

Design and Implementation of the 1024-QAM RF Transmission System for UHD Cable TV Broadcasting

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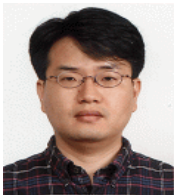
Abstract :

This paper presents the 1024-QAM transmission system design, implementation and performance for providing UHDTV services over HFC network. The CNR@TOV (Threshold Of Visibility, BER of 3.6×10^{-6}) of proposed system is 32.7dB under AWGN and data throughput is 48.54Mbps within 6MHz bandwidth. In this paper, we provide a detail description of UHDTV(Ultra High Definition TV) 1024-QAM cable transmission system design which includes functional description of modem components, simulation results, and lab test results for performance evaluation. To overcome severe burst noise and multipath channel impairments, we proposed the MPEG transport stream layer FEC (TS-FEC) and pilot symbol insertion for additional error control coding gain, fast channel acquisition and estimation.

Keyword— UHDTV, J.83 Annex B, 1024-QAM, Transport Stream Layer FEC(TS-FEC)



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