

50/125- μm Multi-Mode Optical Fiber Connection

MS9740A

Optical Spectrum Analyzer

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Analyzer
50/125- μm Multi-Mode Optical Fiber
Connection**

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Anritsu Corporation**

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Connecting 50- μm core diameter multi-mode optical fiber

(1) Wavelength resolution

The MS9740A wavelength resolution accuracy meets the specifications using SM fiber with a core diameter of 9.5 μm or less. If a fiber with a core diameter of more than 9.5 μm is used, the specified resolution accuracy may not be met.

(2) Measurement level

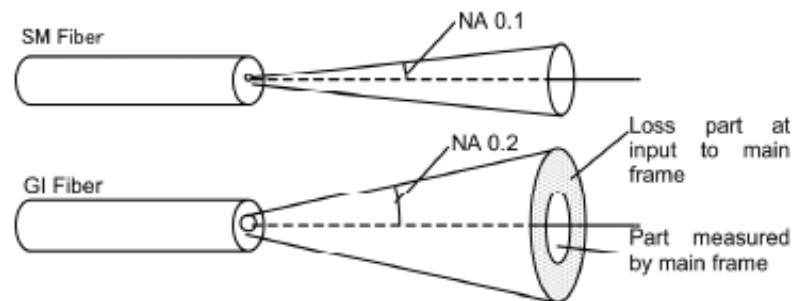
There are limitations depending on the Numerical Aperture (NA) of the optical input fiber. This analyzer has a built-in diffraction grating.

When connecting an SM optical fiber with an NA larger than 9.5/125 μm , not all the light radiated from the fiber is captured by the analyzer, causing connection loss equivalent to the lost amount of light. As a result, the measured level is smaller than the true level.

The max. 14-dB connection loss occurs when connecting 50/125- μm multi-mode optical fiber.

(3) Minimum light reception sensitivity

The max. 14-dB connection loss when connecting 50/125- μm multi-mode optical fiber degrades the minimum light reception sensitivity.



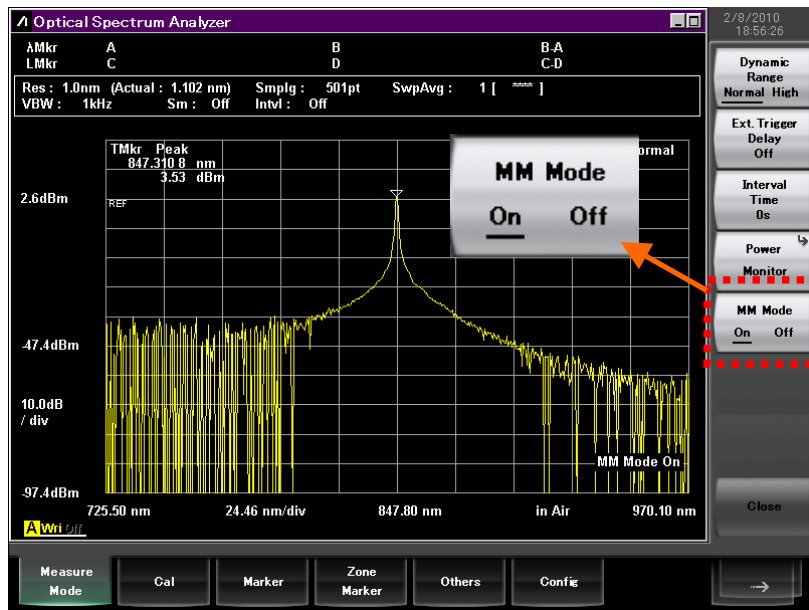
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Notes on setting MM mode

The MS9740A has an MM mode function to correct correction loss when connecting 50/125- μm multi-mode optical fiber and to display the level.

The optical loss level is corrected when the MM mode is On. It assumes full mode excitation and fixed mode excitation in 50- μm core diameter multi-mode optical fiber (NA 0.2) and corrects the level by 14 dB (sum).

