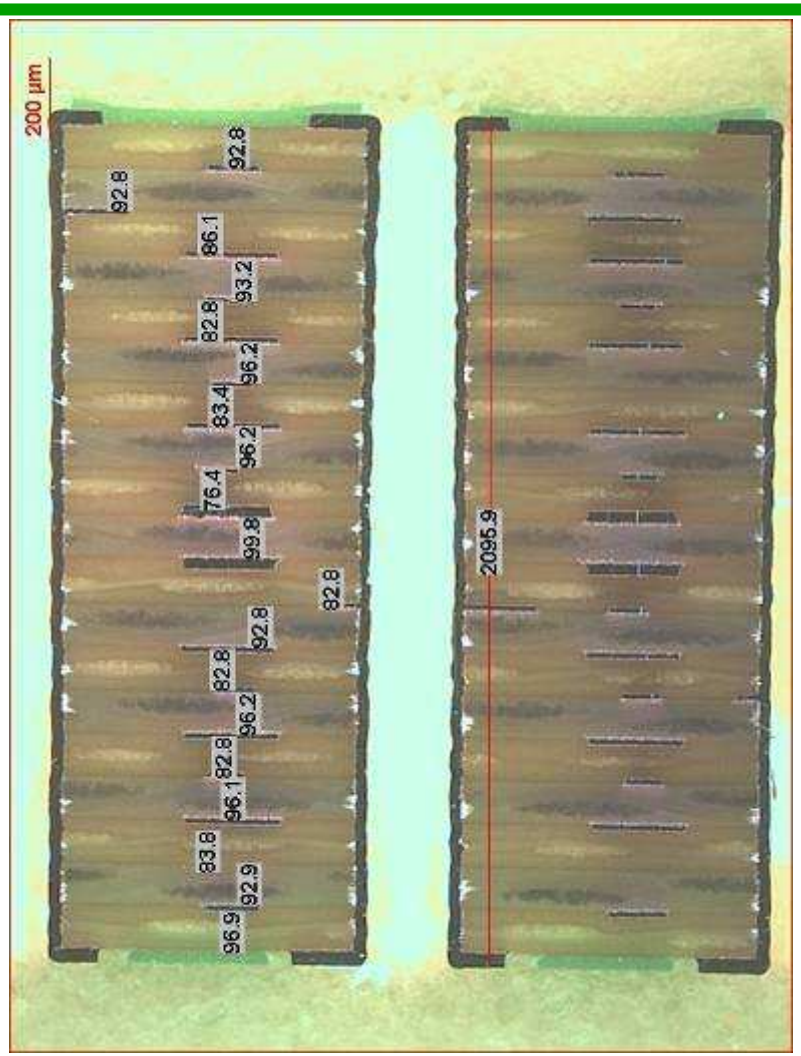
	SOMACIS pcb industries
Materials (Lead, Lead Free, Halogen Free)	ISOLA & ITEQ FR4 (Standard & High Tg)
	SHENGYI (Standard & High Tg)
	HITACHI (Standard & High Tg)
	ARLON Polyimide & Thermount
	NELCO PTFE
	TACONIC PTFE
	PANASONIC Lead & Halogen Free
	MITSUBISHI High Tg
	ROGERS

Standard Multilayer

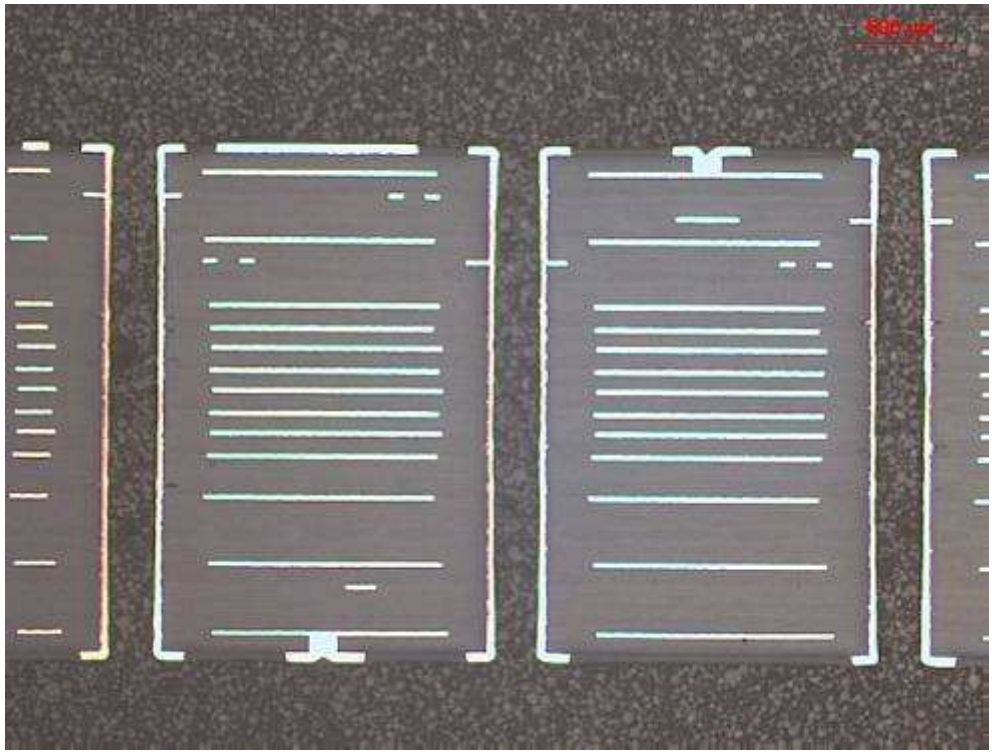


24 layers HDI board for Telecomunication applications - 12498 mechanical vias

Multilayer

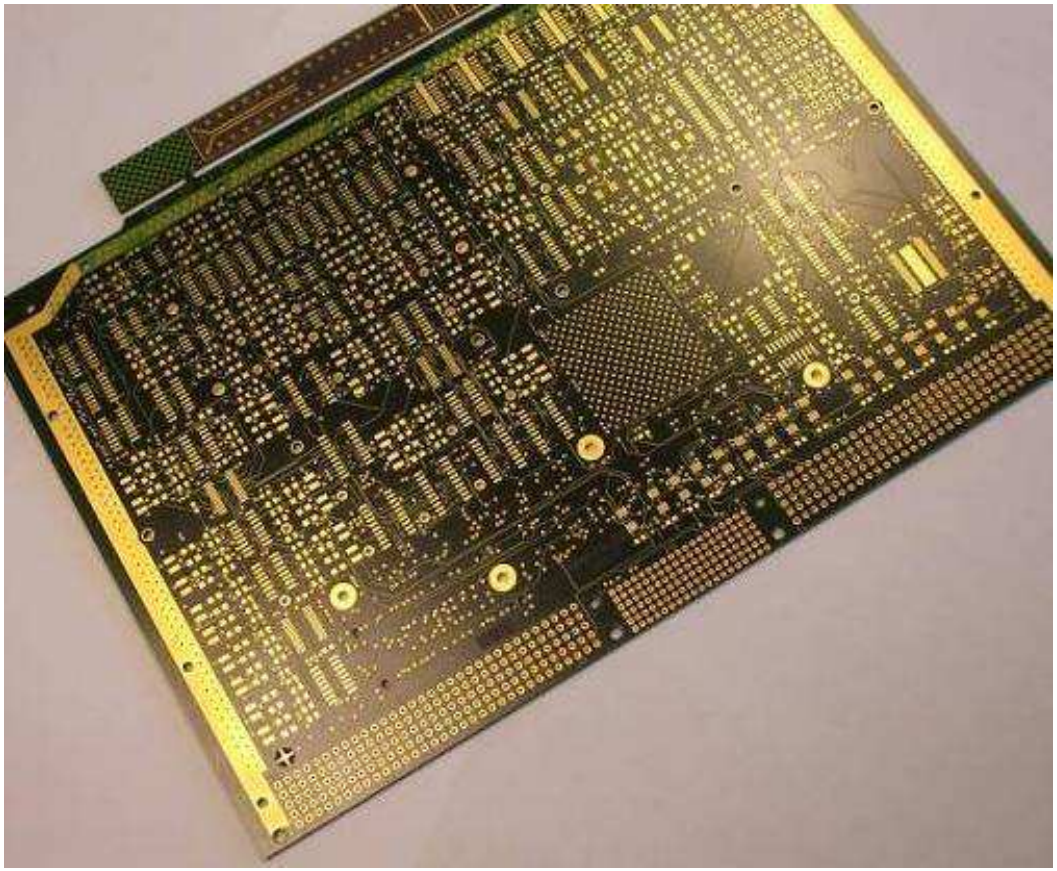


20 layers board of 2,1mm thickness.



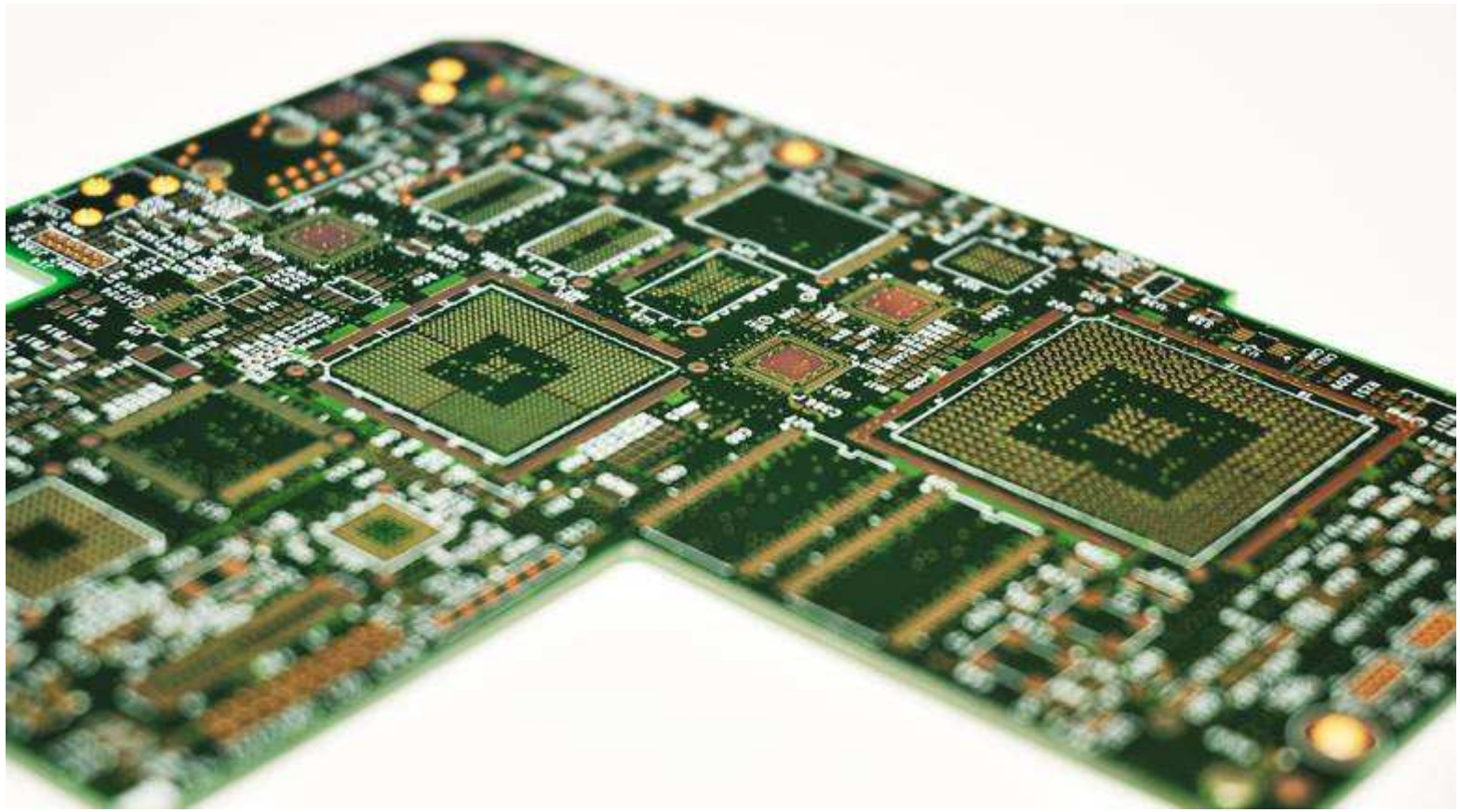
24 Layers Board of 2,6mm total thickness with laser blind vias 1-2 and 24-23 and PTH holes.

Sequential Build Up (SBU)



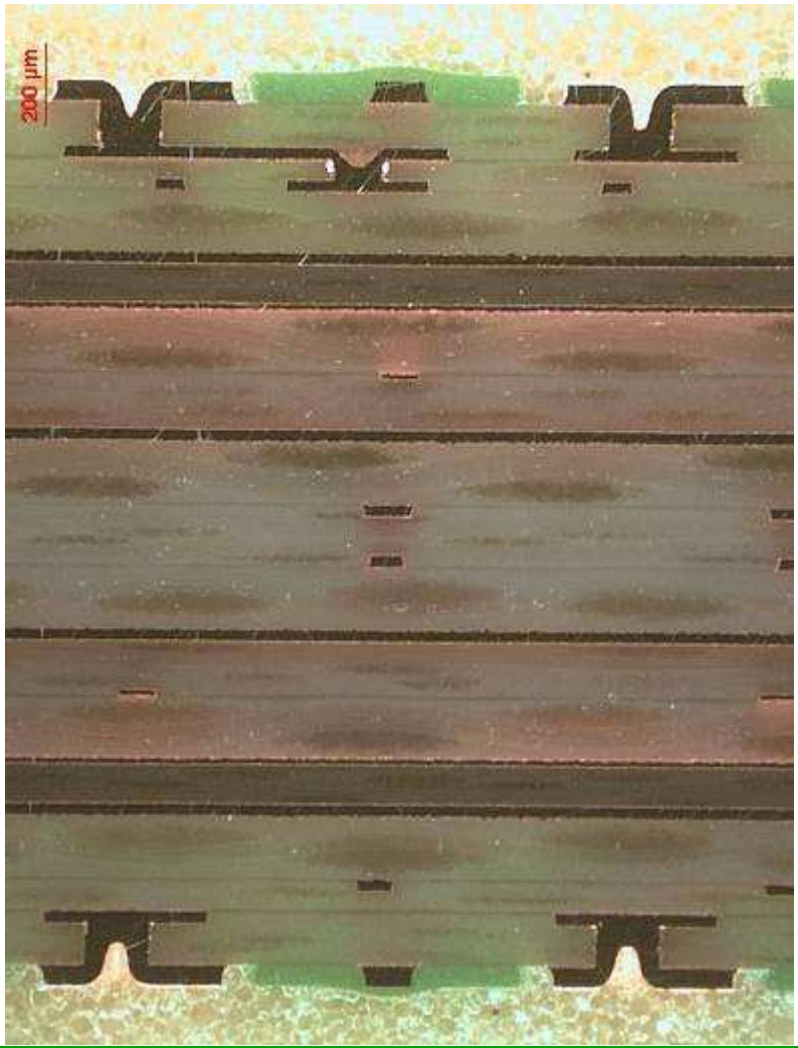
233,35mm x 160mm 3+12+3 multilayer board – HTg FR4 dieletric

