CLAIMS

~~**WHAT IS CLAIMED IS:**~~

1. A method of wireless communication, comprising:

receiving data traffic from an application layer for transmission in device-to-device communication; and

assigning at least one Quality of Service (QoS) flow identifier (ID) for the data traffic based on a frequency resource indicated in radio resources information for the data traffic, wherein data packets for transmission with different ~~radio~~frequency resources are assigned different QoS flow IDs.

2. The method of claim 1, wherein the ~~radio resources information~~frequency resource comprises a frequency band used for the transmission of the data packets, and the at least one QoS flow ID for the data traffic is assigned based on the frequency band used for the transmission of the data packets.

3. The method of claim 1, further comprising:

passing the radio resources information for the data traffic associated with the at least one QoS flow ID to a lower layer; and

determining a mapping of the data traffic associated with the at least one QoS flow ID to at least one radio bearer based on the radio resources information at the lower layer.

4. The method of claim 1, wherein the device-to-device communication comprises vehicle-to-everything (V2X) communication and the at least one QoS flow ID is assigned at a V2X layer based on the radio resources information for the data traffic.

5. The method of claim 1, wherein the radio resources information is determined based on a mapping of service type information received from the application layer to the radio resources information.

6. The method of claim 5, wherein the mapping of the service type information to the radio resources information is configured at a user equipment (UE).

7. The method of claim 6, wherein the service type information for the data traffic is indicated from the application layer based on a header for the data traffic.

8. The method of claim 6, wherein the service type information for the data traffic is indicated from the application layer based on a header extension for the data traffic, wherein the header extension comprises one of a flow label or an Internet Protocol (IP) version 6 (IPv6) extension header.

9. The method of claim 6, wherein the service type information for the data traffic is indicated from the application layer based on a source identifier.

10. The method of claim 6, wherein the radio resources information for the data traffic is indicated from the application layer based on a frequency band indication for the data traffic.

11. The method of claim 1, wherein the at least one QoS flow ID for the data traffic is assigned further based on traffic type information for the data traffic, wherein Internet Protocol (IP) data packets and non-IP data packets are assigned different QoS flow IDs.

12. The method of claim 11, further comprising:

passing the traffic type information for the data traffic to a lower layer; and

mapping the data traffic to at least one radio bearer based on the traffic type information at the lower layer.

13. The method of claim 1, wherein the at least one QoS flow ID is assigned further based on a communication mode for the data traffic such that the data packets are assigned different QoS flow IDs based on the communication mode, the communication mode comprising one of broadcast communication, groupcast communication, and unicast communication.

14. The method of claim 1, wherein the at least one QoS flow ID is assigned further based on a destination ID for the data traffic such that the data packets with different destination IDs are assigned the different QoS flow IDs.

15. The method of claim 14, wherein the data traffic is for broadcast communication and the destination ID comprises a broadcast layer 2 (L2) ID.

16. The method of claim 14, wherein the data traffic is for groupcast communication and the destination ID comprises a group ID or a translated groupcast layer 2 (L2) ID.

17. The method of claim 14, wherein the data traffic is for unicast communication and the destination ID comprises one of a target user equipment (UE) application layer ID or a link ID.

18. The method of claim 1, wherein the at least one QoS flow ID is assigned further based on a service type ID for the data traffic such that the data packets with different service type IDs are assigned the different QoS flow IDs.

19. The method of claim 18, wherein the service type ID comprises a provider service ID (PSID) or an intelligent transportation system application identifier (ITS-AID).

20. The method of claim 18, wherein the at least one QoS flow ID is assigned based on a one-to-one mapping between the service type ID and the at least one QoS flow ID.

21. The method of claim 20, further comprising:

determining, based on the radio resources information, whether to merge QoS flows having different QoS flow IDs into a same radio bearer at an access stratum layer.

22. The method of claim 1, wherein the at least one QoS flow ID is assigned further based on one or more QoS requirements from the application layer for the data traffic such that the data packets with different QoS requirements from the application layer are assigned the different QoS flow IDs.

