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5G NR RRC (Radio Resource Control) Protocol

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The main services and functions of the RRC sub-layer include:

- Broadcast of System Information related to AS and NAS;
- Paging initiated by 5GC or NG-RAN;
- Establishment, maintenance and release of an RRC connection between the UE and NG-RAN including:
- Addition, modification and release of carrier aggregation;
- Addition, modification and release of Dual Connectivity in NR or between E-UTRA and NR.
- Security functions including key management;
- Establishment, configuration, maintenance and release of Signalling Radio Bearers (SRBs) and Data Radio
  Bearers (DRBs);
- Mobility functions including:
- Handover and context transfer;
- UE cell selection and reselection and control of cell selection and reselection;
- Inter-RAT mobility.
- QoS management functions;
- UE measurement reporting and control of the reporting;
- Detection of and recovery from radio link failure;
- NAS message transfer to/from NAS from/to UE.
-

RRC supports the following states which can be characterised as follows:

2. RRC_INACTIVE

3. RRC_CONNECTED

RRC_IDLE:

- PLMN selection;

- Broadcast of system information;

- Cell re-selection mobility;

- Paging for mobile terminated data is initiated by 5GC;

- Paging for mobile terminated data area is managed by 5GC;

- DRX for CN paging configured by NAS.

RRC_INACTIVE:

- PLMN selection;

- Broadcast of system information;

- Cell re-selection mobility;

- Paging is initiated by NG-RAN (RAN paging);

- RAN-based notification area (RNA) is managed by NG- RAN;

- DRX for RAN paging configured by NG-RAN;

- 5GC – NG-RAN connection (both C/U-planes) is established for UE;

- The UE AS context is stored in NG-RAN and the UE;

- NG-RAN knows the RNA which the UE belongs to.

RRC_CONNECTED:

- 5GC – NG-RAN connection (both C/U-planes) is established for UE;

- The UE AS context is stored in NG-RAN and the UE;

- NG-RAN knows the cell which the UE belongs to;

- Transfer of unicast data to/from the UE;

- Network controlled mobility including measurements.

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Reference :

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