

Mode Converter by Using MMI for Multi-Mode Transmission

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Under the background of the information traffic increment recently, as a means of increasing the transmission capacity in the future, the multi-mode transmission technology has been attracting attention. Our research is about the basis of the mode converter structure which is one of the key devices for the multi-mode transmission system. In this research, we have investigated the design factors of the mode converter structure based on the multimode interference waveguide, and realized a low conversion loss which is also independent to wavelength and polarization in the wavelength bandwidth area which is below 0.5 dB excess loss for full C-Band theoretically when convert the fundamental mode to the first-order mode

Figure 1 shows the schematic of the MMI multi-mode converter and its layer structure. When 0th mode is inserted from the left access waveguide, 1st mode will be got at the right output waveguide. Figure 2 shows the wavelength and polarization dependency of MMI multi-mode converter. 0.5 dB down bandwidth is the bandwidth where both TE and TM modes transmission had dropped for 0.5dB.

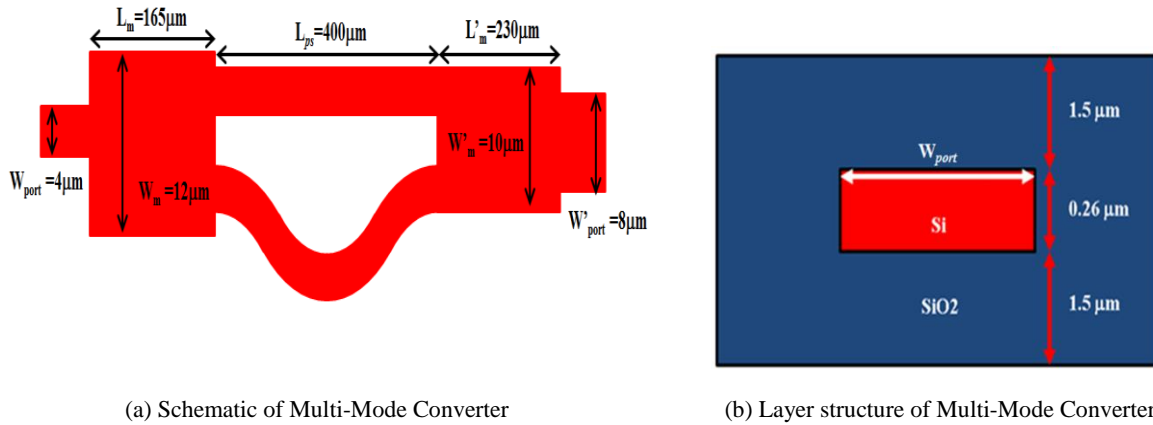


Fig.1. MMI structure and layer structure of MMI multi-mode Converter

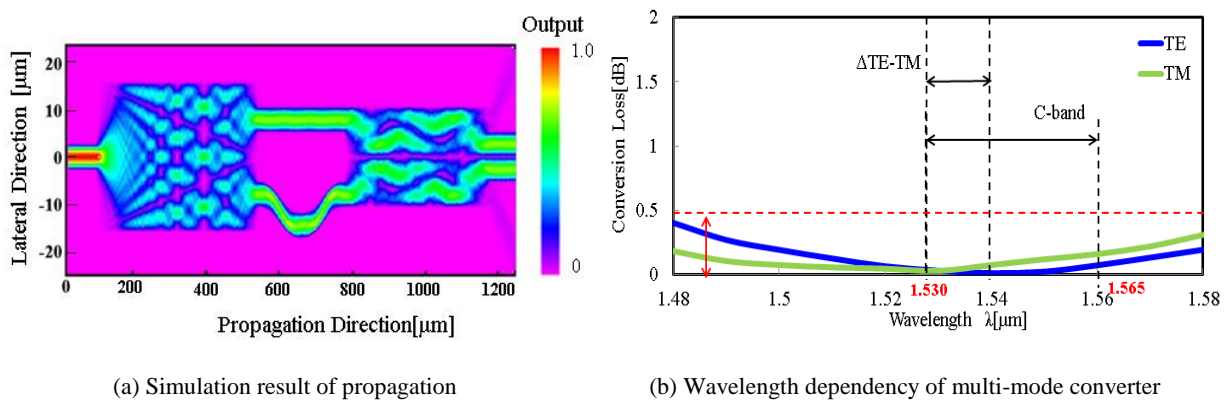


Fig.2. Evaluation results of MMI multi-mode Converter

References

[1] J. Leuthold, J. Eckner, et. al., JLT, 16(1998)1288-1239 (2012)

[2] Z. Zhao, et. al., IEICE, C-3-2,