RFID Modulation and Encoding

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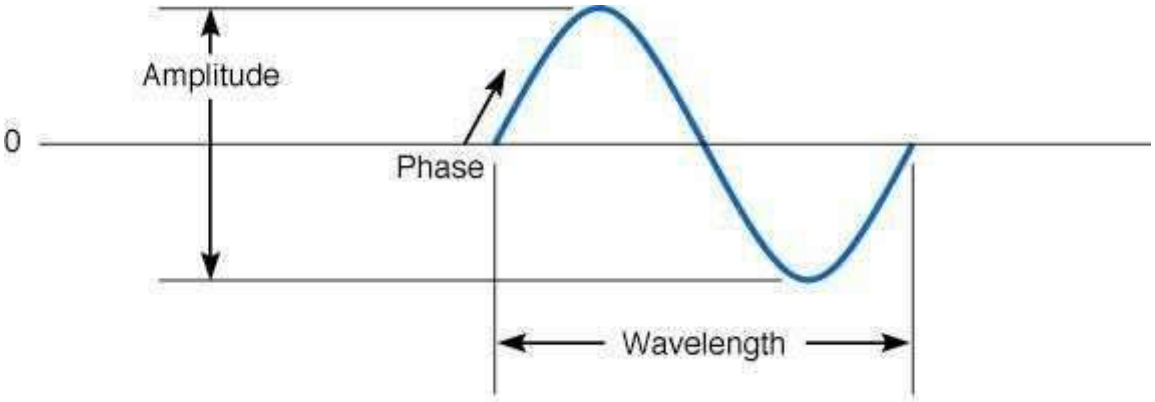
Modulation

