Agilent 86105B 15 GHz Optical and 20 GHz Electrical Plug-In Module

Test a wide variety of telecom and datacom transmission rates with the 86105B multi-rate compliance filter module

The 86105B Infiniium DCA plug-in module offers unprecedented optical filter coverage for SONET/ SDH and Datacom/Enterprise technologies from 155 Mb/s to 11.317 Gb/s. With the increased need to address the bottleneck concerns within the Enterprise and Telecom networks, network equipment elements and their components need to be engineered with flexibility, performance and cost in mind. The 86105B now allows designers and manufactures to test transmitter compliance and perform waveform characterization on multiple technologies and data rates with a single module.

Component/System Design and Manufacturing

The 86105B gives designers and manufacturers the ability to accurately characterize the transmission performance of components and systems that cross the boundary between Telecom (e.g. SONET/ SDH) and Datacom/Enterprise (e.g. Ethernet) technologies. Such examples would include 10 Gb/s 200/300 pin MSA transponders which may be designed to conform to different standards and different data rates. Also new devices being designed for emerging standards, such as Xenpaks for 10 Gb Ethernet or small form factor (SFF and SFP) transceivers for the OC-48 market.

OC-192 SONET transmission has various specified rates depending on the technology being implemented and the network being designed. The OC-192 rate is 9.953 Gb/s. The rate goes up to 10.664 Gb/s with the addition of Forward Error Correction (FEC). In addition there is now OTN G.709, which adds additional network control and further increases the rate to 10.71 Gb/s. To meet this increased transmission speed, components must scale and be tested accordingly.

Unprecedented Filter Rate Coverage

Data Rate	Standard	Option 86105B-111	Option 86105B-112	Option 86105B-113
155 Mb/s	OC-3		X	
622 Mb/s	OC-12		X	
1063 Mb/s	Fibre Channel			X
1250 Mb/s	GbE			X
2125 Mb/s	2x Fibre Channel			X
2488 Mb/s	OC-48		X	X
2500 Mb/s	2xGbE		X	X
2500 Mb/s	InfiniBand		X	X
2666 Mb/s	OC-48 (FEC)		X	
9.953 Gb/s	OC-192	X	X	X
10.3125 Gb/s	10GbE	X	X	X
10.51875	10xFibre Channel	X	X	X
10.664 Gb/s	OC-192 (FEC)	X	X	X
10.709 Gb/s	OC-192 (ITU-TG.709)	X	X	X
11.096 Gb/s	10GbE	X	X	X
11.317 Gb/s	10G Fibre Channel	X	X	X

Specifications (Preliminary)

Bandwidth	15 GHz Optical and 20 GHz Electrical
Wavelength	1000–1600 nm
Sensitivity (typical)	–12 dBm
RMS noise	5 µW
Fibre Input	Single Mode

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In the midst of increasing SONET/SDH rates, new Datacom/Enterprise standards are emerging such as 10 Gb Ethernet and 10X Fibre Channel, which run at 10.3125 Gb/s and 10.51875 Gb/s respectively. Switching and routing systems are required to interface some of these technologies (specifically the IEEE 802.3 Ethernet standards and SONET) at varying rates. Therefore, the ability to test and characterize performance across a wide range of technologies and data-rates is essential in the R&D and manufacturing environments.

Multi-port and multi-rate system/component designers and manufactures can take advantage of both the wide filter coverage and -12 dBm sensitivity of the 86105B. With this module it is now possible to characterize optical transmission performance of all SONET, Ethernet, and Fibre Channel technologies, from 155 Mb/s through to 10 Gb/s. In addition, new Infiniium DCA 86100A/B firmware now supports mask testing for emerging standards such as optical InfiniBand and electrical XAUI signaling.
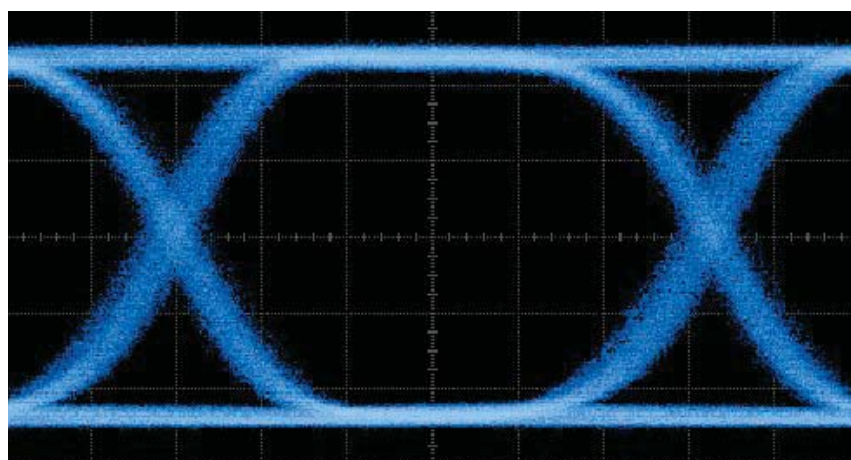
86105B 15 GHz Opt. bandwidth sensitivity spec: -12 dBm at 1310 nm

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