

# AQ2200 Series

Tunable Laser Source<sup>®</sup>  
AQ2200-136 TLS Module



Example installation in AQ2201 Frame Controller



AQ2200-136 TLS Module

## A small, lightweight, tunable laser source capable of continuous variation over a 200 nm range

- **Wavelength range:** 1440 to 1640 nm (full coverage of 1550 nm band CWDM)
- **Wavelength accuracy:**  $\pm 100$  pm  
 $\pm 3$  pm (excluding accuracy of wavelength meter AQ6141 when combined with AQ6141)
- **Smaller and lighter:** Approximately 75% smaller and lighter than Yokogawa's previous models
- **Output level:** +7 dBm or greater (maximum output wavelength); -8 dBm or greater over all wavelengths
- **Wavelength sweeping speed:** 50 nm/second
- **Create a variety of measurement systems by combining the AQ2200-136 with Yokogawa optical communication measuring instruments and various optical modules for the AQ2200 multi-application test system**

### Please note the following important information regarding your AQ2200-136 purchase:

- An AQ2201 or AQ2202 frame controller must also be purchased in order to use the AQ2200-136.
- See the AQ2201/AQ2202 catalog for the specifications of the AQ2201/AQ2202 frame controller in which the AQ2200-136 is to be installed.

Bulletin AQ2200-136E

# Tunable Laser Source

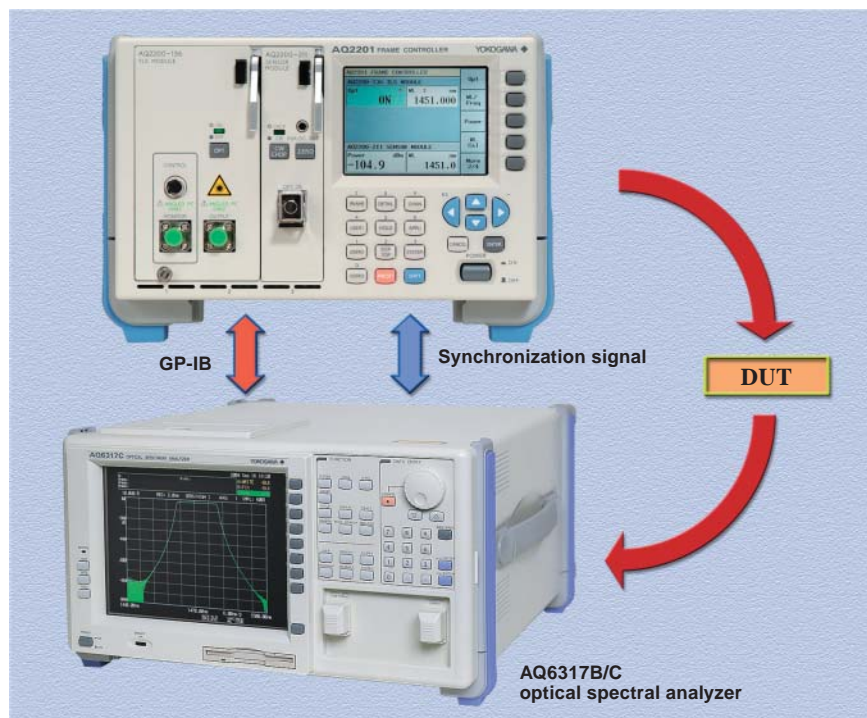
In recent years there have been increasing deployments of fiber to the home (FTTH) service in access network areas, along with advances in transmission technologies such as B-PON, G-PON, and GE-PON. In addition, there have been important advances in CWDM transmission technology, which is expected to be used in metropolitan areas. As networks have evolved, there has been an increasing need for high price-performance measuring instruments capable of high-throughput evaluation of the optical characteristics of optical devices and components used in these facilities. The AQ2200-136 TLS module is an optional wideband variable wavelength light source designed for the AQ2200 multi-application test system. Although it is lightweight with a small, 2-slot-wide module size, it is capable of wavelength variation over the 1440–1640 nm range.