Sequential Build Up (SBU)

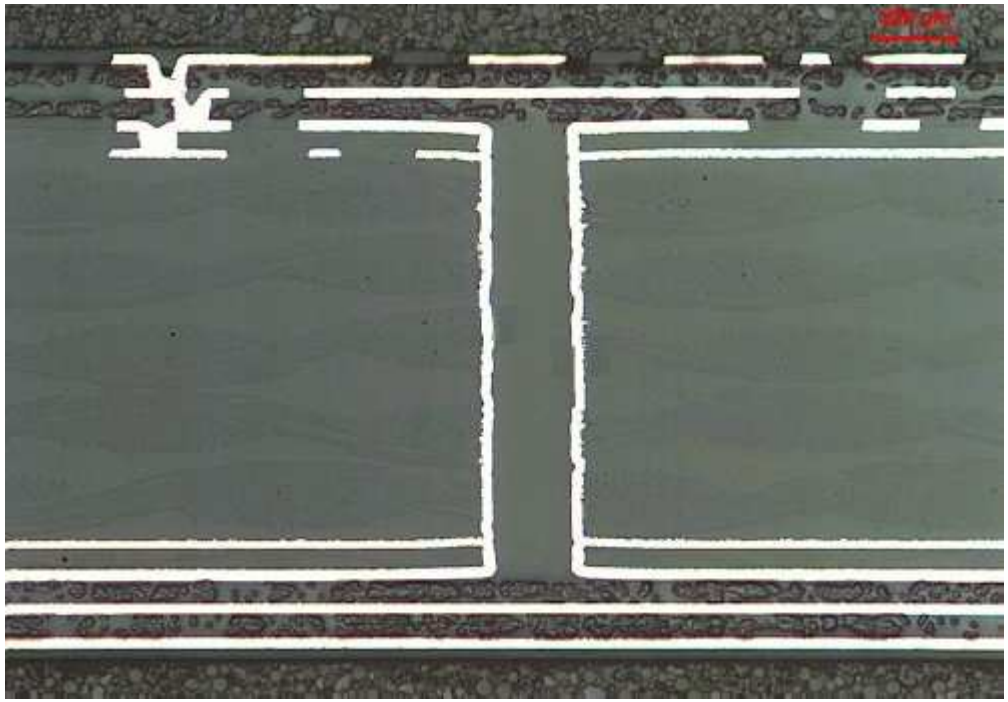


1+12+1 layers board - Stacked vias 1-3 – Controlled impedance –
Track/insulation 94/86µm

Sequential Build-Up (SBU)

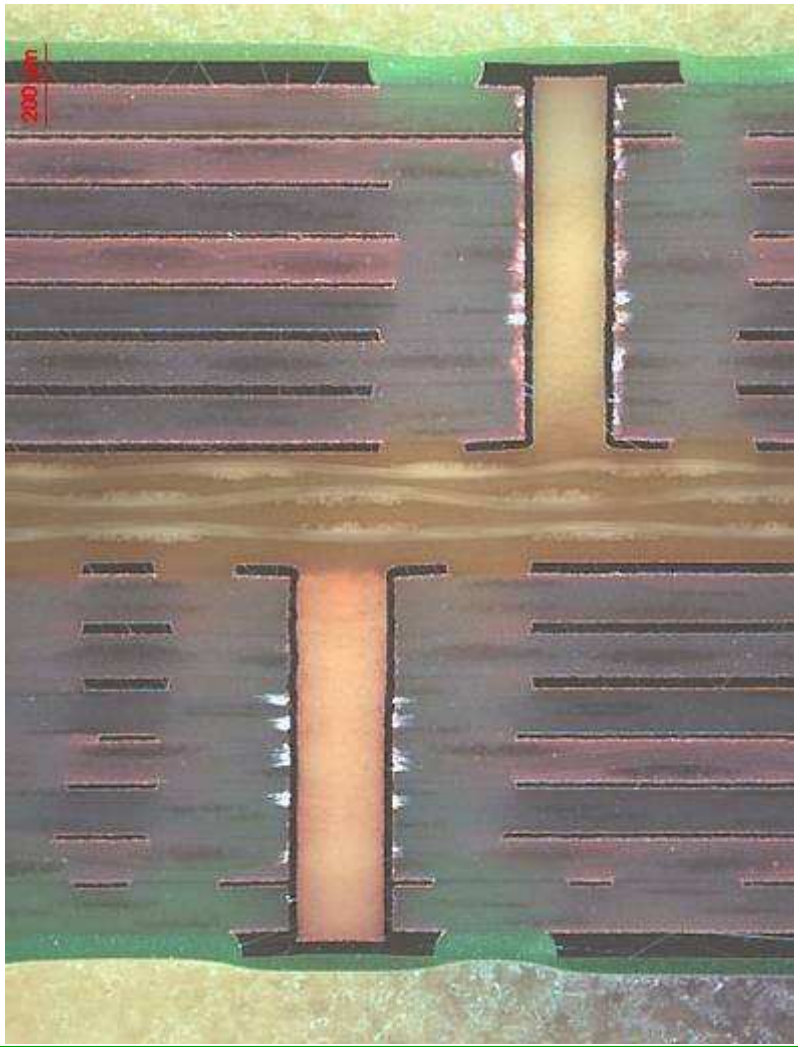


Microsection of 2+N+2 SBU with buried and blind 100 µm laser vias

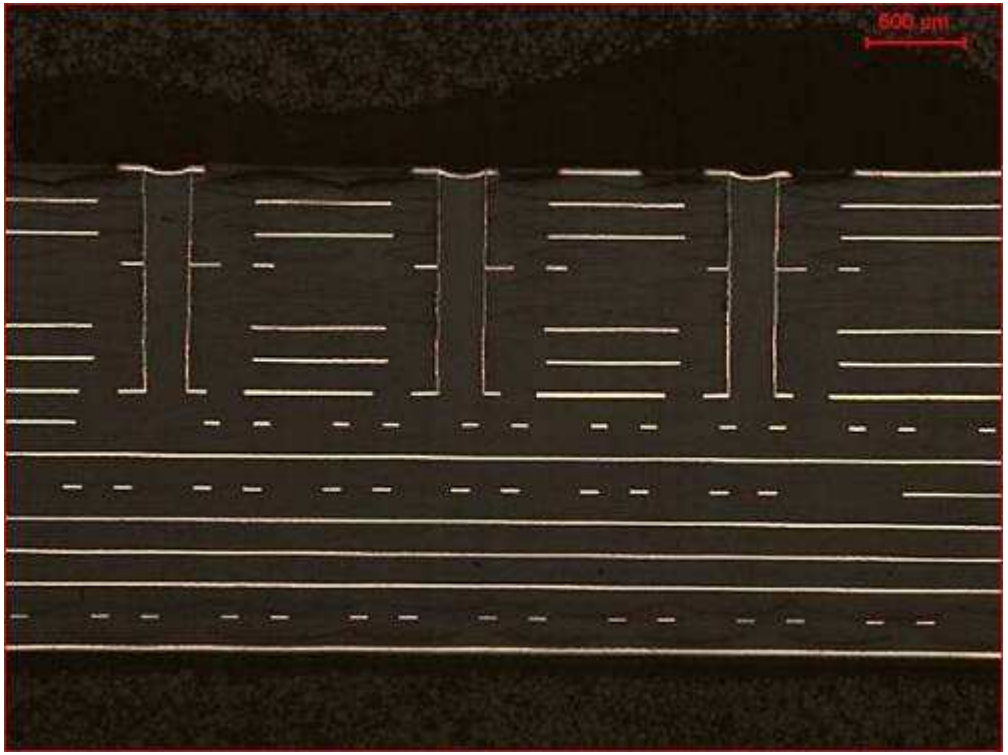


Microsection of 2+N+2 SBU with staggered laser vias among core and external layers

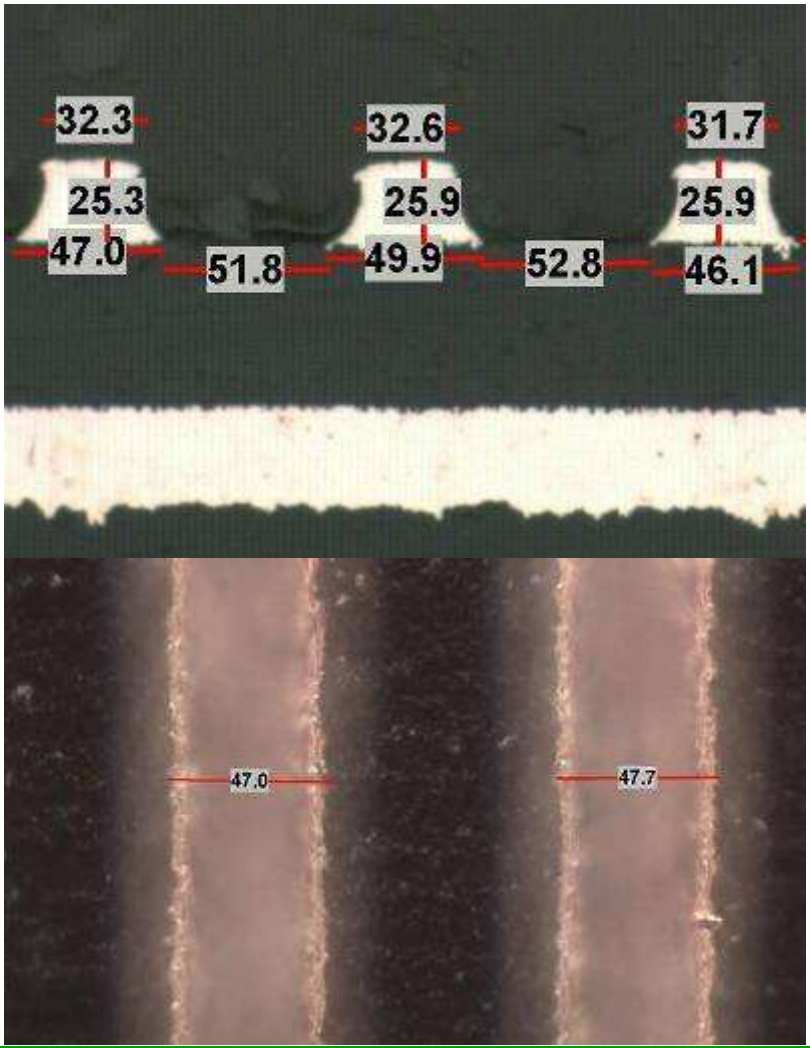
Sequential Lamination



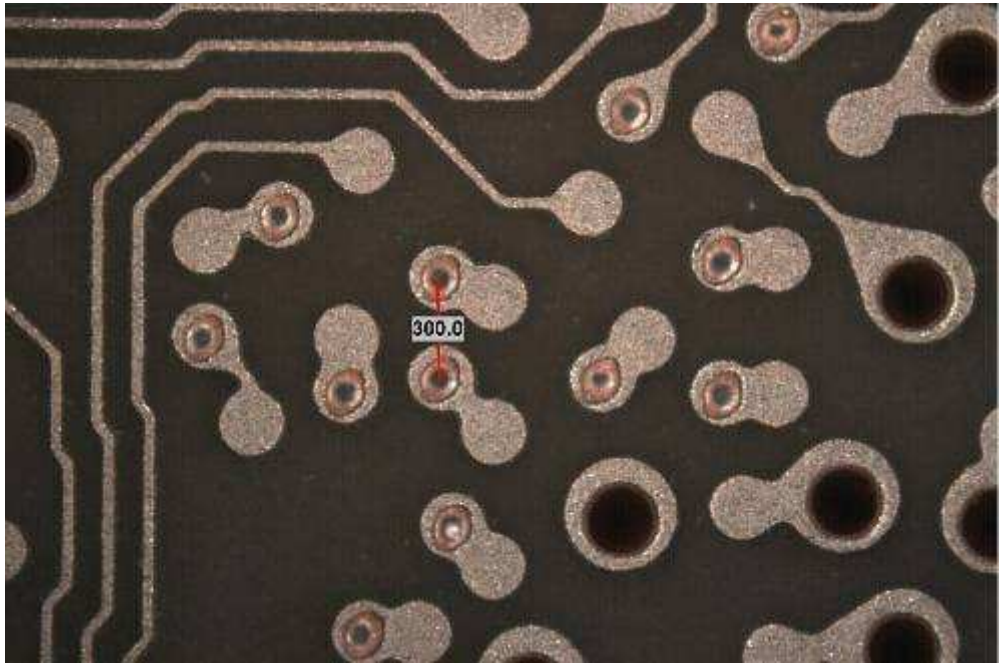
Microsection of Sequential Lamination. 16 layers board of mixed dielectric with resin filled and copper capped vias in pad



HDI Ball Grid Array (BGA)