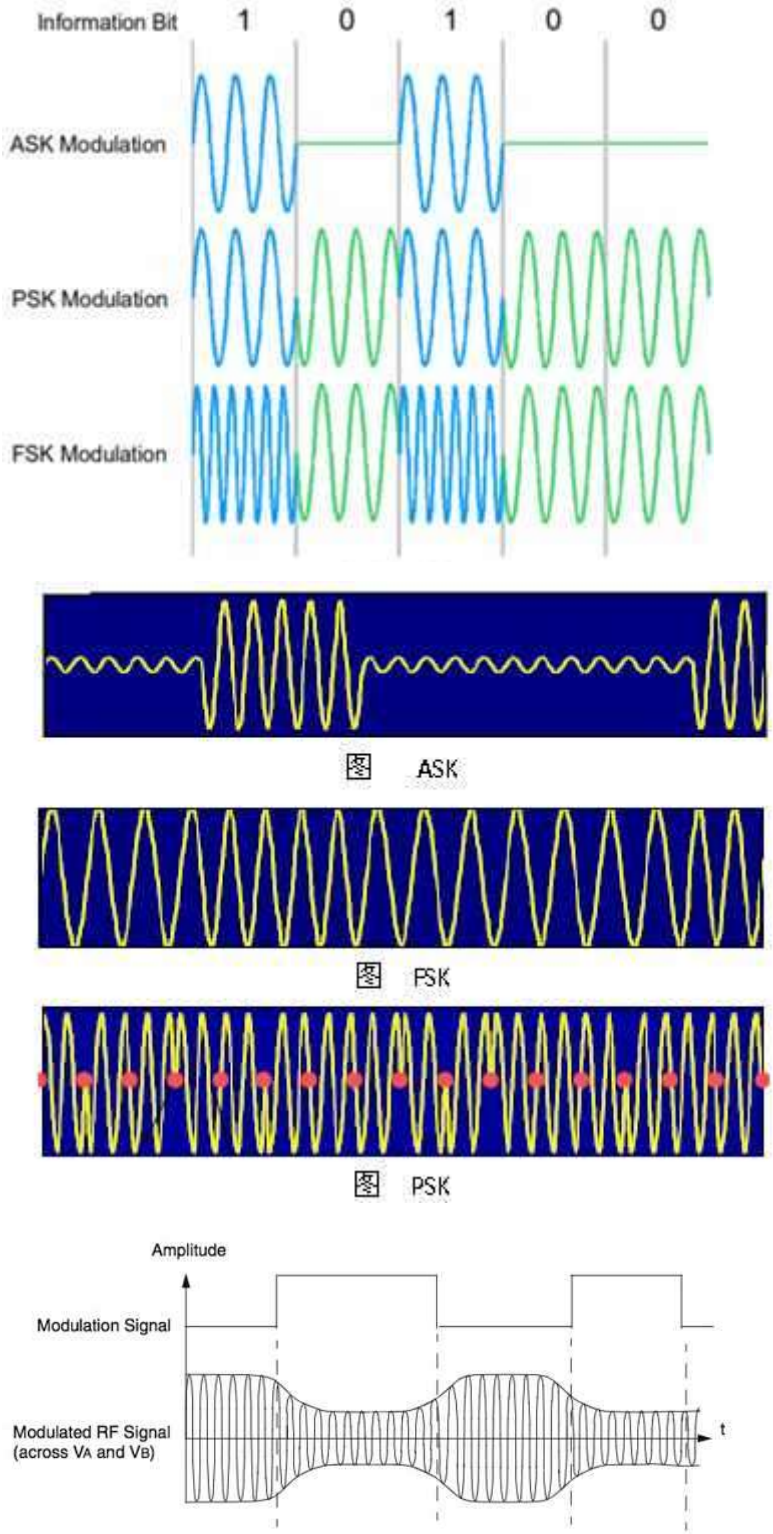


Sound is converted into electricity by a telephone and then transmitted as an analog signal.

These waves have 3 fundamental characteristics:

1. Amplitude, meaning the height (intensity) of the wave
2. Frequency, which is the number of waves that pass in a single second and is measured in Hertz (cycles/second) (wavel ength, the length of the wave from crest to crest, is related to frequency.).
3. Phase is a third characteristic that describes the point in the wave’ s cycle at which a wave begins and is measured in degrees. (For example, changing a wave’ s cycle from crest to trough corresponds to a 180 degree phase shift).

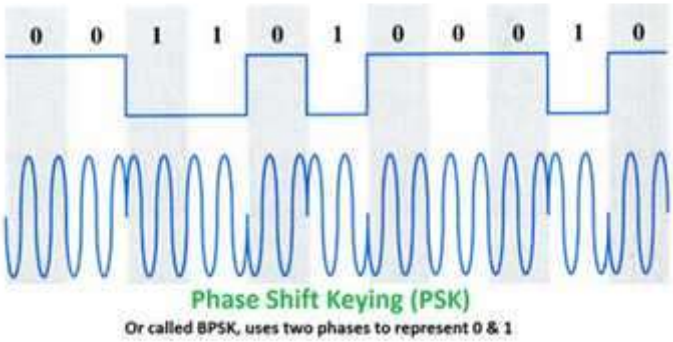
Most RFID tags were using ASK (Amplitude Shift Keying), FSK (Frequency Shift Keying) and PSK (Phas e Shift Keying) for its analog modulation.



Picture 3. RFID modulation.

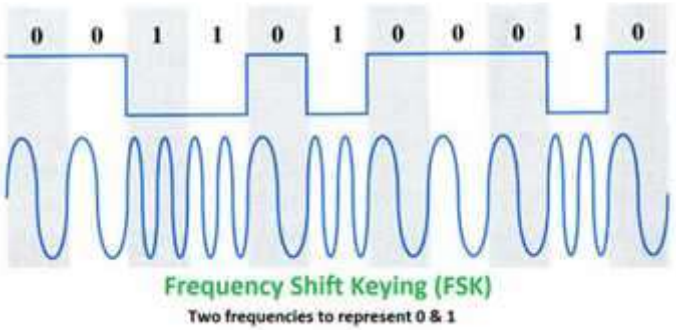
PSK (phase-shift keying):

a finite number of phases are used.



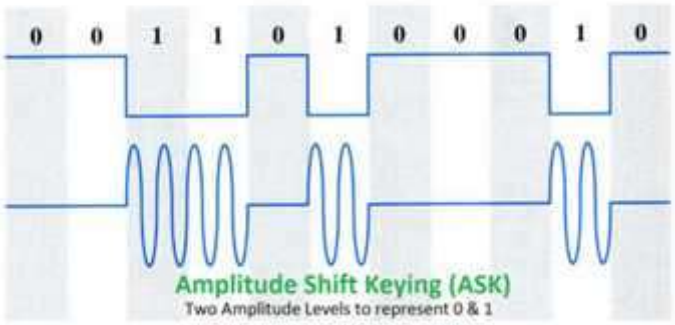
FSK (frequency-shift keying):

a finite number of frequencies are used.



