# GN NetTest CMA4000 CMA4436 Specs

# Provided by www.AAATesters.com

**CMA4000 Specifications** 

Display VGA LCD Display (8.4" color or 8.2" monochrome)

Mass Storage Up to 125 traces internal storage. Over 65,000 traces with optional hard drive.

Up to 180 traces for a standard 3.5 inch, 1.44 MB floppy disk.

Floppy disk drive comes standard

Stored Data Points up to 16,000

Group Refractive Index Setting 1.400000 - 1.699999

Loss Modes ORL, 2-point, 2-point LSA, dB/KM, dB/KM LSA, splice, reflectance

Trace Compare Modes Overlay, Delta Trace Compare, Align

**Data Acquisition** Real Time, Fast Scan, Medium Scan, Slow Scan, Timed Average (user selectable)

Information Output Trace display, FAS event table, integrated trace display with event information window, header page,

measurement parameters, ASCII report

Analysis High speed integrated fiber analysis

Vertical Scale Settings 0.125/0.25/0.5/1/2/4/8 dB (module dependent)

Horizontal Scale Settings 0.001 km/div. to 0.448 km/div @ 2 km; 0.001 km/div. to 57.304 km/div. @ 256 km (IOR = 1.5)

I/O Ports Standard: Integral alpha-numeric keyboard, (2) RS-232 Serial, (1) Parallel, VGA, Mouse,

External Keyboard Port

Language Capability English standard (others per request and may require hard drive option)

Physical Dimensions & Weight 9.5" H x 13.5" W x 3.75" D (24.1 x 34.3 x 9.5 cm) / 11.0 lbs. (4.9 kg)

Includes mainframe, battery and one module

Power

Power Supply Autoswitching 92-132 VAC, 47-63 Hz [weight 1.7 lbs. (.77 kg)]

184-264 VAC, 47-63 Hz

Battery Sealed Lead Acid Battery Pack [weight 1.4 lbs (0.63 kg)]

Battery Life up to 9 hours maximum per battery,

depending on operating mode

Recharge Time 1.5 - 2 hours

Environmental

Operation: AC Power Battery

Temperature 0°C to 45°C (32°F to 122°F) 0°C to 40°C (32°F to 104°F)

Humidity 95% RH max., non-condensing 95% RH max., non-condensing

Maximum Altitude 50,000 feet 50,000 feet

Storage:

