

CLAIMS

1. An apparatus comprising means for:
receiving, at a user equipment (UE) from a base station provisioning of a plurality of
5 pre-configured radio resources for data transmission during an inactive state of the
UE,
wherein a pre-configured radio resource is associated with a set of one or more
transmission beams;
acquiring at the UE validity information associated with one or more said pre-
10 configured resources;
using at least the validity information to determine, for use, a valid preconfigured
radio resource.
2. An apparatus as claimed in claim 1, wherein the pre-configured resources are Random
15 Access Channel (RACH) preambles and/or are Physical Uplink Shared Channel (PUSCH)
pre-configured resources associated with PUSCH.
3. An apparatus as claimed in claim 1 or 2, further comprising means for uplink data
transmission during an inactive state using the determined valid pre-configured radio
20 resource.
4. An apparatus as claimed in any preceding claim comprising means for receiving the
validity information from the network, wherein the validity information comprises:
one or more radio quality-based thresholds and/or an indication, directly or indirectly, of one
25 or more valid preconfigured resources.
5. An apparatus as claimed in claim 4, comprising means configured to avoid using a radio
resource associated with a strongest transmission beam and falling-back to a 4-step RACH
based data transmission mode, if the radio resource is an invalid radio resource.
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6. An apparatus as claimed in any preceding claim wherein the one or more transmission
beams associated with the one or more said pre-configured radio resources are downlink
transmission beams of a base station and wherein the association is direct or indirect.

7. An apparatus as claimed in claim 6 comprising means for estimating a strength of one or more of the transmission beams, and using the estimated strength to determine a valid preconfigured radio resource.

- 5 8. An apparatus as claimed in any preceding claim, comprising means for selecting a valid combination from possible combinations of:
- (i) one of a plurality of modes for uplink data transmission during an inactive state of the UE; and
 - (ii) at least a pre-configured radio resource that is associated with a set of one or more
- 10 beams at a base station.

9. An apparatus as claimed in any preceding claim, comprising means for switching to a mode of data transmission, wherein at least a set-up procedure for the mode of data transmission comprises configuration of radio resources for an aligned beam.

- 15 10. An apparatus as claimed in any preceding claim, comprising means configured to:
- in dependence upon a current beam not being a strongest beam, using the validity information to select, for use, a combination of a configured grant mode for uplink data transmission and the strongest beam;
 - 20 in dependence upon there being no beam sufficient for data transmission over preconfigured resource, using the validity information to select, for use, one or more combinations of a random access mode for uplink data transmission and a strongest beam.

11. An apparatus as claimed in any preceding claim, comprising means for:
- 25 using the validity information to select, for use, a valid combination from possible combinations of: one of a plurality of modes for uplink data transmission; and an estimated strongest available beam for reception, at a base station, of uplink data transmission.

12. A method comprising:
- 30 receiving, at a user equipment (UE) from a base station provisioning of a plurality of pre-configured radio resources for data transmission during an inactive state of the UE, wherein a pre-configured radio resource is associated with a set of transmission beams
- acquiring at the UE validity information associated with one or more said pre-
- 35 configured resources;

using at least the validity information to determine, for use, a valid preconfigured radio resource.

13. A computer program, that when run by one or more processors, enable a process
5 comprising:
receiving, at a user equipment (UE) from a base station provisioning of a plurality of
pre-configured radio resources for data transmission during an inactive state of the UE
wherein a pre-configured radio resource is associated with a set of transmission
beams
10 acquiring at the UE validity information associated with one or more said pre-
configured resources;
using at least the validity information to determine, for use, a valid preconfigured
radio resource.

14. A base station comprising:
means for transmitting, to a user equipment (UE), validity information for constraining beam-
received uplink data transmission during an inactive state of the UE to a valid combination
from possible combinations of:
15 (i) one of a plurality of modes for uplink data transmission;
20 (ii) a sub-set of beams for reception of uplink data transmission.

15. A system comprising
an apparatus as claimed in any of claims 1 to 11; and a base station as claimed in claim 14.