

Testing Transceivers and DSP for Chromatic Dispersion with the ClearSpectrum™ CDE

One of the key challenges when testing transceivers and digital signal processing algorithms (DSP) for chromatic dispersion robustness is generating significant amounts of chromatic dispersion. While the most intuitive solution would be to use a transmission fiber setup, as it closely replicates field conditions, is this the most effective solution from a cost and performance standpoint?

TeraXion's ClearSpectrum™ CDE is a fixed, entirely passive chromatic dispersion emulator that has been developed to test the dispersion robustness of transceivers and DSP over thousands of kilometers of transmission fiber.

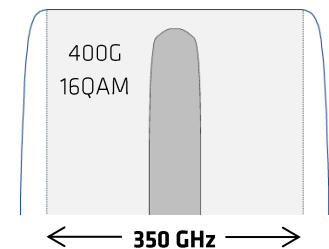
Based on TeraXion's reliable fiber Bragg grating technology, the CDE is significantly more cost-effective than a transmission fiber setup, it has a very low insertion loss and can emulate up to 45 000 ps/nm of dispersion in a single, compact, half 1U 19-inch rack module.

Suitable for advanced modulation formats

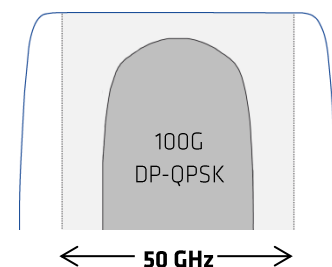
Thanks to the different configurations offered, the CDE can be used to test a multitude of modulation formats, at different data rates.

For many years, the CDE has a proven track record in labs worldwide for testing the robustness of 100G coherent DP-QPSK transceivers and DSP algorithms.

As 200G and 400G are gaining traction, more complex DSP algorithms must be tested for chromatic dispersion robustness. Thanks to its wide bandwidth, the CDE can emulate dispersion to test 16QAM signals at 32 Gbaud/s, 64 Gbaud/s and even higher baud rates. The CDE can even be used for 600G and 800G applications.



The single-channel CDE offers 350 GHz of BW, easily letting 400G signals through



The multi-channel CDE offers 50 GHz of BW, more than enough for testing 100G DP-QPSK

Massive Levels of Dispersion

While a single half 1U 19-inch module for C- or L-band can provide up to 45 000 ps/nm, it is possible to cascade multiple modules to reach massive levels of chromatic dispersion.

One CDE, Many Configurations

The CDE can be used in most transmission applications, as it is offered in C-band and L-band configurations and even an O-band configuration upon request.

The C-band and L-band CDEs are offered in a single-channel, very wide bandwidth profile, or in a multi-channel profile on a 100 GHz or 200 GHz grid, for testing multiple wavelengths at once.

The O-band configuration is aimed at applications for which transmitters must be tested following the 100G Lambda MSA standard.

A Highly Customizable Solution

	C-Band/L-Band		O-Band [†]
	Multi-Channel Module	Single-Channel Module	Single-Channel Module
Channel Grid	100 GHz 200 GHz	-	Upon request
Minimum Optical Bandwidth	50 GHz	Up to 350 GHz	Upon request
Dispersion Level	Up to 45 000 ps/nm per module*	Up to 15 000 ps/nm per module*	Upon request

* Modules can be cascaded to reach hundreds of thousands of ps/nm

[†]100 G Lambda MSA compatible

CDE vs Transmission Fiber

Save on the cost and space of fiber spools and EDFAs with a ClearSpectrum™ CDE.

Thanks to TeraXion's FBG-based design, the CDE emulates the dispersion of thousands of kilometers of transmission fiber in a single compact module and with fewer EDFAs, driving the total cost of acquisition down. And the CDE is as convenient to use as it gets, just plug and play.

Up to **3x**
Less Expensive

Up to **10x**
Loss Reduction

Ordering information

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at info@teraxion.com

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