

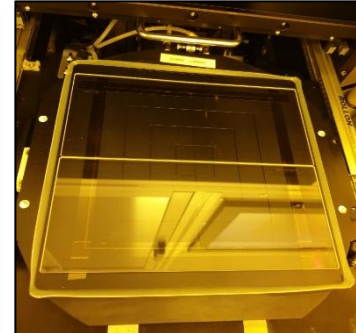


라프 (LAF)

- 대표자 : 류 승 봉
- 업 종 : 박막 코팅 및 마이크로 회로 패터닝 공정 소재, 공정 기술 컨설팅
- 주 소 : 경기도 오산시 독산성로 425, 더퍼스트타워 세교 752호
- 연락처 : 010-9870-9112
- E-mail : wb13079@hanmail.net

- 본 업체는 Nano-박막 코팅 및 Micro Patterning 기술력을 기반으로 LED / OLED Display 공정 소재 부품 및 공정개발 컨설팅 진행.
- OLED / TSP / FPCB _ 박막 코팅 및 회로 공정 경력 (약 15년 이상)
- 현재, 반도체 Wafer , Glass Wafer, film (PET, PI, etc)를 비롯하여 Film, Silicon 등의 특수 기재까지 수 um의 나노 박막 회로 공정 샘플을 고객사 현재 진행 中.

납품 박막 공정 기판(Glass, Film)



(S계열社 Flexible-OLED Film 기판)

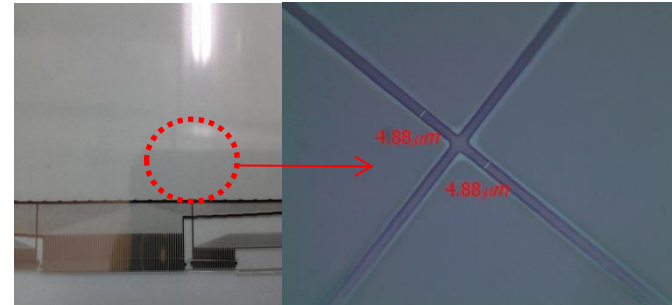
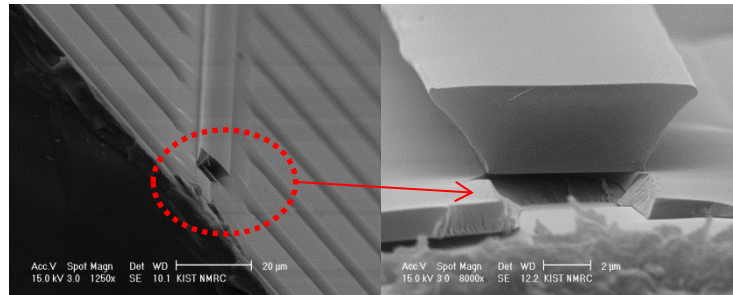
(S社_Nano 박막형 Coil Patterning)

(S社 반도체_ 공정용 Patten Glass)

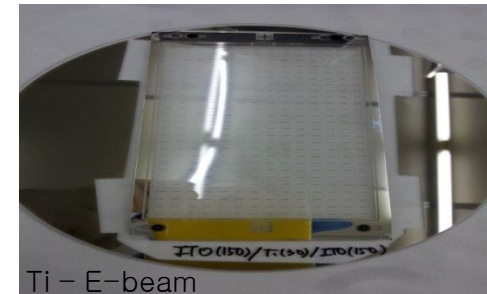
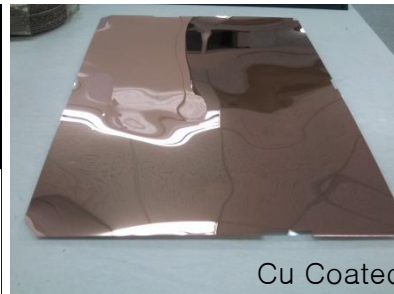
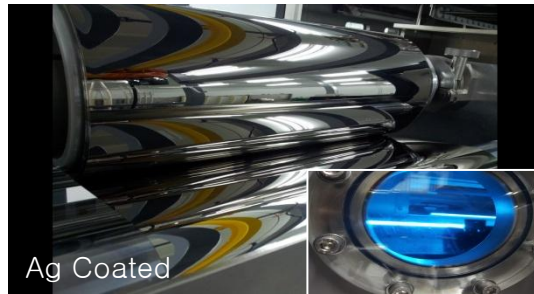
(반도체, 디스플레이 부품 및
공정 재료 납품)

