Product Bulletin
April 23, 2009

DM240XR AutoEQ™ to 45 Msps

Comtech EF Data announces the addition of a new plug-in card and software for its advanced AutoEQ™ feature increasing equalization to 45 Msps for the DM240XR Digital Video Broadcast Modulator. The modulator supports DVB-S2, as well as the original DVB-S and DVB-DSNG formats for digital video and data transport applications.

Improved System Level Operation

One of the key benefits of AutoEQ™ is its ability to improve performance of existing links and broadcast networks where the receivers lack adaptive equalizers to correct impairments. In these scenarios, AutoEQ™ equalizes the amplitude and group delay characteristics of the entire uplink from the earth station through the output of the satellite transponder optimizing the most critical link components. Depending on the impairments, this may improve link performance by 2 dB or more. The AutoEQ™ supports all DM240XR modulation and code types including QPSK, 8-PSK, 16-APSK, 16-QAM and 32-APSK.

Ease of Operation

Operationally, an AutoEQ™ card is installed in a slot at the rear of the DM240XR Modulator. The card contains a specialized demodulator that receives the carrier from the satellite and uses an algorithm to automatically determine the optimum complex coefficients that eliminate amplitude and group delay impairments. These are stored in the modulator to complete the correction process. The modulator stores 32 sets of correction parameters making it ready to correct 32 uplink / transponder combinations. This setup optimizes configurations where the modulator and AutoEQ™ are located within the same satellite footprint.

In networks where the transponders are cross-strapped and the receiver is in a different footprint than the modulator, another strategy is adopted. A DM240XR with AutoEQ™ is located at the distant end of the link and Ethernet access is used to connect the distant end to the modulator to complete the closed loop algorithm and store the coefficients.

Carriers from 10 to 45 Msps are supported by AutoEQ™, permitting equalization of partial or full transponders. The automatic operation eliminates the painstaking adjustments associated with IF equalizers. In addition, AutoEQ™ works at 70/140 MHz or L-Band making setup and adjustment a breeze. Because the AutoEQ™ coefficients are stored in the modulator, it is possible to use a single AutoEQ™ card to set up many modulators. Simply equip all modulators with the AutoEQ™ software option and move the AutoEQ™ card to each modulator. Key features include:

- Equalization of full or partial transponder depending on the size of the carrier
- Run the AutoEQ™ process for automatic, hands-free optimization for 70/140 MHz or L-Band
- Share one AutoEQ™ card among many modulators
- Operate within or outside the satellite footprint with local or remote modes

Applications

AutoEQ optimization is ideally suited for several applications:

- Transmission of MPEG-2 transport stream for DVB-S, -S2 or DSNG broadcast applications
- Transmission of standard data for non-video applications using DVB transmission schemes
- Cost-effective equalization of sites where banks of modulators are located
- Equalization of links with receivers located inside or outside the satellite footprint.

To learn more about the DM240XR Digital Video Broadcast Modulator, please contact your Comtech EF Data sales associate.


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