User's Manual

Model AQ6370E-00 Optical Spectrum Analyzer Limited model

Foreword

This document describes the specifications of the limited model of the AQ6370E (SUFFIX -00).

Specifications

Item		Specifications
Wavelength range[1]		600 nm to 1700 nm
Span[1]		0.1 nm to 1100 nm (full wavelength range), 0 nm
Wavelength accuracy[1, 2, 5]		±0.02 nm (1520 nm to 1620 nm, ±0.015 nm typ.), ±0.10 nm (full wavelength range)
Wavelength linearity[1, 2, 5]		±0.02 nm (1520 nm to 1580 nm), ±0.02 nm (1580 nm to 1620 nm)
Wavelength repeatability[1, 2]		±0.005 nm (1 minute)
Wavelength resolution setting[1, 2]		0.05, 0.1, 0.2, 0.5, 1, 2 nm
Resolution bandwidth accuracy[1, 2]		±5% (1450 nm to 1620 nm, resolution setting: 0.1 to 2 nm, at the calibration wavelength during user-defined resolution calibration using an external DFB-LD)
Minimum sampling resolution[1]		0.001 nm
Wavelength sampling points		101 to 200001, AUTO
Level sensitivity setting	TRAD mode	NORM_HOLD, NORM_AUTO, NORMAL, MID, HIGH1, HIGH2 and HIGH3
	SMSR mode	MID/SMSR and HIGH1/SMSR
High dynamic range mode		SWITCH (Sensitivity: MID, HIGH1, HIGH2, HIGH3)
Level sensitivity[2, 3, 4, 7]		-90 dBm (resolution setting: 0.05 nm or more, sensitivity setting: HIGH3) (1300 nm to 1620 nm), -85 dBm (resolution setting: 0.05 nm or more, sensitivity setting: HIGH3) (1000 nm to 1300 nm), -60 dBm (resolution setting: 0.05 nm or more, sensitivity setting: HIGH3) (600 nm to 1000 nm)
Maximum input power[2, 3]		+20 dBm (per channel, entire wavelength range)
Safe max. input power[2, 3]		+25 dBm (total input power)
Level accuracy[2, 3, 4, 6]		±0.4 dB (1310 nm/1550 nm, input level: –20 dBm, sensitivity setting: NORMAL, MID, HIGH1 to HIGH3)
Level flatness[2, 3, 6]		±0.1 dB (1520 nm to 1580 nm), ±0.2 dB (1580 nm to 1620 nm)
Level linearity[2, 3,]		±0.05 dB (input level: –50 dBm to +10 dBm, sensitivity setting: HIGH1 to HIGH3)
Polarization dependence[2, 3, 6]		±0.05 dB(1550 nm/1600 nm), ±0.08 dB(1310 nm)
Dynamic range[1, 2, 8]	resolution: 0.05 nm	71 dB (±1.0 nm of peak wavelength), 61 dB (±0.4 nm of peak wavelength), 43 dB (±0.2 nm of peak wavelength)
Compliant fiber		SM (9.5/125), MM (GI 50/125, GI 62.5/125, Large core size: core diameter of up to 200 µm)
Optical connector		For optical input, AQ9447(*) connector adapter (option) required. For wavelength reference light source output, AQ9441(*) connector adapter (optional, when the built-in light source specification is -L1) required. (*): Connector types: FC, SC
Built-in calibration light source		For alignment and wavelength calibration (optional, when the built-in light source specification is -L1)
Sweep time[1, 7, 9]		0.5 s (NORM_AUTO), 1 s (NORMAL), 2 s (MID), 20 s (HIGH1)
Optical return loss[10]		Typ. 35 dB (with angled-PC connector)
Warm-up time		At least 1 hour After warm-up ends, alignment adjustment required.
Electrical interface		GP-IB, Ethernet, USB, VGA output, analog output port, trigger input port, trigger output port
Remote control[11]		GP-IB, Ethernet (TCP/IP), AQ6317 series compatible commands (IEEE488.1) and IEEE488.2.
Data storage		Internal storage: 512 MB or more, external storage: USB storage device (memory, HDD), format: FAT32, File type: CSV (text), binary, BMP, PNG, JPEG
Display[12]		10.4-inch color LCD (capacitive touch panel, resolution: 1024×768 pixels)