LAF 의 핵심 보유 기술

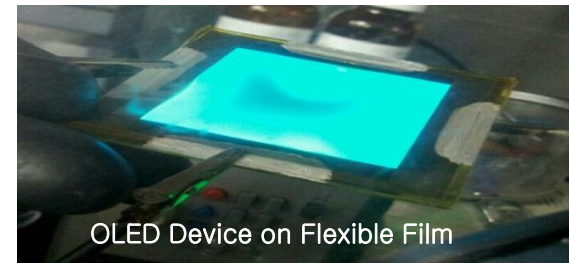
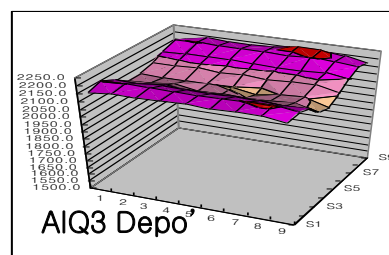
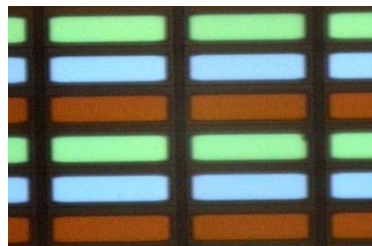
- Micro-Pattern Technology (OLED Substrate Pattern / Touch Screen Panel Sensor Pattern)



- Sheet & Roll to Roll Electrode Nano - Thin Film Coating Technology (Cr, Cu, Ag, ITO, SiOx, SiNx, etc..)



- Organic Materials Deposition Technology (Deposition_ Evaporator , Sputter, E-Beam, etc)

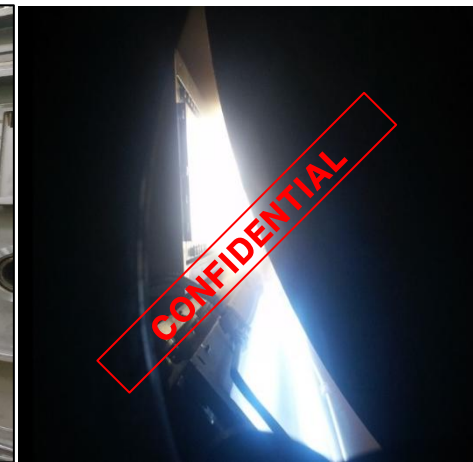
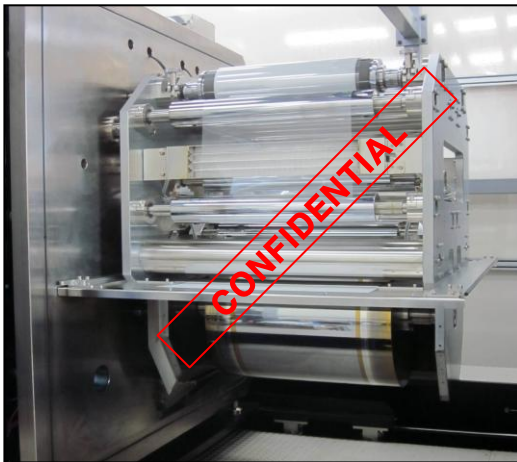


PROCESS - LAF

■ 박막 코팅

- 기본적인 Metal (Ag, Cu, etc..), 투명 전극 ITO, SiOx, 증착 가능합니다. 협의 후 진행 可.

M/C	Material & Specification	Substrate (Glass, Film)	비 고
SPUTTER (In-Line/ Batch/ R2R) 모두 대응 가능하며, 샘플 및 시제품 생산 中	Metal : Ag, Cu, Cr, Mo, Ag, Ti, 등 등 Oxide : ITO, SiO2, SiNx, 등 등 * 그 외 150mm,	Max. ≤ ~ 500×500mm (Glass, Film) Max. ≤ 2" ~ 12 " Wafer (Si, Glass) ※. 그 외 Quartz Glass, 투명 P.I., 등 공정 자재 대응 가능함.	Class ≥ 10,000 ※. 6inch 이하 소형 은 100 Class 可.
Evaporator / E-Beam	OLED用 Organic Source ,HIL, HTL, R,G,B, ETL, EIL Passivation	* 그 외 물질 협의 후, 진행 가능.	



