DUNE Cryogenic Optical Links

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Introduction

Tx Channels:

Two SMF pigtailed 1310 nm FP TOSAs have been tested (results below).

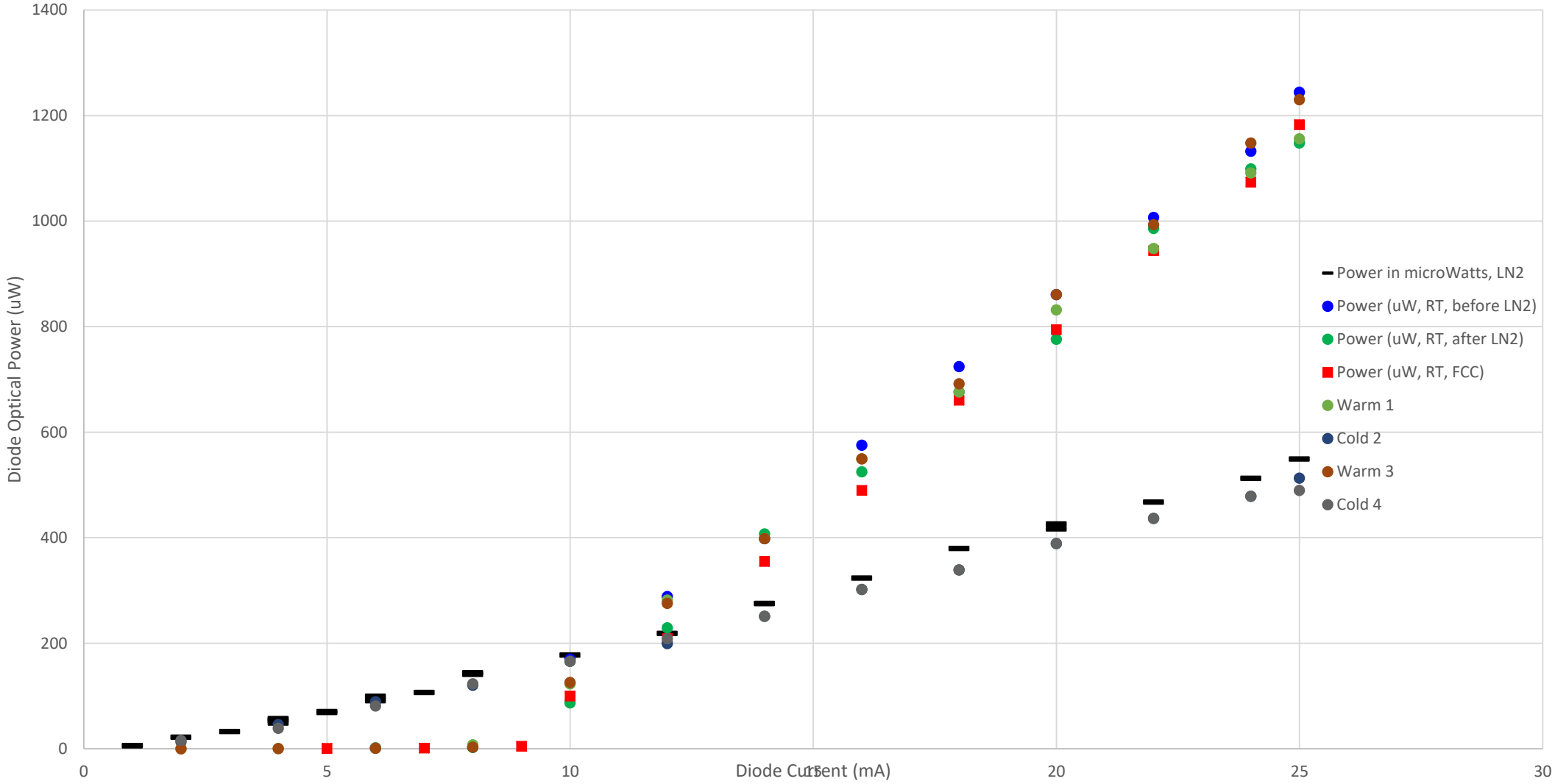
Other:

Greg Deuerling has finished the first test PCB for the ADN2526 laser driver. Boards have been ordered and will be populated next week. We will perform electrical tests (RT and LN2)

Tests of temperature effects of (CW) LC-LC coupling quality have been performed (results below).

