

SETI Link Budget Calculations
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In trying to capture messages from Extra Terrestrial Intelligence sources, we need to take into account signal strengths from possible ETI sources. Electromagnetic signals suffer signal reduction when passing through the interstellar medium, their strength being affected by the transmitter power, transmitting and receiving antenna gains, propagation, polarization, Faraday rotation and scattering losses, all relative to frequency, system temperature and bandwidth. I will present formulae which can be used to calculate signal strengths for typical small dishes, frequencies and overall system performance. For example, a signal coming from a nearby source, say α Centauri, sent from an Arecibo sized dish, using 1 million watts at a frequency of 1.4GHz, received with a 4 meter dish that has a 50K system temperature and very narrow bandwidth, will have a strength of -16dB which means advanced digital signal processing can decode it easily.