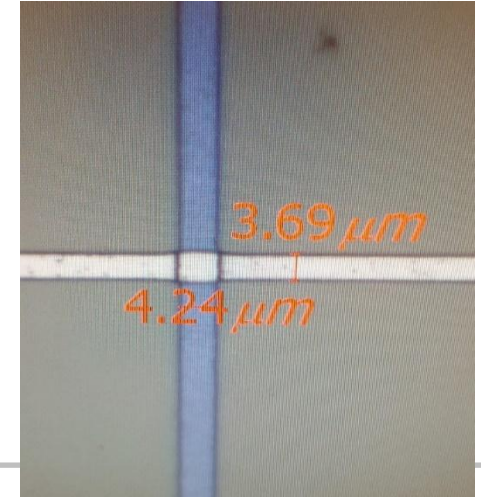
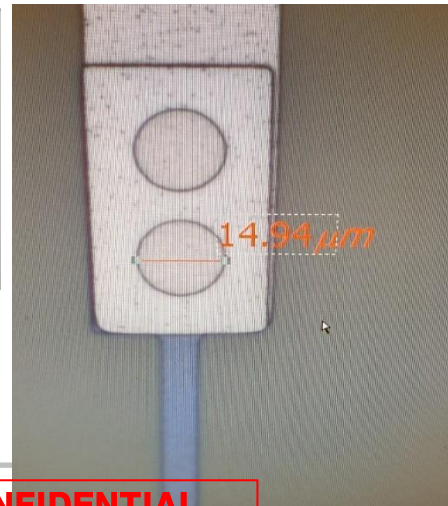
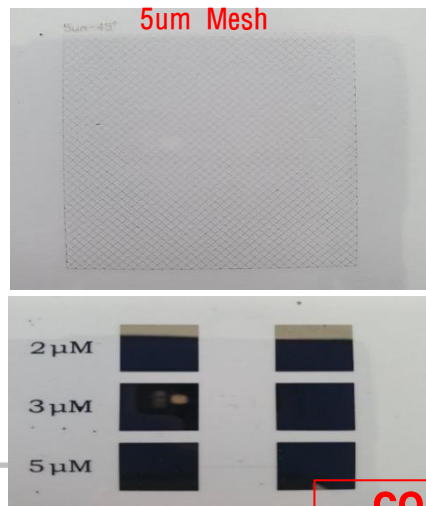
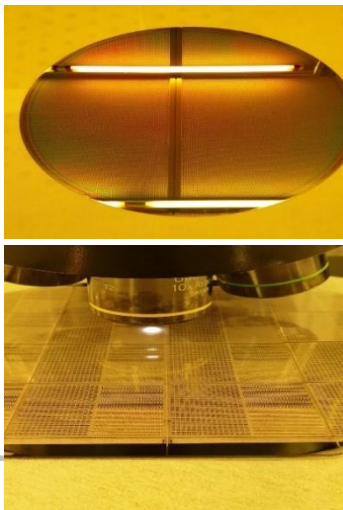
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PROCESS - LAF

■ 포토 공정

M/C	Material & Specification	Substrate (Glass, Film)	비 고
Wet Cleaner (Bath / In-Line)	- Dip & Spray Cleaning - Air gun & Spin Dry	Max. $\leq \sim 500 \times 500\text{mm}$ (Glass, Film) Max. $\leq 2'' \sim 12''$ Wafer (Si, Glass) ※. 그 외 Quartz Glass, 투명 P.I., 등 공정 자재 대응 가능함.	Class 100 / 5,000 / 10,000~ *사양에 따 라 다름.
PR Coater	- Spin Coater (Rpm Recipe 可)		
Exposure	365 nm i-Line (Aligner)		
Pre-Bake, PEB	- Baking Oven or Hot Plate		
Developer, Etcher, Stripper	- Wet Bath or In-Line		

※. 사양에 따라 TSP 또는 FPCB용 Dry-Film 공정도 함께 진행함. (Lami ' & LDI 공정 진행)



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PROCESS - LAF

정리

- LAF - 박막 및 포토 공정 업체.
- OLED/ TSP/ FPCB 用 Glass & Film 회로 형성 공정 可.
- Process Working Size & Materials

Working Size	Materials
1) Wafer : 2~12" Wafer (Si, Glass, Quartz) 2) Glass : Max. 500×500mm (* Active Area 480mm ×480mm) 3) Film : PET, Poly-imide(PI), 투명 PI, 등	1) Metal : Cr, Cu, Au, Ag, Ti, Al, Mo, etc... 기본 Metal Target 보유. 2) Oxide : ITO , SiO ₂ , SiN _x , 3) Insulator (or Bridge) PR / Separator PR 4) Passivation

