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Agilent 81662A DFB Laser
Agilent 81663A DFB Laser
Agilent Fabry-Perot Lasers

Technical Specifications
May 2003



The Agilent 81662A low power and 81663A high power DFB Laser Source modules are best suited for optical amplifier test and DWDM system test applications.

The Agilent Fabry-Perot Laser Sources are available as single or dual wavelength sources, are insensitive to back reflections, and are stabilized for short and long term applications.

The DFB and FP Laser Source modules are part of the flexible Agilent Lightwave Solution platform and have a future-proof design that allows for easy firmware upgrades.

Agilent Technologies

Fabry-Perot source module specifications
(Standard modules, 0dBm)

Specifications apply to the end of a 2m long fiber cable (as specified under fiber type) with Diamond® HMS-10/Agilent connectors attached. All specifications are valid for an attenuation setting of 0.0 dB. All modules require straight output connectors.

	Agilent 81650A	**Agilent 81651A**	**Agilent 81654A**
Type	Fabry-Perot Laser		
Center wavelength [1]	1310 nm ±15 nm	1550 nm ±15 nm	1310/1550nm ± 15 nm
Fiber type	single-mode 9/125µm		
Spectral bandwidth (rms) [1] [2]	<3.5 nm	<4.5 nm	<3.5nm/ 4.5nm
Output power	>0 dBm (1mW)		
CW power stability [3] [4] - short term (15 min.) - long term (24 h) - to back reflection (RL ≥ 14dB)	<± 0.005 dB typ. <±0.003 dB with coherence control active typ. ± 0.03 dB typ±0.003 dB		
Dimensions (H x W x D)	75 mm x 32 mm x 335 mm (2.8" x 1.3" x 13.2")		
Weight	0.5 kg		
Recalibration period	2 years		
Operating temperature	0°C to 45°C		
Humidity	Non condensing		
Warm-up time	60 minutes [3]		

[1] Center wavelength is shown on display
[2] rms: root mean square
[3] Warm-up time 20 min, if previously stored at the same temperature.
[4] Controlled environment ($_{\Delta}T = \pm 1$ °C)

Supplementary performance characteristics:

Internal digital modulation mode:
270 Hz, 330 Hz, 1 kHz, 2 kHz
and free selection 200 Hz to 10 kHz.
All output signals are pulse shaped, duty cycle 50%.
Internal coherence control for linewidth broadening.

Output attenuation:
The output power of all source modules can be attenuated from 0 dB to 6 dB in steps of 0.1 dB.

Laser Safety Information

All laser sources listed above are classified as Class 1 according to IEC 60825-1 (2001).
All laser sources comply with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50, dated 2001-July-26.



Fabry-Perot source module specifications
(High power modules, 13dBm)

Specifications apply to the end of a 2m long fiber cable (as specified under fiber type) with Diamond® HMS-10/Agilent connectors attached. All specifications are valid for an attenuation setting of 0.0 dB. All modules require straight output connectors.

	Agilent 81655A	Agilent 81656A	Agilent 81657A
Type	Fabry-Perot Laser		
Center wavelength [1]	1310 nm ± 15 nm	1550 nm ± 15 nm	1310/1550 nm ± 15 nm
Fiber type	Standard single-mode 9 / 125 μm		
Spectral bandwidth (rms) [1] [2]	<5.5 nm	<7.5 nm	<5.5 nm/7.5 nm
Output power	>+13 dBm (20 mW)		
CW power stability [3] [4] - short term (15 min.) - long term (24 h) - to back reflection (RL ≥14dB)	<±0.005 dB typ <± 0.003 dB with coherence control active typ. ±0.03 dB typ ± 0.003 dB		
Dimensions (H x W x D)	75 mm H x 32 mm W x 335 mm (2.8" x 1.3" x 13.2")		
Weight	0.5 kg		
Recalibration period	2 years		
Operating temperature	0°C to 45 °C		
Humidity	Noncondensing		
Warm-up time	60 min [3]		

[1] Central wavelength is shown on display
[2] rms: root mean square
[3] Warm-up time 20 min, if previously stored at the same temperature.
[4] Controlled environment ($_{\Delta}T = \pm 1$ °C).

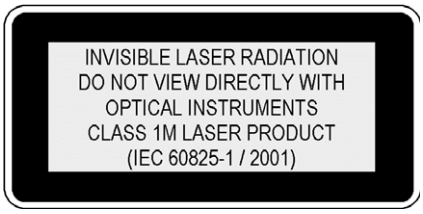
Supplementary performance characteristics:

Internal digital modulation mode:
270 Hz, 330 Hz, 1 kHz, 2 kHz
and free selection 200 Hz to 10 kHz.
All output signals are pulse shaped, duty cycle 50 %.
Internal coherence control for linewidth broadening

Output attenuation:
The output power of all source modules can be attenuated from 0dB to 6dB in steps of 0.1 dB.

Laser Safety Information

All laser sources listed above are classified as Class 1M according to IEC 60825-1 (2001).
All laser sources comply with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50, dated 2001-July-26.



DFB source module specifications

Specifications apply to maximum power setting.