SMU will present test of a ROSA in LN2

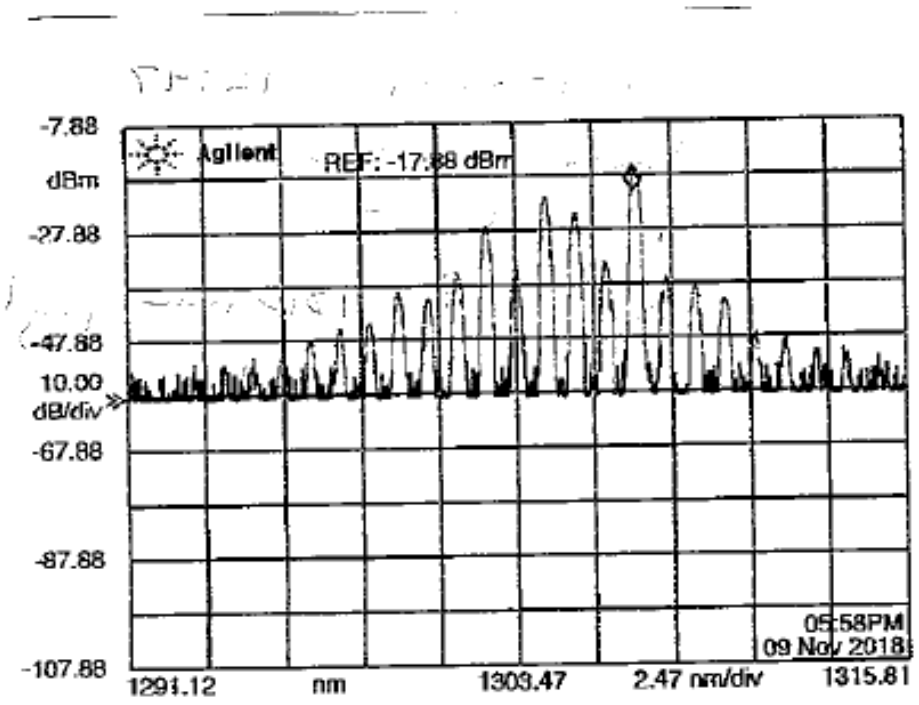
Newport 1310 nm Fabry-Perot Laser Diode (pigtailed)
Room Temperature (RT, warm)/77 K (LN2, cold)



