

Technology Candidates for Next Generation 5G Wireless Communication

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ABSTRACT

Next generation wireless networks are challenged with ever-increasing user-centric demands for overall quality of service (QoS) requiring higher capacity, data-rate, energy efficiency, longer battery life and quality of experience (QOE); ubiquitous connectivity and low-cost architectures. Fig.1 shows the emerging 5G network landscape with desired performance metrics [1].

Several emerging technologies are getting developed to achieve the desired performances from the complex multisystem 5G connectivity networks. The developing 5G technologies include but not limited to: 'Heterogeneous Networks (HetNets)', 'Massive MIMO', 'Millimeter Wave (mmW)', 'Device to Device (D2D)', 'Machine to Machine (M2M)', 'Cognitive Radio (CR)', simultaneous transmit/receive (STR) and so on. Multi-antenna based massive MIMO technologies and mm-wave architectures at the both ends of wireless links are being considered to enhance the performance of heterogeneous networks. Advancement of highly integrated RF CMOS semiconductor technologies as well as low-cost organic multilayer packaging and board integration technologies upto mm-waves are enabling complex systems and massive-MIMO architectures for next generation 5G applications.

This plenary session presentation will describe candidate technologies for 5G wireless system, review semiconductor/device/package technology options and discuss measurement challenges from device to system to OTA evaluation needed to ensure successful implementation of 5G architectures.

REFERENCES

- [1] D. Choudhury, '5G wireless and millimeter wave technology evolution: An overview', 2015 International Microwave Symposium Digest, pp.1-4, Phoenix, May 2015.

ACRONYMS

- MIMO: multiple input, multiple output
OTA: over the air

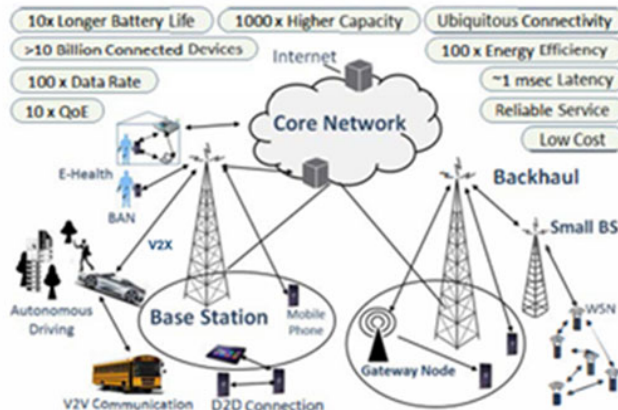


Fig. 1. Emerging Wireless Network Landscape with 5G Performance Metrics [1].

