

# Spectral linewidth measurement for single wavelength active MMI LD

Takaaki Kizu, and Kiichi Hamamoto

Recent rapidly growing data traffic requires light source of having higher power with low cost. Single wavelength active multi mode interferometer laser (MMI LD) is attractive for the high output power without grating that leads to low cost<sup>1-3</sup>. So far, we have reported maximum power of 8 mW, and single wavelength emission with side-mode suppression ratio (SMSR) of 31 dB using asymmetric active MMI LD at room temperature<sup>1</sup>. However, to meet the required performance to realize the next generation of communication networks (100Gbit Ethernet<sup>2-3</sup>), it is necessary to achieve less than 20 MHz of spectral line width. We measured spectral line width by delay self homodyne measurement<sup>4</sup>. Figure 1 shows Setup for line width measurement, and figure 2 shows experimental result. Figure 3(a) shows experimental landscape, and figure 3(b) shows picture of active MMI LD.

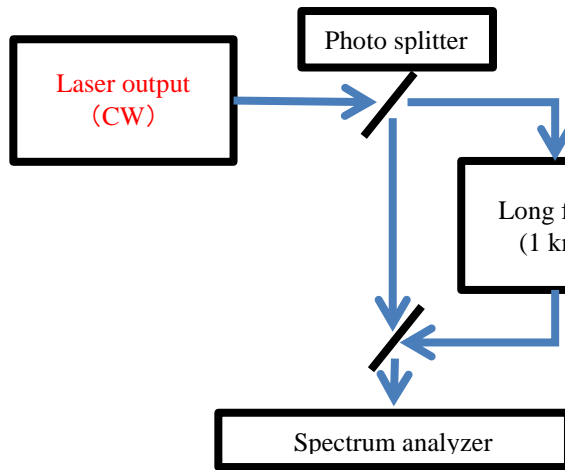


Fig. 1 Setup for delay self-homodyne measurement

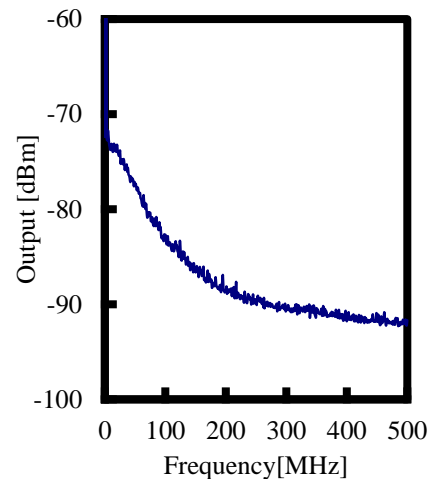


Fig. 2 Experimental result of measurement

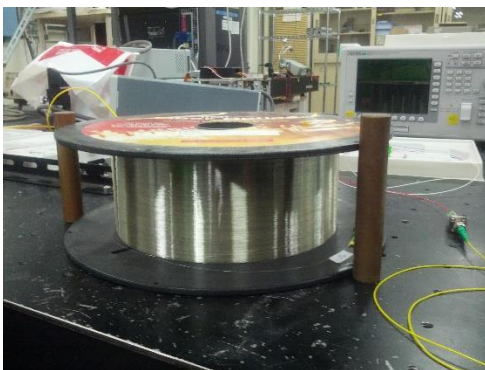


Fig. 3 Experimental landscape

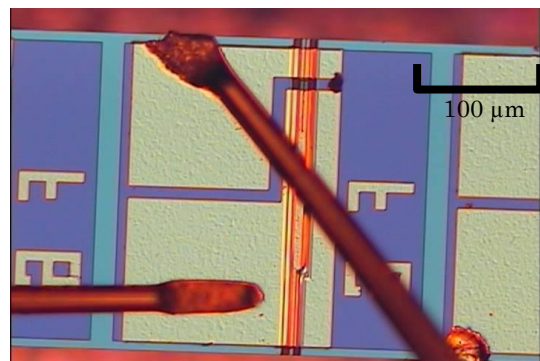


Fig. 4 Asymmetric active MMI LD

## References

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