Waveguide-based optical frequency discriminator

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TTK3-04
In communication, the message signal is translated to a certain frequency, which is within one certain channel transfer response, in order to prevent the message signal transmitted in other channels and cause interference with other signals. This process is known as modulation. In our project, we will focus on the two modulation methods Amplitude Modulation (AM) and Phase Modulation (PM).

**Objective**

- Design the layout of Frequency Discriminator
- Compare the performance of AM and PM
- Investigate the dynamic range of PM
• From this graph, the efficiency of AM is 6.69dB better than PM
• Be careful, the input power is different for AM and PM. Optical power of AM is 2dB larger than that of PM!!
• When optical power increases 1dB, electrical power increases 2dB.
• In fact, the efficiency of AM is 2.69dB better than PM!!

• Noise Floor = 177.7dBm
• Dynamic Range = 106.27dB