

**A CMOS 3.5Gbps Continuous-time Adaptive Cable Equalizer
with Joint Adaptation Method
of Low-Frequency Gain and High-Frequency Boosting**

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This paper describes a high-speed CMOS adaptive cable equalizer with the joint adaptation method of low-frequency gain and high-frequency boosting. The adaptation method compares not only the high-frequency contents but also the low-frequency contents. By this joint adaptation method, the adaptation inaccuracy due to amplitude deviation can be reduced. The filter cell in the equalizer uses the variable-capacitor tuning and feed-forward common-mode-voltage biasing technique to achieve high bandwidth. The prototype chip is fabricated in a 0.18 μ m mixed-mode CMOS process. The realized active area is 0.48mmx0.73mm. The filter cell operates up to 5Gbps and the adaptive equalizer operates up to 3.5Gbps over a 15-m RG-58 coaxial cable with a 1.8V supply and 80mW power dissipation.