

## ABSTRACT

High speed radio data communication systems are needed to support varies of data and voice services. At single carrier modulation technique, higher data rate means shorter symbol period and if symbol period is smaller than channel delay spread it will result intersymbol interference (ISI), in frequency domain this is correspond with frequency selective fading effect.

Transmitting signal in parallel onto a number of subcarriers will result on longer symbol period and using this technique with interval guard time will eliminate ISI effect. Subcarrier with smaller bandwidth compare with coherent bandwidth and with use adaptive subcarrier hopping system will obviate frequency selective fading effect. Allowing hopping with different hopping patterns adaptively adjusted to the channel fading characteristics for each user actually transforms the MC DS CDMA system in a adaptive subcarrier hopping MC DS CDMA. Hopping scheme that was used is determined with efficient algorithm and independent by every user. From simulation, adaptive subcarrier hopping MC DS CDMA with bit rate 3,6 Mbps can achieve BER target  $10^{-3}$  at SNR less than 20 dB, for velocity 0 km/h. As a system without channel coding, this result is good enough.

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