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(54) Title of the Invention: **Method and apparatus for modified reference signal transmission for cell discovery**
 Abstract Title: **Method and apparatus for modified reference signal transmission for cell discovery**

(57) The proposed approach contemplates systems and methods configured to utilize a modified reference signal to facilitate efficient discovery of as many cells as possible within one channel state information reference signal (CSI-RS) sub-frame while maintaining certain detection and measurement performance. The proposed approach is configured to unambiguously discover at least the number of anticipated small cells within one cluster and to further identify all small cells within the coverage area of a base station/macro cell. In some embodiments, frequency multiplexing is utilized to allow different cells to transmit their discovery signals on different physical resource blocks (PRBs) rather than one cell using every PRB over the entire system bandwidth.

