

# Overview



Author: *Kazuo Hayashi\**

## The Future of High Frequency and Optical Devices

Compound semiconductor-based high frequency and optical devices play an important role in improving the capability of information and communication systems, for which market demand is growing.

Mobile communication devices require not only a high bit rate but also multi-functionality, better performance and low power consumption. Thus, high frequency power amplifiers for transmitters are required to have low distortion, broad- or multi-band properties, multi-functionality, and low drive voltage.

High-output power amplifiers currently used for satellite communications are one of vacuum tube called a traveling wave tube amplifier (TWTA), and therefore compact, lightweight, and long service life equipment based on compound semiconductor is desired.

In the field of fixed line telecommunications, optical communication systems, which were mainly for business use, are now widely used in the home. In response to this trend, in addition to cost-effective devices, high-speed and high-sensitivity devices are being introduced for the metro and trunk line systems, which are handling increasing amounts of data communication traffic.

Mitsubishi Electric has developed and commercialized high frequency and optical devices utilizing design and manufacturing technologies acquired over the years. This issue presents our recent activities geared to these markets and technical trends.