ASK (amplitude-shift keying):

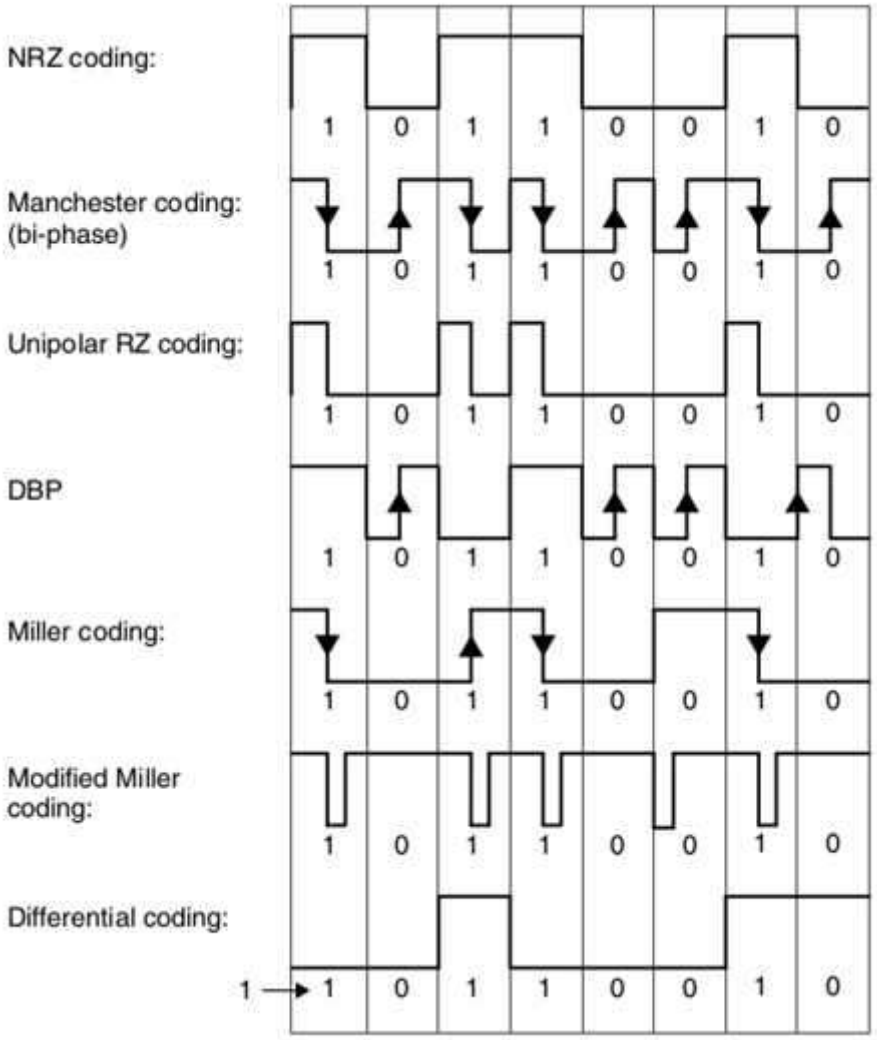
a finite number of amplitudes are used.



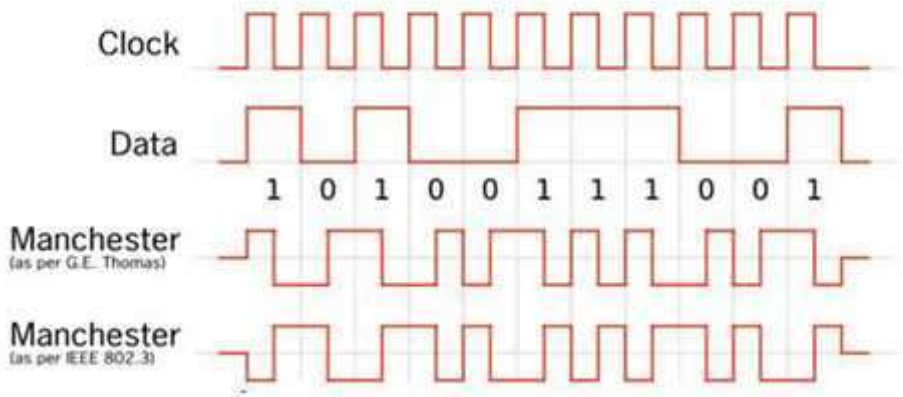
For encoding, most of them are using NRZ, Manchester,