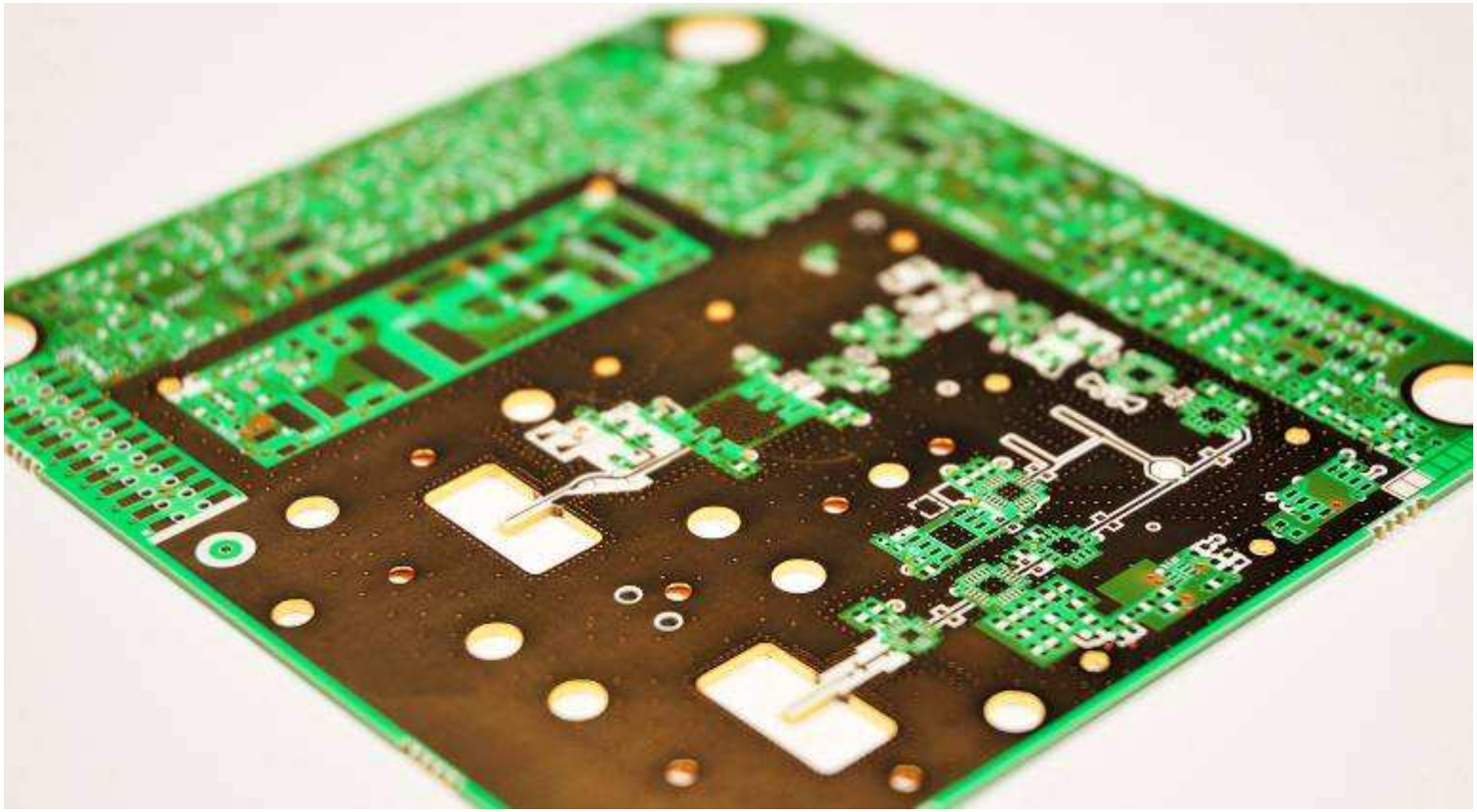


Microsection of pad of BGA conductor width/insulation 50µm/50µm



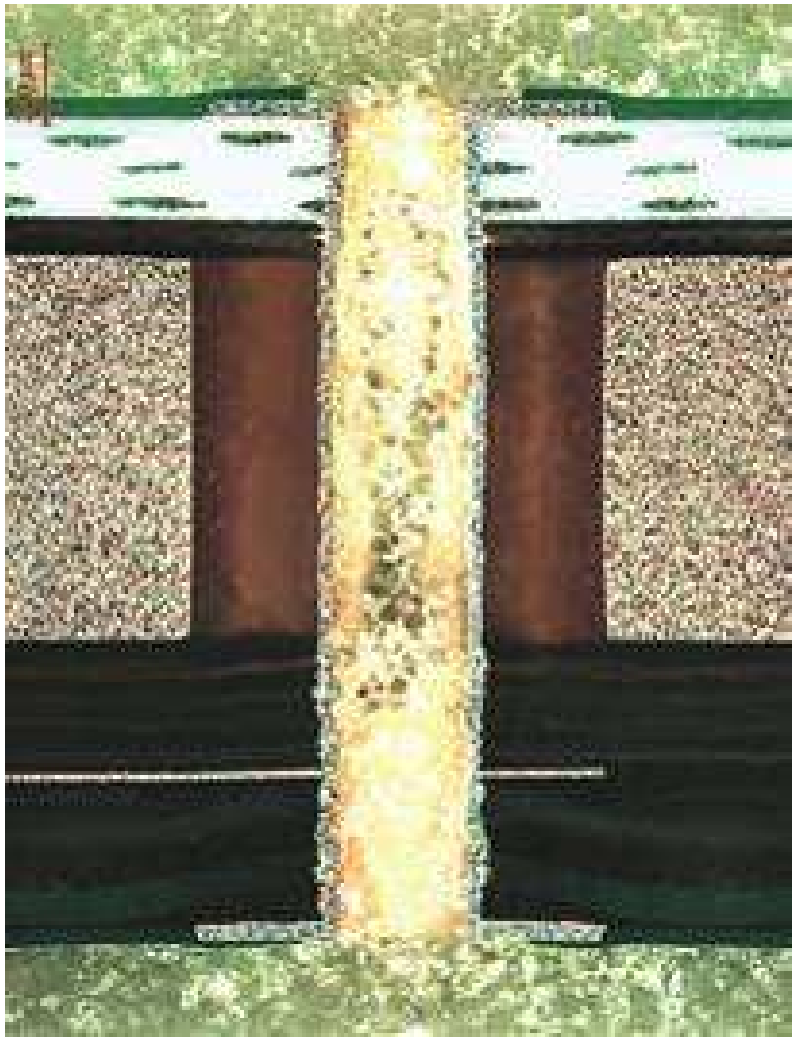
Detail of BGA 0,3 mm pitch

Mixed Materials

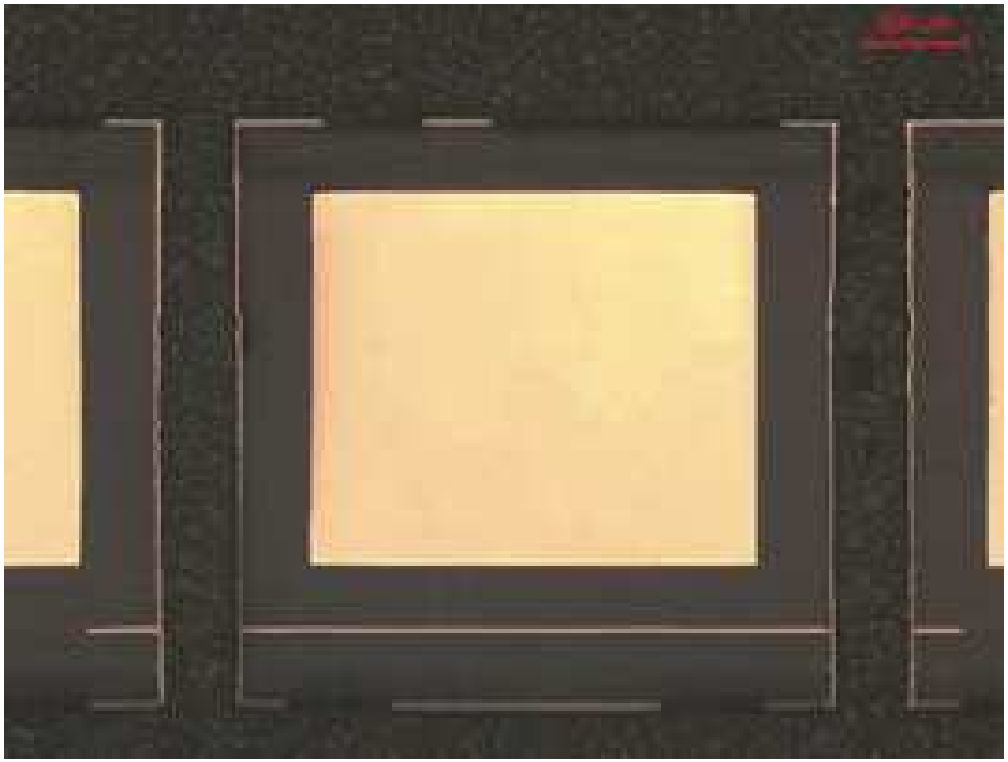


117,5mm x 108,5mm 6 layers board for Telecommunication applications - Rogers (component side) and FR4 dielectrics – Blind vias 1-3 – LDI technology

Mixed Materials

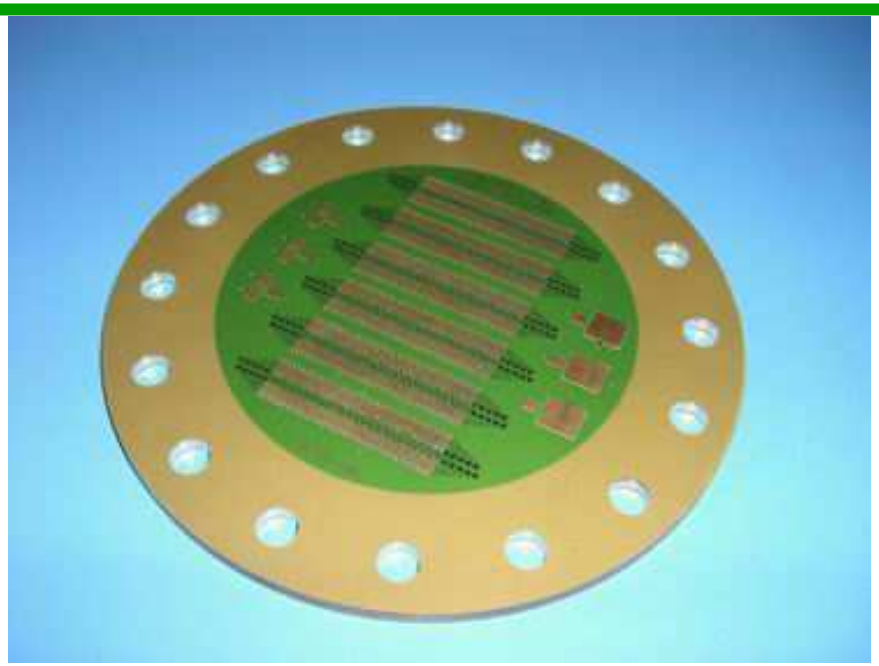


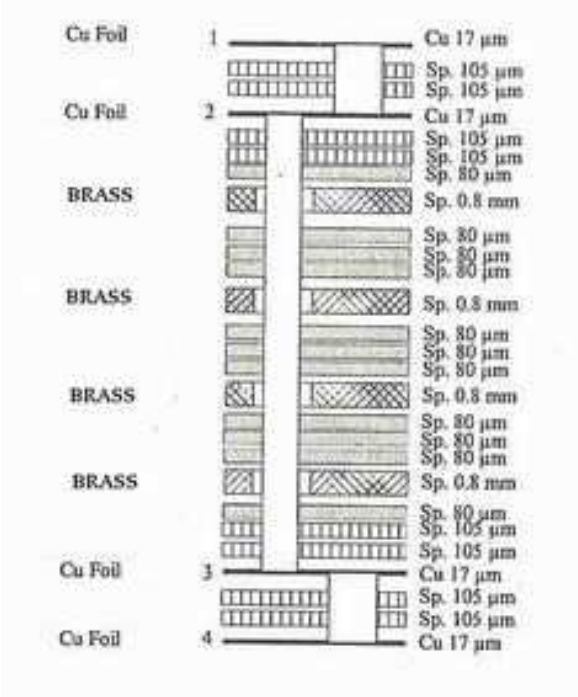
Microsection of 4 layers metal core, mixed dielectric - FR4 HTg, low d_k, ceramic filled laminate and Cu 1.0 mm

