

AcouLab Co. Ltd.



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1. Company Info

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- ing. project for “Developing Testing Robot for the blade for 5MW Ocean Wind Energy Generator” of the Government
- 12. Exported SAM to Heraeus, USA

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- 10.11. Developed SAM for Sapphire Wafer Bonding Test and Supplied to Samsung LED
- 10. 1. Supplied SAM for LCD ITO Target to HERAEUS (Taiwan, China, Singapore)
- 07. 7. Developed SAM for LCD, ITO Target and supplied to Samsung Corning
- 07. 6. Developed SAM for PCB and supplied to Flextronics
- 05. 5. Supplied SAM to SAMSUNG Electronics (OnYang)
- 04.10. Supplied the Testing Sytem for Theta/Lambda Engine Liner Joint to Hyundai & KIA
- 04. 5. Developed Portable Phased Array System for Industrial and supplied to KEPRI
- 02.12. Started to export SAM to Asian Market (China, Taiwan, Thailand, Singapore, ect.)
- 02. 5. Developed SAM for evaluating HIC (Hydro Induced Crack) and supplied to POSCO
- 00.12. project “Ultrasonic Computerized Tomography for Wood”
- 00. 3. project “Developing Innovative Technology”
Developed Scanning Acoustic Microscope (SAM) for Semiconductor

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- 99.12. Incorporation of going business “Acoulab Co.,Ltd.”
- 99.10. Was confirmed as a venture enterprise (superb evaluation)
- 99. 2. Copyright registration of processing software of ultrasonic waves (ScanUp, LiteScan, LiteView) Developed Automatic Ultrasonic Sytem(Immersion Tank
- 98. 6. System, ITS) for the first time in Korea.
- 98. 2. Began operations Acoulab in Korea. ([Acoustic Laboratory Company](#), [AcouLab](#))



» Customer List

No.	Name	Location	Qty	Product name	Fields of industry
1	POSCO	Korea	5	SAM-VEGA for HIC	Steel
2	POSCO	Korea	1	SAM-DENEb	Steel
3	Samsung Electronics(On Yarn)	Korea	6	SAM-VEGA	Semiconductor
4	Samsung Electronics(GiHeung)	Korea	1	AIMS for Acoustic sound field	Semiconductor
5	Samsung LED	Korea	1	SAM-CYGNUS	Semiconductor
6	Samsung Corning	Korea	1	SAM-ATHLON-160	Target
7	Samsung LCD	Korea	1	SAM-VEGA	Semiconductor
8	Samsung Electro-Mechanics	Korea	1	SAM-TITAN	Semiconductor
9	Samsung Electro-Mechanics	Korea	1	SAM-VEGA	Semiconductor
10	LG Innotek	Korea	1	SAM-VEGA	Semiconductor
11	GM Deawoo Motors	Korea	1	ITS for AL Engine	Automobile
12	Hyundai & KIA Motors	Korea	1	ITS for AL Engine	Automobile
13	Hyundai Heavy Industrial	Korea	1	Immersion Tank System(ITS)	
14	Hyundai steel	Korea	1	SAM-ATHLON-120	Steel
15	Hyundai steel	Korea	1	SAM-VEGA	Steel
16	Korea Electric Power Research Institute	Korea	3	ITS for Turbine	
17	Korea Electric Power Research Institute	Korea	2	Portable Phased Array System	Research
18	Hanamicron	Korea	1	SAM-DENEb	Semiconductor
19	STS	Korea	2	SAM-DENEb	Semiconductor
20	Korea Plant Service & Engineering	Korea	2	Immersion Tank System(ITS)	
21	Amkor Korea	Korea	2	High Frequency transducers	Semiconductor
22	KCC	Korea	1	SAM-VEGA	Electronics
23	Advanced Nano Products	Korea	1	SAM-ATHLON-160	Target
24	Korea Atomic Energy Research Institute	Korea	1	Ultrasonic Signal Processing for Pipe	Research
25	Korea Institute of Machinery & Metals	Korea	1	AIMS for Acoustic sound field	Research
26	GERI(GUMI)	Korea	1	SAM-TITAN	Research
27	Korea Testing Laboratory	Korea	1	SAM-TITAN	Research
28	KETI	Korea	1	SAM-2400	Research
29	KETI	Korea	1	SAM-VEGA	Research
30	Halla Climate Control	Korea	1	10 ch. In-line FA system	Automobile

