


# Redefining Gain Flatness

## **Xact™** Gain Flattening Filter



TeraXion's **Xact™** gain flattening filters (GFFs) enable manufacturers to design amplifiers with lower gain ripple than can be achieved using conventional gain flattening technologies. The improved gain ripple, along with the low systematic errors of **Xact™** GFFs, ensures a slower accumulation of gain non-uniformity in a chain of amplifiers. The bottom-line result: optimized OSNR and longer distances between OEO regeneration sites.

**Xact™** GFFs provide deep and complex gain equalization profiles with unprecedented error functions. **Xact™** GFFs are specified with a tolerance of  $\pm 0.1$  dB for complex flattening profiles as deep as 6 to 8 dB.

The leading optical specifications of **Xact™** GFFs are enabled by TeraXion's breakthrough **Xmask™** technology. This exclusive technology minimizes high frequency ripple, polarization dependent loss and systematic errors.

### BENEFITS

- \_ Flattening to less than  $\pm 0.1$  dB improves amplifier gain ripple
- \_ Error function guaranteed over the full operating temperature range
- \_ PDL < 0.03dB ensures extreme gain flatness in any polarization state
- \_ Highly random error functions reduce accumulation of signal power imbalance in amplifier cascades
- \_ Full Telcordia™ qualification ensures reliable operation through end-of-life

For full specifications please refer to TH-GFF Spec Sheet

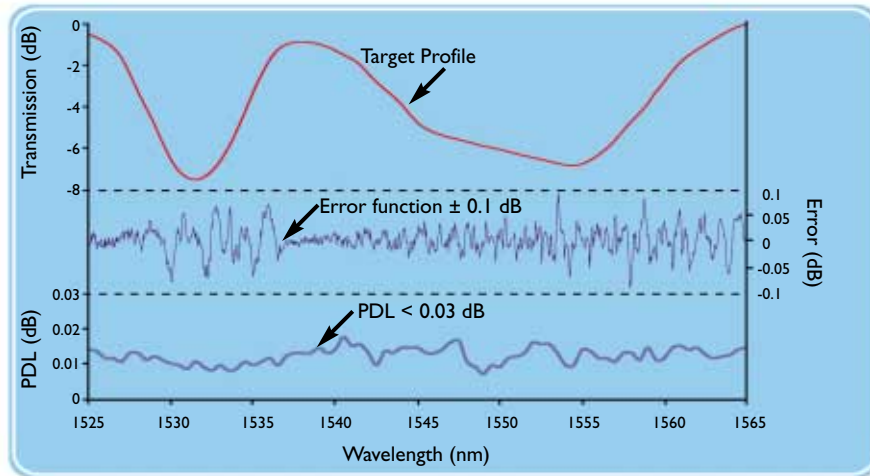
**TeraXion**

**XBG™**  
Reach out for  
high performance

# Xact™ GFF REDUCES AMPLIFIER GAIN RIPPLE

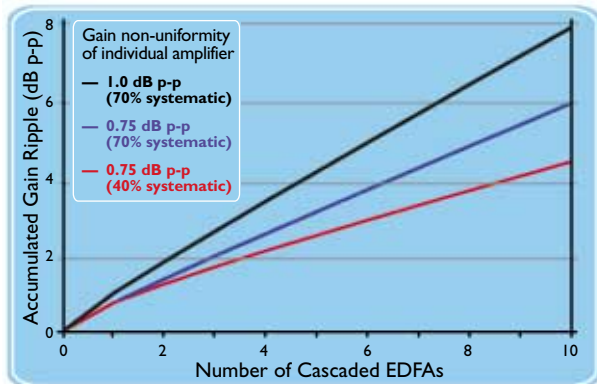
TeraXion's Xact™ GFFs enable amplifier manufacturers to improve gain flatness. In current-generation amplifier designs, Xact™ GFFs can replace other GFF technologies for simple immediate improvements in gain ripple. Similarly, new designs featuring this technology can boost next-generation amplifier performance to new heights.

## Xact™ GFF FOR C-BAND EDFA



Error function is defined as the difference between the target profile and the measured profile of the manufactured component.

## ACCUMULATION OF GAIN RIPPLE IN EDFA CASCADES



## Xact™ GFF REDUCES ACCUMULATION OF GAIN NON-UNIFORMITIES

The accumulation of gain non-uniformity across a network link will be more severe if the gain ripple in each amplifier is similar. Gain flattening technologies which exhibit recurring errors will introduce systematic components to the gain ripple profile of a given amplifier design.

This effect can be diminished by employing a gain flattening technology with reduced systematic errors. Likewise, gain ripple accumulation can be slowed if a greater percentage of the GFF error function is random in nature. Systematic gain ripple components accumulate linearly across the network while random components accumulate statistically.

TeraXion's GFF manufacturing process minimizes the occurrence and magnitude of systematic errors. In addition, a significant proportion of the total error function is composed of random components. While considering the other contributing factors to amplifier ripple, choosing Xact™ GFFs instead of conventional gain flattening filters can improve the gain ripple accumulation in a chain of amplifiers by a third or more.

© 2003 by TeraXion Inc. All rights reserved.

TeraXion Inc. reserves all of its rights to make additions, modifications, improvements, withdrawals and/or changes to its product lines and/or product characteristics at any time and without prior notice. Although every effort is made to ensure the accuracy of the information provided on this spec sheet, TeraXion Inc. does not guarantee its exactness and cannot be held liable for inaccuracies or omissions.

Telcordia™ is a trademark of Telcordia Technologies Inc.



### Contact Information:

20-360 Franquet, Sainte-Foy (Quebec), Canada G1P 4N3  
 Phone: (418) 658-9500 Toll free: 1 877 658-TERA Fax: (418) 658-9595  
 sales@teraxion.com www.teraxion.com