CLAIMS

1. A method for wireless communications by a user equipment (UE), comprising: determining a quasi-co-location (QCL) relationship of an aperiodic channel state information (CSI) reference signal (CSI-RS) to a physical channel, wherein: the determination of the QCL relationship is based on: an offset parameter related to the aperiodic CSI-RS and a downlink control information (DCI) scheduling the aperiodic CSI-RS, and a threshold value of a time for the UE to switch between receive beams, and determining the QCL relationship comprises determining to use a QCL relationship of a physical downlink control channel (PDCCH) of a control resource set (CORESET) having a lowest identifier (CORESET-ID), when the offset parameter is lower than the threshold value; and processing the aperiodic CSI-RS according to the determined QCL relationship.

2. The method of claim 1, wherein determining the QCL relationship comprises determining to use a QCL relationship of a physical downlink control channel (PDCCH) of a control resource set (CORESET) having a lowest identifier (CORESET-ID), when the offset parameter is not yet determined by the UE.

3. The method of claim 1, wherein determining the QCL relationship comprises determining to use a QCL relationship indicated in a grant of time and frequency resources of another transmission, wherein the granted time and frequency resources include time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined by the UE.

4. The method of claim 1, wherein determining the QCL relationship comprises determining to use a QCL relationship of a unicast physical downlink shared channel (PDSCH) on a set of time and frequency resources including time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined by the UE.

5. A method for wireless communications by a base station (BS), comprising: determining a quasi-co-location (QCL) relationship of an aperiodic channel state information (CSI) reference signal (CSI-RS) to a physical channel, wherein: the determination of the QCL relationship is based on: an offset parameter related to the

aperiodic CSI-RS and a downlink control information (DCI) scheduling the aperiodic CSI-RS, and a threshold value of a time for a user equipment (UE) to switch between receive beams, and determining the QCL relationship comprises determining to use a QCL relationship of a physical downlink control channel (PDCCH) of a control resource set (CORESET) having a lowest identifier (CORESET-ID), when the offset parameter is lower than the threshold value; and transmitting, to the UE, the aperiodic CSI-RS according to the determined QCL relationship.

6. The method of claim 5, wherein determining the QCL relationship comprises determining to use a QCL relationship of a physical downlink control channel (PDCCH) of control resource set (CORESET) having a lowest identifier (CORESET ID), when the offset parameter is not yet determined.

7. The method of claim 5, wherein determining the QCL relationship comprises determining to use a QCL relationship indicated in a grant of time and frequency resources of another transmission, wherein the granted time and frequency resources include time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined.

8. The method of claim 5, wherein determining the QCL relationship comprises determining to use a QCL relationship of a unicast physical downlink shared channel (PDSCH) on a set of time and frequency resources including time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined.

9. An apparatus for wireless communications by a user equipment (UE), comprising: a memory; and at least one processor coupled to the memory, the memory and the at least one processor configured to: determine a quasi-co-location (QCL) relationship of an aperiodic channel state information (CSI) reference signal (CSI-RS) to a physical channel, wherein: the determination of the QCL relationship is based on: an offset parameter related to the aperiodic CSI-RS and a downlink control information (DCI) scheduling the aperiodic CSI-RS, and a threshold value of a time for the UE to switch between receive beams, and the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship of a physical downlink control channel (PDCCH) of a control resource set (CORESET)

having a lowest identifier (CORESET-ID), when the offset parameter is lower than the threshold value; and process the aperiodic CSI-RS according to the determined QCL relationship.

10. The apparatus of claim 9, wherein the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship of a physical downlink control channel (PDCCH) of a control resource set (CORESET) having a lowest identifier (CORESET-ID), when the offset parameter is not yet determined by the UE.

11. The apparatus of claim 9, wherein the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship indicated in a grant of time and frequency resources of another transmission, and wherein the granted time and frequency resources include time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined by the UE.

12. The apparatus of claim 9, wherein the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship of a unicast physical downlink shared channel (PDSCH) on a set of time and frequency resources including time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined by the UE.

13. An apparatus for wireless communications by a base station (BS), comprising: a memory; and at least one processor coupled to the memory, the memory and the at least one processor configured to: determine a quasi-co-location (QCL) relationship of an aperiodic channel state information (CSI) reference signal (CSI-RS) to a physical channel, wherein: the determination of the QCL relationship is based on: an offset parameter related to the aperiodic CSI-RS and a downlink control information (DCI) scheduling the aperiodic CSI-RS, and a threshold value of a time for a user equipment (UE) to switch between receive beams, and the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship of a physical downlink control channel (PDCCH) of a control resource set (CORESET) having a lowest identifier (CORESET-ID), when the offset parameter is

lower than the threshold value; and transmit, to the UE, the aperiodic CSI-RS according to the determined QCL relationship.

14. The apparatus of claim 13, wherein the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship of a physical downlink control channel (PDCCH) of control resource set (CORESET) having a lowest identifier (CORESET ID), when the offset parameter is not yet determined.

15. The apparatus of claim 13, wherein the memory and the at least one processor are further configured to determine the QCL relationship by determining to use a QCL relationship indicated in a grant of time and frequency resources of another transmission, wherein the granted time and frequency resources include time and frequency resources of the aperiodic CSI-RS, when the offset parameter is not yet determined.