



5G Initiative – “5G Roadmap” Working Group

LiFi Attocellular Networking

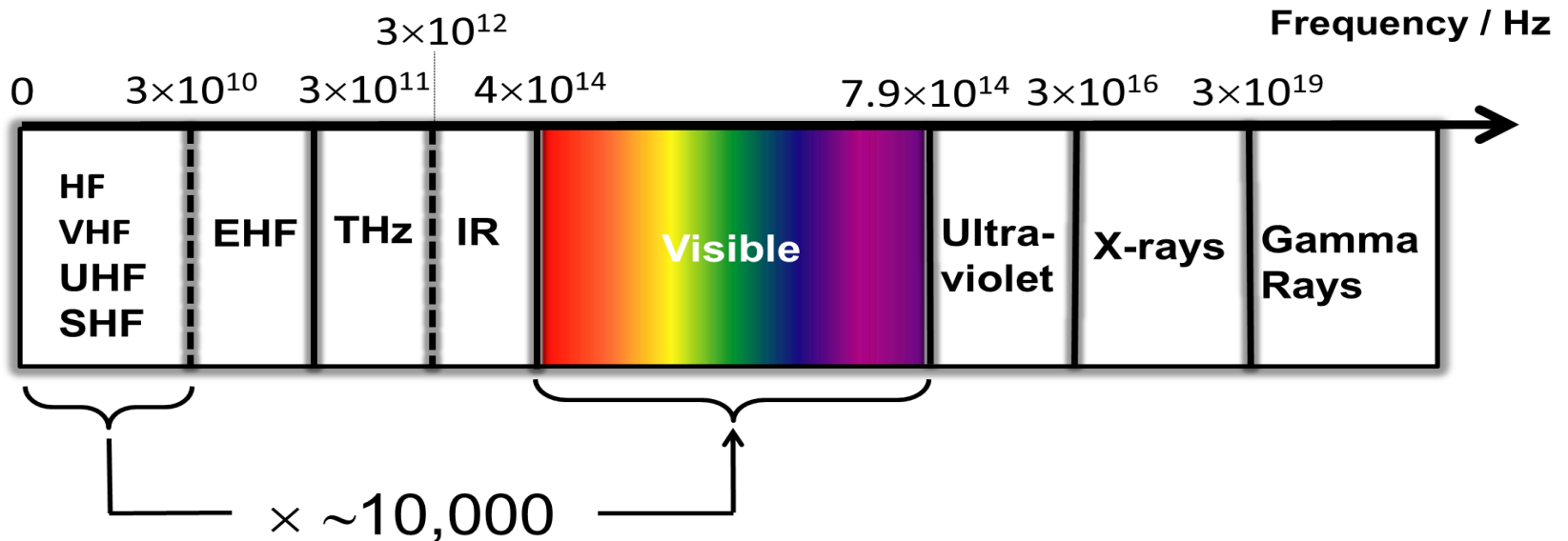
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LiFi

- **This contribution relates to a new wireless access network based on visible light and infrared and is coined ‘LiFi’ [1,2].**
- **Relation to SDOs and other**
 - 3GPP, IEEE 802.15.7 and IEEE 802.11
- **Impact Horizon** (short, medium, long)
 - short/medium horizon – next three years. Technology is on the market.

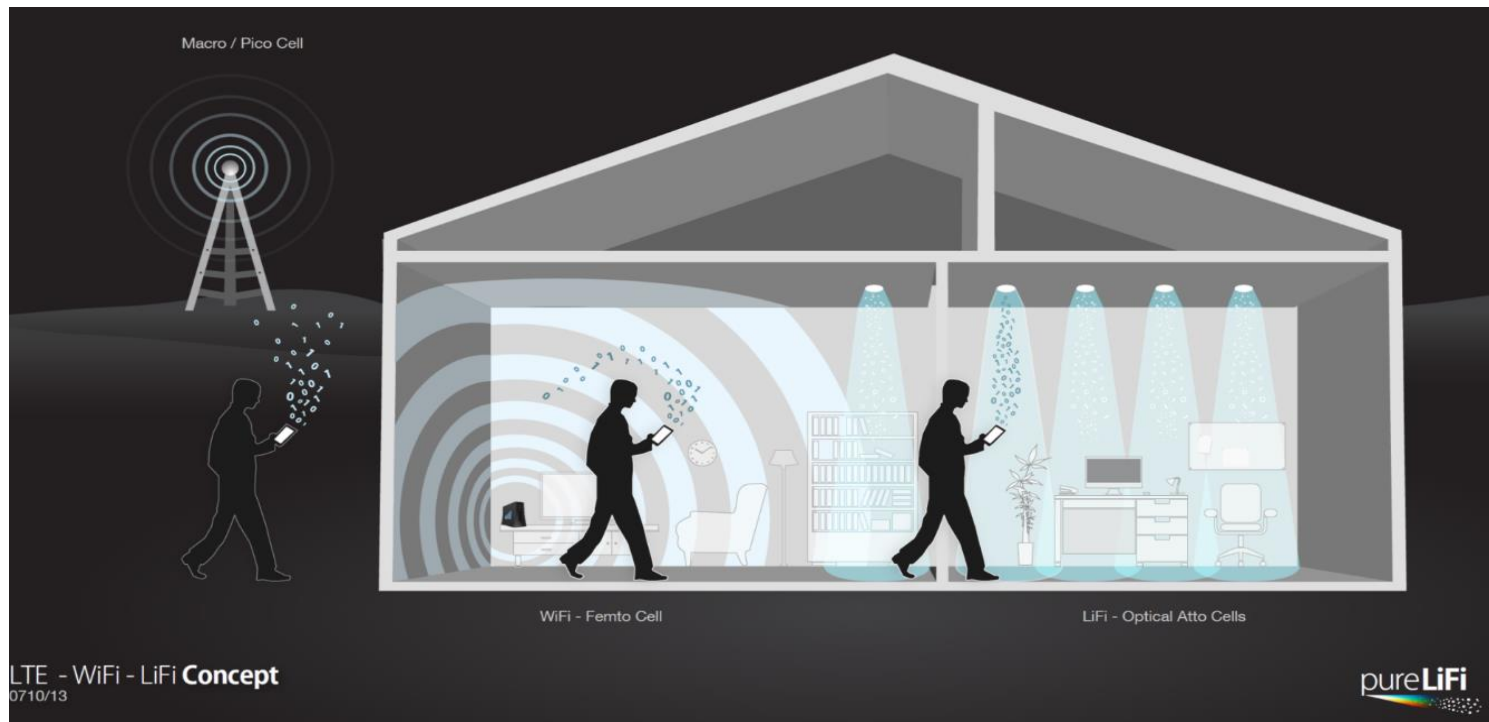
- [1] H. Haas, L. Yin, Y. Wang, and C. Chen, "What is LiFi?," *Journal of Lightwave Technology*, vol. 34, no. 6, pp. 1533-1544, March 2016.
- **[2]** C. Chen, D. A. Basnayaka, and H. Haas, "Downlink Performance of Optical Attocell Networks," *Journal of Lightwave Technology*, vol. 34, no. 1, pp. 137-156, 2016

From mmWave to nmWave



LiFi Attocell Networking

- The idea is to use the vast visible and infrared spectrum (300 THz) to build a new small cell wireless networking layer based on 'LiFi' technologies. The principal concept is depicted below. Illumination infrastructure becomes a new small cell networking layers. The communication is bi-directional with an infrared uplink channel



A new paradigm shift affecting two industries...