23. An apparatus for wireless communication, comprising:

means for receiving data traffic from an application layer for transmission in device-to-device communication; and

means for assigning at least one Quality of Service (QoS) flow identifier (ID) for the data traffic based on a frequency resource indicated in radio resources information for the data traffic, wherein data packets for transmission with different ~~radio~~frequency resources are assigned different QoS flow IDs.

24. An apparatus for wireless communication, comprising:

a memory; and

at least one processor coupled to the memory and configured to:

receive data traffic from an application layer for transmission in device-to-device communication; and

assign at least one Quality of Service (QoS) flow identifier (ID) for the data traffic based on a frequency resource indicated in radio resources information for the data traffic, wherein data packets for transmission with different ~~radio~~frequency resources are assigned different QoS flow IDs.

25. The apparatus of claim 24, wherein the ~~radio resources information~~frequency resource comprises a frequency band used for the transmission of the data packets~~.~~, and the at least one processor is configured to assign the at least one QoS flow ID for the data traffic based on the frequency band used for the transmission of the data packets.

26. The apparatus of claim 24, wherein the at least one processor is further configured to:

pass the radio resources information for the data traffic associated with the at least one QoS flow ID to a lower layer; and

determine a mapping of the data traffic associated with the at least one QoS flow ID to at least one radio bearer based on the radio resources information at the lower layer.

27. The apparatus of claim 24, wherein the at least one processor is configured to assign the QoS Flow ID for the data traffic ~~is assigned~~ further based on traffic type information for the data traffic, wherein Internet Protocol (IP) data packets and non-IP data packets are assigned different QoS flow IDs.

28. The apparatus of claim 24, wherein the at least one processor is further configured to:

pass traffic type information for the data traffic to a lower layer; and

map the data traffic to at least one radio bearer based on the traffic type information at the lower layer.

29. The apparatus of claim 24, wherein the at least one QoS flow ID is assigned further based on a service type ID for the data traffic such that the data packets with different service

type IDs are assigned the different QoS flow IDs, and wherein the at least one QoS flow ID is assigned based on a one-to-one mapping between the service type ID and the at least one QoS flow ID.

30. A non-transitory computer-readable medium storing computer executable code, the code when executed by a processor cause the processor to:

receive data traffic from an application layer for transmission in device-to-device communication; and

assign at least one Quality of Service (QoS) flow identifier (ID) for the data traffic based on a frequency resource indicated in radio resources information for the data traffic, wherein data packets for transmission with different ~~radio~~frequency resources are assigned different QoS flow IDs.

31. The apparatus of claim 24, wherein the device-to-device communication comprises vehicle-to-everything (V2X) communication and the at least one QoS flow ID is assigned at a V2X layer based on the radio resources information for the data traffic.

32. The apparatus of claim 24, wherein the radio resources information is based on a mapping of service type information received from the application layer to the radio resources information.

33. The apparatus of claim 32, wherein the mapping of the service type information to the radio resources information is configured at a user equipment (UE).

34. The apparatus of claim 33, wherein the service type information for the data traffic is indicated from the application layer based on a header for the data traffic.

35. The apparatus of claim 33, wherein the service type information for the data traffic is indicated from the application layer based on a header extension for the data traffic, wherein the header extension comprises one of a flow label or an Internet Protocol (IP) version 6 (IPv6) extension header.

36. The apparatus of claim 33, wherein the service type information for the data traffic is indicated from the application layer based on a source identifier.

37. The apparatus of claim 33, wherein the service type information for the data traffic is indicated from the application layer based on a frequency band indication for the data traffic.

38. The apparatus of claim 24, wherein the at least one processor is configured to assign the at least one QoS flow ID for the data traffic further based on a communication mode for the data traffic such that the data packets are assigned different QoS flow IDs based on the communication mode, the communication mode comprising one of broadcast communication, groupcast communication, and unicast communication.

39. The apparatus of claim 24, wherein the at least one processor is configured to assign the at least one QoS flow ID for the data traffic further based on a destination ID for the data traffic such that the data packets with different destination IDs are assigned the different QoS flow IDs.

40. The apparatus of claim 24, wherein the at least one processor is configured to assign the at least one QoS flow ID for the data traffic further based on one or more QoS requirements from the application layer for the data traffic such that the data packets with different QoS requirements from the application layer are assigned the different QoS flow IDs.