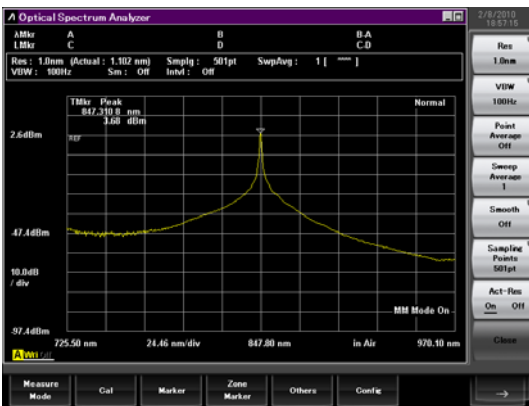
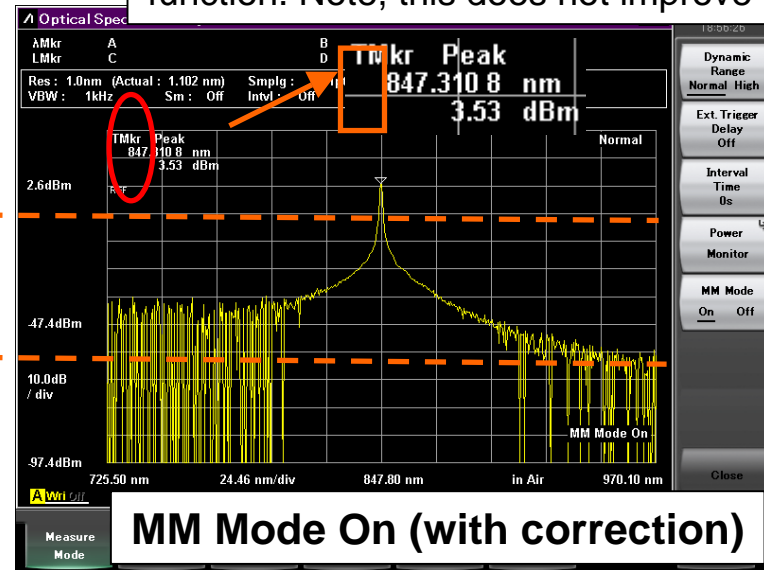
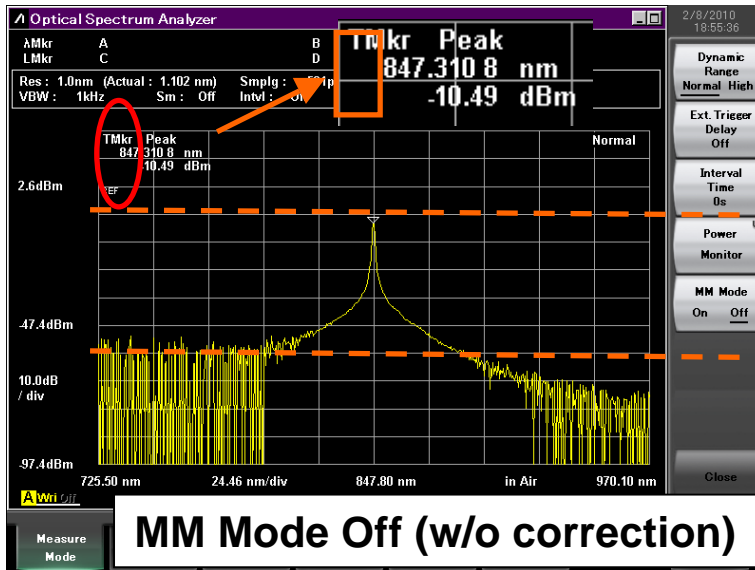
Level display errors occur if light is input under other excitation conditions (14 dB max.).



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MM Mode Correction Results

14 dB of light receiving level added by correction function. Note, this does not improve SN ratio.



*Set MM mode to On and measure to obtain corrected analysis results
Degraded SN ratio due to connection loss can be improved by narrowing light receiving bandwidth (VBW). However, measurement speed is slower.

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