

INTERNATIONAL STANDARD



**Semiconductor devices –
Part 5-10: Optoelectronic devices – Light emitting diodes – Test method of the
internal quantum efficiency based on the room-temperature reference point**

INTERNATIONAL
ELECTROTECHNICAL
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CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms, definitions and abbreviated terms	5
3.1 Terms and definitions.....	5
3.2 Abbreviated terms.....	7
4 Measuring methods	7
4.1 Basic requirements	7
4.1.1 Measuring conditions.....	7
4.1.2 Measuring instruments and equipment.....	8
4.2 Purpose	8
4.3 Measurement.....	8
4.3.1 Measurement setup	8
4.3.2 Measurement principle.....	8
4.3.3 Measurement sequence.....	8
5 Test report.....	10
Annex A (informative) Test example.....	11
Bibliography.....	16
Figure 1 – Test flow	10
Figure A.1 – Radiant power as a function of forward current	11
Figure A.2 – Relative EQE as a function of forward current.....	12
Figure A.3 – Determination of peak EQE point in the relative EQE curve	12
Figure A.4 – Conversion to the normalized variables of X and Y	13
Figure A.5 – Coefficients a_1 and a_2 as a function of X	13
Figure A.6 – Verification of a reference point in the a_2 curve.....	14
Figure A.7 – IQE as a function of forward current.....	14
Table A.1 – Summary of test report.....	15

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SEMICONDUCTOR DEVICES –

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Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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SEMICONDUCTOR DEVICES –

Part 5-10: Optoelectronic devices – Light emitting diodes – Test method of the internal quantum efficiency based on the room-temperature reference point

1 Scope

This part of IEC 60747 specifies the measuring method of the internal quantum efficiency (IQE) of single light emitting diode (LED) chips or packages without phosphor. White LEDs for lighting applications are out of the scope of this document. This document utilizes only the relative external quantum efficiency (EQE) measured at an operating room temperature. In order to identify the reference IQE, an operating current corresponding to the injection efficiency of 100 % is found and the radiative efficiency is determined by the infinitesimal change of the relative EQE at that point. The IQE as a function of current is then calculated from the relative ratio of the EQEs to the value at the reference point, which is called room-temperature reference-point method (RTRM).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60747-5-6:2016, *Semiconductor devices – Part 5-6: Optoelectronic devices – Light emitting diodes*