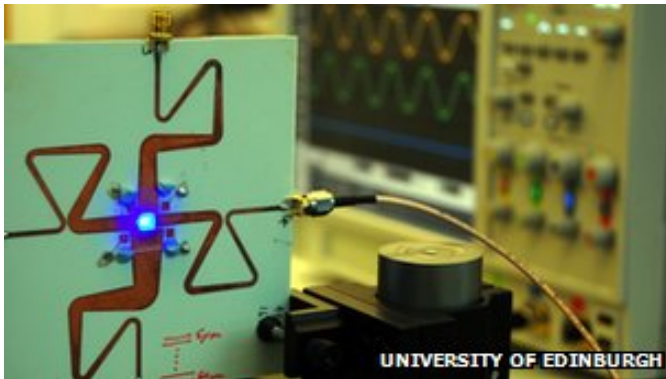


Wifi? Make Way for Li-fi

Written by Marco Attard
01. November 2013

UK-based researchers at the Ultra-Parallel Visible Light Communications (UP-VLC) project announce a breakthrough in visible light communications (VLC), reaching data transfer speeds of 10Gbps with a system using tiny micro-LEDs.



The researchers hail from the universities of Edinburgh, St Andrews, Strathclyde, Oxford and Cambridge.

Reportedly the system transmits 3.5Gbps through each of the 3 primary colours (red, green, blue) making up white light, this increasing the amount of data the light can "carry." This makes the the basis of what the researchers call light fidelity or "li-fi," a potential low-cost alternative to radio-based wireless internet.

"If you think of a shower head separating water out into parallel streams, that's how we can make light behave," Prof Harald Haas tells the BBC.

Allowing the micro-LEDs to handle millions of light intensity changes per second is Orthogonal Frequency Divisional Multiplexing (OFDM), a digital modulation technique making what amounts to an extremely fast on/off switch.

In theory visible light is an ideal means for data transmission, since it has a bandwidth 10000 times larger than the radio frequency spectrum. However it is not as practical-- light-based connections cannot penetrate walls, even if the UP-VLC technology can bounce off walls, allowing it not to demand line of sight.

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UP-VLC is not the only project taking on VLC. Earlier this month a Chinese team reportedly developed a microchipped LED light bulb producing data speeds of up to 150Mbps, while back in 2012 Taiwanese researchers [used red and green laser pointers](#) to achieve speeds of up to 1Gbps using 2 pointers at a distance of up to 10m.

Go [UP-VLC](#)

Go ["Li-fi" Via LED Light Bulb Data Speed Breakthrough \(BBC\)](#)