

# Contention Based Fast Beam Switching Scheme in Millimeter-wave Cellular Systems

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**Abstract**— Millimeter wave (mmWave) cellular system has recently been introduced as an attractive approach for 5G mobile broadband communications. In the mmWave beamforming cellular systems, the user equipment (UE) can experience frequent service disruptions due to frequent switching among a plurality of beams if the UE follows the network controlled LTE handover procedures. In this paper, we show how the mmWave beamforming cellular system can operate and which kind of new handovers UEs can experience. And we propose UE controlled beam switching mechanism based on contention based uplink channels. In this mechanism, UEs switch the serving beam to the target beam without random access delay using the pre-acquired contention based channels.

**Keyword**— Beam switching, millimeter wave communication, millimeter wave cellular



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