Quantum Random Number Generator - QRNG1
by S-Fifteen Instruments

1 Features

- 480 Mbits per second
- Patented fast proprietary hashing
- Passes NIST SP 800-22 and dieharder Randomness tests

Applications: Monte-Carlo Simulation, Quantum key distribution

2 General Description

The QRNG1 is a fast compact physical random number generator based on quantum noise in a photodetection process. The device generates up to 480Mbits random bits per second after implementation of a proprietary hashing function. It integrates diagnostic functions that allow to assess nominal operation of key parts of the device. The output random numbers which satisfy standard statistical test suites (NIST SP 800-22 and Dieharder). Data communication with the host PC is via a single USB2.0 port which also powers the unit. The QRNG has been granted US Patent US20190220250A1. The QRNG requires a driver which is available for Linux OS for now.

3 Specifications

Table 1: Device Specifications

Physical Parameters	
Size (W x L x H)	31 mm x 104 mm x 65 mm
Weight	210 g
Power consumption	$< 1\,\text{W}$ (200mA from USB bus)
Performance	
Random Bit Rate	480 Mbps
Random Number Statistical Test Suites	
NIST SP 800-22	Pass
Dieharder	Pass
Interface	
Host connection	Tested on Linux Kernel 4.4. Driver will be provided.
Data format	Text or binary

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