YOKOGAWA

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IM AQ6370E-51EN/1

Item	Specifications
Environmental conditions	Performance guaranteed temperature range: +18 to +28°C Operating temperature range: +5 to +35°C Storage temperature range: –10 to +50°C Ambient humidity: 20 to 80% RH (no condensation) Installation location: indoor use, altitude: 2000 m or less
Power supply	100 to 240 VAC, 50/60 Hz, 100 VA or less
Permitted supply voltage range	90 VAC to 264 VAC
External dimensions	Approx. 426 (W) × 221 (H) × 459 (D) mm (excluding the protector and handle)
Weight	Approx. 19 kg
Recommended calibration period	1 year

1 Horizontal axis scale: In wavelength display mode
2 9.5/125 µm single mode fiber (PC polishing), after warm-up of 1 hours, after alignment with a built-in wavelength reference light source or single longitudinal mode laser (wavelength: 1520 to 1560 nm, peak level: –20 dBm or higher, level stability: 0.1 dBpp or less, wavelength stability: ±0.01 nm or less)
3 Vertical scale: absolute value level display mode, resolution setting: 0.05 nm or more, resolution correction: OFF
4 When using 9.5/125 µm single mode fiber (SSMA type in JIS C6835, PC polishing, mode field diameter: 9.5 µm, NA: 0.104 to 0.107)
5 After wavelength calibration using a built-in wavelength reference light source or single longitudinal mode laser (peak level: –20 dBm or higher, absolute waveform accuracy in the wavelength range of 1520 to 1560 nm ± 0.003 nm or less)
6 With the resolution setting of 0.05 nm, at ambient temperature of 23 ±3 °C.
7 High dynamic mode: OFF, pulse light measurement mode: OFF, resolution correction: OFF
8 1523 nm, high dynamic mode:SWITCH, resolution correction: OFF
9 Span 100 nm or less, wavelength sampling points: 1001, averaging times: 1
10 When using the Yokogawa signal mode fiber with our standard Angled PC connector, it is 15 dB(Typ.) when using the PC connector.
11 Certain commands may not support the AQ6317 depending on the relationship between the target model specifications and functions.
12 The LDC display may contain defective pixels (always ON or always OFF). (0.002% or fewer of all pixels including RGB). Does not indicate a general malfunction.

*: Typical values(typ.) are typical or mean values. They are not strictly guaranteed.

Function

Item	Function	
Measurement	Setting of measuring conditions	Center wavelength, span, wavelength sampling points, wavelength resolution, measurement sensitivity, high dynamic mode, average count (1 to 999), double-speed measurement mode, smoothing, APC level correction
	Sweep settings	Single, repeat, AUTO (automatically sets measuring conditions), inter-line marker sweep
	Measurement function	CW measurement, pulse light measurement, external trigger measurement, gate measurement, air/vacuum wavelength measurement
	Other	Sweep status output, analog output
Display	Vertical scale	Level scale (0.1 to 10 dB/div, linear), level subscale (0.1 to 10 dB/div, linear), reference level, divisions (8, 10), percentage (%), power spectral density (dB/nm), noise mask
	Horizontal scale	Wavelength (nm), frequency (THz), trace zoom in/out
	Display items	Measurement conditions, traces, data table, labels
Trace	Display function	7 independent traces, MAX/MIN hold, trace-to-trace calculation, normalization, rolling average (2 to 100), curve fitting, peak curve fitting, marker curve fitting
	Other	Trace copy, trace clear, write mode fixed mode setting, show/hide setting
Marker and search	Marker	Delta markers (up to 1024 markers), power spectral density markers, power integral markers, line markers
	Search	Peak search (single/multi), bottom search (single/multi), auto search (ON/OFF), search between wavelength line markers, search within zoom area
Data analysis		Spectral width analysis (Threshold, Envelope, RMS, Peak-RMS, Notch), WDM (OSNR) analysis, EDFA-NF analysis, filter analysis (peak/bottom), WDM filter analysis (peak/bottom), DFB-LD analysis, FP-LD analysis, LED analysis, ITLA analysis, SMSR analysis, power analysis, auto analysis ON/OFF, analysis between wavelength line markers, analysis in the zoom area
Applications		SC light source test, WDM test, DFB-LD test, LED test, FP-LD test, fiber end face test, application management (add/remove), program
Other	Alignment	Auto alignment using built-in calibration light source (when the built-in light source specification is -L1) or an external light source
	Wavelength Calibration	Auto wavelength calibration using built-in calibration light source (when the built-in light source specification is -L1) or an external light source
	Resolution calibration	User-defined resolution calibration using an external light source

Safety Standards, EMC Standards and Environmental Standards

Safety specifications, EMC and environmental standards are the same as those of standard model of the AQ6370E.