» Customer List

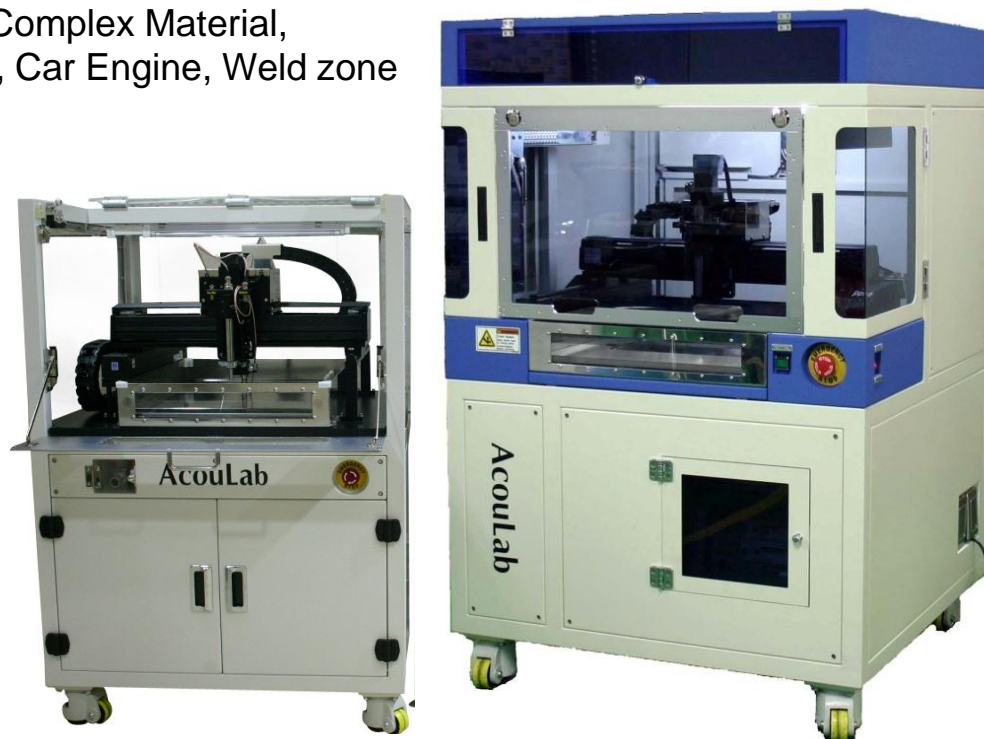
No.	Name	Location	Qty	Product name	Fields of industry
31	SeAh Besteel	Korea	1	ITS	Steel
32	Komico	Korea	1	ITS	Target
33	Illjin Gloval	Korea	1	SAM-TITAN	Steel
34	Daeduck Electronics	Korea	1	SAM-VEGA	Electronics
35	DongKuk Steel	Korea	1	SAM-DENEb	Steel
36	Praxair	Korea	1	ATHLON-67	Target
	해외 납품 실적				
1	Celestica	Thailand	1	Scanning Acoustic Microscope	Electronics
2	Texas Instrument	Taiwan	1	SAM-2400	Semiconductor
3	Singapore Poly	Singapore	1	SAM-2400	Research
4	Flectronix	China	1	SAM-TITAN	Electronics
5	Samsung Corning	Taiwan	1	SAM-ATHLON-160	Target
6	CentiForce	Singapore	1	SAM-VEGA	Research
7	Heraeus	Taiwan	1	SAM-ATHLON-160	Target
8	Heraeus	China	1	SAM-ATHLON-160	Target
9	Heraeus	Singapore	1	SAM-TITAN	Target
10	SK Solmics	USA	1	SAM-2400	Target
11	Samsung Electronics(SuZhou)	China	1	SAM-VEGA	Semiconductor
12	STS(PSPC)	Philippine	1	SAM-DENEb	Semiconductor
13	LK Solution	Korea	1	SAM-2400	Target
14	Heraeus	USA	1	SAM-TITAN	Target
15	JME	China	1	SAM-DENEb	Semiconductor

3. SAM Products

1. **Scanning Acoustic Microscope for Semiconductor and Industrial Materials.**
 - SAM - DENEb
 - SAM - VEGA
 - SAM – TITAN
2. **Large Size Scanning Acoustic Microscope Optimized for LCD, PDP, ITO Target**
 - SAM – ATHLON
3. **Scanning Acoustic Microscope for Steel and Nonferrous Metal Materials**
 - SAM – SPICA
4. **Scanning Acoustic Microscope for LED, Wafer**
 - SAM – CYGNUS
5. **Acoustic Intensity Measurement System**
 - SAM - AIMS

1) SAM-DENEB

- Scanning Acoustic Microscope for Semiconductor and Industrial Materials.
- Application scope
 - Semiconductor : Flip Chip, BGA, QFT, TBGA, FBGA, SOP, FET, MLCC, PCB
 - Industrial : ITO Target, Wafer, Pipe, Plate, Bar, Complex Material,
Piston test, Flaw detection in Planting, Car Engine, Weld zone
- Feature
 - The basic standard type SAM equipment
 - Measure the thickness of materials
 - Measure the location and the size of flaw (Debonding, Delamination, Crack) inside materials and on the surface.
 - Low noise by using the highly efficient linear-servo motor
 - Natural scanning
& Improve the S/N [signal-to-noise] ratio
 - High quality and accurate scanning image
 - A, C, T Scan



2) SAM-VEGA

- Scanning Acoustic Microscope for Semiconductor and Industrial Materials.
- Application scope
 - Semiconductor : Flip Chip, BGA, QFT, TBGA, FBGA, SOP, FET, MLCC, PCB
 - Industrial : ITO Target, Wafer, Pipe, Plate, Bar, Complex Material, Piston test, Flaw detection in Planting, Car Engine, Weld zone
- Feature
 - The basic standard type SAM equipment
 - Measure the thickness of materials
 - Measure the location and the size of flaw (Debonding, Delamination, Crack) inside materials and on the surface.
 - Low noise by using the highly efficient linear-servo motor
 - Natural scanning & Improve the S/N [signal-to-noise] ratio
 - High quality and accurate scanning image
 - Auto sliding door system
 - Auto loading/unloading system
 - A, C, T Scan



