XTM-50 Tunable Filters with Adjustable Bandwidth (Standard, Ultrafine, O-band, Wide)

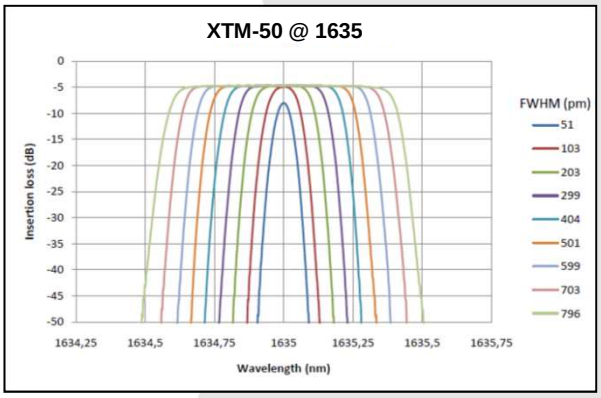
YENISTA OPTICS presents its flat-top tunable filters with adjustable bandwidth for SCL and O bands. The XTM-50 for SCL band is available in a standard, an ultrafine and a wide version providing the highest selectivity on the market.

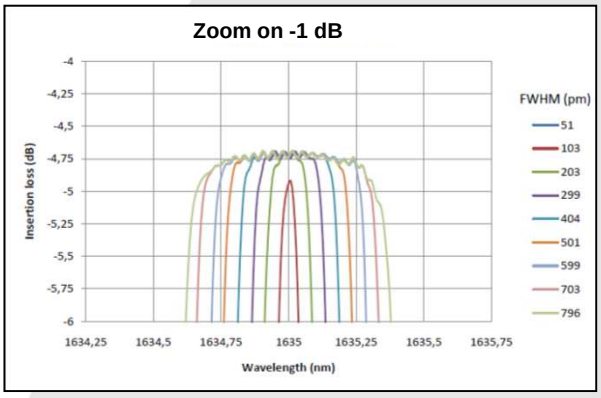
In the SCL **Standard version**, wavelength tuning ranges over 1450 nm to 1650 nm whereas the bandwidth can be adjusted from 50 pm (6.25 GHz) to 950 pm (120 GHz) with respect to the center wavelength. The **Ultrafine version** allows these values to reach 1480-1620 nm and 32 pm (4 GHz) to 650 pm (80 GHz). The **Wide version** offers a wavelength range of 1525-1610 nm and a FWHM of 50 pm (6.25 GHz) to 5000 pm (625 GHz). Wavelength tuning and bandwidth adjusting are done with precision micrometers.

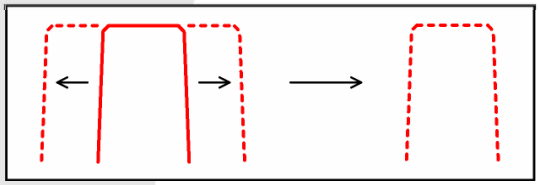
Optical filtering of the XTM-50 is based on proven diffraction grating technology. The extremely sharp edges ensure a clean cut between the signal and the adjacent channels or noise, while the flat-top square shape ensures data integrity. Signal propagation through the filter does not affect its integrity, because temporal effects such as chromatic dispersion and PMD are negligible.

Applications: channel selection for bit error rate testing, analysis of sub-band of complex modulation formats such as OFDM, spectral analysis, radio-over-fiber, etc. The XTM-50 filter is therefore an ideal tool for laboratories that are looking for a low-cost solution without any compromise on optical specifications.

SCL Measured Curves







Bandwidth & Wavelength Tuning

Filter Shape: Ultra Selectivity

Reach the best values with our wide range of filters!

- **Adjustable bandwidth: down to 32 pm & up to 5000 pm**
  The continuous adjustment of the bandwidth with 1 pm resolution ensures a perfect match with any modulation format and bit rate.

- **Extremely narrow filter: down to 32 pm (4 GHz)**
  XTM-50 is the highest selective filter on the market. It is the perfect tool to study sub-band multiplexing in advanced development of next-generation optical networks, like OFDM.