## Example Measurement Application

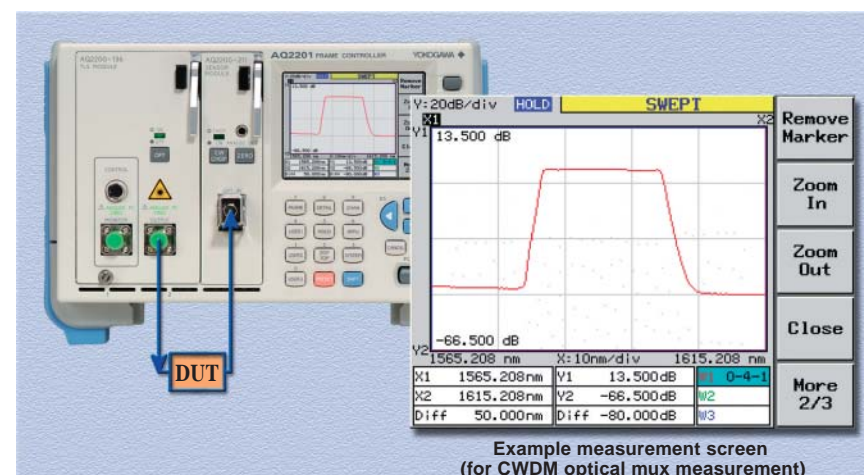
### (1) Swept measurement synchronized with optical spectral analyzer (standard function)

- The AQ2200-136 can perform synchronized swept measurements\* when combined with Yokogawa's AQ6317B/C optical spectral analyzer. This combination enables high-dynamic-range measurements, with features such as a band elimination filter (BEF).
- \* Synchronized swept measurement: This function performs wavelength swept measurement while synchronizing the wavelength measured by the optical spectral analyzer to the wavelength output by the variable wavelength light source, without using an external controller PC.
- Measurement time: Approximately 22 seconds (typical value; obtained with the AQ6317B/C level range set to AUTO, Span set to 20 nm, and measurement points set to 1001)



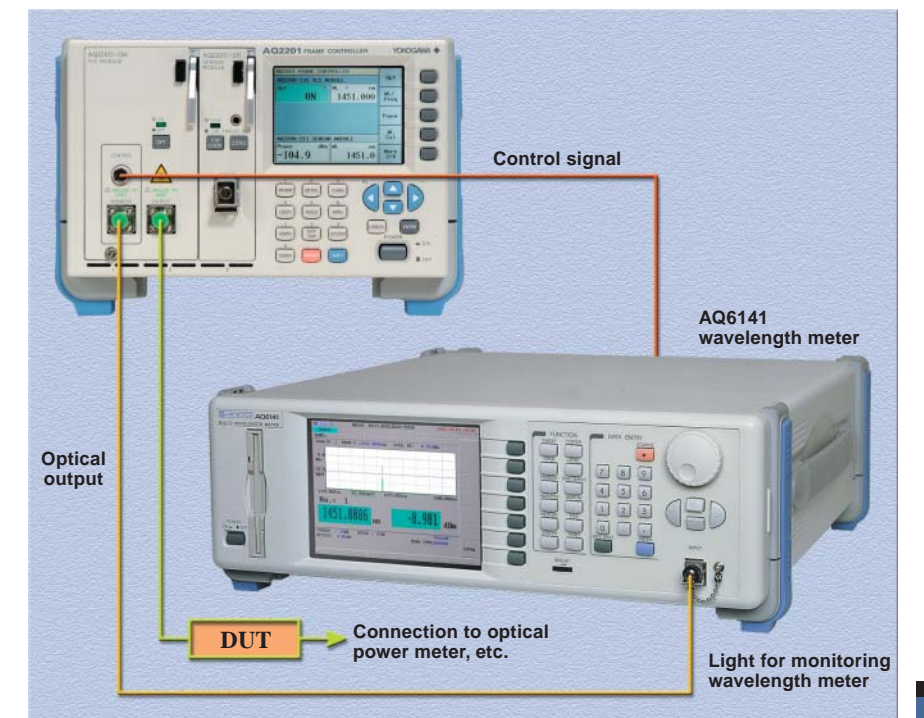
### (2) Swept measurement system (standard function)

