

Wireless Tech Research Lab Makes Waves

An electronic engineering laboratory at City University is making huge strides in research on wireless communication technology.

With private funding and government support, its engineers are trying to find ways to boost already superfast speeds of broadband connectivity and improve network coverage.

The State Key Laboratory of Millimeter Waves plays a leading role in wireless antenna systems and is set to become the first terahertz research center in Hong Kong.

"If we have a better data network, the society stays connected and allows a smooth exchange of information," said Chan Hung-shek, assistant dean of the College of Science and Engineering.

"It is impossible to imagine a society without wireless internet."

Chan added the government has been actively working to build Hong Kong into a fully wireless city, with wireless technology research central to its aims.

The most prominent equipment in the lab is the 500GHz Measurement System, the first in the territory that is able to measure electromagnetic waves of high frequency.

It is extremely difficult to measure waves of high frequency as these get smaller with increasing frequencies. Comparatively, the wave frequency of a normal smartphone is only 2.5GHz.

The instrument is vital for researchers to analyze and create better integrated circuits and more advanced equipment that can act as base stations to transmit extremely high frequencies, said laboratory secretary Ko Wing-ye.

The lab also pioneered an inexpensive prototype of a 34GHz millimeter-wave communication system, which is normally only used in militaries because of concerns on costs.

Ko said the next important aim of the lab is to explore the emerging field of terahertz technologies.

It has been recognized as having enormous potential for applications in security, biology, astrophysics and medicine.

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Published on Wireless Design & Development (<http://www.wirelessdesignmag.com>)

Posted by Janine E. Mooney, Editor

February 13, 2012

Source URL (retrieved on 01/31/2015 - 9:50am):

<http://www.wirelessdesignmag.com/news/2012/02/wireless-tech-research-lab-makes-waves>

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