

SEAL Integrated Project IST-257379	SEAL Deliverable D13.4
	Sub-project SP13, work package 13.4

EUROPEAN COMMISSION - Seventh FRAMEWORK PROGRAMME



Semiconductor
Equipment
Assessment
Leveraging Innovation

Deliverable D13.4 - Report

SP13 MCEB – Multi Column E-Beam

MCEB assessment publication paper

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Document history

When	Who	Comments
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Project Management Board and/or Steering Committee Review

Reviewer 1: Wolfgang Arden			Reviewer 2: Markus Pfeffer		
Answer	Comments	Type*	Answer	Comments	Type*

1. Is the deliverable in accordance with

(i) The Description of Work?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
(ii) The international State of the Art?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a

2. Is the quality of the deliverable in a status

(i) That allows sending it to EC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
(ii) That needs improvement of the writing by the originator of the deliverable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
(iii) That needs further work by the partners responsible for the deliverable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a

* Type of comments: M = Major comment; m = minor comment; a = advice

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Publication of Project Assessment

Four publications were presented in SPIE conferences over the last three years.

1. Application of E-Beam Mask Inspection to EUV Mask Production
2. Study of EUV E-Beam Inspection Condition for HVM
3. Evaluation of Novel EUV Mask Inspection Technologies
4. EUV Mask Defectively Study by Existing DUV Tool and New E-Beam Technology

The publications subject is mask inspection and it was used as the main introduction tool for the industry experts. It was well accepted and led to demonstrations not only on masks but mainly on wafers. The publications can be found in SPIE Proceedings or by request to Vlad Kudriashov Vlad_Kudriashov@amat.com . Attached is publication #4.

After those publications, the main activity (following the assessment) is demonstrations to customers. The demonstrations end with report to the customers and internal assessment of the customers, both are not public domain.

We already reported in Delivery 13.3 that the penetration point of the MCEB seems to be Voltage Contrast applications for the V-NAND manufacturing lines. The application gains momentum as we see more customers' demo happening.