

LAB 10

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Pre-Lab Questions

1. Do you think BPSK is an analog signal, comment?

A: No, BPSK is not an analog signal. It is used to convert binary to analog.

2. Discuss your methods of measuring the bandwidth of the ASK signal.

A: The ASK signal is passed through a low pass filter, and the output is measured through a scope. The bandwidth of the scope is reduced until the envelope can no longer be identified. This gives an idea of the upper-frequency limit. Similarly, the lower limit is also calculated.

3. Mention the applications for binary digital carrier modulation schemes.

A: Applications are :

- i. Telemetry
- ii. Low frequency Radio communication systems
- iii. RFID
- iv. WLAN
- v. Pilot carrier
- vi. Satellite communication
- vii. Bluetooth etc.

Post Lab Questions

1. Why there is a bandwidth modification in BASK?

A: The bandwidth modification in BASK occurs due to the modulation, filtration process as well as the medium noise.

2. What is meant by rounding off and band-limiting in the ASK transmitter?

A: There are sharp discontinuities at the transition points. These result in the signal having an unnecessarily wide bandwidth. Band limiting is generally introduced before transmission, in which case these discontinuities would be rounded off. The band limiting may be applied to the digital message, or the modulated signal itself.

3. Suggest an advantage of making the data rate a sub-multiple of the carrier rate.

A: If the bit rate is a sub-multiple of the carrier frequency then bit clock regeneration is simplified.

4. What are some of the factors which might determine the choice of either a synchronous or asynchronous FSK demodulator?

A:

- i. Bit clock rate
- ii. Space frequency
- iii. Envelope detector LPF characteristics

5. What advantage is there in making the frequencies of the two tones of an FSK Signal, and the bit rate, sub-multiples of some reference frequency?

A: The bit clock regeneration process is simplified

6. What is the purpose of the low pass filter in the BPSK demodulator model? What determines its bandwidth?

A: The lowpass filter is included as a band limiter if required.