SFWR ENG 4J03

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*Math objects made using* [*MathType*](http://www.dessci.com/en/products/mathtype/)*.*

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# Frequency Modulation

**Modulated Frequency** [fm]:

**Carrier Frequency** [fc]:

**Oscillator**: device that

Power

**Bandwidth (BW)**: 2∙fm

**SideBand (SB)**:   
  
**Suppressed Carrier (SC)**:   
  
**Double SB-SC (DSB-SC)**: don't transmit carrier signal, so less power, but complicated filter

**Suppressed SB-SC (SSB-SC)**: transmit only one sideband frequency   
  
**Lower SB (LSB)**: (fc – fm)  
  
**Upper SB (USB)**: (fc + fm)

**Harmonics**: when waves build up…

## Generating SSB-SC

1. Frequency discrimination method
2. Phase discrimination method

### Frequency Discrimination Method