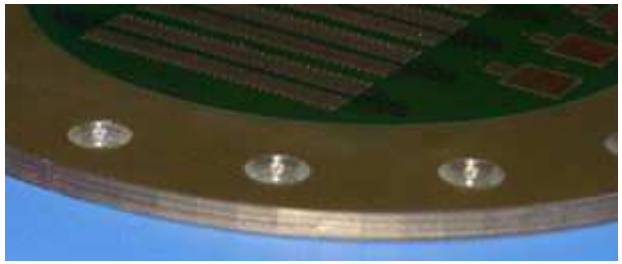


Microsection of 4 layers board with internal metal core of 2 mm

Flange for a pressure vessel

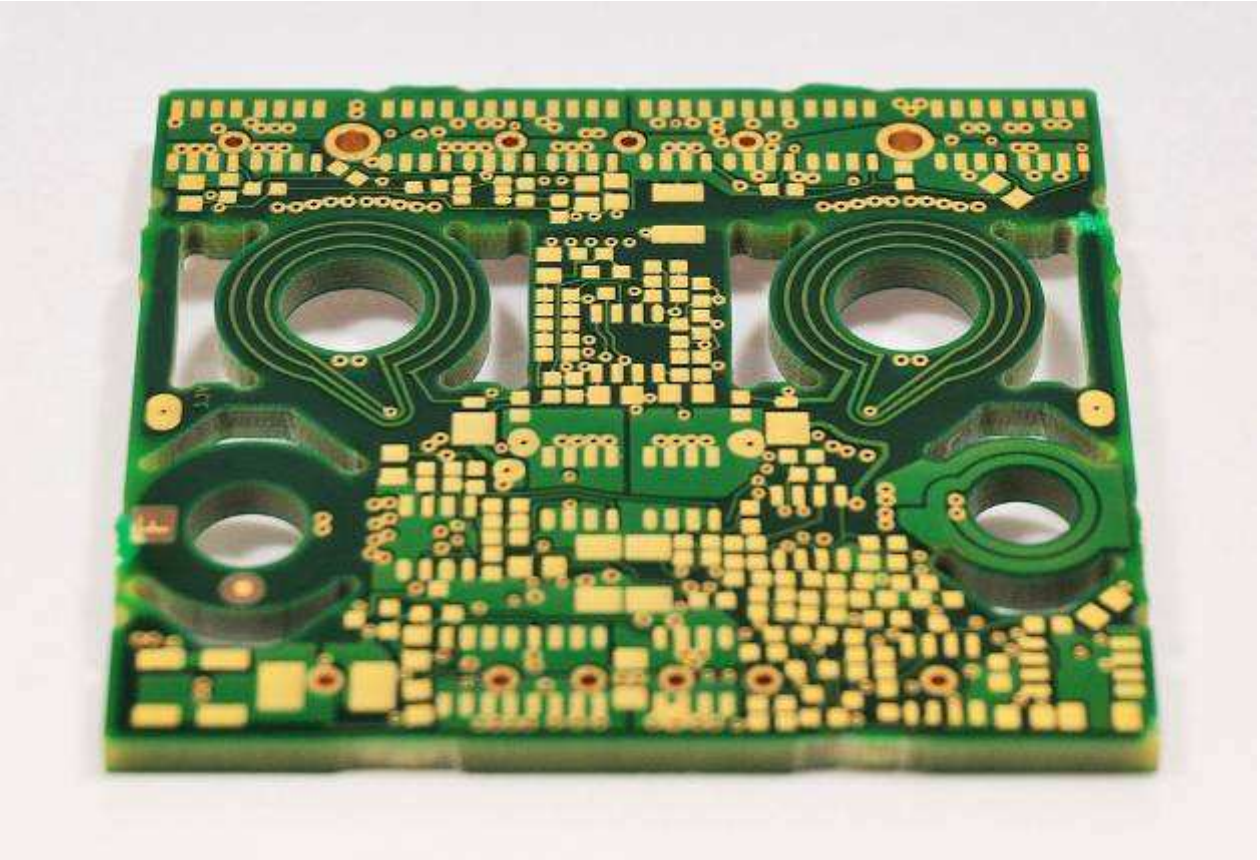






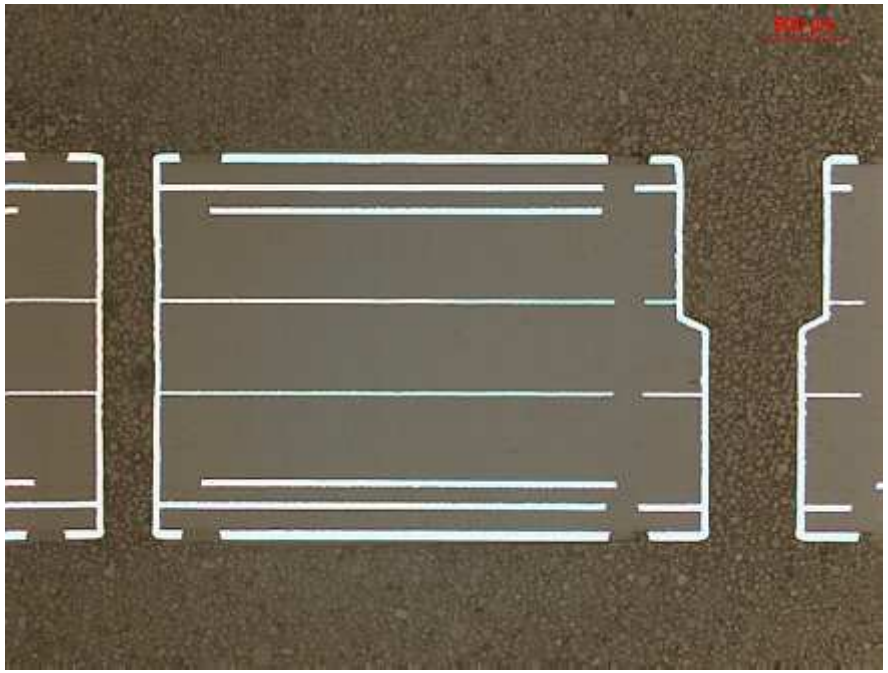
Board with blind vias and 4 layers embedded of thick brass (0,8 mm). This boards is used from Research center as a pressure vessel lid and it resists to a bending test applied with a camber of 1,5 mm in the centre of the board.

Planar Transformer

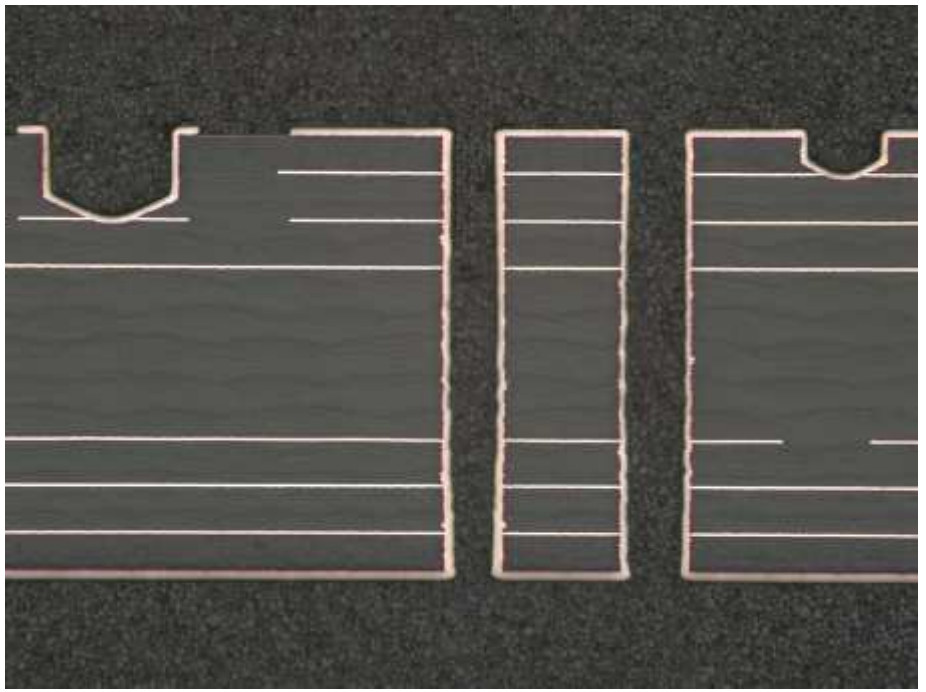


Half Brick 12 layers Planar Transformer board – HTg dielectric – Capped vias

Mechanical Drilling

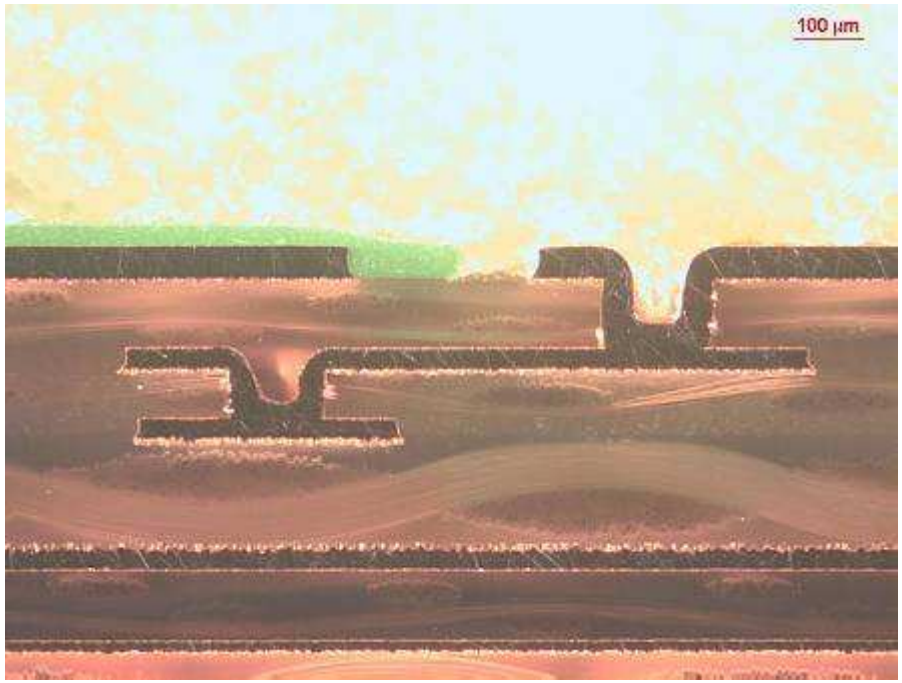


Microsection of multilayer board with standard and special design PTH.

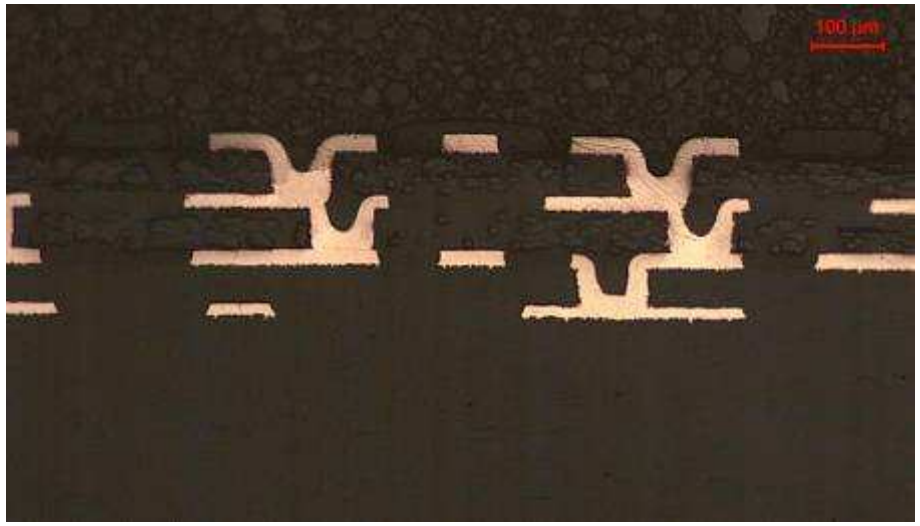


Microsection of PTH multilayer board with blind mechanichal vias 1-3 and 1-2

Laser Drilling

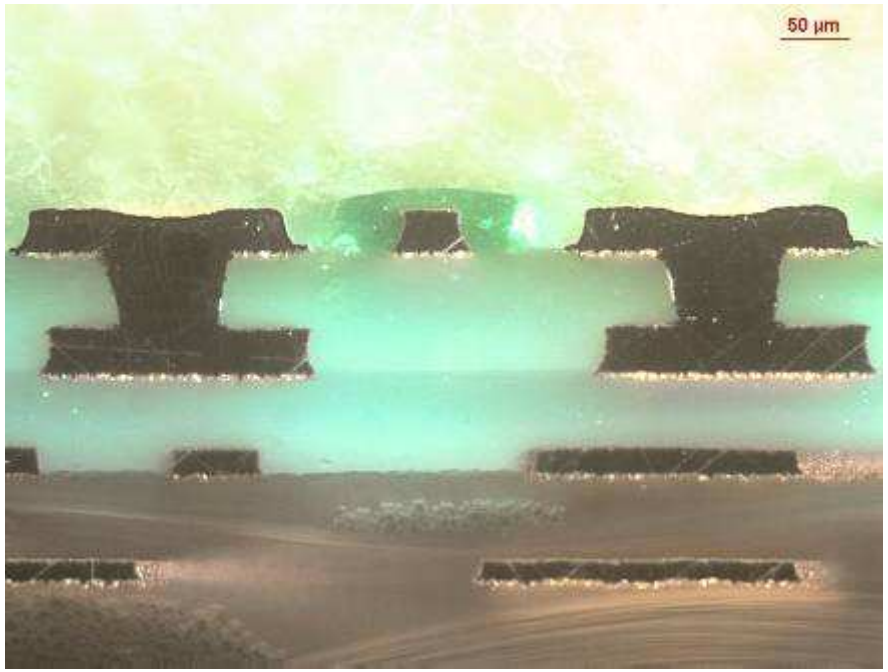


Microsection of SBU with blind and buried microvias (100µm)

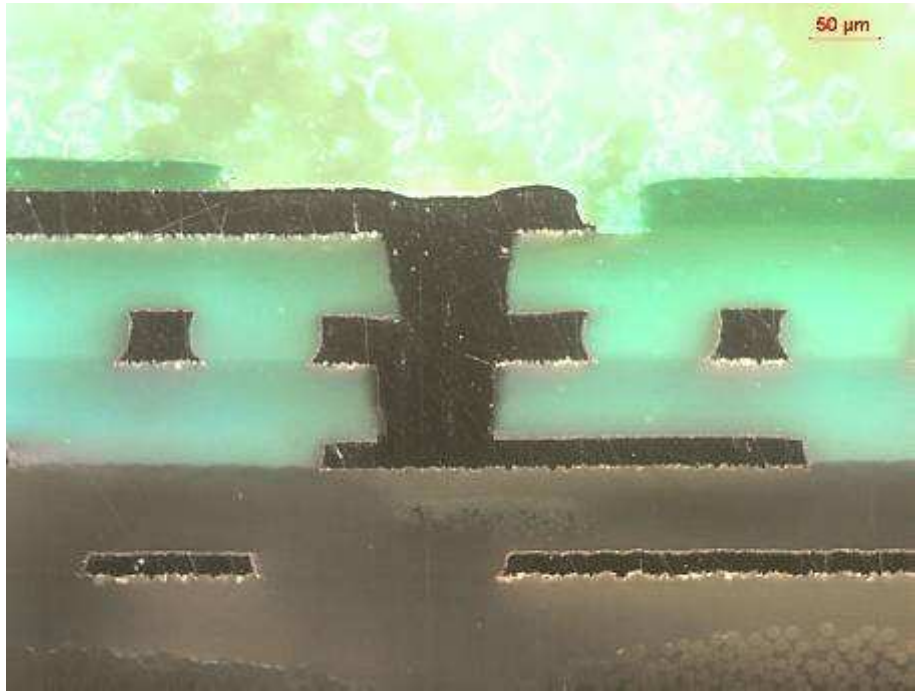


100µm staggered laser vias (25µm Cu thickness)

