Stuttgart Quantum Network

Multiple nodes, located on the Campus Vaihingen, Campus Stadtmitte, and across Stuttgart City, enable the implementation of advanced multi-party protocols.

The nodes are linked via a fibre infrastructure; the network provides a real-world environment for implementing and evaluating multi-party quantum communication and networked quantum computing protocols.

It serves as a platform for testing hardware and software required for future quantum networks, for investigating security properties in a deployed setting, and for evaluating with classical network protocols.

A: Brief Information

Testbed Title	Stuttgart Quantum Network
Institution/Organization	University of Stuttgart (Institute for Quantum Information and Technology / Barz Group)
Contact	Prof. Dr. Stefanie Barz, stefanie.barz@fmq.uni-stuttgart.de
	Jonas Zatsch, jonas.zatsch@fmq.uni-stuttgart.de
	Matthias Bayerbach, matthias.bayerbach@fmq.uni-stuttgart.de
Status	Active (launched June 2026)

B: Technical Information

Start Point	End Point	Length [km]	Losses [dB]
Allmandring 3, Uni. Stuttgart	Pfaffenwaldring 57	~ 0.4	-0.5
Allmandring 3, Uni. Stuttgart	ARENA 2036 e.V.	~ 1.0	Unknown
Allmandring 3, Uni. Stuttgart	ZAQuant (Allmandring 13, 70569 Stuttgart-Vaihingen)	~ 0.3	Unknown
Allmandring 3, Uni. Stuttgart	Kepplerstraße 11	~ 7.0	Unknown
Allmandring 3, Uni. Stuttgart	Nokia (Magirusstraße 8, 70469 Feuerbach)	~ 10	Unknown
Supported Wavelengths [nm]	Telecom C-Band 1550 nm, Telecom O-Band 1310		
Type of Transmission	Dark fiber		
Type of Fiber	Single mode		
Type of Deployment	Underground		
Polarization Stabilization	No		

Quantum Communication Infrastructure	Single photon sources and entangled multi-qubit state sources at 1550 nm for quantum communication; Quantum state tomography for polarization-encoded states and detection using superconducting-nanowire single photon detectors. Interface to integrated photonic circuits.
Available Infrastructure for external Parties	Access upon request possible.

C: Additional Information

Linked Projects	• QCyber • TD.QR • QR.N • SiSiQ
Press Release and Publications	• https://www.qit.uni-stuttgart.de/news/Secure-quantum-applications-for-real-world-networks/ • https://www.qit.uni-stuttgart.de/news/Quantum-repeaters-on-the-way-from-the-laboratory-to-practical-application/
Demonstrated Milestone	
Outlook	Application based on multipartite entanglement and network computing
Suggested Use Cases	
Other Comments/ Information	