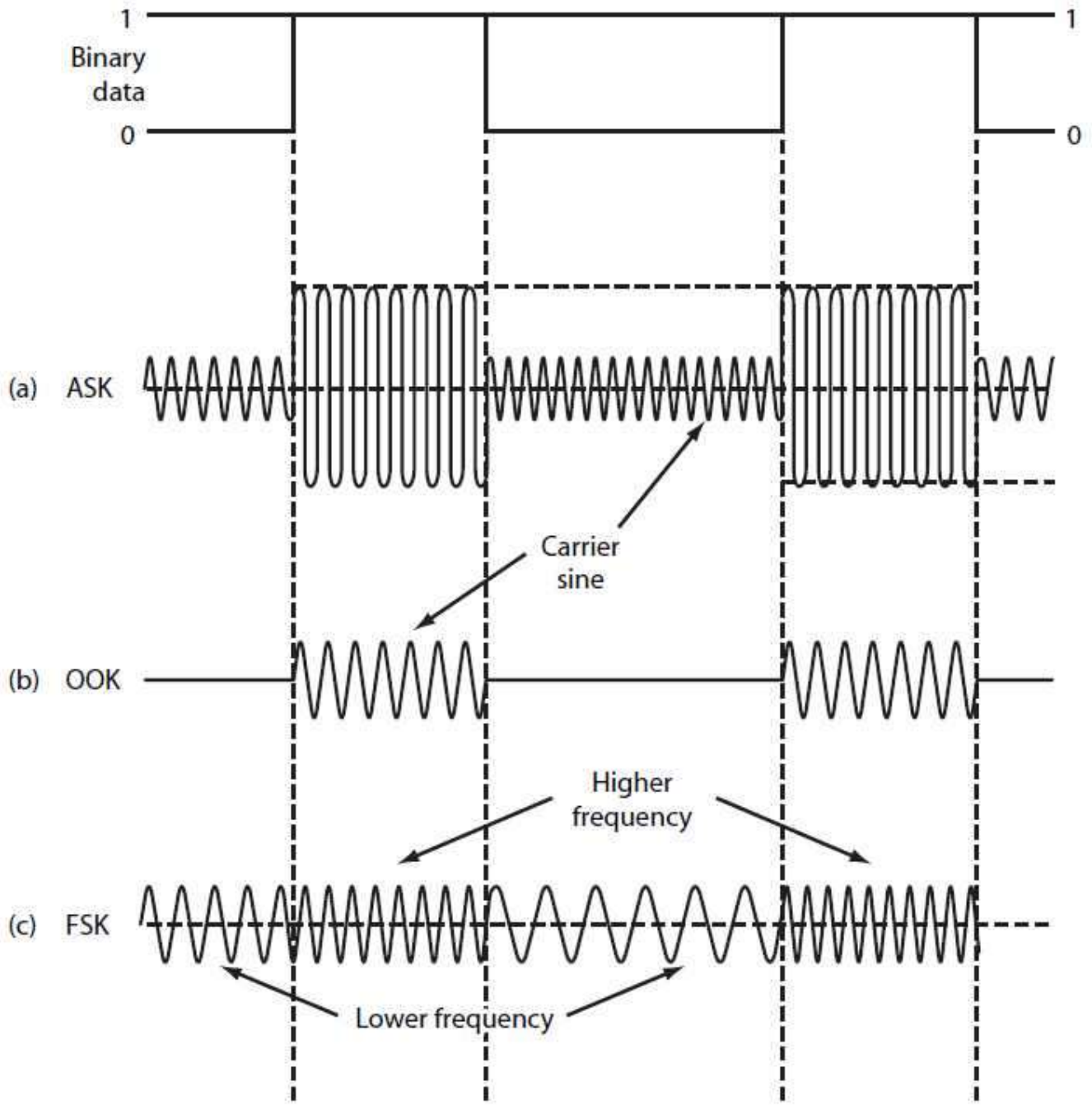
Unipolar RZ, DBP (Differential Bi-Phase),

Miller and Differential Coding on PP Coding.



Phase Encoding on top of square wave carrier (clock)





1. Three basic digital modulation formats are still very popular with low-data-rate short-range wireless applications: amplitude shift keying (a), on-off keying (b), and frequency shift keying (c). These waveforms are coherent as the binary state change occurs at carrier zero crossing points.

评论（0）