- Resolution

구분	Min. L/S (um)	공정별	예산 공정 비용 (/set)
1) High	3~15um / 20 um ~ 100 um	박막/노광	협의
2) Middle	20 um / 50 ~ 100 um	박막/노광 or DFR/LDI	협의
3) Low	100 um / 100 um ~	DFR/LDI or Screen	협의

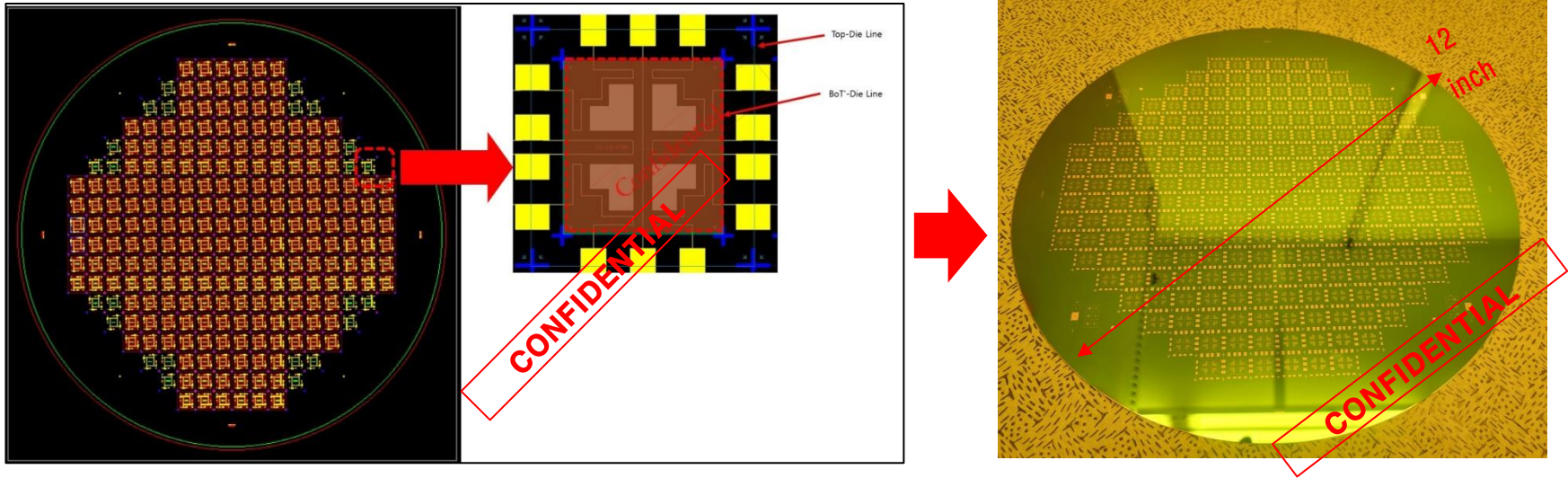
※. 공정 조건 (Model, Thickness, Pattern Design,..) 과 제품 사양에 따라 견적은 달라질 수 있음.

※. 공정용 Mask, JIG, 특수 PR, 등 필요 시 별도 협의.

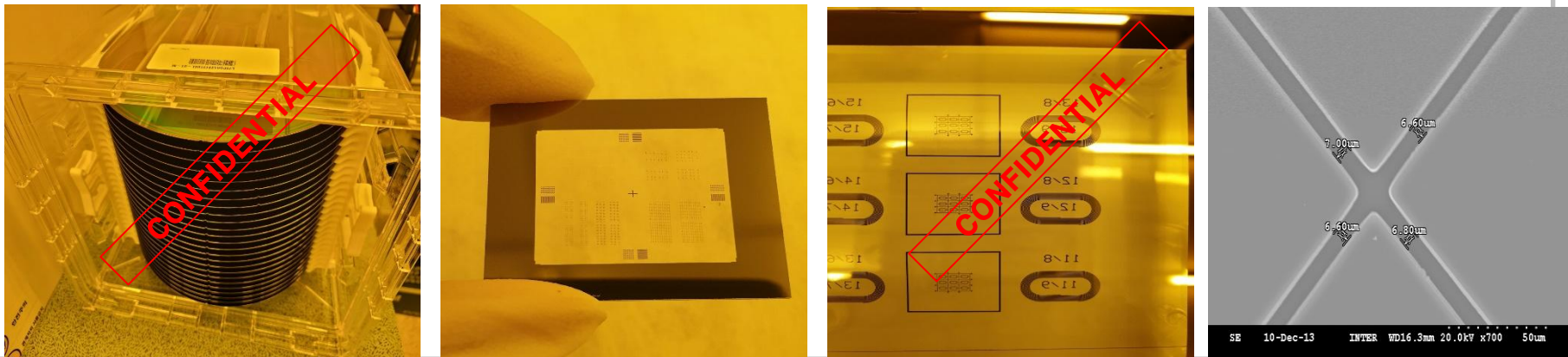
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1. S社 관련 협력사- 2" ~13.4" Wafer 공정 파운더리 사업