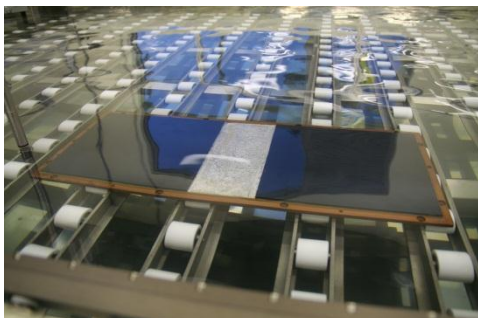
3) SAM-TITAN

- Scanning Acoustic Microscope for Semiconductor and Industrial Materials.
- Application scope
 - Semiconductor : Flip Chip, BGA, QFT, TBGA, FBGA, SOP, FET, MLCC, PCB
 - Industrial : ITO Target, Wafer, Pipe, Plate, Bar, Complex Material, Piston test, Flaw detection in Planting, Car Engine, Weld zone
- Feature
 - Measure the thickness of materials
 - Measure the location and the size of flaw (Debonding, Delamination, Crack) inside materials and on the surface.
 - Low noise by using the highly efficient linear-servo motor
 - Natural scanning & Improve the S/N [signal-to-noise] ratio
 - High quality and accurate scanning image
 - Suitable for the large size boards (PCB) and components
 - Water jet scan system
 - Auto sliding door system
 - A, C, T Scan



4) SAM-ATHLON

- Large Size Scanning Acoustic Microscope Optimized for LCD, PDP, ITO Target
- Application scope
 - Semiconductor : Flat and Round type of LCD/PDP, ITO Target
 - Industrial : ITO Target, Wafer, Pipe, Plate, Bar, Complex Material, Piston test, Flaw detection in Planting, Car Engine, Weld zone
- Feature
 - Customized scan range and size of axis, tank and the whole frame(over 1500mm size)
 - Auto up/down immersion tank system(lifer) & roller for rotary target(roller)
 - Air blower for high speed drying the sample
 - High speed and resolution of scanning image
 - Various options are available
 - A, C, T Scan



5) SAM-SPICA

- Scanning Acoustic Microscope for Steel and Nonferrous Metal Materials
- Application scope
 - Steel, Nonferrous Metal Materials, Founding Materials, Forging, Weld Zone
 - ITO Target, Steel, Tube, Bar, Complex Material, Piston test, Flaw detection in Planting, Car Engine, Weld zone
 - Measure the thickness of various materials
- Feature
 - Immersion Tank System
 - Turn-Table, Roller and Tilt system
 - Detect and measure HIC(Hydro Induced Crack)
 - by API Code
 - Evaluate purity and homogeneity of steels
 - Detect and measure the bonding area and spot weld
 - Customized scan range and size of axis, immersion tank and the whole frame
 - A, C, T Scan



6) SAM-CYGNUS



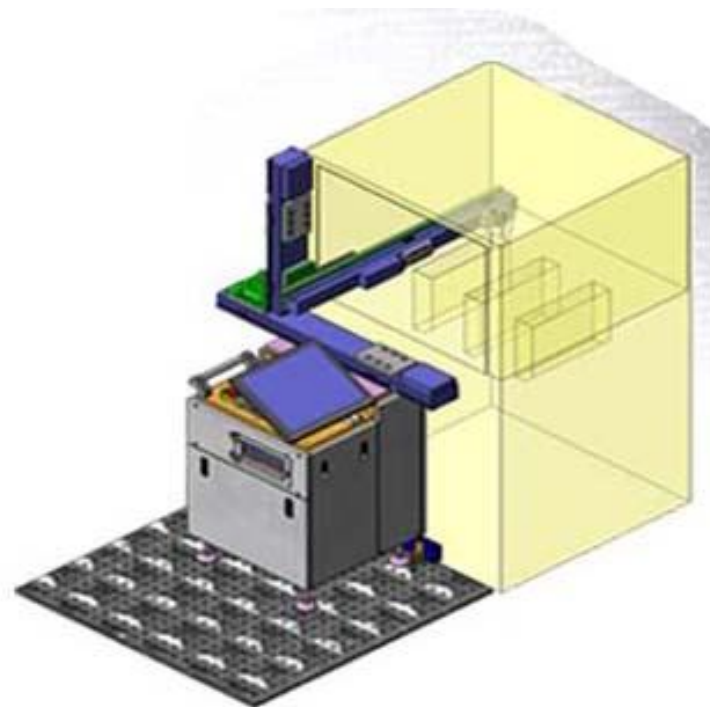
○ Scanning Acoustic Microscope for LED, Wafer

