TP09/SP・PD-2010　(2010 Ed.1)

Technical paper of investigation of high-power reliability for plug-style fixed optical attenuators

Summary

This technical paper describes the demonstration result and simulation result on high power test for SC plug style attenuators. Based on the study of TP04/SP・PD (2008Ed.1), Technical paper of investigation of high-power reliability for passive optical components for optical communication application, high power evaluation monitoring return loss (RL) decreasing, thermal-distribution simulation and thermal stress simulation were carried out. It was clarified that the failure of RL decreasing was caused by fiber withdrawal due to thermal stress by thermal distribution of a plug style optical attenuator, which was made by absorbing optical power. Based on these studies, the maximum allowable input power was estimated as 300 mW for SC plug style attenuators for attenuation of 10 dB. Additionally, long term test on 300 mW, 5000 hours were carried out to confirm the high power reliability.