1) 회로 설계 + Wafer 마이크로 패터닝 공정 개발 (삼성반도체 및 삼성 전기)



2) 박막 코팅 웨이퍼 및 시료 납품 (6" 8" 12" 13.4" - Quartz, Glass, Si-Wafer)

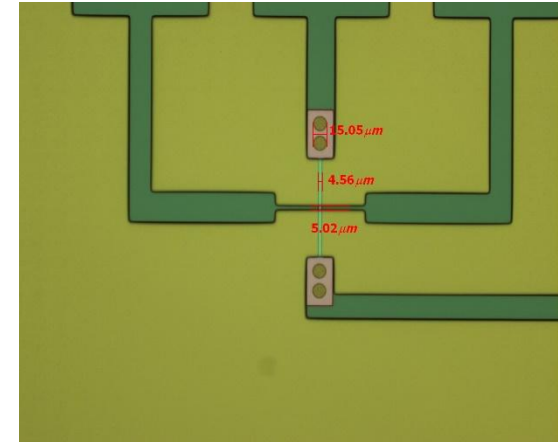
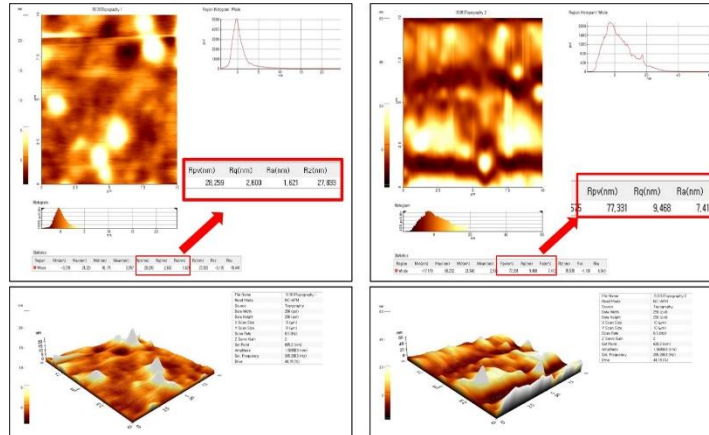


2. OLED 측정 및 분석용 Glass / Film 기판 제작 - 삼성 1차 협력사, 관련 업체 등

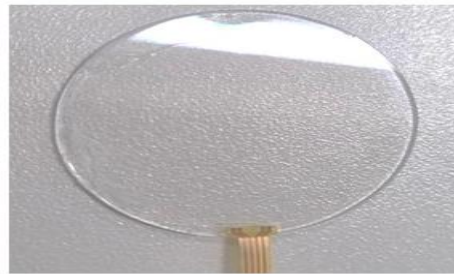
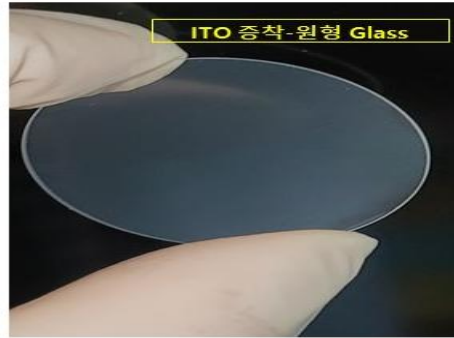
- OLED 재료 테스트용 기판 제작 및 OLED 조명 개발 (15년간 OLED 공정 기술 경험 有)



