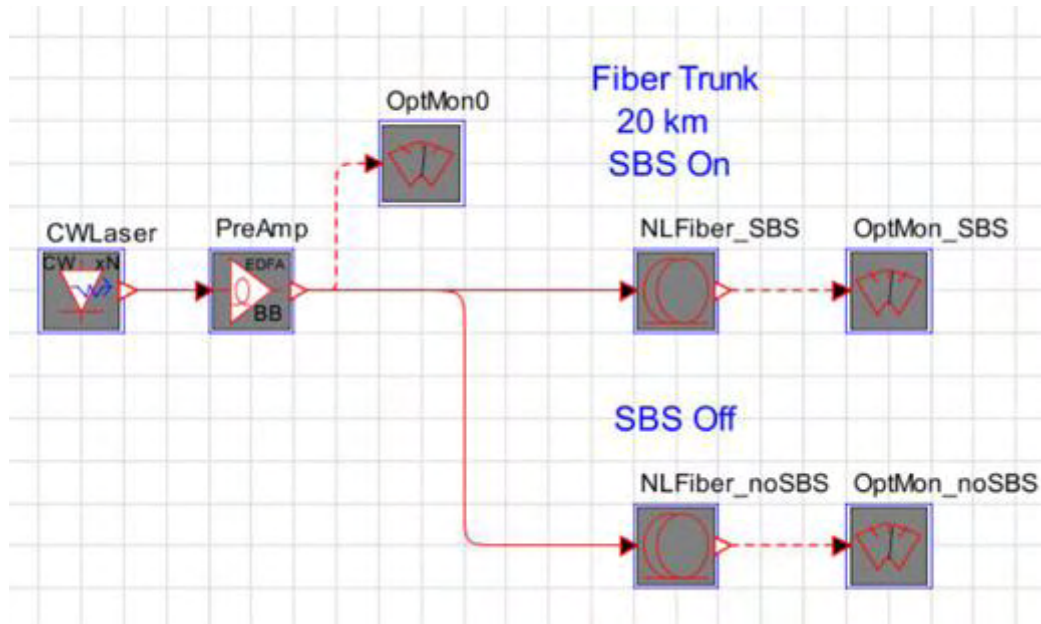


Effective Loss Due to Stimulated Brillouin Scattering

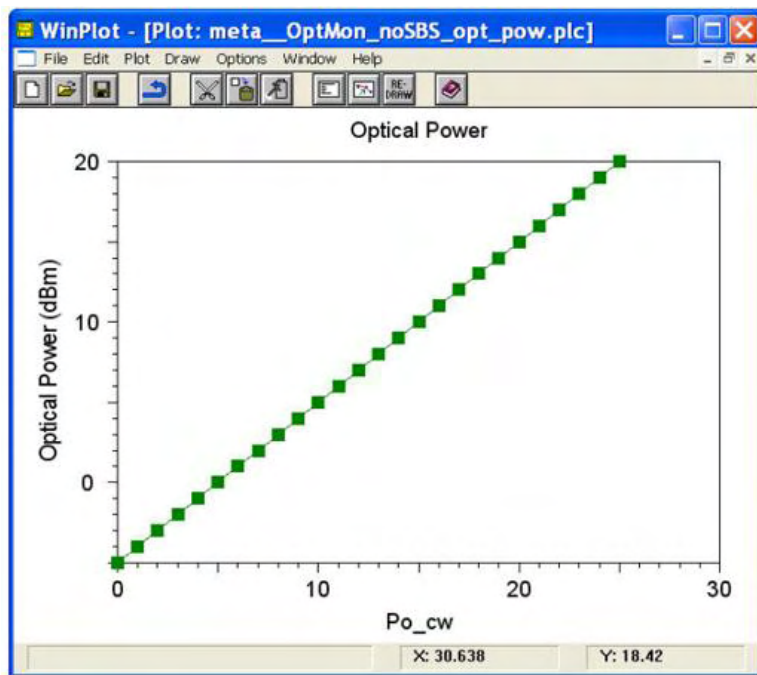
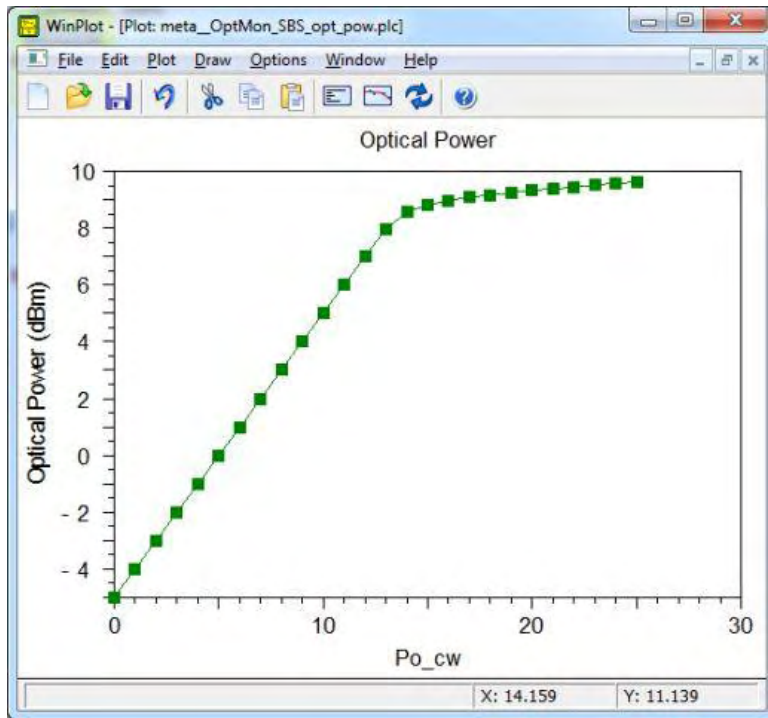
Tool Used: OptSim

This example demonstrates the effect of stimulated Brillouin scattering (SBS) on a fiber's transmission performance, namely signal loss. The launch power of a fiber's input signal is increased until SBS becomes important and begins depleting the input signal. Topology layout is as shown below:



We launch an input signal into two versions of an SMF-28 fiber. In the top branch of the topology, SBS is included in the model. In the bottom branch, it is not. All other fiber parameters are identical, including the length of 20 km. This setup allows us to determine at what fiber launch power SBS begins to have an effect.

The fiber launch power is varied from 0 to 25 dBm, and when the simulation is over, we observe the output power of each fiber as a function of launch power. These two plots are shown below:



By comparing the results, we see that at a launch power of approximately 14 dBm, the output of the fiber begins to be depleted relative to that of the non-SBS fiber. Beyond 14 dBm, the output is clearly reduced by the SBS effect.