- The AQ2200-136 can be combined with the AQ2200-211 sensor module or AQ2200-231 optical sensor head\* to perform high-speed, wideband wavelength swept measurements without using a controller PC.
- \* The AQ2200-201 interface module is required in order to use the AQ2200-231.
- The AQ2200-136 can be used to measure a variety of optical devices and components. Example applications include:
  - Measurement of the insertion loss and wavelength dependence of optical filters
  - Measurement of the wavelength dependence of optical couplers and optical attenuators
  - Measurement of passed center wavelength and pass band flatness of CWDM mux/demux
- High-resolution measurement with 20,000 data points (maximum) and 1 pm wavelength resolution (minimum)
- Measurement time: Approximately 11 seconds with level range set to Hold (typical value; obtained with AQ2200-136 and AQ2201 set to 1440 to 1640 nm wavelength range, 0.1 nm-step sweeping width, and 2000 data points)
- Approximately 13 seconds with level range set to Auto2 (typical value; obtained with AQ2200-136 and AQ2201 set to 1440 to 1640 nm wavelength range, 0.1 nm-step sweeping width, and 2000 data points)



### (3) Wavelength meter monitor (standard function)

- When combined with the AQ6141 wavelength meter, the AQ2200-136 can be used as a high-accuracy wideband variable wavelength light source, with wavelength accuracy of  $\pm 3$  pm\*. (Wavelengths are automatically corrected without an external PC).
- \* This accuracy value does not include the wavelength accuracy of the wavelength meter.
- The internal wavelength meter monitor port can be used to perform wavelength corrections without switching measurement ports.

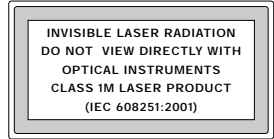


## Specifications

Parameter	Product specification	Remarks
Wavelength varying range	1440 to 1640 nm	
Wavelength setting resolution	1 pm	
Absolute wavelength accuracy	±100 pm	*1
Relative wavelength accuracy	±50 pm	*1
Wavelength stability	±5 pm/h	*2, *4, *5
Spectral line width	NARROW	≤1 MHz
	WIDE	≥50 MHz
Optical output	Maximum output wavelength	≥+7 dBm
	1520 to 1610 nm	≥+5 dBm
	Total wavelength range	≥-8 dBm
Optical output stability	5 minutes	≤±0.01 dB
	1 hour	≤±0.05 dB
	24 hours	≤±0.1 dB
Optical output repeatability	≤±0.04 dB	*1, *3, *5, *6, *10
MONITOR output	Maximum optical output	≤+5 dBm
	Minimum optical output	≥-25 dBm
Accepted optical fiber	SM (ITU-T G.652)	*9
Accepted optical connector	FC/Angled PC	*7

### Laser Safety Information

- This laser light source is categorized as an IEC60825-1:2001 Class 1M product.
- This product complies with 21CFR1040.10, except for exemptions resulting from its compliance with Laser Notice No. 50, dated May 27, 2001.
- Viewing laser output at a distance of 100 mm or less using some optical measuring devices (loupes, magnifying glasses, telescopes, etc.) may result in eye injury.



Unless otherwise noted, the specifications represent values obtained after calibration performed at least one hour OPTON, under reference operating conditions\* with 2m SMF output point.

\* Reference operating conditions: Ambient temperature of 23±2°C, temperature change rates of 1°C per 10 minutes and 3°C per hour, and humidity of 50±5%

\*1 At maximum optical output

\*2 Wavelength: 1590 nm

\*3 Wide line width

\*4 Narrow line width

\*5 Constant temperature

\*6 Wavelength: 1460 to 1620 nm

\*7 SEIKOH GIKEN Angled/PC or equivalent product (step type)

\*8 At minimum optical output

\*9 Using MONITOR connector

\*10 Using OUTPUT connector

## Model Information

**Product name: AQ2200-136 TLS Module**

Model number: 810518904-FCA-SMF-WLSTD

## Related Products

**Product name: AQ2201 Frame Controller**

Model number: 810518900-□

└ Power cord

M : Japanese standard (2-pin)

D : UL-3P power cord

F : CEE-C7 power cord

G : SAA-3P power cord

Q : BS3P square

H : BS3P round

**Product name: AQ2202 Frame Controller**

Model number: 810518920-□

└ Power cord

M : Japanese standard (2-pin)

D : UL-3P power cord

F : CEE-C7 power cord

G : SAA-3P power cord

Q : BS3P square

H : BS3P round

### Note



Pursuant to the Foreign Exchange and Foreign Trade Control Law, Japanese government approval may be required to export this product from Japan.

The information presented in this bulletin is subject to change without notice due to performance and quality improvements.

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Printed in Japan, 411(KP)