

ABSTRACT**MULTI-CARRIER OPERATION IN DATA TRANSMISSION SYSTEMS**

Multi-carrier point-to-multi-point CDMA system implementation reduces hardware changes in legacy single-carrier systems. The number of common downlink channels, such as timing/synchronization and paging channels, is reduced by designating an anchor carrier for transmitting these channels. Procedures for adding carriers and carrier acquisition are simplified through common carrier timing, signaling by the network to the user equipment (UE) of timing offsets and scrambling code selection, and other measures. Channel reuse is employed to minimize changes in asymmetric systems with different numbers of uplink and downlink carriers. Channel Quality Indicator (CQI) field is divided into multiple subfields to enable transmission of multiple CQIs and ACK/NACK indicators on one uplink carrier. Joint and separate scheduling schemes are shown for concurrent scheduling of a data stream transmission to a UE via multiple downlink carriers.

Figure 3A