Filling Copper technology

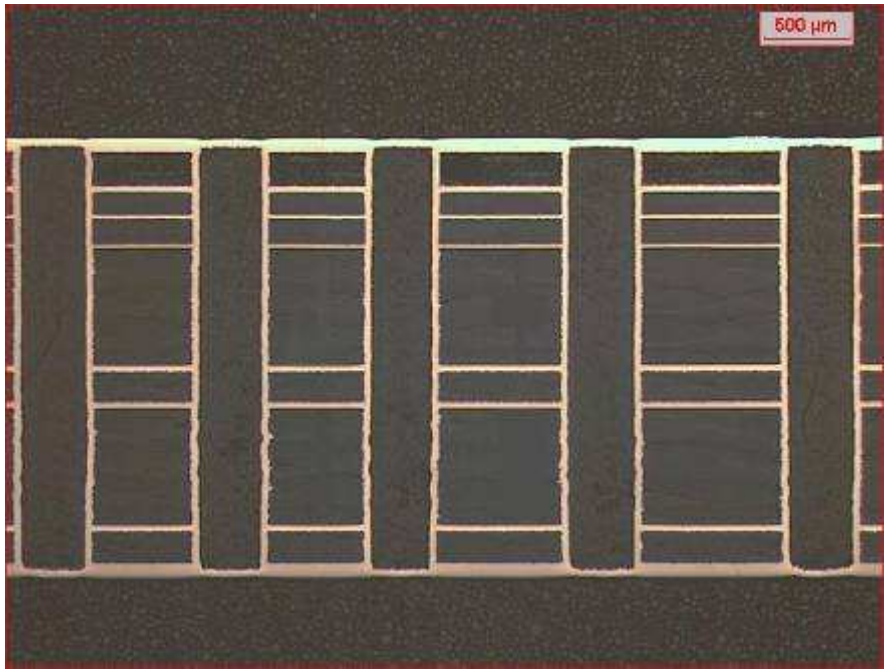


Copper filled laser microvias

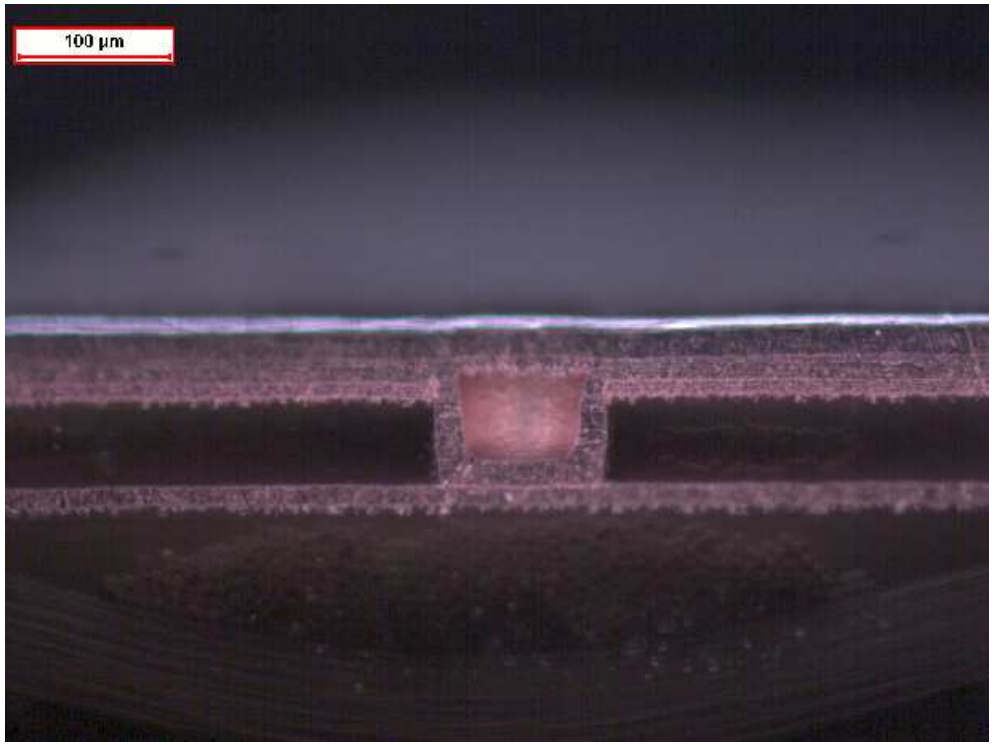


Stacked laser microvias copper filled

Capped vias

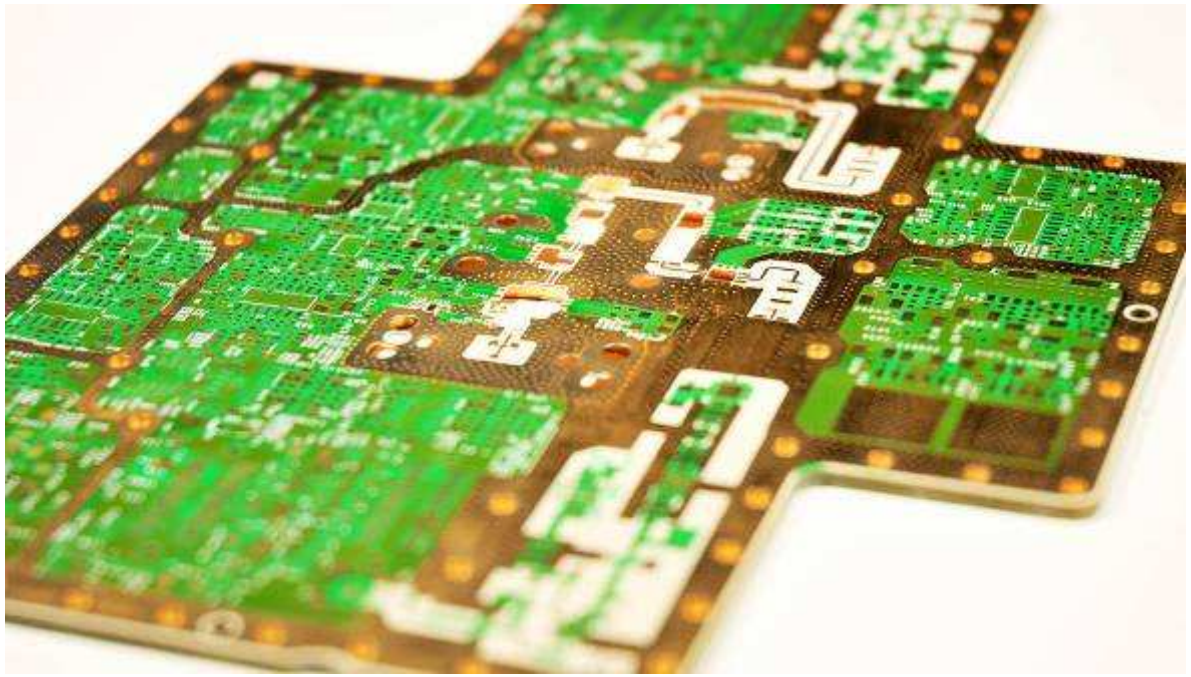


0,4 mm capped vias in standard multilayer board



Capped via: 0.11 mm laser hole (before hetching)

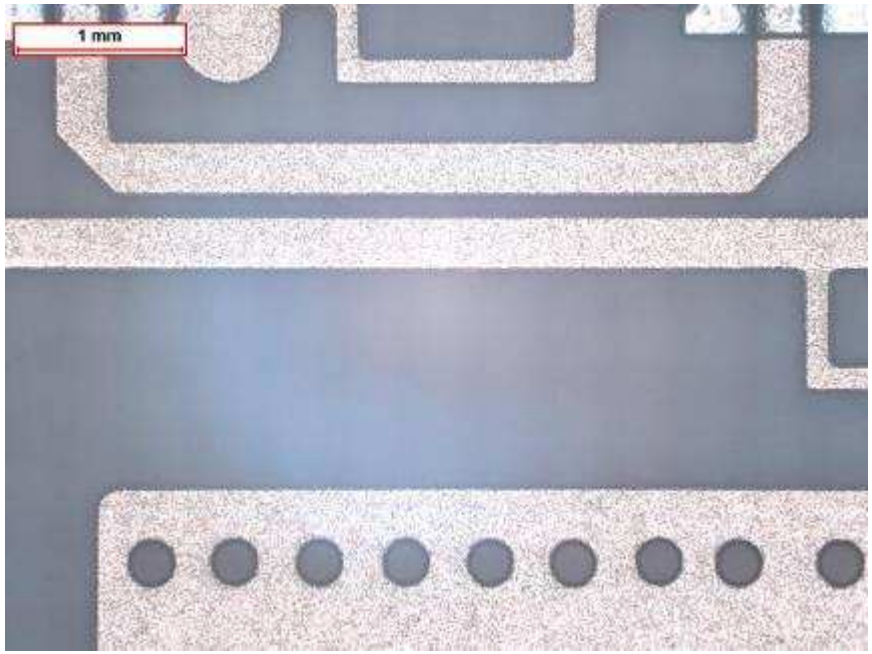
Radio Frequency



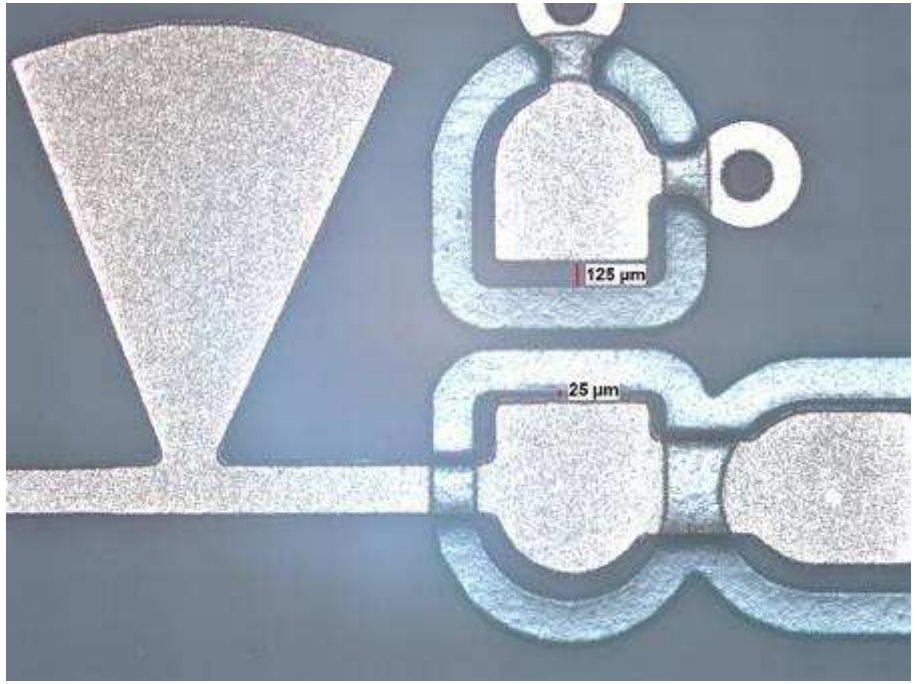
38GHz Board with hybrid materisl construction – Controlled impedance – Blind and through holes – Ni-Pd-Au finishes

Detail on plated slots 2-8

Radio Frequency/Microwave

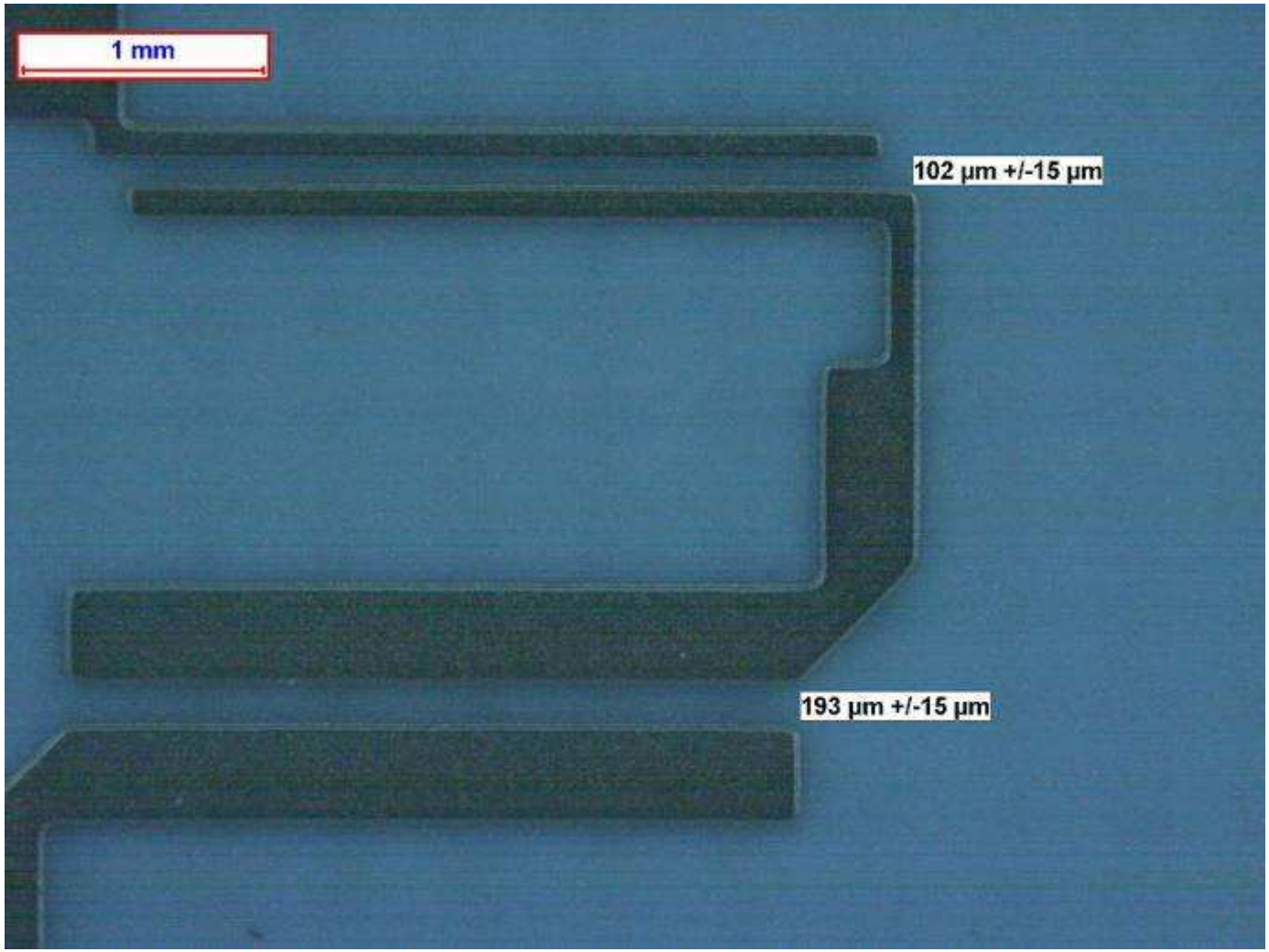


Detail of multilayer board, for RF application, in mixed material (Rogers and FR4) - Gap 120µm



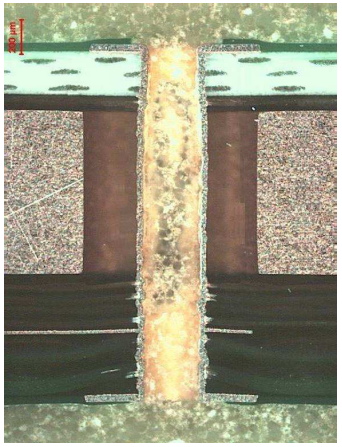
Detail of multilayer board, for RF application, in mixed material (Rogers and FR4) - 25µm and 125µm insulation track

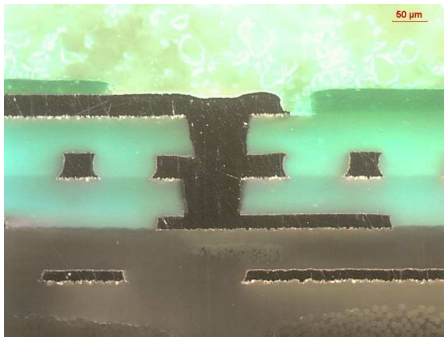
Radio Frequency/Microwave

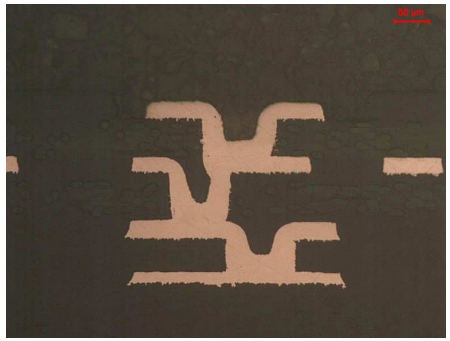


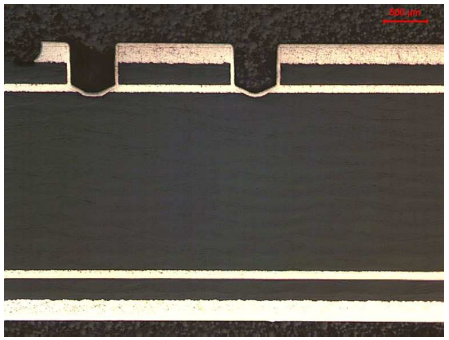
Detail of multilayer board, for RF application - 100µm and 200 µm (+/- 15 µm) gap and insulation

