

Improvements in Fiber-Optic Transmission of Multi-Carrier TV Signals

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In broadband networks, there is an increasing need for the transmission of more and more television channels with a higher quality. For this purpose the optical transmission proved to be one of the best solutions. However, when the number of TV channels is high, a significant harmonic and intermodulation distortion will arise. These distortions can be reduced by improving the modulation linearity of the laser or by applying a more appropriate modulation method. In this paper both solutions will be discussed and evaluated in detail. The linearity has been significantly improved by applying an active matching technique. The improvement achieved via the new driving circuit over the conventional one is 15 dB considering the third harmonic distortion. The sensitivity of QPSK TV transmission to disturbing interferences has been investigated. A new so called "group modulation" method offers a better approach for optical multi-carrier TV transmission.

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