

Quantum Technologies



TECHNICAL COMMITTEES ON QUANTUM TECHNOLOGIES

- National level -

ILNAS/NSC 03 – Quantum Technologies

Abstract

NSC 03 is a national standardization commission that offers Luxembourgish market players a unique platform to follow and participate in standardization work in the field of quantum technologies. Through the Commission, national organizations are able to access and participate in the work of IEC/ISO JTC 3 and CEN/CLC/JTC 22.

- European level -

CEN/CLC/JTC 22 – Quantum Technologies

Scope

The JTC shall produce standardization deliverables in the field of Quantum Technologies including quantum enabling technologies, quantum sub-systems, quantum platforms & systems, quantum composite systems as well as quantum applications covering the following areas: Quantum metrology, sensing and enhanced imaging, Quantum computing and simulation; Quantum communication and cryptography, as well as provide guidance to other technical committees concerned with Quantum Technologies.

ETSI/ISG QKD – Quantum Key Distribution

Scope

To develop GSs (ETSI Group Specifications) describing quantum cryptography for ICT networks. Quantum Key Distribution is the essential credential in order to use quantum cryptography on a broad basis. It is the main task of the QKD ISG to specify a system for Quantum Key Distribution and its environment.

ETSI/TC CYBER/WG QSC – Quantum-Safe Cryptography

Scope

The primary responsibilities of this working group are to make assessments and recommendations on the various proposals from industry and academia regarding real-world deployments of quantum-safe cryptography, including practical properties, security properties, appropriateness of certain quantum-safe cryptographic primitives to various application domains (Internet protocols, wireless systems, resource constrained environments, cloud deployments, big data, etc.).

ETSI/TC QT – Quantum Technologies

Scope

The primary objective of the technical committee is to develop specifications that address quantum communications and quantum networks across multiple sectors, deploying quantum-based solutions to lay the foundations for secure global communications networks.

- International level -

IEC/ISO JTC 3 – Quantum Technologies

Scope

Standardization in the field of quantum technologies. The scope includes standardization in the field of quantum technologies, including quantum information technologies (quantum computing and quantum simulation), quantum metrology, quantum sources, quantum detectors, quantum communications, and fundamental quantum technologies.

EXAMPLES OF PUBLISHED STANDARDS ON QUANTUM TECHNOLOGIES

CEN/CLC/JTC 22 – Quantum Technologies

[CEN/CLC/TR 18202:2025](#) Layer model of Quantum Computing

ETSI/ISG QKD – Quantum Key Distribution

[ETSI GS QKD 016 V2.1.1 \(2024-01\)](#) Quantum Key Distribution (QKD); Common Criteria Protection Profile - Pair of Prepare and Measure Quantum Key Distribution Modules

[ETSI GS QKD 018 V1.1.1 \(2022-04\)](#) Quantum Key Distribution (QKD); Orchestration Interface for Software Defined Networks

[ETSI GS QKD 015 V2.1.1 \(2022-04\)](#) Quantum Key Distribution (QKD); Control Interface for Software Defined Networks

ETSI/TC CYBER/WG QSC – Quantum-Safe Cryptography

[ETSI TS 103 744 V1.2.1 \(2025-03\)](#) Quantum-Safe Cryptography (QSC); Quantum-safe Hybrid Key Establishment

[ETSI TS 104 015 V1.1.1 \(2025-02\)](#) Quantum-Safe Cryptography (QSC); Efficient Quantum-Safe Hybrid Key Exchanges with Hidden Access Policies

[ETSI TR 103 967 V1.1.1 \(2025-01\)](#) Quantum-Safe Cryptography (QSC); Impact of Quantum Computing on Symmetric Cryptography

[ETSI TR 104 016 V1.1.1 \(2024-10\)](#) Quantum-Safe Cryptography (QSC); A Repeatable Framework for Quantum-Safe Migrations

EXAMPLES OF ONGOING PROJECTS ON QUANTUM TECHNOLOGIES

IEC/ISO JTC 3 – Quantum Technologies

[IEC/ISO TR 18157](#) Information technology – Introduction to quantum computing

[IEC/ISO 63607 ED1](#) Quantum technologies – Terminology and quantities – General quantities

[IEC/ISO 63622 ED1](#) Quantum Photonics Vocabulary

[IEC/ISO 63655 ED1](#) Quantum technologies – Terminology and quantities – General vocabulary

CEN/CLC/JTC 22 – Quantum Technologies

[prCEN/CLC/TR XXX \(WI=JT022006\)](#) Hybridization of Quantum Computing

[prCEN/CLC/TR XXX \(WI=JT022003\)](#) Gap analysis of current quantum communication and quantum cryptography standards

[prCEN/CLC/TR XXX \(WI=JT022015\)](#) Design aspects of quantum communication networks

[prCEN/CLC/TR XXX \(WI=JT022007\)](#) Cryogenic Solid-State Quantum Computing; Part 1: Descriptions and functional requirements of modules

[prCEN/CLC/TR XXX \(WI=JT022005\)](#) Performance benchmarks of quantum computing applications

[prCEN/CLC/TR XXX \(WI=JT022002\)](#) QKD and PQC – An equitable analysis and comparison of both technologies

[prCEN/CLC/TR XXX \(WI=JT022011\)](#) Standardization needs for satellite based QKD

[prCEN/CLC/TR XXX \(WI=JT022014\)](#) Gaps in IT security evaluation of QKD systems and networks

[prEN XXX \(WI=JT022008\)](#) Characterization of quantum technologies – Metrics and terminology

[prEN XXX \(WI=JT022009\)](#) Traveling-wave parametric amplifiers (TWPA) - Parameters and test methods

[prEN XXX \(WI=JT022012\)](#) Characterization methods for ion traps used in quantum computing and sensing

ETSI/ISG QKD – Quantum Key Distribution

[ETSI GS QKD 023](#) Monitoring Interface and Data Model

[ETSI GS QKD 022](#) Network architectures

[ETSI GS QKD 020](#) Protocol and data format of REST-based Interoperable Key Management System API