Temperature -25°C to 60°C (-13°F to 140°F) Humidity 95% RH max., non-condensing

Maximum Altitude 50,000 feet

# Optical Module Specifications [All measurements made using FC/SPC connectors at 25°C (77°F)]

	4415	4414	4413
enter Wavelength	1310 nm ± 20 nm	1550 nm ± 30 nm	1310 nm ± 20 nm
	1550 nm ± 30 nm		
iber Type	Singlemode 9/125µ	Singlemode 9/125µ	Singlemode 9/125µ
pectral Width (RMS)	1310 nm: ≤ 10 nm	1550 nm: ≤ 10 nm	1310 nm: ≤ 10 nm
_	1550 nm: ≤ 10 nm		
ynamic Range <sup>1</sup>	1310 nm: 30 dB	1550 nm: 28 dB	1310 nm: 30 dB
(SNR = 1)	1550 nm: 28 dB		
nitial Reflective Deadzone <sup>2</sup>	1310 nm: 3 meters (typical)	1550 nm: 3 meters (typical)	1310 nm: 3 meters (typical)
	1550 nm: 3 meters (typical)		
nitial Non-Reflective Deadzone <sup>2</sup>	1310 nm: 10 meters (typical)	1550 nm: 12 meters (typical)	1310 nm: 10 meters (typical)
	1550 nm: 12 meters (typical)	•	
ulsewidth	10 ns to 10µs		
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1	ft, 0.0001 mi	
istance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (rang	dependent)	
Distance Accuracy		± distance resolution ± index uncertainty	
stance Range Setting	2/4/8/16/32/64/128/256 km	,	
oss Resolution	0.001 dB		
aser Safety	Meets CDRH Class 1 Requirements	(Eve Safe) 21 CFR	
ase. salety	Meets epini class i nequirements	(Lyc sure) LT C.T.	
/lodels	4425	4424	4423
enter Wavelength	1310 nm ± 20 nm	1550 nm ± 20 nm	1310 nm ± 20 nm
	1550 nm ± 20 nm		
iber Type	Singlemode 9/125µ	Singlemode 9/125µ	Singlemode 9/125µ
pectral Width (RMS)	1310 nm: ≤ 10 nm	1550 nm: ≤ 10 nm	1310 nm: ≤ 10 nm
pectral wrath (MWIS)	1550 nm: ≤ 10 nm	1550 11111. 💆 10 11111	1510 11111. 🚊 10 11111
ynamic Range <sup>1</sup>	1310 nm: 36 dB	1550 nm: 34 dB	1310 nm: 36 dB
(SNR = 1)	1550 nm: 34 dB	1550 IIII. 54 db	13 10 IIIII. 30 GB
nitial Reflective Deadzone <sup>2</sup>	1310 nm: 3 meters (typical)	1EEO nm; 2 maters (typical)	1210 nm; 2 maters (typical)
ittal Kellective DeadZolle-		1550 nm: 3 meters (typical)	1310 nm: 3 meters (typical)
sitial Nam Baffartina Bandana 2	1550 nm: 3 meters (typical)	1550 12 (t:)\	1310 10 (+
nitial Non-Reflective Deadzone <sup>2</sup>	1310 nm: 10 meters (typical)	1550 nm: 12 meters (typical)	1310 nm: 10 meters (typical)
	1550 nm: 12 meters (typical)		
ulsewidth	10 ns to 10μs	6	
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1		
Distance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (rang		
Distance Accuracy		± distance resolution ± index uncertainty	
Distance Range Setting	2/4/8/16/32/64/128/256 km		
	0.001 dB		
oss Resolution			
oss Resolution aser Safety	Meets CDRH Class 1 Requirements	(Eye Sate) 21 CFR	
aser Safety			
aser Safety <b>Todels</b>	4438	4436	<b>4534</b>
aser Safety <b>/lodels</b>		<b>4436</b> 1310 nm ± 20 nm	<b>4534</b> 1550 nm ± 20 nm
aser Safety  //odels enter Wavelength	<b>4438</b> 1550 nm ± 20 nm	4436 1310 nm ± 20 nm 1550 nm ± 20 nm	1550 nm ± 20 nm
aser Safety  //odels enter Wavelength iber Type	4438 1550 nm ± 20 nm Singlemode	<b>4436</b> 1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ	1550 nm ± 20 nm Singlemode 9/125µ
aser Safety  //odels enter Wavelength iber Type	<b>4438</b> 1550 nm ± 20 nm	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125µ 1310 nm: ≤ 10 nm	1550 nm ± 20 nm
Allower Safety  Allower Mavelength  iber Type pectral Width (RMS)	4438 1550 nm ± 20 nm Singlemode ≤15 nm	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125µ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm	1550 nm ± 20 nm Singlemode 9/125µ 1550 nm: ≤ 10 nm
Models enter Wavelength iber Type pectral Width (RMS)	4438 1550 nm ± 20 nm Singlemode	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB	1550 nm ± 20 nm Singlemode 9/125µ
All Andrews An	4438 1550 nm ± 20 nm Singlemode ≤15 nm 46.0 dB	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB	1550 nm ± 20 nm Singlemode 9/125µ 1550 nm: ≤ 10 nm 1550 nm: 40 dB
Models enter Wavelength iber Type pectral Width (RMS) dynamic Range 1 (SNR = 1)	4438 1550 nm ± 20 nm Singlemode ≤15 nm	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical)	1550 nm ± 20 nm Singlemode 9/125µ 1550 nm: ≤ 10 nm
All Andrews An	4438 1550 nm ± 20 nm Singlemode ≤15 nm 46.0 dB	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB	1550 nm ± 20 nm Singlemode 9/125µ 1550 nm: ≤ 10 nm 1550 nm: 40 dB
All Andrews An	4438 1550 nm ± 20 nm Singlemode ≤15 nm 46.0 dB	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical)	1550 nm ± 20 nm Singlemode 9/125µ 1550 nm: ≤ 10 nm 1550 nm: 40 dB
All Andrews An	4438 1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical)	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical
Models enter Wavelength iber Type pectral Width (RMS)  Pynamic Range <sup>1</sup> (SNR = 1) nitial Reflective Deadzone <sup>2</sup>	4438 1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1310 nm: 6 meters (typical)	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)
Models enter Wavelength iber Type pectral Width (RMS)  Pynamic Range <sup>1</sup> (SNR = 1) nitial Reflective Deadzone <sup>2</sup> ulsewidth	4438 1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters 5 meters	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1310 nm: 6 meters (typical) 1550 nm: 6 meters (typical) 10 ns to 20μs (wavelength dependent)	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)
Models enter Wavelength iber Type pectral Width (RMS)  Pynamic Range <sup>1</sup> (SNR = 1) nitial Reflective Deadzone <sup>2</sup> ulsewidth pistance Resolution	4438  1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters 5 meters  0.0001 km; 0.1 meters; 0.001 kft, 1	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1550 nm: 6 meters (typical) 1550 nm: 6 meters (typical) 10 ns to 20μs (wavelength dependent) ft, 0.001 mi	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)
All Andrews An	4438  1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters  5 meters  0.0001 km; 0.1 meters; 0.001 kft, 1 0.25, 0.5, 1, 2, 4, 8, 16 meters (rang	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1550 nm: 6 meters (typical) 1550 nm: 6 meters (typical) 10 ns to 20μs (wavelength dependent) ft, 0.001 mi ge dependent)	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)
All Andrews Accuracy  Models  Interview Accuracy  Models  Models  Interview Accuracy  Models  Models  Interview Accuracy  Models  Models  Interview Accuracy  Models	4438  1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters  5 meters  0.0001 km; 0.1 meters; 0.001 kft, 1 0.25, 0.5, 1, 2, 4, 8, 16 meters (rang 0.0025% of distance measurement ± 10.0000000000000000000000000000000000	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1550 nm: 6 meters (typical) 1550 nm: 6 meters (typical) 10 ns to 20μs (wavelength dependent) ft, 0.001 mi	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)
Models  Jenter Wavelength  John Type  pectral Width (RMS)  Dynamic Range 1  (SNR = 1)  Initial Reflective Deadzone 2  Initial Non-Reflective Deadzone 2  John Stance Resolution  Distance Sampling  Distance Accuracy  Distance Range Setting	4438  1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters  5 meters  0.0001 km; 0.1 meters; 0.001 kft, 1 0.25, 0.5, 1, 2, 4, 8, 16 meters (rang 0.0025% of distance measurement ± 2/4/8/16/32/64/128/256 km	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1550 nm: 6 meters (typical) 1550 nm: 6 meters (typical) 10 ns to 20μs (wavelength dependent) ft, 0.001 mi ge dependent)	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)
All Andrews Accuracy  Models  Interview Accuracy  Models  Models  Interview Accuracy  Models  Models  Interview Accuracy  Models  Models  Interview Accuracy  Models	4438  1550 nm ± 20 nm  Singlemode ≤15 nm  46.0 dB  3 meters  5 meters  0.0001 km; 0.1 meters; 0.001 kft, 1 0.25, 0.5, 1, 2, 4, 8, 16 meters (rang 0.0025% of distance measurement ± 10.0000000000000000000000000000000000	4436  1310 nm ± 20 nm 1550 nm ± 20 nm Singlemode 9/125μ 1310 nm: ≤ 10 nm 1550 nm: ≤ 10 nm 1310 nm: 40 dB 1550 nm: 40 dB 1310 nm: 3.5 meters (typical) 1550 nm: 3.5 meters (typical) 1550 nm: 6 meters (typical) 1550 nm: 6 weters (typical) 10 ns to 20μs (wavelength dependent) ft, 0.001 mi ge dependent) ± distance resolution ± index uncertainty	1550 nm ± 20 nm  Singlemode 9/125µ 1550 nm: ≤ 10 nm  1550 nm: 40 dB  1550 nm: 3.5 meters (typical)

