

MODULATING SIGNAL DESCRIPTION

Binary phase-shift keying (BPSK): BPSK is a digital modulation scheme that uses two points on a constellation diagram. With two phases, BPSK can encode one bit per symbol change.

Quadrature phase-shift keying (QPSK): QPSK is a digital modulation scheme that uses four points on the constellation diagram. With four phases, QPSK can encode two bits per symbol. QPSK can be used either to double the data rate compared with a BPSK system while maintaining the same bandwidth of the signal, or to maintain the data-rate of BPSK but halving the bandwidth needed. In this latter case, the BER of QPSK is the same as the BER of BPSK. We utilize BPSK, QPSK and 8PSK a majority of the time.

Amplitude and phase-shift keying or asymmetric phase-shift keying (APSK): is a digital modulation scheme that conveys data by changing, or modulating, both the amplitude and the phase of a reference signal (the carrier wave). In other words, it combines both amplitude-shift keying (ASK) and phase-shift keying (PSK) to increase the symbol-set. It can be considered as a superclass of quadrature amplitude modulation (QAM). The advantage over conventional QAM, for example 16-QAM, is lower number of possible amplitude levels.

Quadrature Amplitude Modulation (QAM): It is digital modulation technique that is a combination of both Amplitude and phase modulation techniques. QAM takes benefit from the concept that two signal frequencies; one shifted by 90 degree with respect to the other can be transmitted on the same carrier. Each carrier is ASK/PSK modulated. Hence data symbols have different amplitudes and phases.

Adaptive coding and modulation (ACM): the modcod for each terminal is adaptively tuned over time to meet the current requirements of the terminal. As channel conditions change, such as the fade varying during a rain and non-rainy period, the MODCOD adjusts accordingly to become just adequate to compensate.