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Nanomanufacturing - Reliability and durability assessment - Part 3-2: Graphene - Ellipsometry measurement of graphene

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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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The text of this Technical Specification is based on the following documents:

Draft	Report on voting
113/942/DTS	113/966/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

Graphene, a single layer of carbon atoms with each atom bound to three neighbours in a honeycomb structure, is an important building block of many carbon nano-objects, and possesses the excellent characteristics for various nanoelectronics devices, such as the high conductivity in the 2-dimensional structure. Graphene is also a promising candidate for atomically thin, flexible and transparent optoelectronic devices, various sensors, and the capping material on the electronic transport in ultra-scaled interconnects. Ellipsometry is a non-destructive optical tool to evaluate the dielectric properties, namely the complex index of refractive, of thin-film-shaped materials. Ellipsometry has the advantage of being able to evaluate a relatively large area of the film. Ellipsometry can be used to characterize thickness, roughness, composition, crystalline nature, and other properties of graphene.

This document offers the test method of ellipsometry to evaluate the reliability and the durability of graphene layers on a substrate.