METHODS AND APPARATUS FOR DETERMINING DEVICE-TO-DEVICE TRANSMISSION PATTERNS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 62/034,025 filed on August 6, 2014, U.S. Provisional Patent Application No. 62/054,809 filed on September 24, 2014, and U.S. Provisional Patent Application No. 62/075,604 filed on November 5, 2014, the contents of which are hereby incorporated by reference herein.

BACKGROUND

[0002] Long Term Evolution (LTE) communication is becoming more widespread as the technology matures and is starting to be used in new areas. Recently, public safety officials (e.g. police, firefighters, paramedics) have shown growing interests in using LTE as their main communication tool. However, current versions of LTE however only work under network coverage, which may be a limitation for many public safety situations.

SUMMARY

[0003] In an embodiment, a method for a first wireless transmit/receive unit (WTRU) to perform device-to-device (D2D) communication directly with a second WTRU is disclosed. The method may include: determining a base pattern family to use for the D2D communication based on traffic conditions independent of a network, the base pattern family having a pre-defined duration with one or more transmission opportunities, a total number of which is specific to the base pattern family, wherein during each transmission opportunity the first WTRU transmits a data packet; and selecting a base pattern from the base pattern family.

In another embodiment, a WTRU for performing D2D communication directly with another WTRU is disclosed. The WTRU may include: a scheduler configured to determine and select a base pattern family to use for the D2D communication based on traffic conditions independent of a network, the base pattern family having a pre-defined duration with one or

more transmission opportunities, a total number of which is specific to the base pattern family, wherein during each transmission opportunity the first WTRU transmits a data packet.