the exponential growth in mobile data traffic in 5G and to enhance the coverage, the user equipment (UE) (i.e., communication apparatus) is expected to access networks composed of M-TRPs (e.g., macro-cells, small cells, pico-cells, femto-cells, remote radio heads, relay nodes).

[0004] During operation, the UE can access signals from M-TRPs. The UE determines a signal from one of the M-TRPs is lost through a beam failure detection (BFD) procedure. The UE then attempts to recover communication—a process which includes new beam identification (NBI), also known as candidate new beam detection (CBD). While both BFD and CBD are critical UE processes in order to maintain ultra-reliability and low latency in URLLC communications, recovery after beam failure including BFD and CBD processes requires measurement effort and power consumption.

[0005] Thus, there is a need for communication apparatuses and systems which conserve power without losing reliability in URLLC communications during recovery after beam failure situations. Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background.

SUMMARY

[0006] A non-limiting example facilitates providing multiple structures to enable flexibility of a multiple transmission and reception point ultra-reliable low-latency communication (M-TRP URLLC) operation and reduce measurement effort and power consumption from a transceiving apparatus such as a UE.

[0007] In one aspect, the techniques disclosed here feature a transceiving apparatus including a transceiver and circuitry. The transceiver, in operation, receives a first set of reference signal configuration relating to a first transmission and reception point (TRP) and a second set of reference signal configuration relating to a second TRP. The circuitry, in operation, performs at least one of beam failure detection (BFD) based on the first set of reference signal configuration and the second set of reference signal configuration.

[0008] It should be noted that general or specific examples may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[0009] Additional benefits and advantages of examples in the disclosure will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various embodiments and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

BRIEF DESCRIPTION OF THE FIGURES

[0010] In the following, exemplary embodiments are described in more detail with reference to the attached figures and drawings.

[0011] **FIG. 1** shows an exemplary architecture for a 3GPP NR system;

[0012] **FIG. 2** is a schematic drawing which shows functional split between NG-RAN and 5GC;