



Quantum Key Distribution (QKD); Component characterization: characterizing optical components for QKD systems

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Group Quantum Key Distribution (QKD).

Modal verbs terminology

In the present document "shall", "shall not", "should", "should not", "may", "need not", "will", "will not", "can" and "cannot" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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1 Scope

The present document gives specifications and procedures for the characterization of optical components for use in QKD systems. Examples of specific tests and procedures for performing such tests are given. Due to their importance in the security of a QKD system, particular attention is given to active optical components such as optical sources and single photon detectors.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location may be found at <http://docbox.etsi.org/Reference>.

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The following referenced documents are necessary for the application of the present document.

- [1] JCGM 100 (2008) (BIPM, IEC, IFCC, ILAC, ISO, IUPAC, IUPAP and OIML): "Evaluation of measurement data - Guide to the expression of uncertainty in measurement" (GUM 1995 with minor corrections)", Bureau International des Poids et Mesures.

NOTE: Available at http://www.bipm.org/utis/common/documents/jcgm/JCGM_100_2008_E.pdf.

- [2] JCGM 200 (2012) (BIPM, IEC, IFCC, ILAC, ISO, IUPAC, IUPAP and OIML): "International vocabulary of metrology - Basic and general concepts and associated terms (VIM)", 3rd edition (2008 version with minor corrections), Bureau International des Poids et Mesures.

NOTE: Available at http://www.bipm.org/utis/common/documents/jcgm/JCGM_200_2012.pdf.

- [3] JCGM 101 (2008) (BIPM, IEC, IFCC, ILAC, ISO, IUPAC, IUPAP and OIML): "Evaluation of Measurement Data - Supplement 1 to the "Guide to the expression of uncertainty in measurement" - Propagation of distributions using a Monte Carlo method", Bureau International des Poids et Mesures.

NOTE: Available at http://www.bipm.org/utis/common/documents/jcgm/JCGM_101_2008_E.pdf.

- [4] JCGM 102 (2011) (BIPM, IEC, IFCC, ILAC, ISO, IUPAC, IUPAP and OIML): "Evaluation of measurement data - Supplement 2 to the "Guide to the expression of uncertainty in measurement" - Extension to any number of output quantities", Bureau International des Poids et Mesures.

NOTE: Available at http://www.bipm.org/utis/common/documents/jcgm/JCGM_102_2011_E.pdf.

- [5] JCGM 104 (2009) (BIPM, IEC, IFCC, ILAC, ISO, IUPAC, IUPAP and OIML): "Evaluation of measurement data - An introduction to the "Guide to the expression of uncertainty in measurement" and related documents", Bureau International des Poids et Mesures.

NOTE: Available at http://www.bipm.org/utis/common/documents/jcgm/JCGM_104_2009_E.pdf.

- [6] IEC EN 60793-1-40: "Optical fibres - Part 1-40: Measurement methods and test procedures - Attenuation".