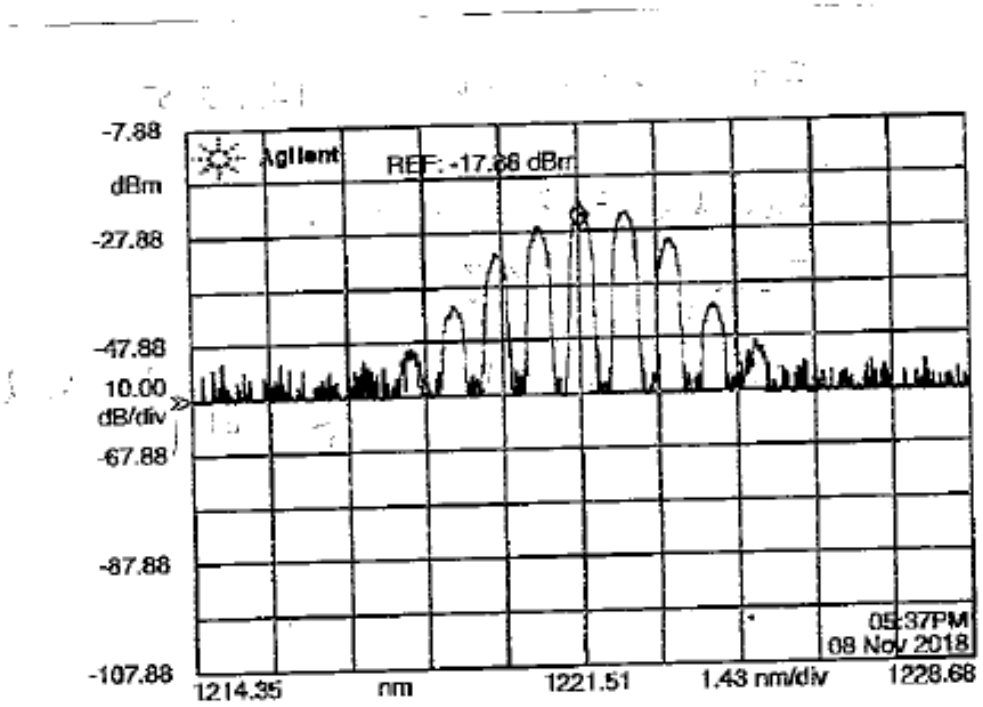
Ith ~= 10 mA

Slope Efficiency ~= 72 microwatts/milliamp

Newport 1310 nm Fabry-Perot Laser Diode (pigtailed)
Room Temperature (RT, warm)/77 K (LN2, cold)

