

Summary

uQRNG is a portable device that provides genuine random numbers directly from quantum processes. uQRNG can be used as a standalone device or integrated into other hardware modules as a quantum entropy source, enabling solutions for seeding and creation of random keys for cryptographic protocols, trustworthy choices in gaming and lottery, fair selection and distribution in blockchain, or unbiased randomness in simulation.

QCI's uQRNG is photonic and based on harvesting the time- bin degree of freedom of photons. Single photons, before detection, exist in a superposition of states - the arrival time- bins, prior to measurement it is impossible to predict which time-bin the photon will arrive at. The quantum process creates high-dimensional quantum information. Each photon detection returns random bits between 0 to 8191 based on the measured time-bin, which is equivalent to returning a 13-bit string instead of a 1-bit string per photon.

Specifications

QRNG type	Uniform probability distribution
Range of raw qrn	0 to 8,191
Generation rate	~158 kbps
Operation	Ethernet communication interface, gRPC package
Power	12 V DC supply
Dimension	21.5 cm × 21.5 cm × 20 cm
Randomness Test Suites	NIST SP 800-90B, Dieharder