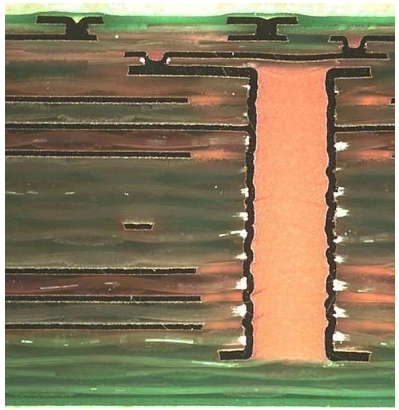
So much is FAST … in Quality

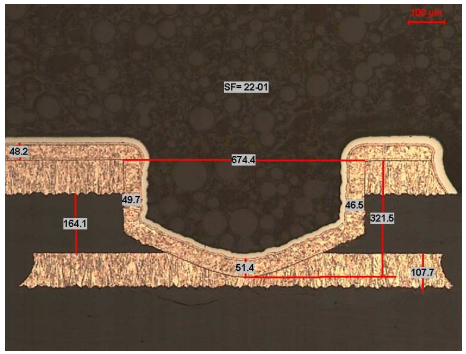


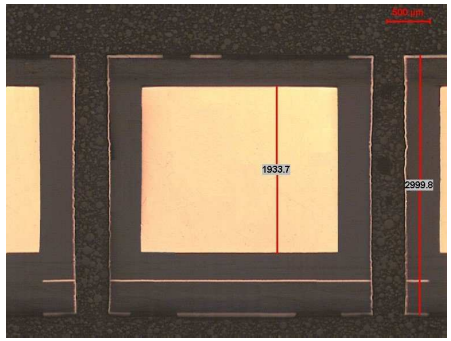




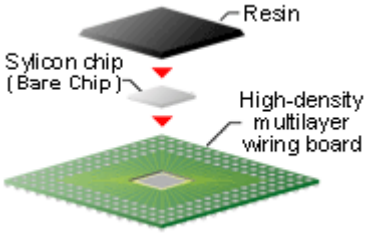


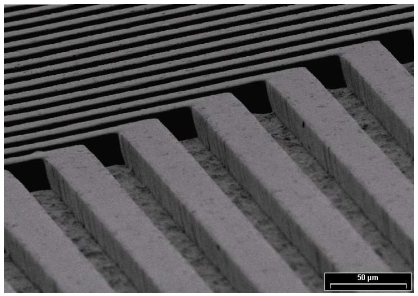


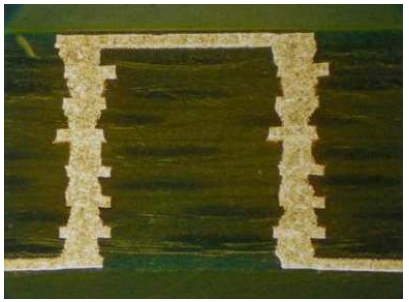


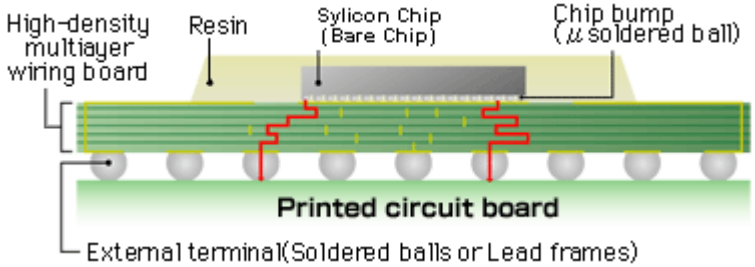


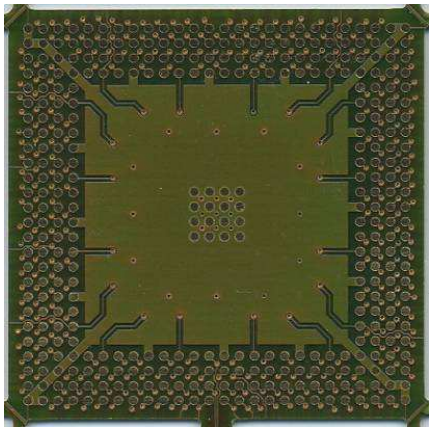
So much is FAST … in High tech

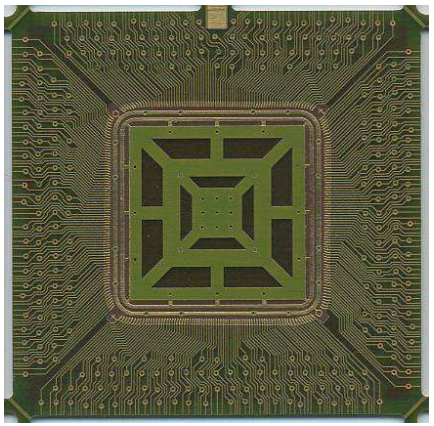












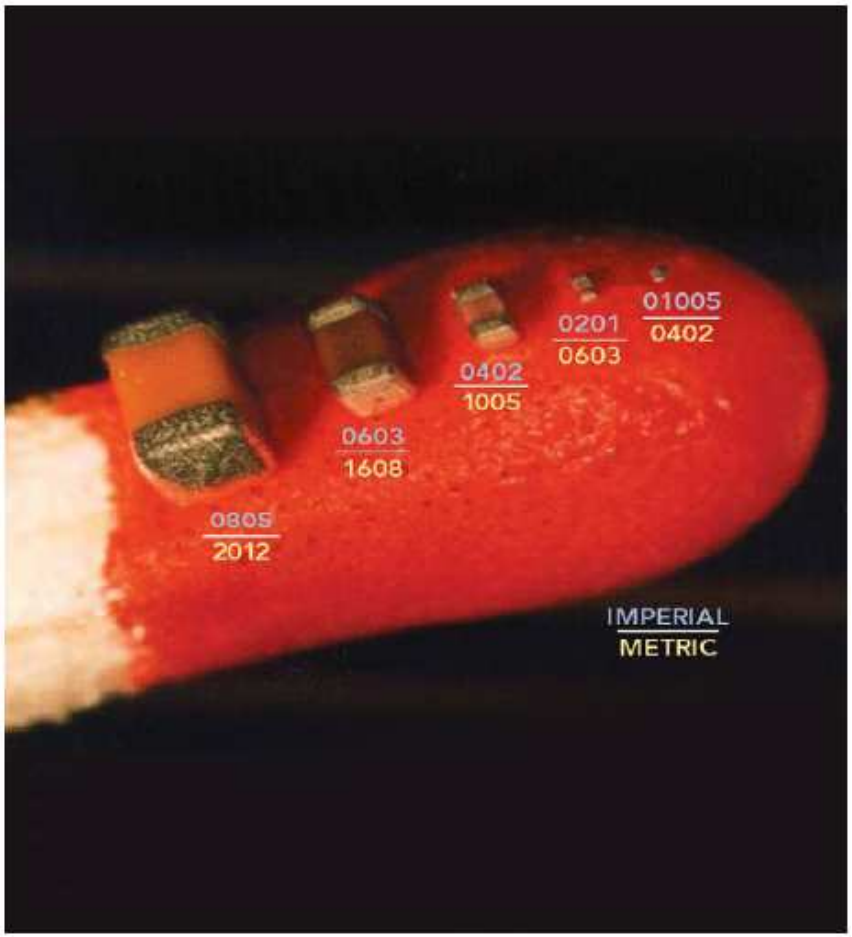
SOMACIS pcb industries – Manfredonia[3]

- New Plant
- New technologies

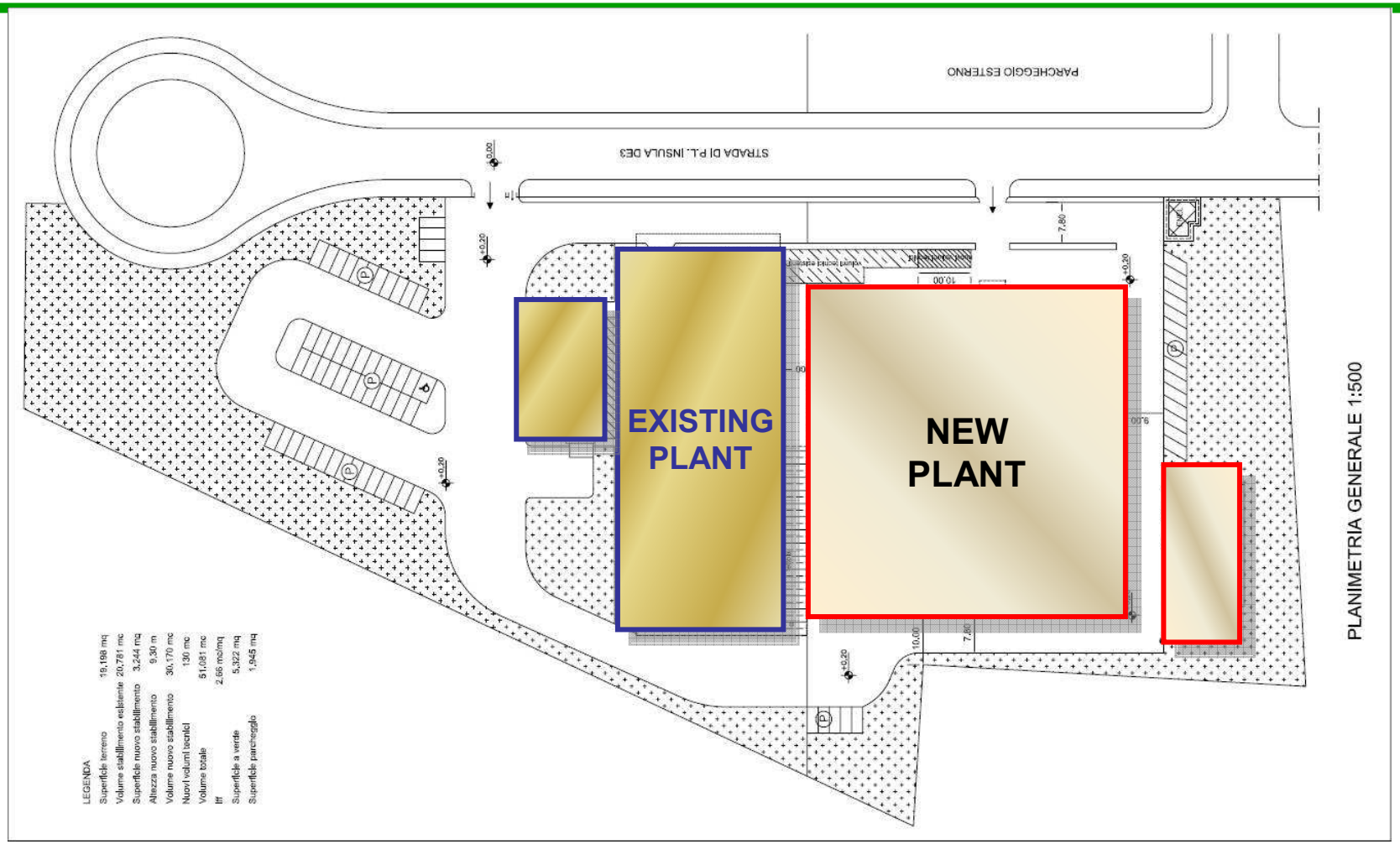
The goal of this project is to set up a new plant in Manfredonia, with capability to produce very complex rigid boards and prototyping chip package in a very short lead time.

Total investments for this project is roughly 15 Millions of Euro with 10 millions Euro only for machinery.

These investments will enable Somacis to produce boards with the following technologies
- Laser vias,
- Filling copper
- Capped vias,
- Laser Direct Imaging
- Embedded Die and Passives.



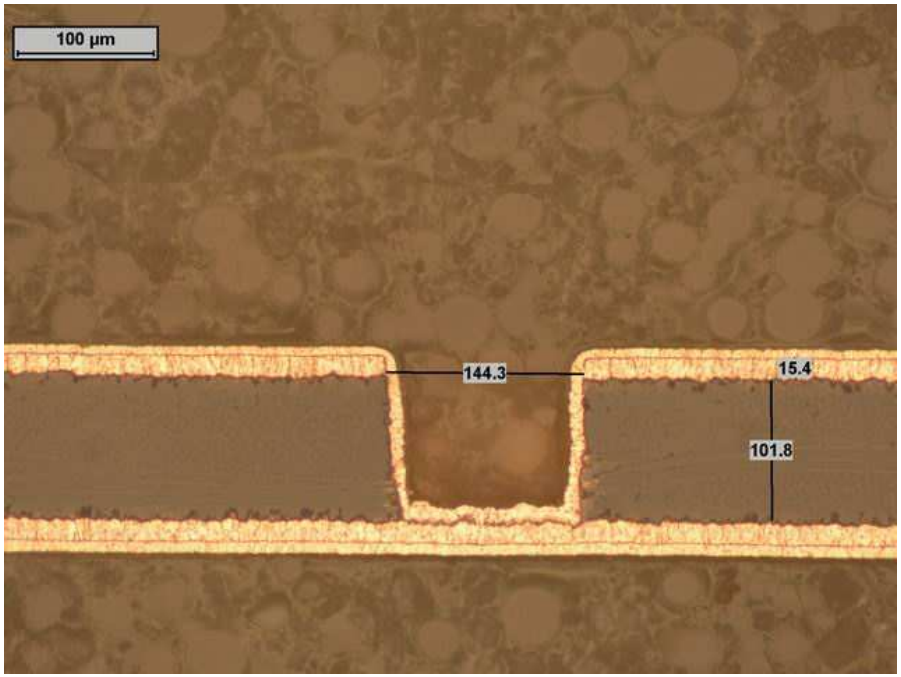
SOMACIS pcb industries – Manfredonia[3]