○ Feature

- Wafer Transfer Robot is installed as this is the instrument for testing Wafer
- Wafer Map, BCR reader, Wafer Pre Aligner, Spin Coater System are installed
- Detect the flaws of Wafer and easy before and after processing
- High performance, high speed and accurate scanning system
- Water jet scanning system
- Flaw detection by auto scan of the probe installed 3 axis scanner
- Signal lamp and safety sensor
- A, C, T Scan

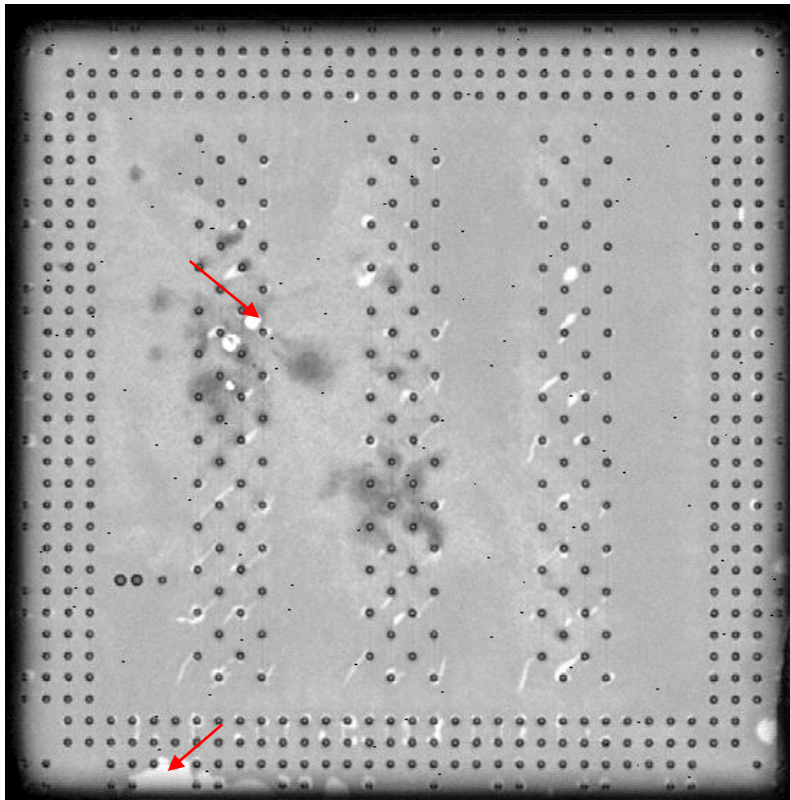
7) SAM-AIMS

- Acoustic Intensity Measurement System(AIMS)
- AIMS for ultrasonic cleaner used in semiconductor and industrial line