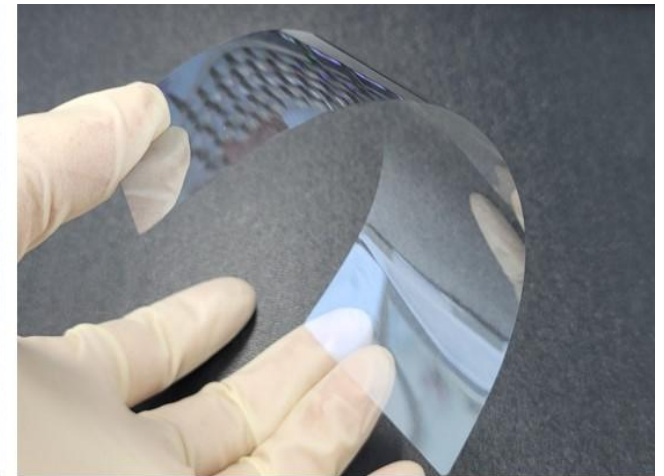
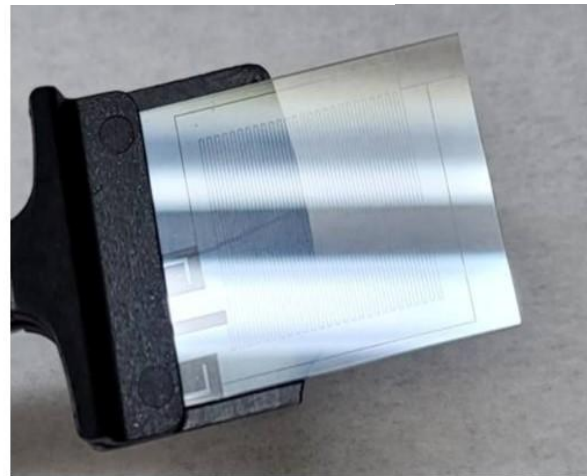
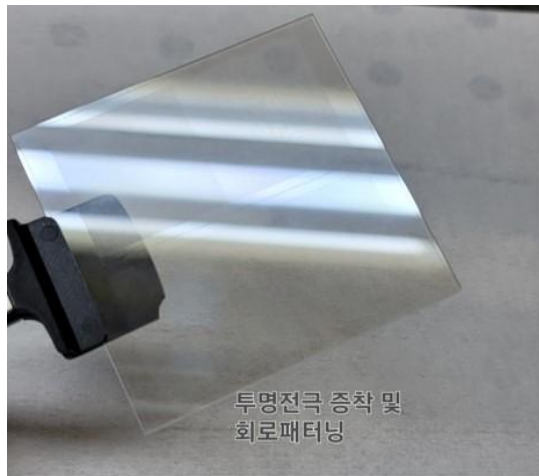
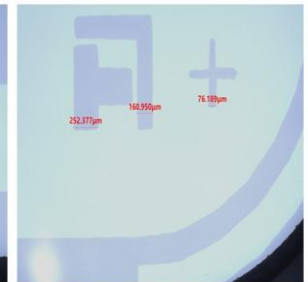
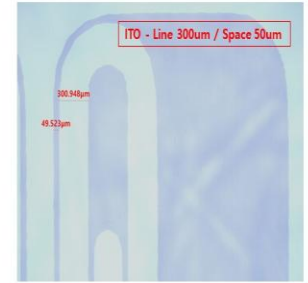
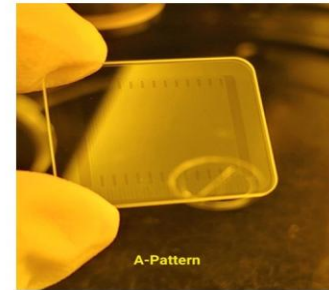
3. Surface Roughness (Ra, Rp-v)