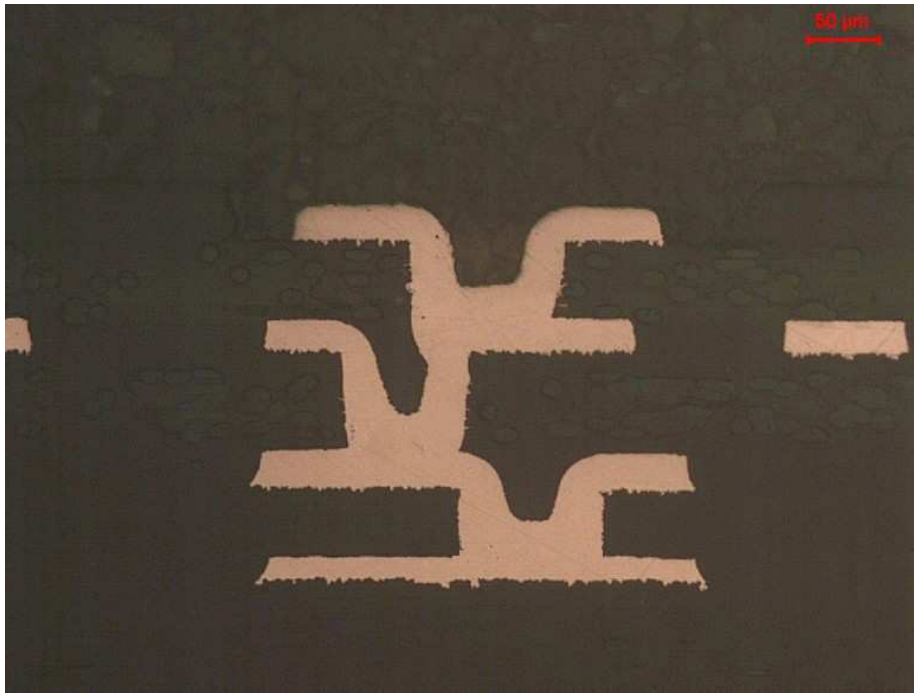


SOMACIS pcb industries – Manfredonia[3]

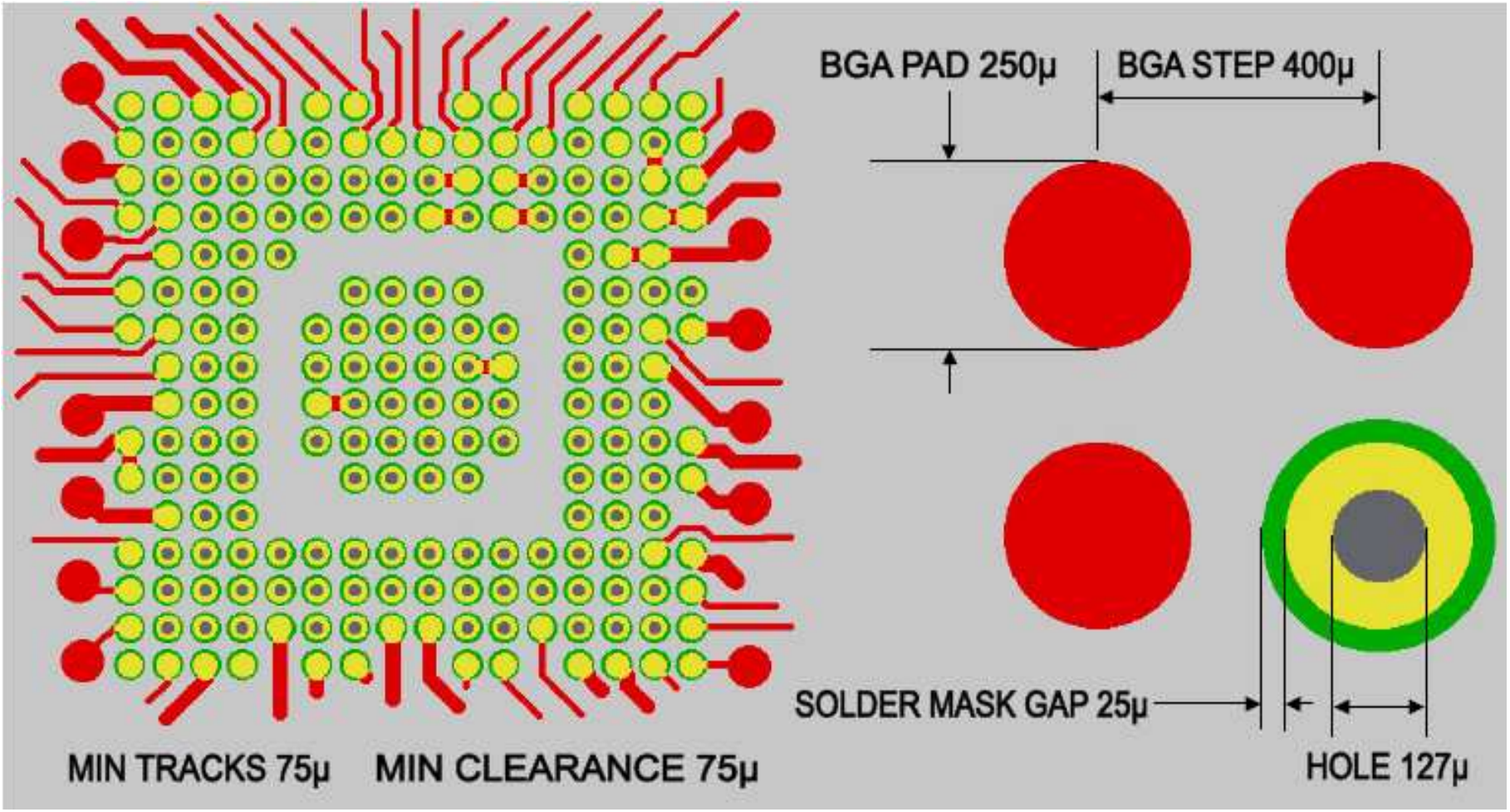
Goal of project

Development and prototyping of HDI printed circuit board with embedded components and ultra-fine line for CSP

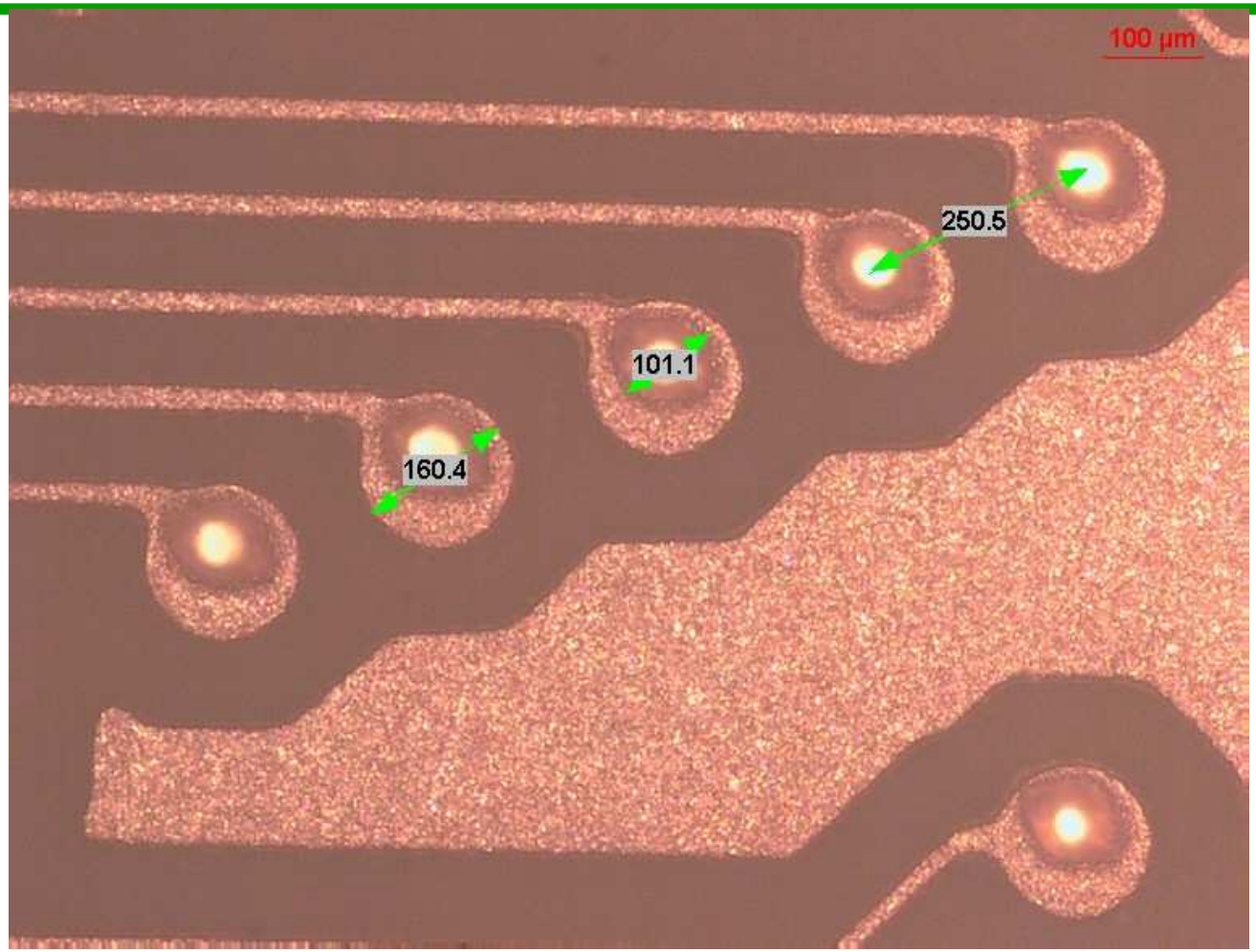




SOMACIS pcb industries – Manfredonia[3]

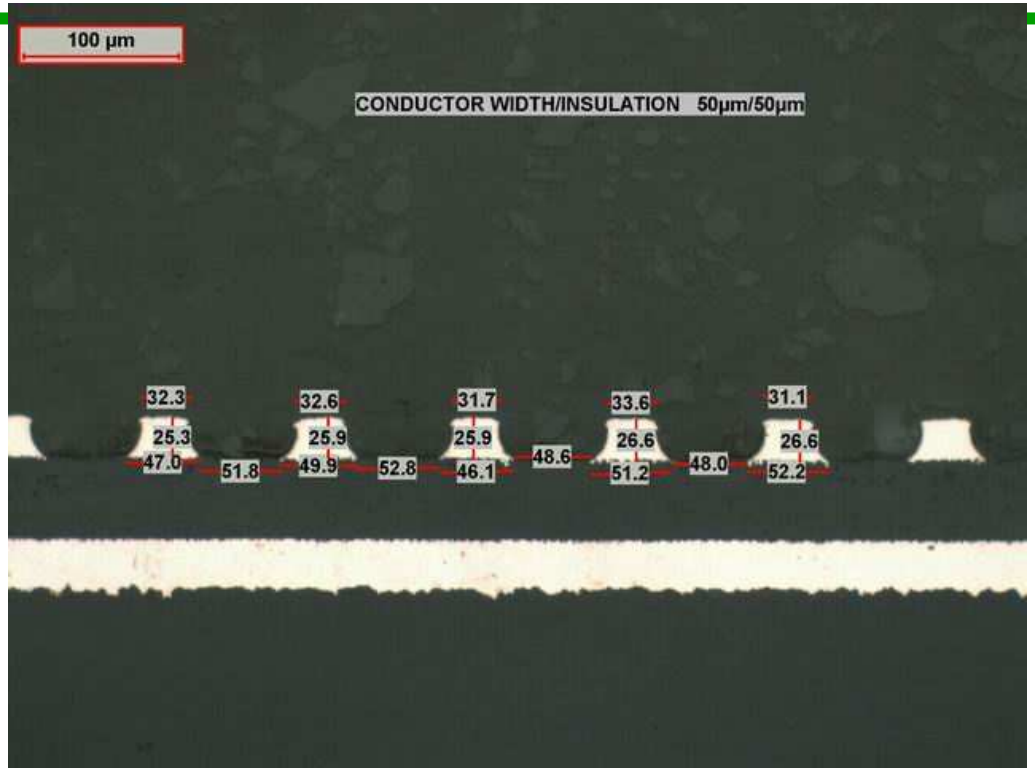


SOMACIS pcb industries – Manfredonia[3]



BGA Pitch
250 µm

SOMACIS pcb industries – Manfredonia[3]