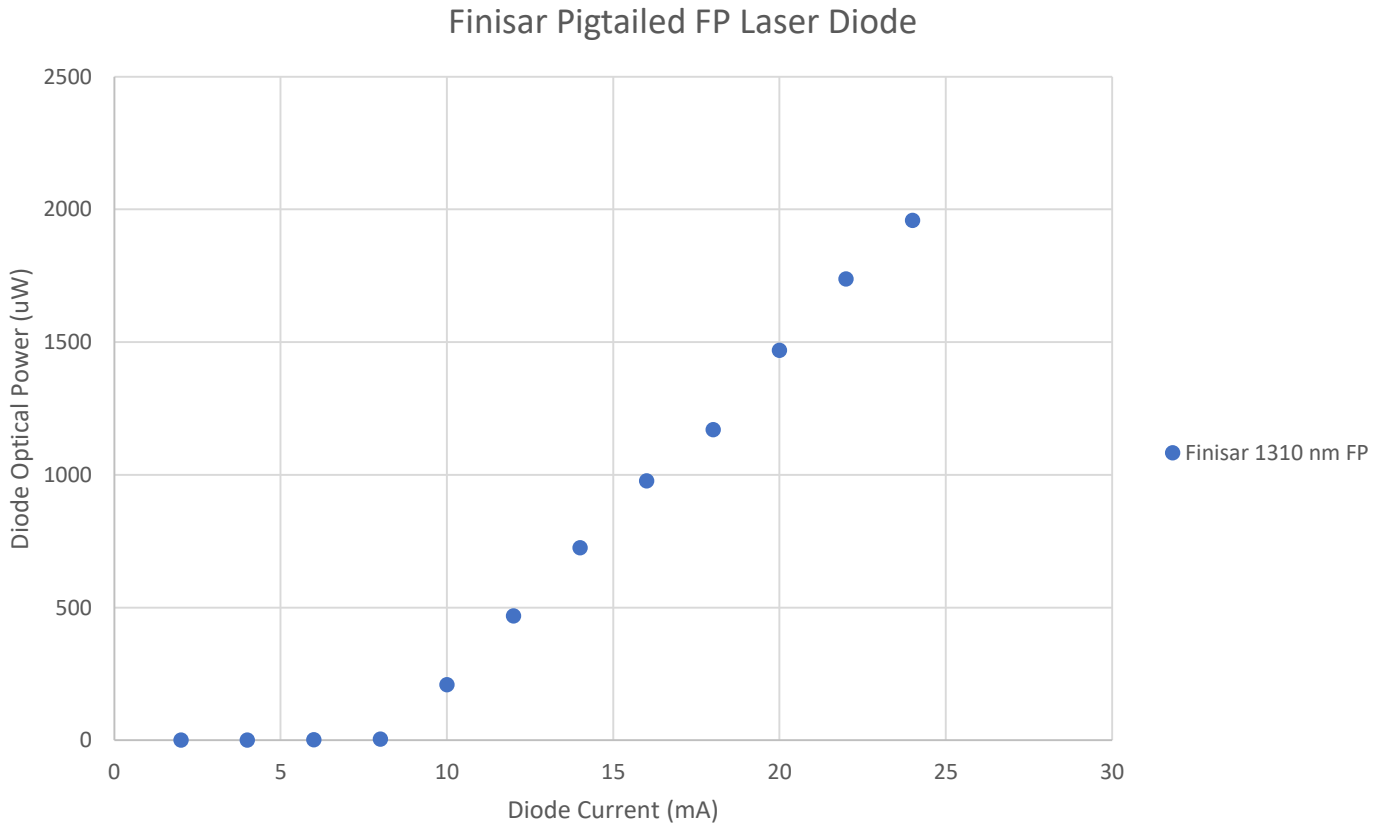


RT



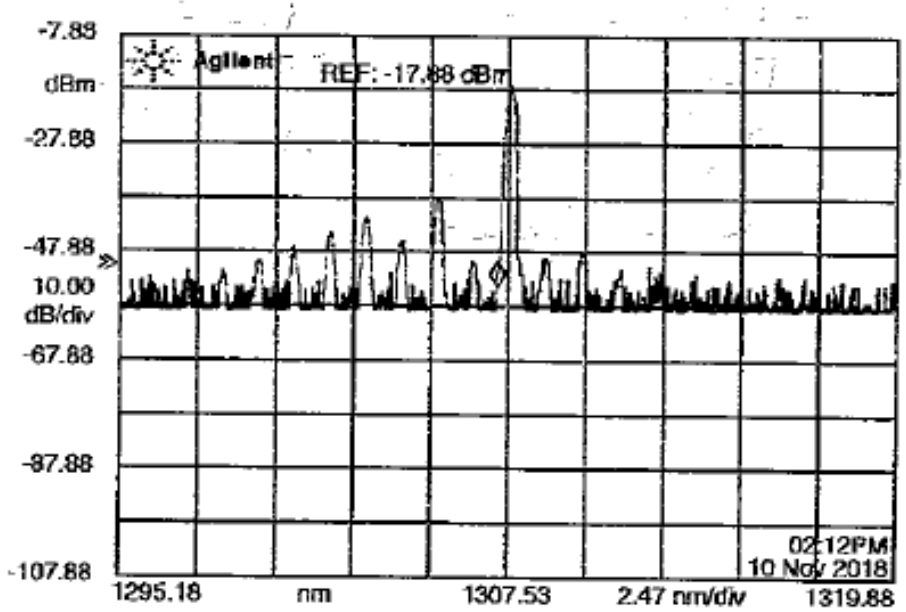
77 K

Finisar 1310 nm Fabry-Perot Laser Diode (pigtailed)
Room Temperature (RT, warm)/77 K (LN2, cold)v

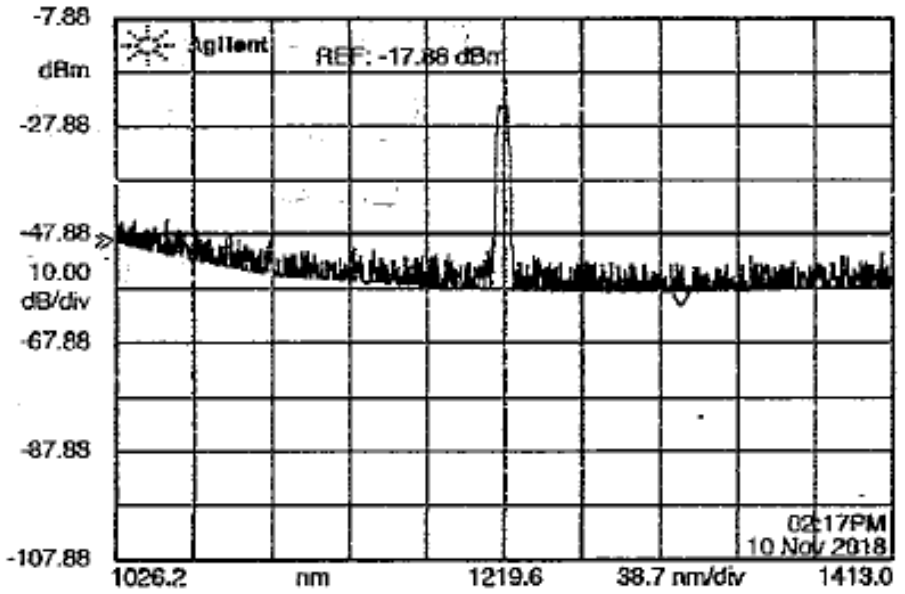


Diode stops lasing when immersed in LN2

Finisar 1310 nm Fabry-Perot Laser Diode (pigtailed)
Room Temperature (RT, warm)/77 K (LN2, cold)