[LAF]_ITO 박막 증착 및 에칭

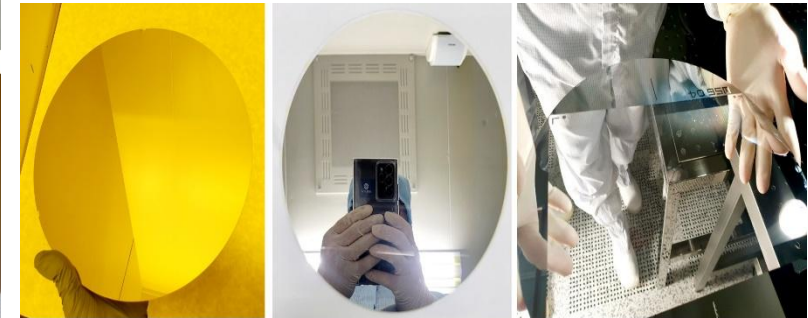
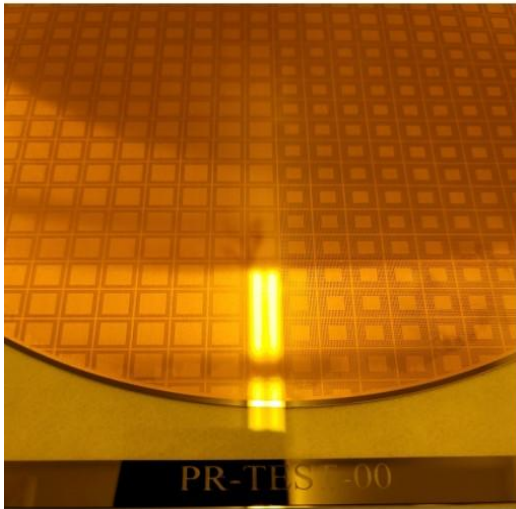
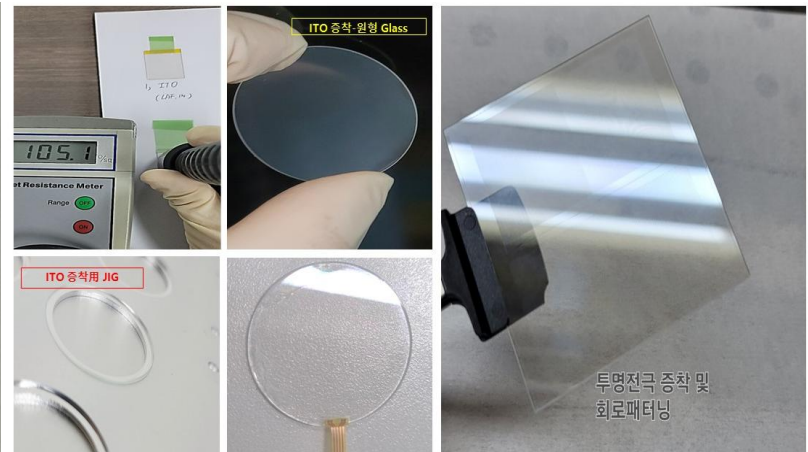
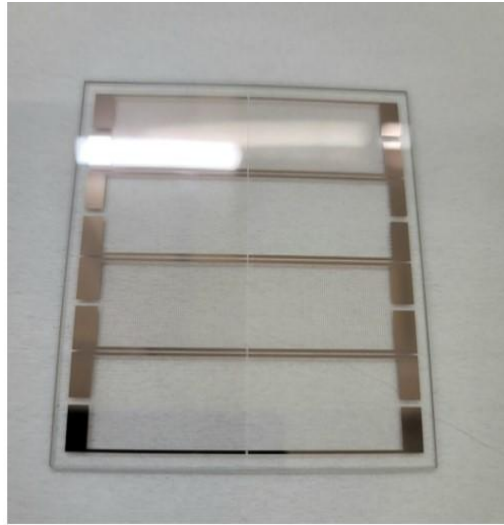
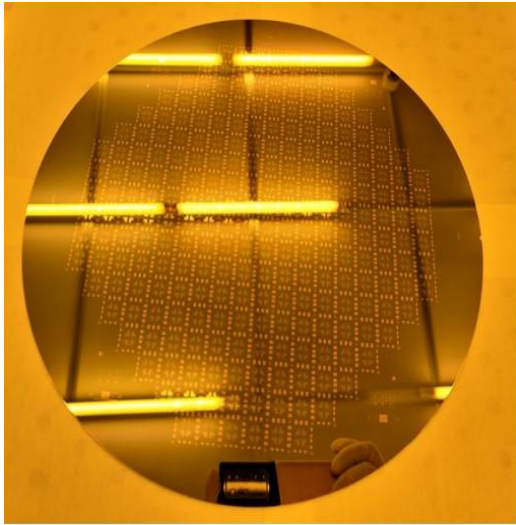


