We demonstrate a 1018 nm ytterbium-doped all-fiber laser pumped by tunable pump sources operating in the broad absorption spectrum around 915 nm. In the experiment, two different pump diodes were tested to pump over a wide spectrum ranging from 904 to 924 nm by altering the cooling temperature of the pump diodes. Across this so-called pump wavelength regime having a 20 nm wavelength span, the amplified stimulated emission (ASE) suppression of the resulting laser was generally around 35 dB, showing good suppression ratio. Comparisons to the conventional 976 nm-pumped 1018 nm ytterbium-doped fiber laser were also addressed in this study. Finally, we have tested this system for high power experimentation and obtained 67% maximum optical-to-optical efficiency at an approximately 110 W output power level.

To the best of our knowledge, this is the first 1018 nm ytterbium-doped all-fiber laser pumped by tunable pump sources around 915 nm reported in detail.