Datasheet QKD System
Dec 2024

This datasheet shows key figures of our discrete variable, prepare and measure, quantum key distribtuion system. It uses coherent states with time-bin encoding and single-photon detection. The system is rack mountable and features a standard user interface. A recent scintific publication (using a previous system) can be found in [1].

We plan to publish a complete documentation and the full blueprints of the system soon.

Protocol and system specifications

Protocol	BB84 with decoy states
User interface	ETSI 14 standardized interface over ethernet
Authentication	preshared key or public key
Required fiber links	one channel in dark fiber, one channel in bright fiber
Key management system (KMS)	included; customizable by request

QKD performance

Repetition rate	80 MHz
Loss budget	22 dB
Key rate	300 bit/s - 20 kbit/s
Qber	3% - 7%
Operating wavelength	1530 nm - 1570 nm
Maximum temperature	30°C
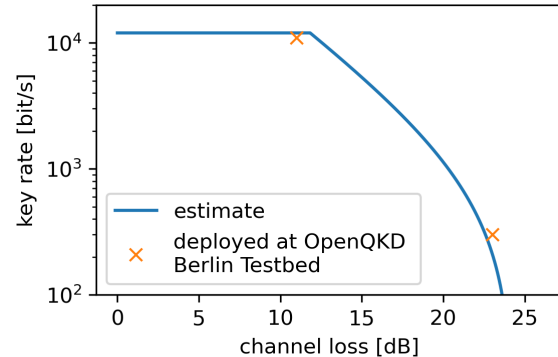
Dimensions and connectors

Alice	2U VQ-box + 1U White-Rabbit-Switch
Bob	same as Alice + detector Aurea SPD_OEM_NIR
Fiber connectors	FC/APC
User interface	RJ45 ethernet
VQ-box to WRS	2x SMA; 1x RS45
VQ-box to detector	Bob only; 2x SMA; 1x USB; 1x fiber

References

[1] M. Sena et al. "Deploying the Qline System for a QKD Metropolitan Network on the Berlin Open-QKD Testbed". In: *IEEE Photonics J.* (2024), pp. 1–11.