



iEUVi Mask TWG

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Mask TWG: Mission & Objective



- **Mission:**

Ensure EUV Mask Infrastructure Readiness for:

- Pilot Line Production 2010 – 2012
- High Volume Manufacturing 2013 - 2016

- **Objectives:**

- Identify Required Standards
- Coordinate industry-wide conversions, such as future mask incidence angle change.
- Identify any gaps between current industry efforts and projected future needs
- Highlight gaps to member organizations and IEUVI Board for action

EUV mask standard activity summary



- EUV blank fiducial mark to defect mitigation
 - Blue ballot completed in January. Yellow ballot completed in May.
 - Ballot (SEMI4580) has been adopted as new industry standard in July.
 - Both blank material suppliers have fiducial mark samples available.
 - Implementation is challenging but no showstoppers.
- EUV blank standard (P37) Update:
 - Open to standardize total reflectivity uniformity (TRU) and other related area.
 - Date for new ballot submission is to be determined. Target around end of 2010.
- EUV carrier standard (E152) is active. Now open for update with new ballot submission in Jan, 2011:
 1. Purging port
 2. Door sensor pad
 3. New max pod weight
 4. Change x4 value to “prohibited”
 5. Standardize pod configurations on outer pod door
 6. Carrier dedication? (Open for discussion)

* Special acknowledgement – Long He, Intel for Chair the SEMI meeting.

Agenda



Start	Complete	Duration	Topics	Who
8:30 AM	8:35 AM	0:05	Introduction and Greetings	David Chan (SEMATECH)
8:35 AM	9:05 AM	0:30	EUV Readiness Survey	David Chan (SEMATECH)
9:05 AM	9:50 AM	0:45	SEMI Standard Updates E152 Carrier Fiducial Mark P37 EUV Blank	George Huang - SEMATECH / UMC Long He - Intel
9:50 AM	10:05 AM	0:15	Break	
10:05 AM	12:05 PM	2:00	Reticle Handling / Shipping / Storage - From Blank Suppliers, Mask Makers, to Wafer Fabs - Presentation - Discussion	George Huang - SEMATECH / UMC David Chan - SEMATECH Long He - Intel
12:05 PM	12:15 PM	0:10	Wrap up Discussion	David Chan (SEMATECH)

Closing Remarks

IEUVI Mask TWG

- Masks are consistently the top 2 issues facing EUVL
- Sources limit throughput, but masks could end up preventing any yield
 - ! Masks are more of a ‘Showstopper’
- There are still many issues and activities related to masks to cover in the TWG.

Focus of the two Mask TWGs



- EUV Mask Build TWG:
 - Infrastructure items directly related to building masks
 - Tools – inspection, writing, cleaning, repair
 - Materials – substrate, films
 - Defects
 - SEMI standards for substrates, blanks, masks

- EUV Mask Use TWG:
 - Issues more directly related to using masks
 - CTE of substrate and mask build/use temperatures
 - Flatness compensation
 - Incident angle of exposure light
 - Defect masking thru pattern placement (fiducials)
 - Carriers
 - Potential Pellicles
 - ITRS roadmap

- Suggestions are welcome



Next meeting of IEUVI Mask TWG(s)

- We are looking for suggestions in tasks priorities and topics of discussions
- Inputs on meeting formats, etc. are welcome
- Schedule:
 - @ SPIE, Feb, 2011, San Jose, USA
 - @ EUV Symposium, Oct 2011, Miami USA