

Electromagnetic shielding effectiveness measurements on nanomaterials for the sustainability in semiconductor industry

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Minimization of component size in semiconductor devices results in fundamental thresholds such as tunneling phenomena and electromagnetic interference (EMI) among each component. There are lots of being conducted or conducted R&D projects in order to overcome the inherent limitations using nanomaterials.

This presentation is focused on the EMI measurement issues on nanomaterials. One of the critical topics in this field of technology is lack of a test method on shielding effectiveness (SE) measurement. The existing conventional standard in SE measurement, ASTM D4935, exhibits high-level reliability and reproducibility. However, it has three disadvantages in application to the nanomaterials and requirement from the current technology such as (i) requirement in sample size, (ii) available frequency range (only up to 1.5 GHz), and (iii) a limit on measurement conditions (far-field vs near-field).

This presentation is going to provide update information on how to deal with the above three issues in order to prepare reliable test methods on SE of nanomaterials via standardization activities in IEC TC113 WG14 (Electromagnetic compatibility on nanomaterials).