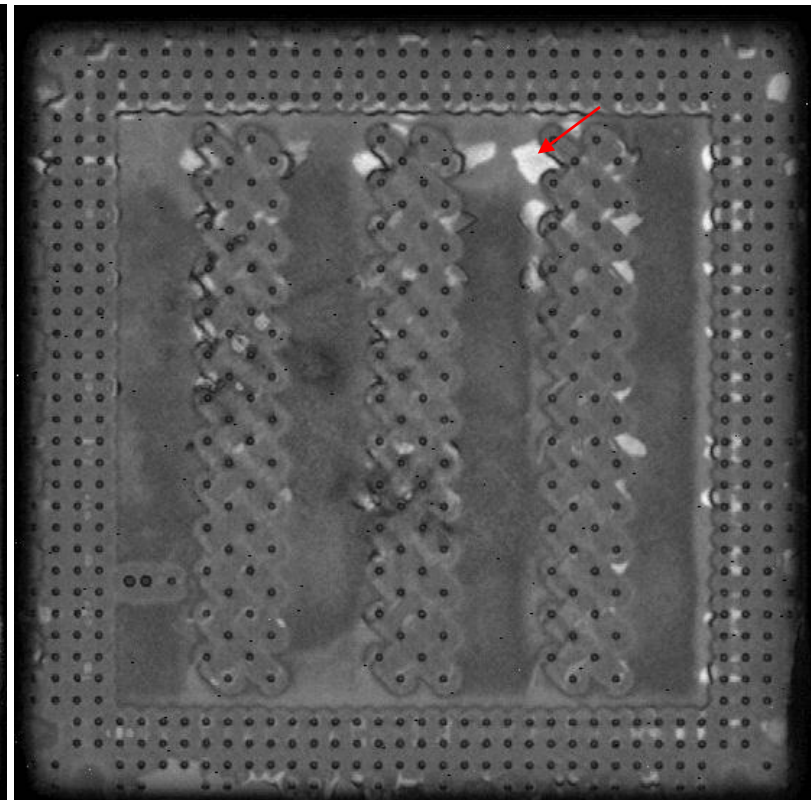


4. Application Scope

*Semiconductor - Flip Chip

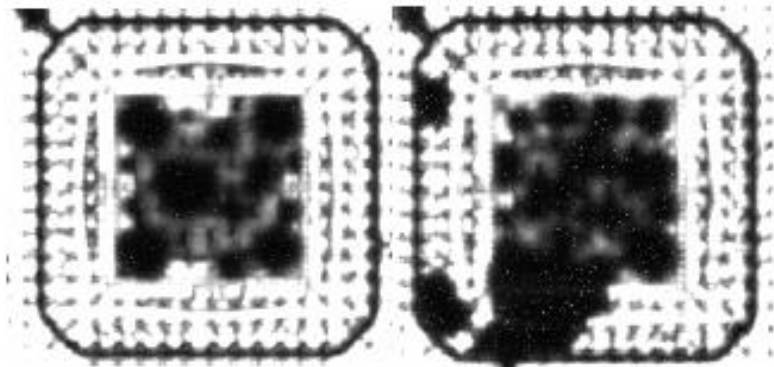


Die to Bump

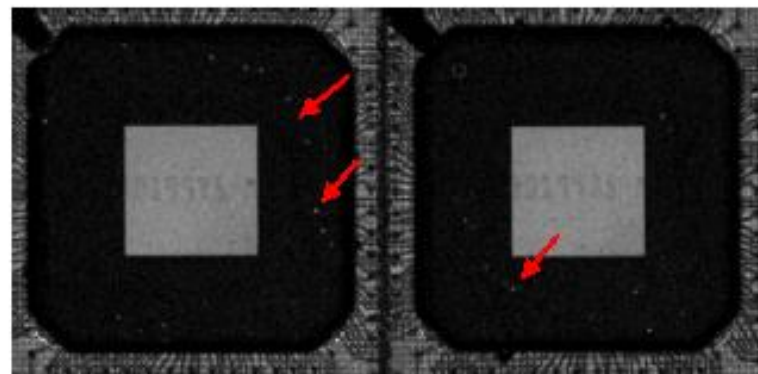


Bump to Substrate

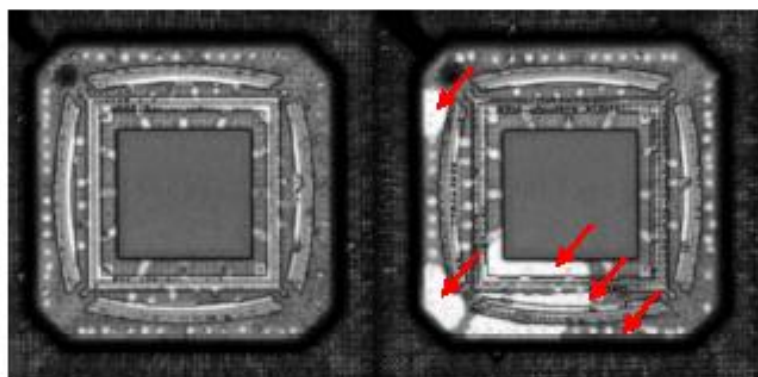
***Semiconductor - BGA**



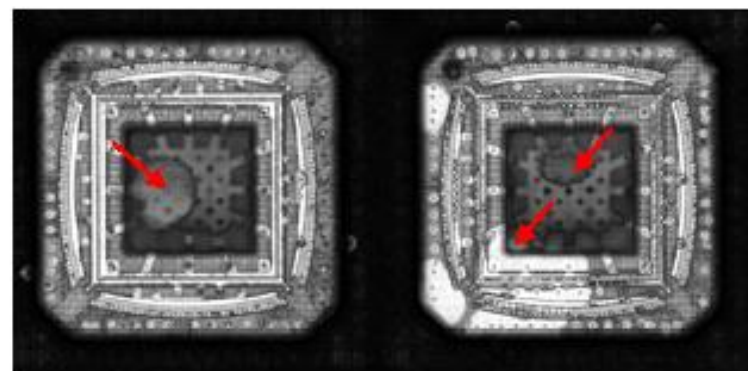