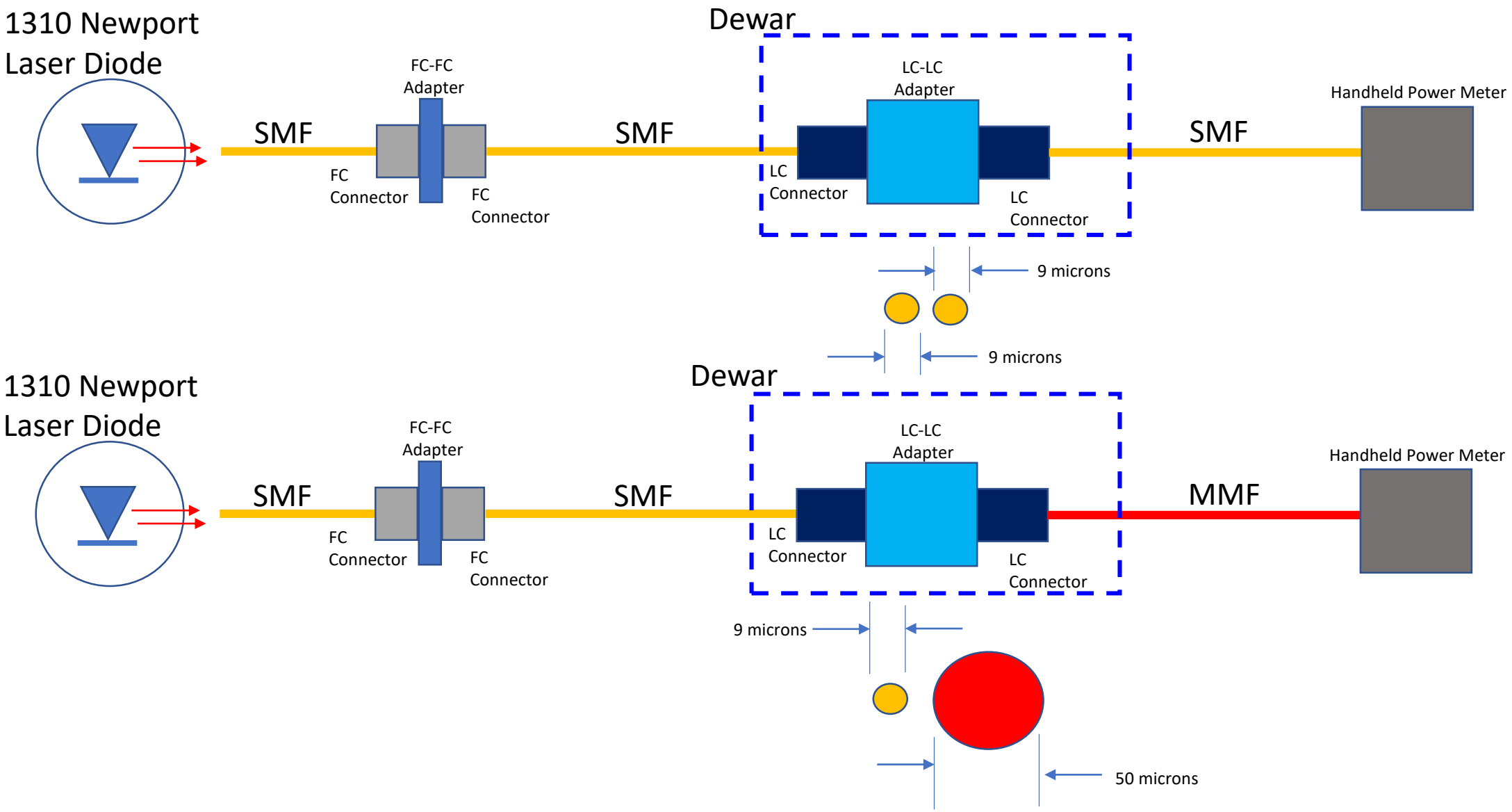
RT



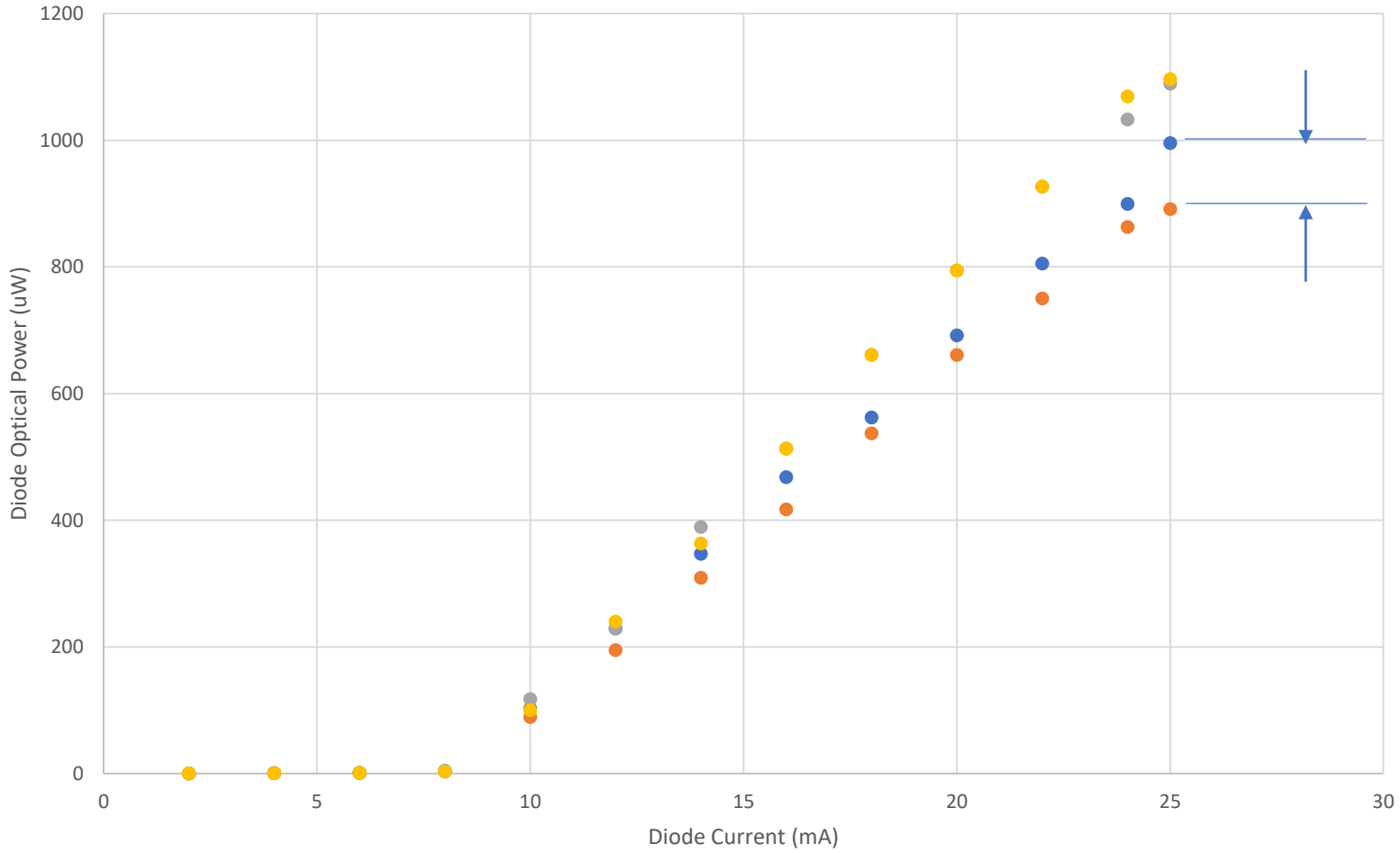
77 K

Lasing not stable at 77 K

LC-LC Coupling Test Configurations



LC-LC Coupling
Newport 1310 nm Fabry-Perot Laser Diode (pigtailed)
Room Temperature (RT, warm)/77 K (LN2, cold)



LN2 Optical Coupling
Power Penalty (max)