

ABSTRACT**SINGLE STREAM PHASE TRACKING DURING CHANNEL ESTIMATION IN
A VERY HIGH THROUGHPUT WIRELESS MIMO COMMUNICATION
SYSTEM**

In a multiple-input, multiple-output system, the wireless node's receive chain demodulation function is enhanced to include phase tracking. Instead of performing phase tracking during the data symbols which is cumbersome for very high throughput wireless networks, the VHT Long Training Fields (LTFs) embedded in the preamble of a frame are used for phase tracking. Single stream pilot tones are added during the transmission of VHT- LTFs. This is exploited on the receive side to be able to estimate the channel using the pilot tones in the first set of the Long Training Fields. Second set of the Long Training Fields are then used to estimate the phase of the pilot tones using the estimated channel. The phase estimation so obtained is continuously applied to other received data tones throughout the VHT-LTFs of the data symbols. The phase errors due to PLL mismatches and phase noise are reduced at reception, leading to better signal to noise ratio for different levels of parts per million drift and offset in frequency. Further, MIMO channel estimation is more accurate, which improves the overall wireless network when this accurate MIMO channel estimation data participates in calibration and handshake between wireless nodes.

Figure 5