ITO - Laser 에칭



ITO 증착 및 ITO 전극 에칭

ITEM – Micro-Pattern Glass 시편 제작

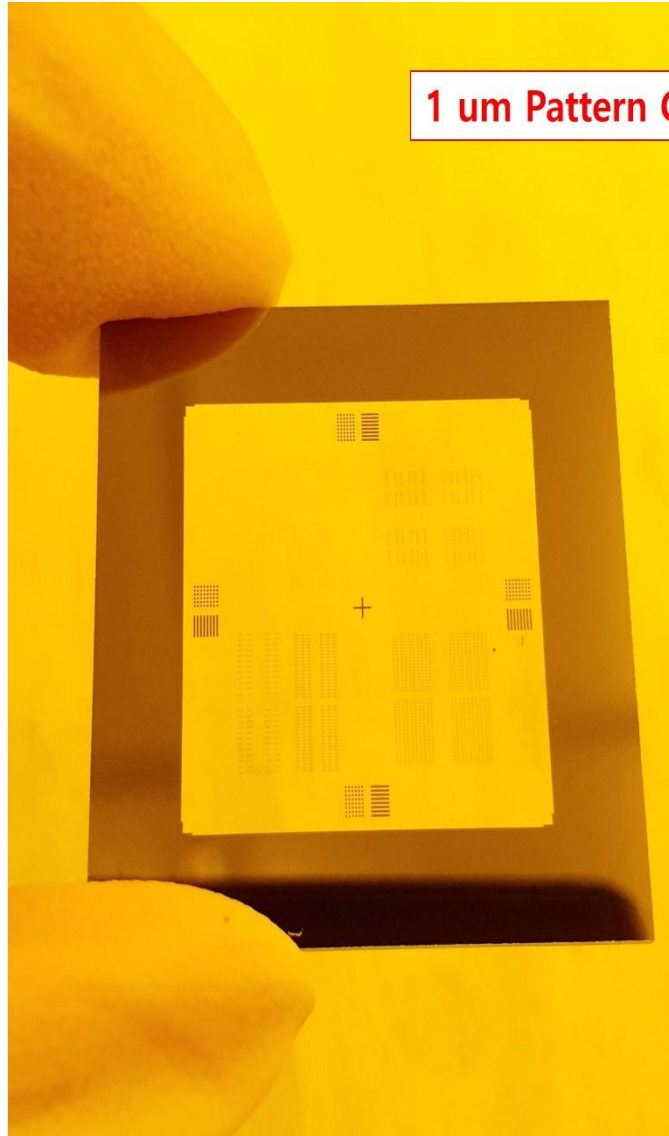
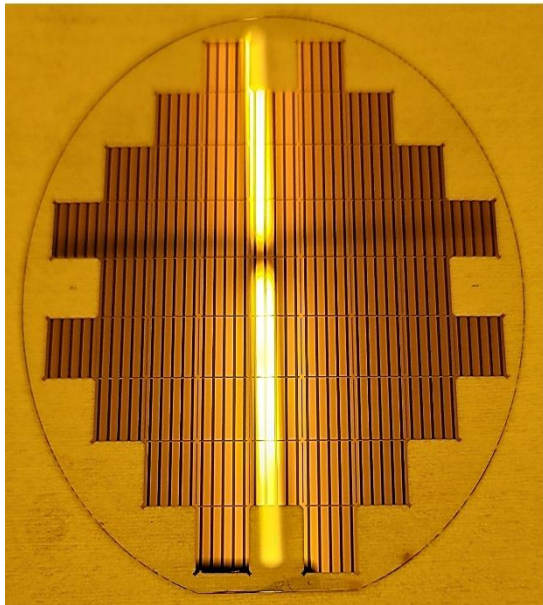
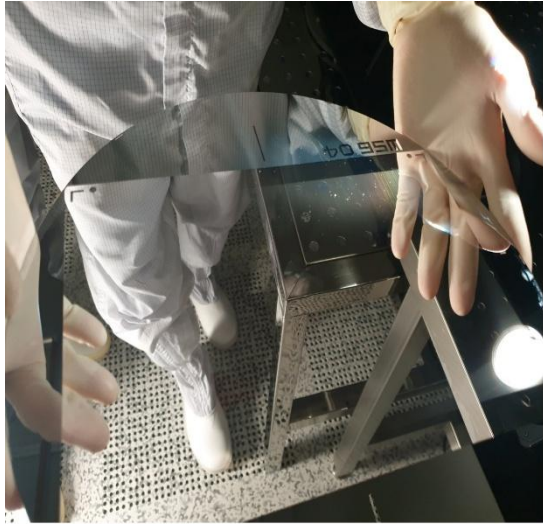


[LAF] Cr : 1,000 Å 증착 및 마이크로 예칭

Cu 증착 및 패터닝

AL 증착 및 패터닝

ITEM – Micro-Pattern Glass 시편 제작



1 um Pattern Glass 시편 제작