T-Scan



Voids in EMC



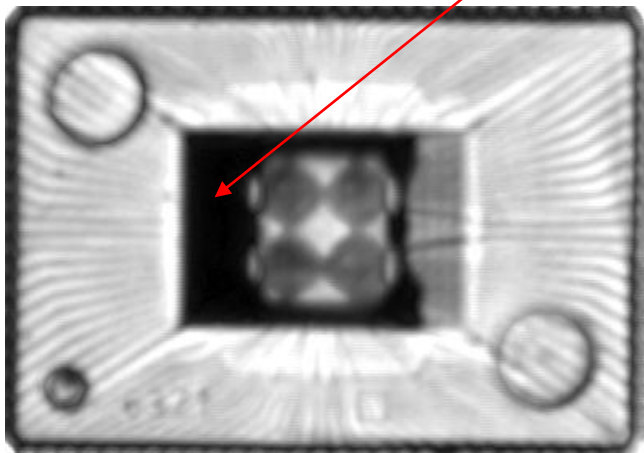
PCB top delamination



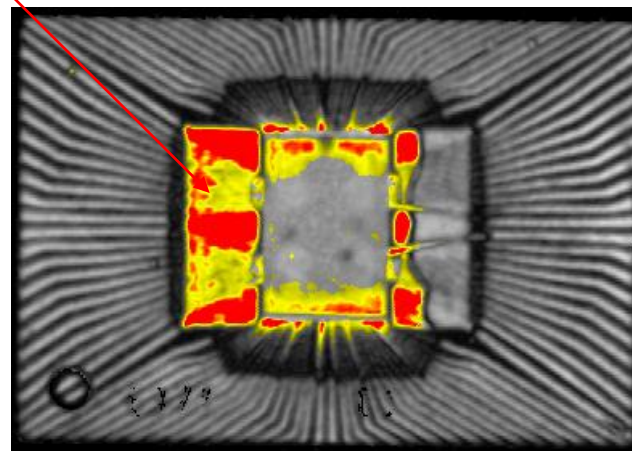
Epoxy delamination

***Semiconductor - QFT**

Delamination



T-Scan

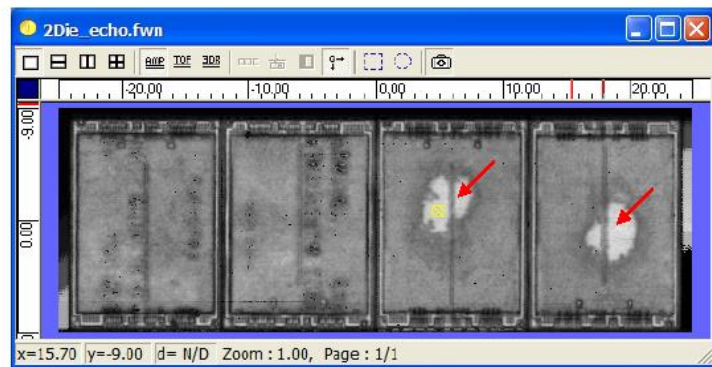
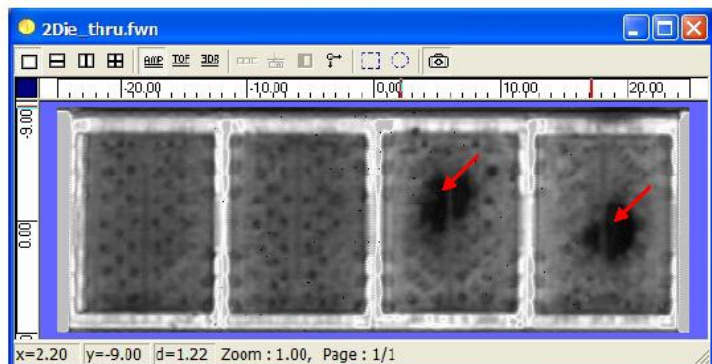


