CLAIMS

What is claimed is:

1. A method for a wireless transmit/receive unit, WTRU, performing device-to-device, D2D, discovery, the method comprising:

the WTRU sending a discovery request to another WTRU or a network to initiate a discovery process used to perform radio frequency, RF, proximity detection for a service, wherein the discovery request includes at least one discovery identity and a reference to a temporary discovery process identifier to indicate whether the discovery request is a reiteration of a rejected request; and

the WTRU monitoring a channel for a discovery response.

2. The method of claim 1 wherein the WTRU has a discoverable status or a monitoring status.

3. The method of claim 1 further comprising:

the WTRU receiving a configuration for a D2D channel.

4. The method of claim 1 further comprising:

an application in the WTRU triggering a services recovery procedure.

5. The method of claim 1 wherein the discovery request further includes a status parameter based on a security context or a battery level of the WTRU.

6. The method of claim 1 further comprising:

the WTRU sending a discovery report message to the other WTRU or the network.

7. The method of claim 1 wherein the discovery request further includes a discovery class parameter associated with a power class indicating a maximum range for RF discovery.

8. The method of claim 1 wherein the discovery request further includes a discovery class parameter associated with a service corresponding to a public service application.

9. The method of claim 1 further comprising:

the WTRU receiving a configuration for RF proximity detection from another WTRU or a network, wherein the configuration is associated with a service and includes a discovery process identifier.

10. The method of claim 9 wherein the configuration for RF proximity detection is received by dedicated signaling over a physical downlink shared channel, PDSCH.

11. The method of claim 9 wherein the configuration for RF proximity detection is received on a discovery shared channel, DISCH.

12. The method of claim 11 further comprising:

receiving over the DISCH at least one service identity associated with an RF proximity detection configuration, validity information and a measurement configuration.

13. The method of claim 12 wherein a transmission including the at least one service identity, the validity information and the measurement configuration is scheduled by a physical downlink shared channel, PDSCH, using a specific radio network temporary identity, RNTI, and subframe timing.

14. The method of claim 12 further comprising:

the WTRU determining a validity time of a resource to initiate transmission of an RF proximity detection signal on the resource.

15. The method of claim 12 further comprising:

the WTRU determining a validity time of a resource to initiate reception of an RF proximity detection signal on the resource using the measurement configuration.

16. A wireless transmit/receive unit, WTRU, comprising:

a transmitter configured to send a discovery request to another WTRU or a network to initiate a discovery process used to perform radio frequency, RF, proximity detection for a service, wherein the discovery request includes at least one discovery identity and a reference to a temporary discovery process identifier to indicate whether the discovery request is a reiteration of a rejected request; and

a receiver configured to monitor a channel for a discovery response.

17. The WTRU of claim 16 wherein the receiver is configured to receive a configuration for a device-to-device, D2D, channel.

18. The WTRU of claim 16 wherein the discovery request further includes a status parameter based on a security context or a battery level of the WTRU.

CLAIMS

What is claimed is:

1. A method for use in a wireless transmit/receive unit (WTRU) capable of performing device-to-device discovery, the method comprising:

sending a discovery request to initiate a discovery process used to perform radio frequency (RF) proximity detection for a service, wherein the discovery request includes at least one discovery identity comprising a common part and a dedicated part;

monitoring a channel for a response to the discovery request.

2. The method of claim 1 wherein the discovery process is initiated by an application running on the WTRU.

3. The method of claim 1 wherein the common part is associated with a public land mobile network.

4. The method of claim 1 wherein the dedicated part is associated with a group, application, or service.

5. The method of claim 1 wherein expiration of a validity time period associated with an identity occurs before sending the discovery request.

6. The method of claim 1 wherein the response to the discovery request includes an indication that a device associated with the discovery identity is in close proximity to the WTRU.

7. The method of claim 1 further comprising:

sending a request for a resource for transmission of a discovery request;

receiving an indication of an available resource.

8. The method of claim 7 wherein the indication is received in the form of a broadcast message.

9. The method of claim 1 wherein communication between the WTRU and a device associated with the discovery identity occurs before sending the discovery request.

10. The method of claim 1 wherein communication between the WTRU and a device associated with the discovery identity does not occur before sending the discovery request.

11. A wireless transmit/receive unit (WTRU) capable of performing device-to-device discovery, the WTRU comprising:

a transmitter configured to transmit a discovery request to initiate a discovery process used to perform radio frequency (RF) proximity detection for a service, wherein the discovery request includes at least one discovery identity comprising a common part and a dedicated part;

a receiver configured to receive a channel for a response to the discovery request.

12. The WTRU of claim 11 wherein the discovery process is initiated by an application running on the WTRU.

13. The WTRU of claim 11 wherein the common part is associated with a public land mobile network.

14. The WTRU of claim 11 wherein the dedicated part is associated with to a group, application, or service.

15. The WTRU of claim 11 wherein expiration of a validity time period associated with an identity occurs before sending the discovery request.

16. The WTRU of claim 11 wherein the response to the discovery request includes an indication that a device associated with the discovery identity is in close proximity to the WTRU.

17. The WTRU of claim 11 further comprising:

the transmitter further configured to send a request for a resource for transmission of a discovery request;

the receiver further configured to receive an indication of an available resource.

18. The WTRU of claim 17 wherein the indication is received in the form of a broadcast message.

19. The WTRU of claim 11 wherein communication between the WTRU and a device associated with the discovery identity occurs before transmitting the discovery request.

20. The WTRU of claim 11 wherein communication between the WTRU and a device associated with the discovery identity does not occur before transmitting the discovery request.