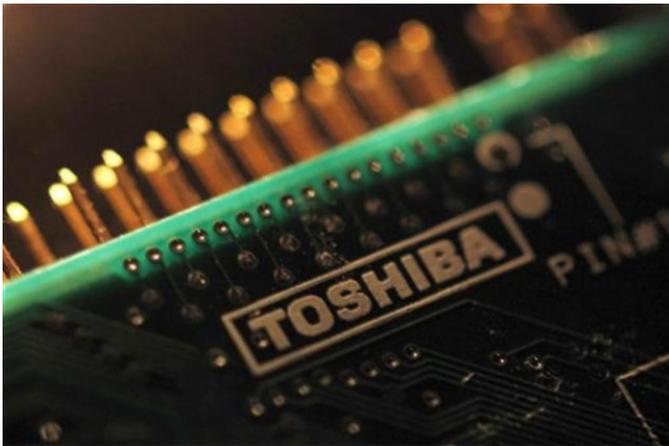


## Quantum Cryptography for Everyone?

Written by Marco Attard  
22 November 2012

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Toshiba claims it is closer towards achieving mainstream quantum cryptography-- researchers at the Toshiba European research laboratory and Cambridge University manage to extract single photons from regular telecoms fibre.



Quantum cryptography involves the encoding each digit of a cryptographic key upon a single photon (or light particle). The interception of a single photon (as according to Heisenberg's Uncertainty Principle) disturbs its encoding, making potential hackers detectable and the cryptographic key unusable.

Current quantum cryptography systems demand the the use of a dedicated optical fibre separate from the line carrying the actual data. Such systems are believed to be already in use by governments and the military, using technology from firms such as ID Quantique and MagiQ.

The Toshiba system does not need a separate fibre-- it makes use of a detector sensitive during the brief time window (100 millionths of a micro-second) at the estimated arrival of the single photons, while being insensitive to the scattered light from data signals.

Tests show the system works over 50km of fibre with data passing back and forth at 1 Gbit/s-- 50000 times higher than the previous best value for the same fibre length according to the researchers.

"The requirement of separate fibres has greatly restricted the applications of quantum

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cryptography in the past, as unused fibres are not always available for sending the single photons, and even when they are, can be prohibitively expensive," Toshiba researcher Dr. Andrew Shields says. "Now we have shown that the single photon and data signals can be sent using different wavelengths on the same fibre."

Toshiba says it will carry out further field tests before eventual commercial availability within the near future.

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