C-Scan

***Semiconductor - FET**



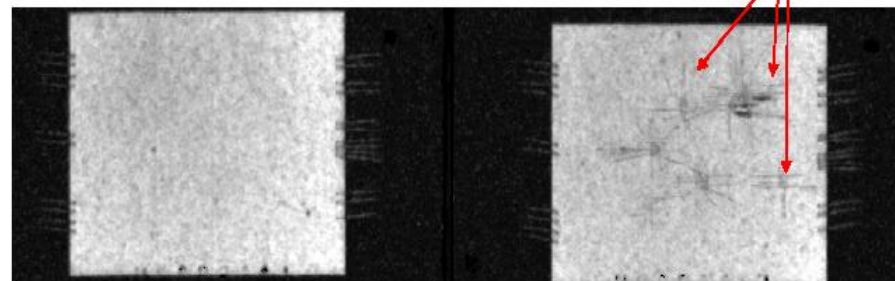
*Semiconductor – 2 Chip Stacks, TBGA



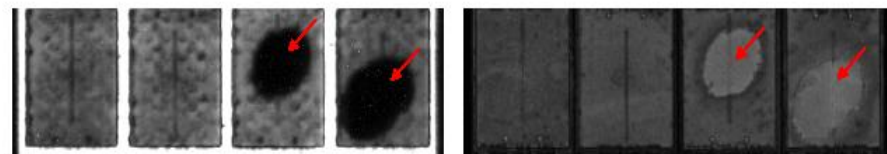
*Semiconductor – 4 Chip Stacks, FBGA

T-Scan

Micro Crack in Die



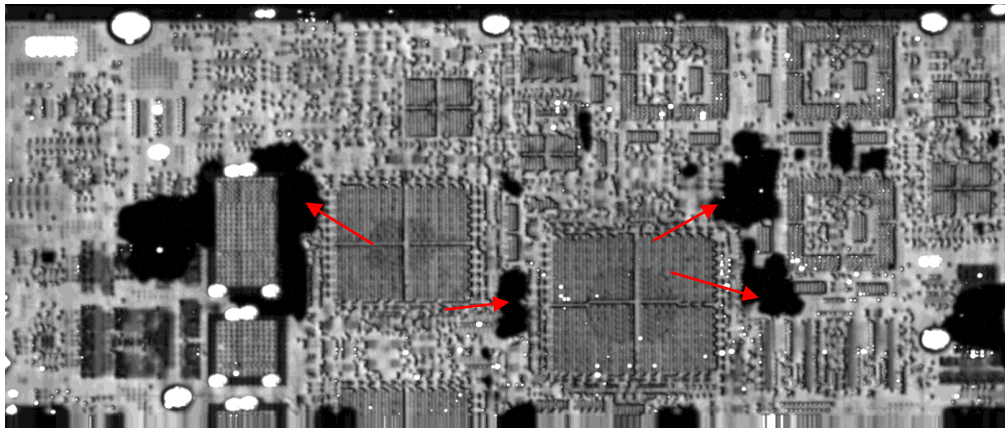
C-Sca



T-Scan

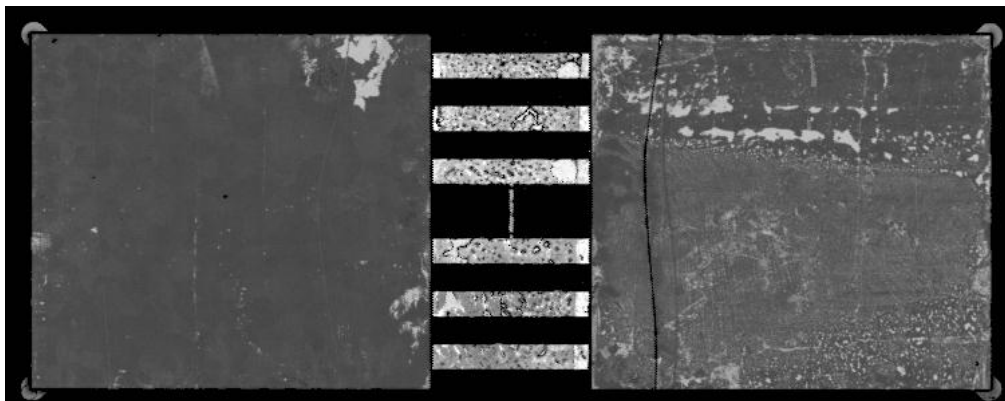
C-Scan

*26Layers PCB

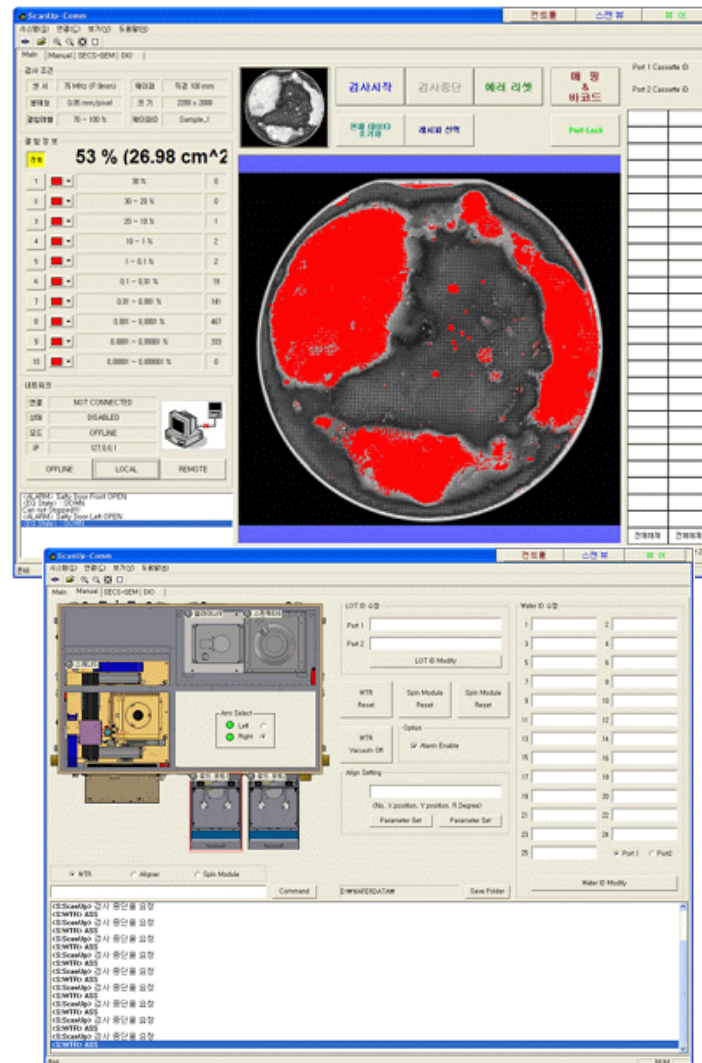


Delamination

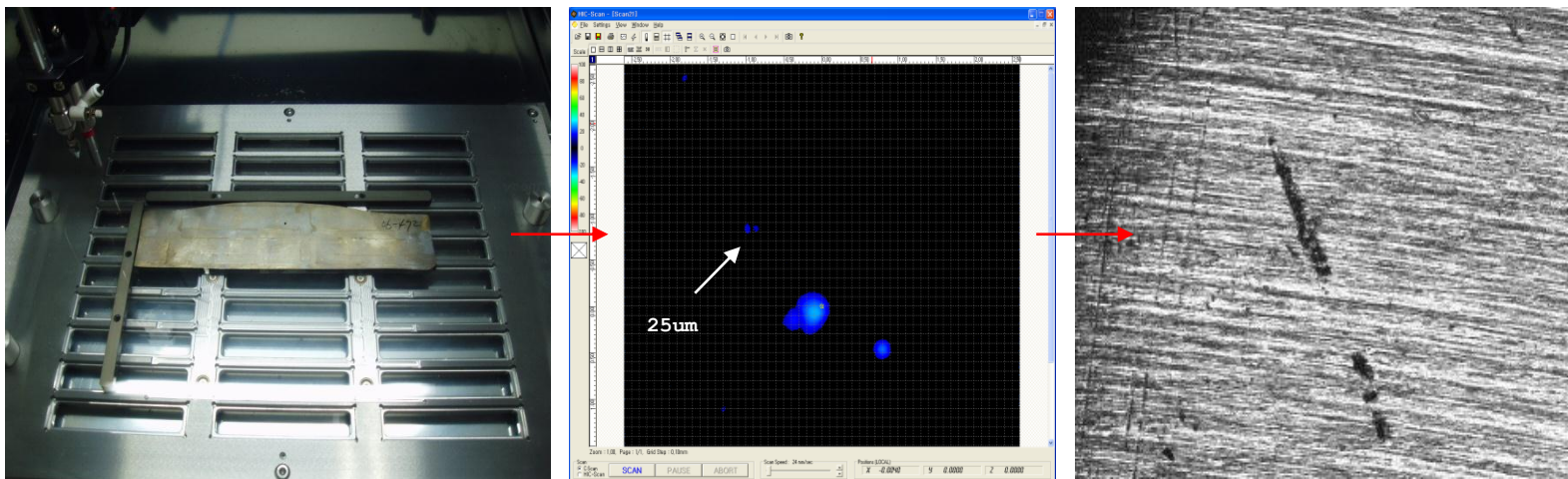
*ITO Sputtering Target



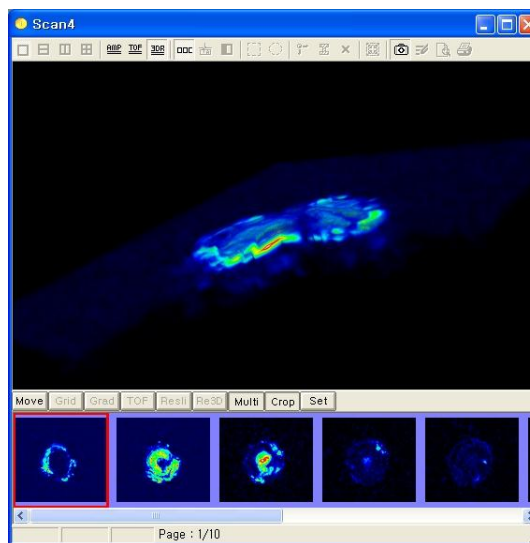
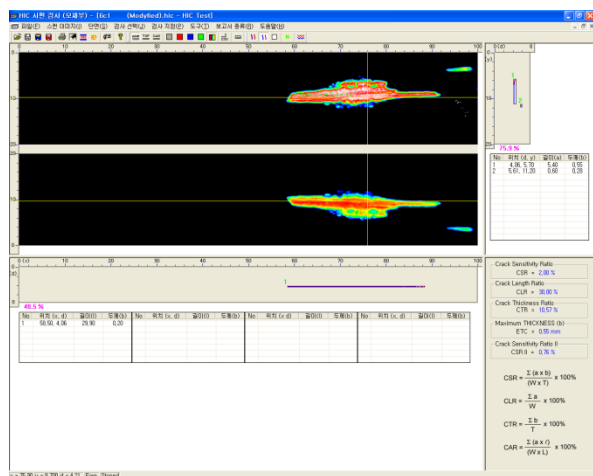
***Wafer**



*Cleanness Testing in Slab



*Evaluation of HIC



posco

