

Agilent 81682A, Agilent 81642A  
and Agilent 81689A

	Agilent 81682A	Agilent 81642A	Agilent 81689A
<b>Wavelength range</b>	1460 nm to 1580 nm	1510 nm to 1640 nm	1525 nm to 1575 nm
<b>Wavelength resolution</b>	0.1 pm, 12.5 MHz at 1550 nm	0.1 pm, 12.5 MHz at 1550 nm	0.01 nm, 1.25 GHz at 1550 nm
<b>Mode hop-free tuning range</b>	1460 nm to 1580 nm	full wavelength range	
<b>Absolute wavelength accuracy</b>	$\pm 0.01 \text{ nm}^{1,2}$	$\pm 0.015 \text{ nm}^{1,2}$	$\pm 0.3 \text{ nm, typ.}^2$
<b>Relative wavelength accuracy</b>	$\pm 5 \text{ pm, typ.} \pm 2 \text{ pm}^{1,2}$	$\pm 7 \text{ pm, typ.} \pm 3 \text{ pm}^{1,2}$	$\pm 0.3 \text{ nm}^2$
<b>Wavelength repeatability</b>	$\pm 1 \text{ pm, typ.} \pm 0.5 \text{ pm}^2$	$\pm 1 \text{ pm, typ.} \pm 0.5 \text{ pm}^2$	$\pm 0.05 \text{ nm}^2$
<b>Wavelength stability (typ. over 24 hours at constant temperature)</b>	$< \pm 1 \text{ pm}^2$	$< \pm 1 \text{ pm}^2$	$< \pm 0.02 \text{ nm}^2$
<b>Tuning speed</b>	400 ms/600 ms/2.8 s (typ. for a 1/10/100 nm step)	400 ms/600 ms/2.8 s (typ. for a 1/10/100 nm step)	< 10 sec/50 nm (typ.)
<b>Linewidth (typ.)</b>	100 kHz, coherence control off	100 kHz, coherence control off	20 MHz <sup>3</sup>
<b>Effective linewidth (typ.), coherence control on</b>	> 50 MHz (1480-1580 nm, at maximum flat output power)	> 50 MHz (1520-1620 nm, at maximum flat output power)	--
<b>Output power (continuous power during tuning)</b>	$\geq 8 \text{ dBm peak typ.}$ $\geq 6 \text{ dBm (1520 - 1570 nm)}$ $\geq 2 \text{ dBm (1480 - 1580 nm)}$ $\geq -3 \text{ dBm (1460-1580 nm)}$	$\geq 7 \text{ dBm peak typ.}$ $\geq 6 \text{ dBm (1560 - 1610 nm)}$ $\geq 4 \text{ dBm (1530 - 1610 nm)}$ $\geq 2 \text{ dBm (1520 - 1620 nm)}$ $\geq -3 \text{ dBm (1510-1640 nm)}$	$\geq 6 \text{ dBm (1525 - 1575 nm)}$
<b>/with option #003</b>	reduce by 1.5 dB <sup>4</sup>	reduce by 1.5 dB <sup>4</sup>	--
<b>Minimum output power</b>	-3 dBm	-3 dBm	-3 dBm
<b>/with option #003</b>	-4.5 dBm (-60 dBm in attenuation mode) <sup>4</sup>	-4.5 dBm (-60 dBm in attenuation mode) <sup>4</sup>	
<b>Power stability</b>	$\pm 0.01 \text{ dB, 1 hour}^{10}$ typ. $\pm 0.03 \text{ dB, 24 hours}^{10}$	$\pm 0.01 \text{ dB, 1 hour}^{10}$ typ. $\pm 0.03 \text{ dB, 24 hours}^{10}$	$\pm 0.03 \text{ dB, 1 hour}^9$ $\pm 0.06 \text{ dB, 24 hours}^9$
<b>Power repeatability (typ.)</b>	$\pm 0.01 \text{ dB}$	$\pm 0.01 \text{ dB}$	$\pm 0.02 \text{ dB}^9$
<b>Power linearity (typ.)</b>	$\pm 0.1 \text{ dB}$	$\pm 0.3 \text{ dB}$	$\pm 0.1 \text{ dB}$
<b>/with option #003</b>	$\pm 0.2 \text{ dB}^4$	$\pm 0.3 \text{ dB}^4$	
<b>Power flatness versus wavelength</b>	$\pm 0.2 \text{ dB, typ.} \pm 0.1 \text{ dB}$	$\pm 0.3 \text{ dB, typ.} \pm 0.15 \text{ dB}$	$\pm 0.3 \text{ dB}$
<b>/with option #003</b>	$\pm 0.3 \text{ dB, typ.} \pm 0.2 \text{ dB}^4$	$\pm 0.3 \text{ dB}^4$	

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<b>Side-mode Suppression ratio (typ.)</b>	≥40 dBc (1480 - 1580 nm) <sup>5,8</sup>	≥40 dBc (1530 - 1610 nm) <sup>5,8</sup>	>40 dBc (1525 - 1575 nm at 0 dBm) <sup>5</sup>
<b>Signal-to-Source Spontaneous Emission Ratio</b>	≥ 45 dB/nm (1520 - 1570 nm) <sup>6,8</sup> ≥40 dB/nm (1480 - 1580 nm) <sup>6,8</sup> ≥35 dB/nm (1460 - 1580 nm) <sup>6,8</sup>	≥ 45 dB/nm (1530 - 1610 nm) <sup>6,8</sup> ≥40 dB/nm (1520 - 1620 nm) <sup>6,8</sup> ≥35 dB/nm (1510 - 1640 nm) <sup>6,8</sup>	≥ 39 dB/nm (1525 - 1575 nm at 6 dBm) <sup>6</sup>
<b>Signal-to-Total-Source Spontaneous Emission Ratio</b>	≥30 dB (1520 - 1570 nm) <sup>7,8</sup>	≥27 dB (1530 - 1610 nm) <sup>7,8</sup>	--
<b>Relative Intensity noise (RIN, typ.)</b>	-145 dB/Hz (1460 - 1580 nm) <sup>8</sup>	-145 dB/Hz (1530 - 1610 nm) <sup>8</sup>	< -140 dB/Hz (100 MHz - 2.5 GHz)
<b>Dimensions</b>	--	--	75mmH, 32mmW, 335 mmD (2.8" × 1.3" × 13.2")
<b>Weight</b>	--	--	1kg
<p>1. Valid for one month and within a ±5K temperature range after automatic wavelength zeroing.</p> <p>2. At CW operation. Measured with wavelength meter based on wavelength in vacuum.</p> <p>3. Measured by heterodyning method with 20ms sweep time, 50MHz span, 1MHz resolution.</p> <p>4. Option #003: built-in optical attenuator.</p> <p>5. Measured by heterodyning method.</p> <p>6. Measured with optical spectrum analyzer at 1nm resolution bandwidth.</p> <p>7. Measured with optical spectrum analyzer.</p> <p>8. Output power as specified per wavelength range.</p> <p>9. 500ms after changing power.</p> <p>10. Warmup time: 1 hour</p>			