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ECET-512 – Wireless Systems

Quiz 1

Reading:

Chapter 1 (All), Chapter 2 (All), Chapter 17 (Section 17.6)

Supplemental Reading:

E. Hossain, M. Rasti, H. Tabassum, and A. Abdelnasser, “Evolution toward 5G multi-tier cellular wireless networks: An interference management perspective,” IEEE Wirel. Commun., vol. 21, no. 3, pp. 118–127, Jun. 2014.

Questions:

1. According to the supplemental reading, what are some of the visions/requirements for 5G cellular networks? List at least 3 of the 8 described in the paper.

5G needs millimeter wave communication to satisfy traffic increase, better methods for gathering energy for energy efficient communication, and the spectrum access needs to be prioritized for different tier based or traffic-based needs.

2. The authors describe 3 major interference management challenges in 5G multi-tier networks. Describe, in a couple of sentences, one of these challenges?

If different tiered networks could work together to send and receive data, uplink and downlinks could be handled on separate channels, to increase efficiency.

3. Based on the reading in Molisch (Ch. 17.6) briefly describe 2 methods for increasing cellular network capacity.

Increasing the amount of spectrum used to , and coding sent data better like speech to decrease data rate