#### Notes:

<sup>1.</sup> Subtract approximately 2 dB of range to 98% peak noise. Bellcore TR-TSY-000196 Issue 2  $\,$ 

<sup>2.</sup> Using Bellcore TR-TSY-000196 Issue 2. Deadzones measured on -45 dB reflections.

Models	4442	4441	4440
Center Wavelength	850 nm ± 20 nm	1300 nm ± 20 nm	850 nm ± 20 nm
	1300 nm ± 20 nm		
Fiber Type	Multimode	Multimode	Multimode
Spectral Width (RMS)	850 nm: ≤ 10 nm	1300 nm: ≤ 10 nm	850 nm: ≤ 10 nm
_	1300 nm: ≤ 10 nm		
Dynamic Range <sup>1</sup>	850 nm: 23 dB	1300 nm: 26 dB	850 nm: 23 dB
(SNR = 1)	1300 nm: 26 dB		
Initial Reflective Deadzone <sup>2</sup>	850 nm: 3.5 meters (typical)	1300 nm: 3 meters (typical)	850 nm: 3.5 meters (typical)
	1300 nm: 3 meters (typical)		
Initial Non-Reflective Deadzone <sup>2</sup>	850 nm: 6.5 meters (typical)	1300 nm: 7 meters (typical)	850 nm: 6.5 meters (typical)
	1300 nm: 7 meters (typical)		
Pulsewidth	4 ns to 1µs (wavelength dependent)		
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1 ft,	0.0001 mi	
Distance Sampling	0.25, 0.5, 1, 2, 4, 8 meters (range dependent)		
Distance Accuracy	0.0025% of distance measurement ± distance resolution ± index uncertainty		
Distance Range Setting	2/4/8/16/32/64 km		
Loss Resolution	0.001 dB		
Laser Safety	Meets CDRH Class 1 Requirements (Eye	e Safe) 21 CFR	