BGA Pitch
250 µm

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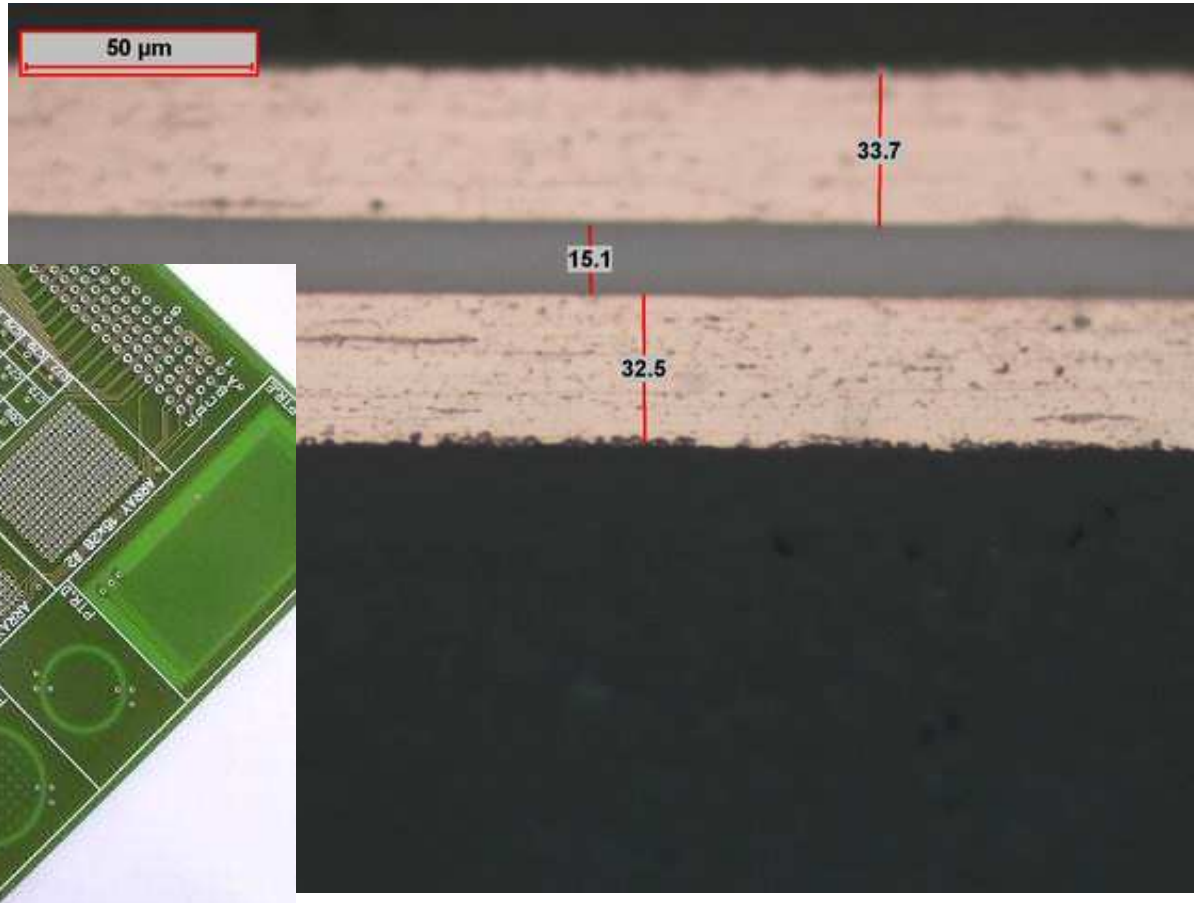
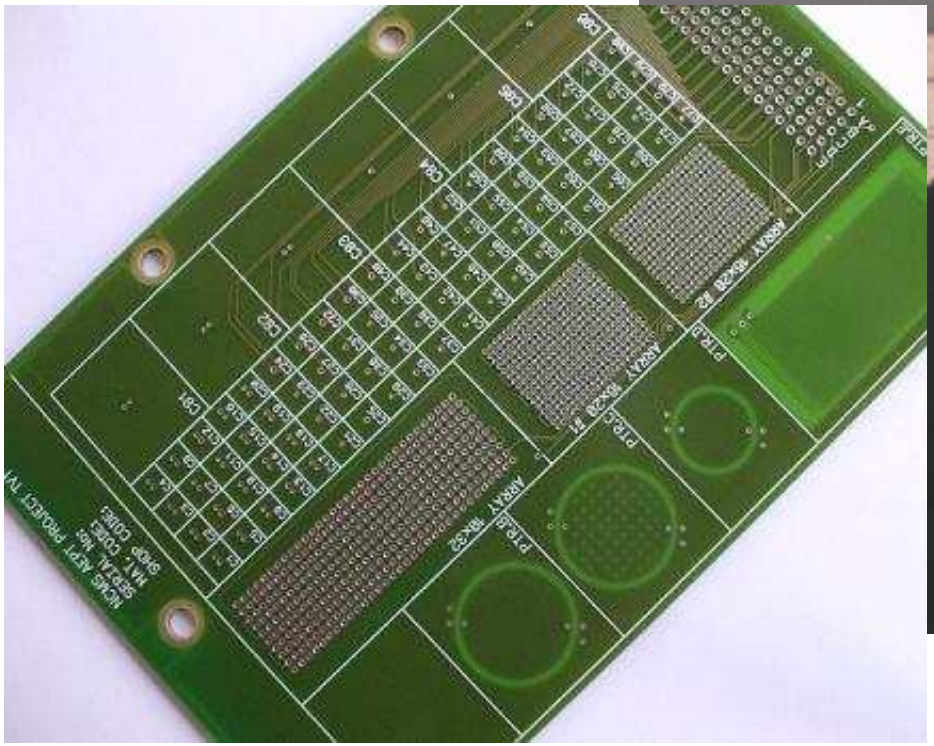
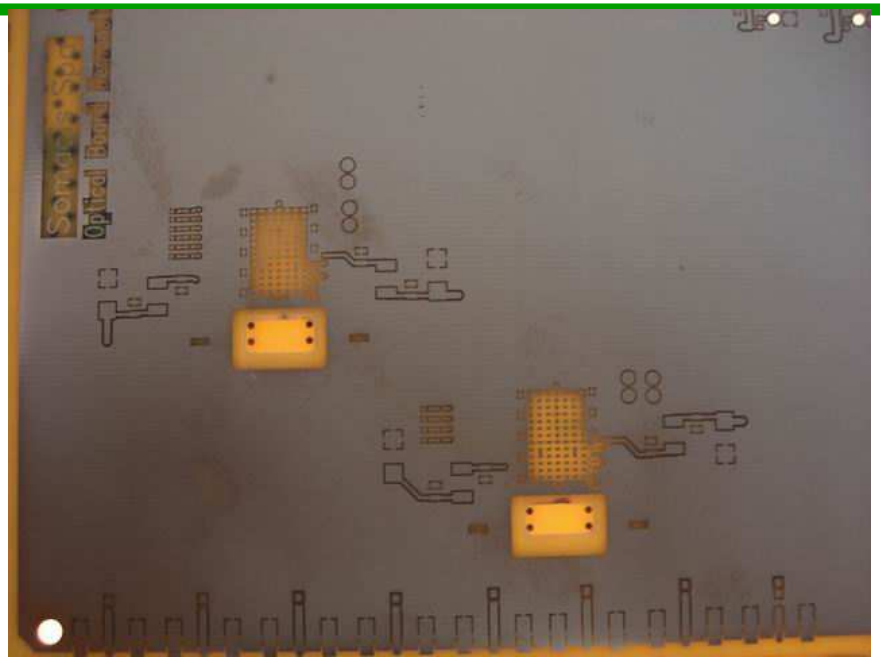
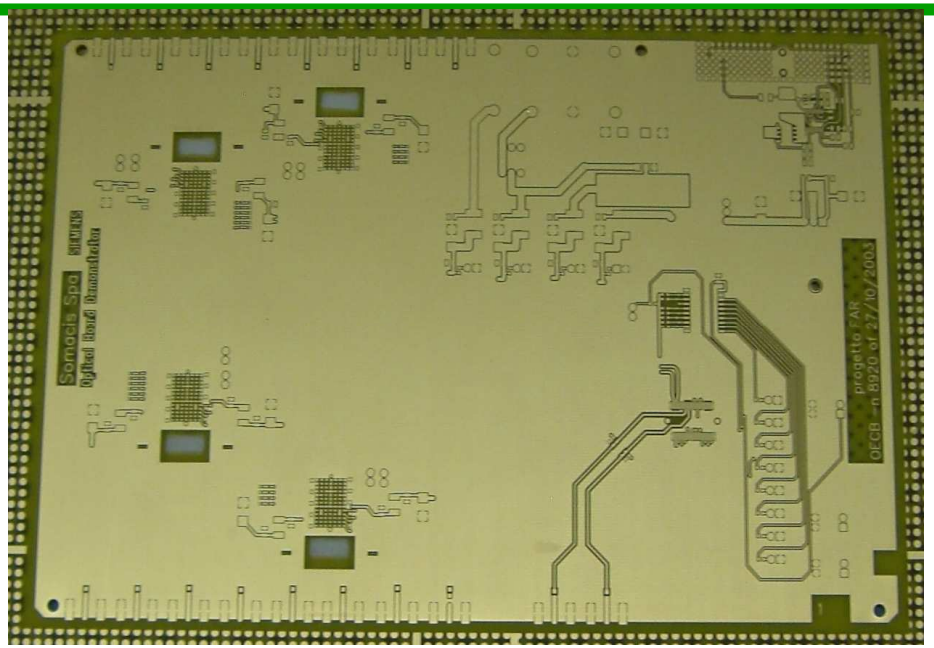
Board with embedded capacitors





SOMACIS pcb industries – Manfredonia[3]





Board with embedded optical waveguides

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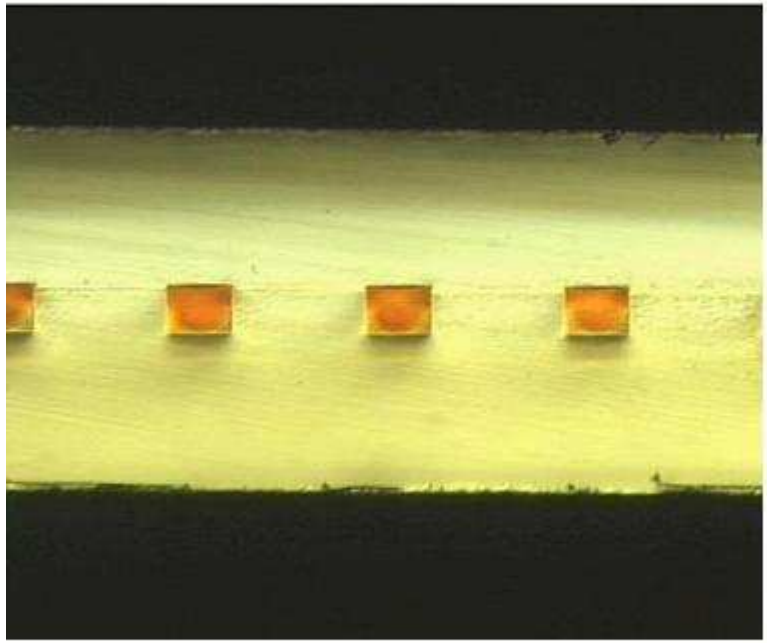

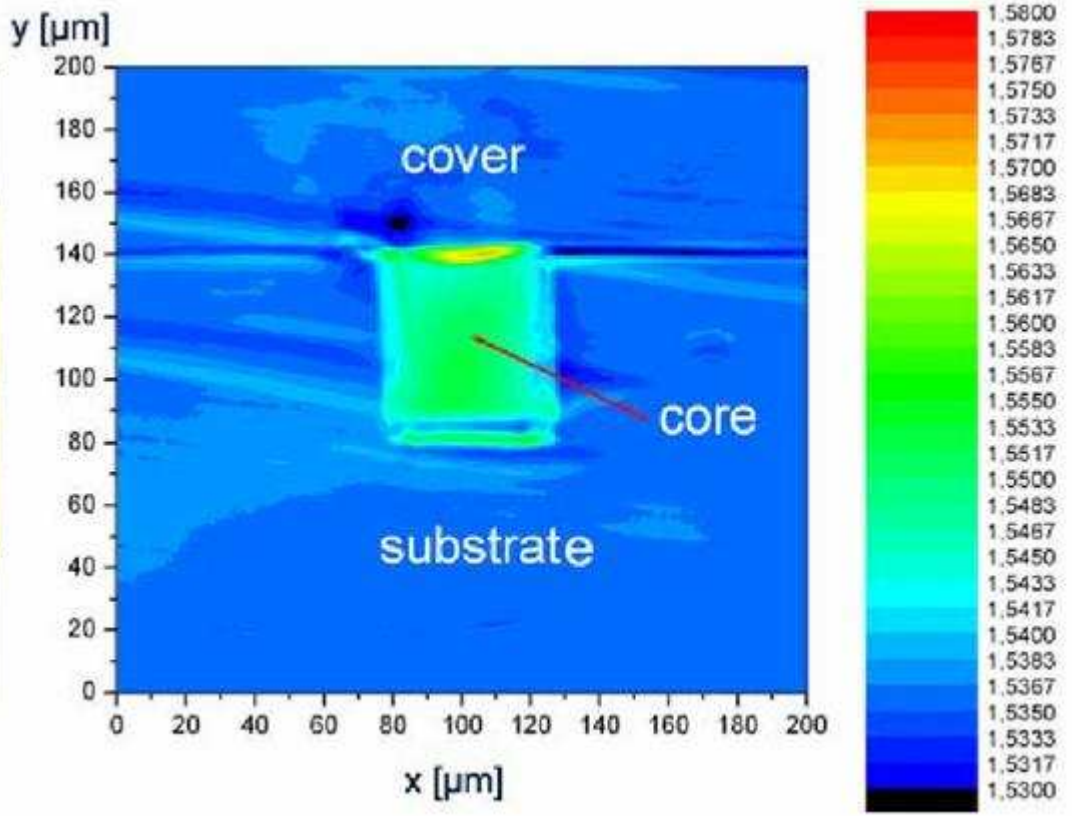

Microsection o f optical waveguide

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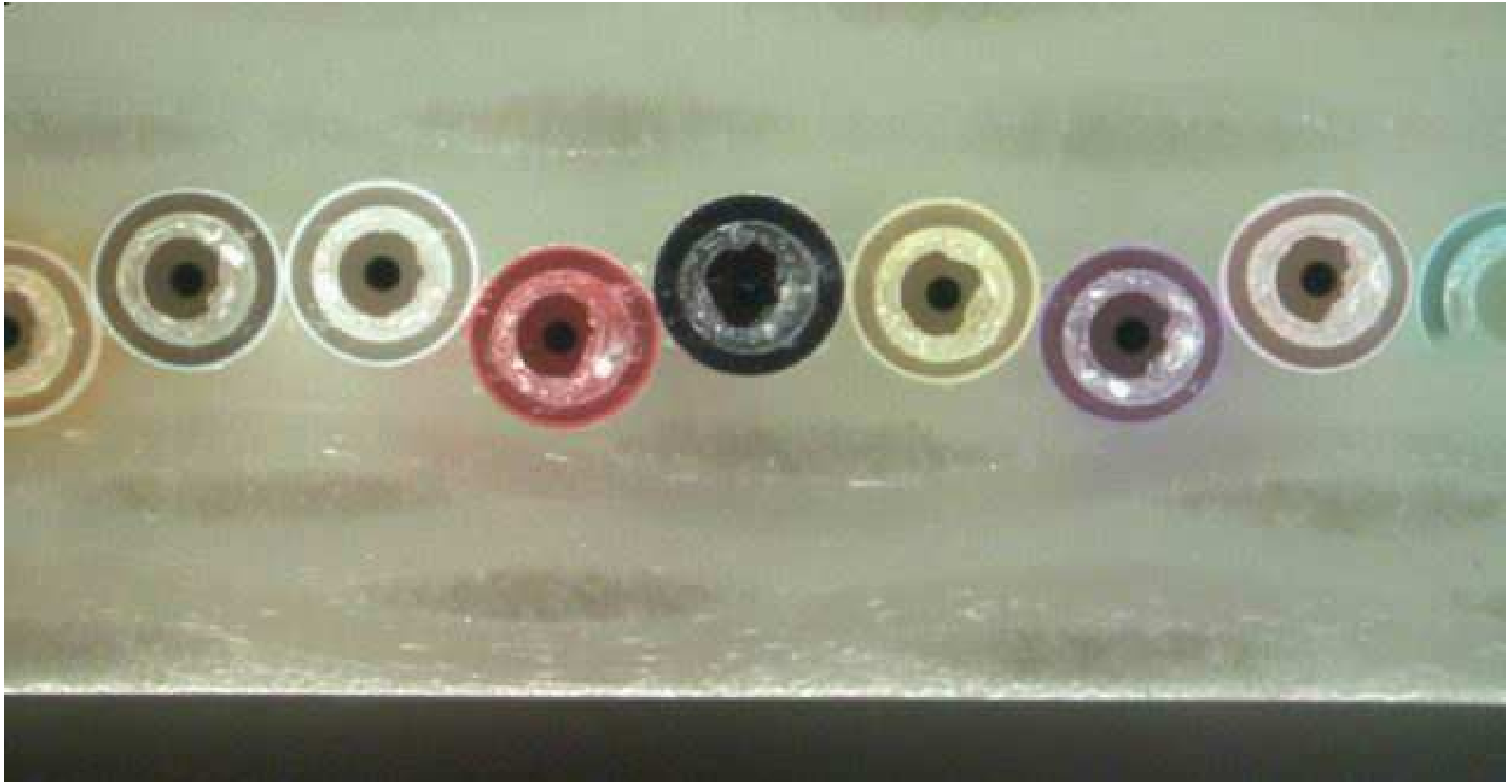

Thanks!!

because we Know how

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