	Agilent 81662A For Peak Wavelengths see options	**Agilent 81663A For Peak Wavelengths see options**
Type	CW DFB Laser with built-in isolator	CW DFB Laser with built-in isolator
Wavelength [1] [2] • Tuning Range • Display Resolution • Repeatability [4] • Stability (15min.) [3] [4] • Stability (24h) [3] [4]	ITU Grid (100 GHz) typ. > ±500 pm 10 pm ±3 pm (typ. ±1 pm) ± 3 pm (typ ±1 pm) typ. ±5 pm	ITU Grid (100 GHz) typ. > ±850 pm [7] 10 pm ±5 pm (typ. ±2 pm) ± 5 pm (typ ±2 pm) typ. ±5 pm
Fiber type	Panda PMF 9 / 125 μm	Panda PMF 9 / 125 μm
Output Connector [6]	Compatible to angled contact APC, ASC, DIN47256/4108	Compatible to angled contact APC, ASC, DIN47256/4108
Power • Max. Output [5] • CW Stability (15min) [4] • CW Stability (24 h) [3] [4]	typ. > +10 dBm (10 mW) typ. ±0.005 dB typ. ±0.03 dB	typ. > +13 dBm (20 mW) typ. ±0.003 dB typ. ±0.01 dB
Side Mode Suppression Ratio (SMSR) [5]	typ. 45 dB	typ. 50 dB
Polarization Extinction Ratio (PER)	typ. > 20 dB	typ. > 20 dB
Dimensions (H x W x D)	75 mm H x 32 mm W x 335 mm D (2.8″ x 1.3″ x 13.2″)	75 mm H x 32 mm W x 335 mm D (2.8″ x 1.3″ x 13.2″)
Weight	0.5kg	0.5kg
Recalibration Period	1 year	1 year
Operating Temperature	15°C to 35 °C	15°C to 35 °C
Warm-up time [3]	60 min	60 min

[1] ITU-grid wavelength is shown on display as default.
[2] Via GPIB tuning resolution < 10 pm.
[3] If previously stored at the same temperature 20 min.
[4] Controlled environment $_{\Delta}T = \pm 1$ °C.
[5] At maximum power setting and default wavelength at the end of a 2 m SM patchcord.
[6] Connector interface not included.
[7] Valid for serial numbers starting with prefix DE417 and above.

81662A/ 81663A option	ITU Frequency [THz]	Center Wavelength [nm]	81662A/ 81663A option	ITU Frequency [THz]	Center Wavelength [nm]	81662A/ 81663A option	ITU Frequency [THz]	Center Wavelength [nm]
309	196,00	1.529,55	375	192,70	1.555,75	441	189.40	1,582.85
311	195,90	1.530,33	377	192,60	1.556,55	443	189.30	1,583.69
313	195,80	1.531,12	379	192,50	1.557,36	445	189.20	1,584.53
315	195,70	1.531,90	381	192,40	1.558,17	447	189.10	1,585.36
317	195,60	1.532,68	383	192,30	1.558,98	449	189.00	1,586.20
319	195,50	1.533,47	385	192,20	1.559,79	451	188.90	1,587.04
321	195,40	1.534,25	387	192,10	1.560,61	453	188.80	1,587.88
323	195,30	1.535,04	389	192,00	1.561,42	455	188.70	1,588.73
325	195,20	1.535,82	391	191,90	1.562,23	457	188.60	1,589.57
327	195,10	1.536,61	393	191,80	1.563,05	459	188.50	1,590.41
329	195,00	1.537,40	395	191,70	1.563,86	461	188.40	1,591.26
331	194,90	1.538,19	397	191.60	1,564.68	463	188.30	1,592.10
333	194,80	1.538,98	399	191.50	1,565.50	465	188.20	1,592.95
335	194,70	1.539,77	401	191.40	1,566.31	467	188.10	1,593.79
337	194,60	1.540,56	403	191.30	1.567.13	469	188.00	1,594.64
339	194,50	1.541,35	405	191.20	1,567.95	471	187.90	1,595.49
341	194,40	1.542,14	407	191.10	1,568.77	473	187.80	1,596.34
343	194,30	1.542,94	409	191.00	1,569.59	475	187.70	1,597.19
345	194,20	1.543,73	411	190.90	1,570.42	477	187.60	1,598.04
347	194,10	1.544,53	413	190.80	1,571.24	479	187.50	1,598.89
349	194,00	1.545,32	415	190.70	1,572.06	481	187.40	1,599.75
351	193,90	1.546,12	417	190.60	1,572.89	483	187.30	1,600.60
353	193,80	1.546,92	419	190.50	1,573.71	485	187.20	1,601.46
355	193,70	1.547,72	421	190.40	1,574.54	487	187.10	1,602.31
357	193,60	1.548,51	423	190.30	1,575.37	489	187.00	1,603.17
359	193,50	1.549,32	425	190.20	1,576.20	491	186.90	1,604.03
361	193,40	1.550,12	427	190.10	1,577.03	493	186.80	1,604.88
363	193,30	1.550,92	429	190.00	1,577.86	495	186.70	1,605.74
365	193,20	1.551,72	431	189.90	1,578.69	497	186.60	1,606.60
367	193,10	1.552,52	433	189.80	1,579.52	499	186.50	1,607.47
369	193,00	1.553,33	435	189.70	1,580.35	501	186.40	1,608.33
371	192,90	1.554,13	437	189.60	1,581.18	503	186.30	1,609.19
373	192,80	1.554,94	439	189.50	1,582.02	505	186.20	1,610.06

Supplementary Performance Characteristics:

- Internal digital modulation mode:
  Free selection 200 Hz to 100 kHz.
  All output signals are pulse shaped, duty cycle 50%.
- Internal coherence control for linewidth broadening.
- ON-switching with fast output power stabilization <20 s.
- Output power "attenuation" at default wavelength 6 dB in steps of 0.1 dB.
- Tuning speed over full range 30 s.
- Polarization maintaining fiber orientation:
  TE mode in slow axis, in line with connector key.

Laser Safety Information

The 81662A and 81663A DFB Laser Sources listed above are classified as Class 1M according to IEC 60825-1 (2001). All laser sources comply with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50, dated 2001-July-26.



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For related literature, please visit:

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