

# 透過曝光機一致性(SMM)自動即時回饋系統改善曝光機之堆疊誤差

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## 摘要

This study is mainly focus on High-order compensation methods on matching result improvement by Lithography Exposure Scanner used on Semiconductor Lithography process, and those includes mask manufacturing, calibration reticle manufacturing, exposure recipe library establishment, recipe setup of overlay metrology equipments, analysis on mix-match overlay 's margin of error on scanners, scanner utilization raise-up and improvement on production yield performance. It studies these methods on how modernized clean room facility resources and equipments is utilized, especially focus on production equipments in Lithography module, to design systems of solutions for residual caused by different Lithography Exposure Scanner and or different production process. The traditional Matching Matrix is one static and hypothetical assumption for Lithography Exposure Scanner matching result. The latest Lithography Exposure Scanner exposure mode could choose Scanner Match Maker (SMM) function to calculate and adjust real-time exposure shot distortion and so the tool-to-tool overlay performance is efficiently improved. The application on Lithography Exposure Scanner is now flexible on different exposure mode combination. Thus,  $|\text{Mean}| + 3\sigma$  value from overlay data is enhanced on performance and the

Proceedings of the 3rd Conference on Integrated Opto-Mechatronic  
Technology and Intellectual Property Rights

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layer-to-layer mix and match overlay result is also more outstanding than ever.

關鍵字：Match、Overlay、Residual、Matching Matrix