

Free-space optical communication: From space to ground and ocean

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Abstract

During the last decade, there has been rapid advancement in the area of mobile broadband and wireless communication. The demand for higher data rates and capacity has continuously increased thanks to the growing need for information exchange. Currently, the data rates of the existing state-of-the-art radio-frequency (RF) or microwave technologies can no longer meet the ever-growing demand. Therefore, industry and academia are now exploiting alternative techniques that can provide larger bandwidth and higher data rates. Among different potential technologies, free-space optical (FSO) communication is one of the most promising technologies addressing the problem of large bandwidth and data rate requirements as well as the “last-mile bottleneck.” Thanks to the various advantages of FSO communication, it can be used in different scenarios, from space to ground and underwater.