



Quantum technologies and technical standardization



- International level -



IEC/ISO JTC 3 – Quantum technologies

Scope (extract)	Standardization in the field of quantum technologies.	
Committee information	Published standards	1
	Standards under development	14
Major “IEC/ISO JTC 3” standards		
Published standards	<u>ISO/IEC 4879:2024</u>	Information technology — Quantum computing — Vocabulary
Standards under development	<u>PWI TR JTC3-5</u>	Quantum technologies – Quantum computing – Technical requirement and testing method of control and measurement system
	<u>IEC/ISO 63712 ED1</u>	Quantum technologies – Quantum computing – Hardware benchmarking
	<u>IEC/ISO TR 63760</u>	Quantum technologies – Quantum communication – Influence of transmission media on the implementation of quantum communication
	<u>PWI JTC3-4</u>	Method for verifying a quantum measurement – Quantum detector tomography
	<u>IEC/ISO TR 63743 ED1</u>	Survey of metrics and potential recommended measurement practices for single-photon detector characterization

- European level -



CEN/CLC/JTC 22 – Quantum technologies

Scope (extract)	The JTC shall produce standardization deliverables in the field of quantum technologies.	
Committee information	Published standards	4
	Standards under development	18
Major “CEN/CLC/JTC 22 ” standards		
Published standards	<u>CEN/CLC/TR 18202:2025</u>	Layer model of Quantum Computing
	<u>EAS 18433:2026</u>	(EAS) Quantum Computing - High-Level Programming Language
Standards under development	<u>prCEN/CLC/TR XXX</u>	Hybridization of Quantum Computing
	<u>prCEN/CLC/TR 18437</u>	Performance benchmarks of quantum computing applications
	<u>prCEN/CLC/TR XXX</u>	Standardization needs for satellite based QKD
	<u>prCEN/CLC/TR XXX</u>	Design aspects of quantum communication networks
	<u>prCEN/CLC/TR XXX</u>	QKD and PQC – An equitable analysis and comparison of both technologies
	<u>prCEN/CLC/TR XXX</u>	Quantum network best practices

ETSI/ISG QKD – Quantum Key Distribution

Scope (extract)	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	
Committee information	Published standards	17
	Standards under development	12
Major “ETSI/ISG QKD ” standards		
Published standards	ETSI GS QKD 020 V1.1.1 (2026-06)	QKD; Protocol and data format of REST-based Interoperable Key Management System API
	ETSI GS QKD 016 V2.1.1 (2024-01)	QKD; Common Criteria Protection Profile - Pair of Prepare and Measure Quantum Key Distribution Modules
Standards under development	GR QKD 017	QKD; Analysis of QKD Network architectures
	GS QKD 022	QKD; Network Architecture
	GS QKD 023	QKD; Monitoring Interface and Data Model
	GS QKD 024	QKD; Common Criteria Protection Profile – Key Processing Module

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.).	
Committee information	Published standards	24
	Standards under development	6
Major “ETSI/TC CYBER/WG QSC ” standards		
Published standards	ETSI TR 104 239-2 V1.1.1 (2026-06)	QSC; Secure Implementation Guidance for Key Encapsulation Mechanisms and Digital Signature Schemes; Part 2: ML-KEM
	ETSI TS 103 744 V1.2.2 (2026-02)	QSC; Quantum-safe Hybrid Key Establishment
Standards under development	TR 104 317 DTR/CYBER-QSC-0034	QSC; Quantum-safe signatures and PKI considerations
	TR 104 239-4 DTR/CYBER-QSC-0027-4	QSC; Secure Implementation Guidance for Key Encapsulation Mechanisms and Digital Signature Schemes; Part 4: SLH-DSA
	TR 104 298 DTR/CYBER-QSC-0033	QSC; The Private Information Retrieval Ecosystem: Use Cases, Threats, and Future Direction

- National level -

ILNAS/NSC 03 – Quantum technologies

Scope	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.	
Committee information	National delegates	14