Inspection Report

User Info.

Company: POSCO
Part & Position: 3차시공
Name:

Specimen Info.

No.: 5-1 (Measured)
Size (mm): 100,000 (173) Date: 2002.05.18 Set

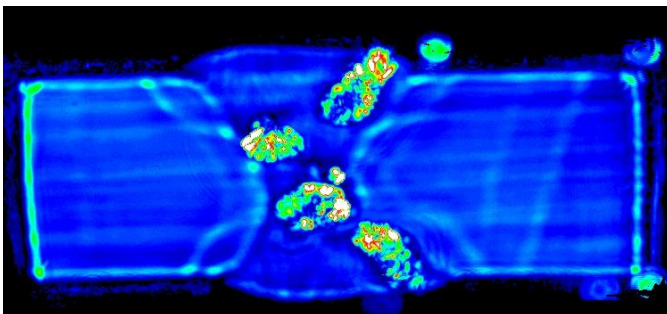
Scan Image

25.00 mm 50.00 mm 75.00 mm

Position	CBR (%)	CLR (%)	CTR (%)	ETC (mm)	CAR (%)	Note
25.00 mm	0.00	0.00	0.00	0.00		
50.00 mm	0.00	0.00	0.00	0.00		
75.00 mm	0.00	0.00	0.00	0.00		
Average	0.00	0.00	0.00	0.00		

No	25.00 mm Section C0	50.00 mm Section C0	75.00 mm Section C0	
Pos (d, v)	Length	Pos (d, v)	Length	Thick
1			4.05, 5.40	0.54
2				
3				
4				
5				
6				
7				

*Welding Inspection



*Automobile AL Engine V6

