METHODS AND DEVICES FOR DISCONTINUOUS TRANSMISSION OR DISCONTINUOUS RECEPTION

FIELD

[0001] Various example embodiments relate to the field of telecommunication and in particular, to methods, devices, apparatuses and a computer readable storage medium for discontinuous transmission (DTX) or discontinuous reception (DRX), in particularly, for cell specific DTX or DRX.

BACKGROUND

[0002] In the communication technology, there is a constant evolution ongoing in order to provide efficient and reliable solutions for utilizing wireless communication networks. Currently efforts have been made to develop 5th generation (5G) or 5G advance wireless system. The new wireless systems can support various types of service applications for terminal devices.

[0003] In 5G system, wireless communication networks may use discontinuous transmission (DTX) and discontinuous reception (DRX) modes to communicate with certain terminal devices for applications that do not require continuous reception, for example, for extended reality enhancement. The DTX/DRX modes may provide power conservation in network and terminal devices. However, such DTX/DRX mode, in particularly cell specific DTX/DRX, might have some impacts to the current system.

SUMMARY

[0004] In general, example embodiments of the present disclosure provide a solution for communication with a low latency.

[0005] In a first aspect, there is provided a terminal device. The terminal device may comprise one or more processor and one or more transceivers communicatively coupled to the one or more processor, wherein the one or more processor are configured to: receive, from a network device, a discontinuous transmission (DTX) configuration, wherein the DTX configuration indicates configuration information on a DTX mode of the network device; transmit to the network device a scheduling request which follow a DRX configuration of the network device; and monitor a downlink transmission from the

network device based on one or more conditions regardless of the DTX configuration.

[0006] In a second aspect, there is provided a terminal device. The terminal device may comprise one or more processor and one or more transceivers communicatively coupled to the one or more processor, wherein the one or more processor are configured to: receive, from a network device, a discontinuous reception (DRX) configuration, wherein the DRX configuration indicates configuration information on a DRX mode of the network device; and perform an uplink transmission based on one or more conditions regardless of the DRX configuration.

[0007] In a third aspect, there is provided a network device. The network device may comprise one or more processor and one or more transceivers communicatively coupled to the one or more processor, wherein the one or more processor are configured to: transmit, to a terminal device, a discontinuous transmission (DTX) configuration, wherein the DTX configuration indicates configuration information on a DTX mode of the network device; and perform a downlink transmission to the terminal device based on one or more conditions regardless of the DTX configuration.

[0008] In a fourth aspect, there is provided a network device. The network device may comprise one or more processor and one or more transceivers communicatively coupled to the one or more processor, wherein the one or more processor are configured to: transmit, to a terminal device, a discontinuous reception (DRX) configuration, wherein the DRX configuration indicates configuration information on a DRX mode of the network device; and monitor an uplink transmission from the terminal device based on one or more conditions regardless of the DRX configuration.

[0009] In a fifth aspect, there is provided a method at a terminal device. The method may comprise: receiving, from a network device, a discontinuous transmission (DTX) configuration, wherein the DTX configuration indicates configuration information on a DTX mode of the network device; transmitting to the network device a scheduling request following a DRX configuration of the network device and monitoring a downlink transmission from the network device based on one or more conditions regardless of the DTX configuration.

[0010] In a sixth aspect, there is provided a method at a terminal device. The method may comprise: receiving, from a network device, a discontinuous reception (DRX) configuration, wherein the DRX configuration indicates configuration information on a DRX mode of the network device; performing an uplink transmission based on one or more

conditions regardless of the DRX configuration.

[0011] In a seventh aspect, there is provided a method at a network device. The method

may comprise: transmitting, to a terminal device, a discontinuous transmission (DTX) configuration, wherein the DTX configuration indicates configuration information on a DTX mode of the network device; receiving from the terminal device, a scheduling request which follows a DRX configuration of the network device, and performing a downlink transmission to the terminal device based on one or more conditions regardless of the DTX configuration.

[0012] In an eighth aspect, there is provided a method at a network device. The method may comprise: transmitting, to a terminal device, a discontinuous reception (DRX) configuration, wherein the DRX configuration indicates configuration information on a DRX mode of the network device; and monitoring an uplink transmission from the terminal device based on one or more conditions regardless of the DRX configuration.

[0013] In a ninth aspect, there is provided an apparatus of a terminal device. The apparatus may comprise: means for receiving, from a network device, a discontinuous transmission (DTX) configuration, wherein the DTX configuration indicates configuration information on a DTX mode of the network device; and means for monitoring a downlink transmission from the network device based on one or more conditions regardless of the DTX configuration.

[0014] In a tenth aspect, there is provided an apparatus of a terminal device. The apparatus may comprise: means for receiving, from a network device, a discontinuous reception (DRX) configuration, wherein the DRX configuration indicates configuration information on a DRX mode of the network device; and means for performing an uplink transmission based on one or more conditions regardless of the DRX configuration.

[0015] In an eleventh aspect, there is provided an apparatus of a network device. The apparatus may comprise: means for transmitting, to a terminal device, a discontinuous transmission (DTX) configuration, wherein the DTX configuration indicates configuration information on a DTX mode of the network device; and means for performing a downlink transmission to the terminal device based on one or more conditions regardless of the DTX configuration.

[0016] In a twelfth aspect, there is provided an apparatus of a network device. The apparatus may comprise: means for transmitting, to a terminal device, a discontinuous reception (DRX) configuration, wherein the DRX configuration indicates configuration information on a DRX mode of the network device; and means for monitoring an uplink

transmission from the terminal device based on one or more conditions regardless of the DRX configuration.