- **Up to 200 nm wavelength range to adapt to any set-up**
  The standard version of the XTM-50 operates from 1450 to 1650 nm in one single instrument.

- **High rejection ratio: up to 60 dB typical**

- **Steep edges: up to 800 dB/nm roll-off**
  The signal part is perfectly extracted minimizing ASE noise. BERT measurements have never been so good!

- **Flat-top design: 0.2 dB flatness**
  Flatness of the filter curves are inspected & guaranteed.

Additional Key Parameters

- **Low insertion loss**
- **Small polarization dependent loss < ±0.2 dB**
- **Bi-directional usage (Standard and Ultrafine versions)**

XTM-50 Filter Specifications

	XTM-50 Standard	XTM-50 Ultrafine	XTM-50 O-Band	XTM-50 Wide
OPTICAL SPECIFICATIONS				
Wavelength range	1450 – 1650 nm	1480 – 1620 nm	1260 – 1360 nm	1525 – 1610 nm
Wavelength resolution [1]	5 pm			
FWHM minimum	50 pm (6.25 GHz)	32 pm (4 GHz)	50 pm (8 GHz)	50 pm (6.25 GHz)
FWHM maximum	950 pm (120 GHz)	650 pm (80 GHz)	900 pm (160 GHz)	5000 pm (625 GHz)
FWHM resolution	1 pm			
Slope edges between -3 and -40 dB	500 dB/nm (typ.) [2]	800 dB/nm (typ.)	500 dB/nm (typ.) [2]	500 dB/nm (typ.) [3]
Insertion loss	5 dB max. (4.5 dB typ.) [4,8]	5 dB max. (4 dB typ.) [5,8]	5 dB max (4.5 dB typ.) [7,8]	5 dB max. (4.5 dB typ.) [6,9]
Flatness	0.2 dB [10]	0.2 dB [11]	0.2 dB [10]	0.2 dB [12]
Polarization dependent loss	±0.2 dB [4]	±0.2 dB [5]	±0.2 dB [7]	±0.2 dB [6]
Out-band suppression (crosstalk) [13]	40 dB (60 dB typ.)	40 dB (50 dB typ.)	40 dB (60 dB typ.)	40 dB (45 dB typ.)
Fiber type	SMF or PMF			SMF
Optical connector	Easy access to connectors for cleaning. FC/APC or FC/PC.			
INTERFACE				
Manual actuators for wavelength tuning and bandwidth adjustment	High resolution micrometer			
GENERAL SPECIFICATIONS				
Dimensions (W x H x D)	230 x 173 x 136 mm³			
Weight	2.2 kg			

1: Typical, related to user sensibility
2: For FWHM < 800 pm
3: 550 dB/nm @ FWHM = 50 pm / 450 dB/nm @ FWHM = 1nm / 325 dB/nm @ FWHM = 5 nm
4: From 1500 to 1600 nm and FWHM > 100 pm
5: From 1500 to 1600 nm and FWHM > 60 pm
6: From 1525 to 1570 nm and FWHM > 60 pm
7: From 1280 to 1340 nm and FWHM > 100 pm
8: At lowest FWHM, the insertion loss is 7 dB typ.
9: At lowest FWHM, the insertion loss is 8 dB typ.
10: On a centered bandwidth BW = FWHM-150 pm, and for 150 pm < FWHM < 650 pm
11: On a centered bandwidth BW = FWHM-100 pm, and for 100 pm < FWHM < 500 pm
12: On a centered bandwidth BW = FWHM-150 pm, and for 150 pm < FWHM < 2900 pm
13: Measured 1 nm away from the -3 dB points

Advanced Features

Easy access to optical connectors for cleaning. The connectors are located in a small drawer that can be opened for the cleaning operation.

Complete Portfolio of Tunable Filters

Yenista also features a complete portfolio of filters including: the XFA filter with its fixed bandwidth and the automatic XTA-50 filters (Standard, Ultrafine, O-band and Wide versions). Contact us for more information.

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