Models	4456	4457
Center Wavelength	850 nm ± 20 nm	850 nm ± 20 nm
	1300 nm ± 20 nm	1300 nm ± 20 nm
	1310 nm ± 20 nm	1310 nm ± 20 nm
	1550 nm ± 20 nm	1550 nm ± 30 nm
Fiber Type	Multimode and Singlemode	Multimode and Singlemode
Spectral Width (RMS)	850 nm: ≤ 10 nm	850 nm: ≤ 10 nm
	1300 nm: ≤ 10 nm	1300 nm: ≤ 10 nm
	1310 nm: ≤ 10 nm	1310 nm: ≤ 10 nm
	1550 nm: ≤ 10 nm	1550 nm: ≤ 10 nm
Dynamic Range <sup>1</sup>	850 nm: 23 dB	850 nm: 21 dB
(SNR = 1)	1300 nm: 26 dB	1300 nm: 24 dB
	1310 nm: 21.5 dB	1310 nm: 32 dB
	1550 nm: 21 dB	1550 nm: 30 dB
Initial Reflective Deadzone <sup>2</sup>	850 nm: 3.5 meters (typical)	850 nm: 3.5 meters (typical)
	1300 nm: 2.5 meters (typical)	1300 nm: 2.5 meters (typical)
	1310 nm: 3 meters (typical)	1310 nm: 3 meters (typical)
_	1550 nm: 3 meters (typical)	1550 nm: 3 meters (typical)
Initial Non-Reflective Deadzone <sup>2</sup>	850 nm: 6.5 meters (typical)	850 nm: 6.5 meters (typical)
	1300 nm: 7 meters (typical)	1300 nm: 7 meters (typical)
	1310 nm: 10 meters (typical)	1310 nm: 15 meters (typical)
	1550 nm: 12 meters (typical)	1550 nm: 20 meters (typical)
Pulsewidth	4 ns to 10 μs (wavelength dependent)	4 ns to 10 μs (wavelength dependent)
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi
Distance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)
Distance Accuracy	0.0025% of distance measurement ± distance	0.0025% of distance measurement ± distance
	resolution ± index uncertainty	resolution ± index uncertainty
Distance Range Setting	2/4/8/16/32/64/128/256 km (wavelength dependent)	2/4/8/16/32/64/128/256 km (wavelength dependent)
Loss Resolution	0.001 dB	0.001 dB
Laser Safety	Meets CDRH Class 1 Requirements (Eye Safe) 21 CFR	Meets CDRH Class 1 Requirements (Eye Safe) 21 CFR

### Notes:

- 1. Subtract approximately 2 dB of range to 98% peak noise. Bellcore TR-TSY-000196 Issue 2 2. Using Bellcore TR-TSY-000196 Issue 2. Deadzones measured on -45 dB reflections.

Models	4461	4462
Center Wavelength	1240 nm ± 6 nm	1240 nm ± 6 nm
		1310 nm ± 20 nm
Fiber Type	Singlemode	Singlemode
Spectral Width (RMS)	1240 nm: ≤ 15 nm	1240 nm: ≤ 15 nm
4		1310 nm: ≤ 15 nm
Dynamic Range <sup>1</sup>	1240 nm: 36 dB	1240 nm: 34 dB
(SNR = 1)		1310 nm: 34 dB
nitial Reflective Deadzone <sup>2</sup>	1240 nm: 3 meters (typical)	1240 nm: 3 meters (typical)
		1310 nm: 3 meters (typical)
nitial Non-Reflective Deadzone <sup>2</sup>	1240 nm: 10 meters (typical)	1240 nm: 10 meters (typical) 1310 nm: 10 meters (typical)
Pulsewidth		13 To Till. To meters (typical)
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi
Distance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)
Distance Accuracy	0.0025% of distance measurement ± distance	0.0025% of distance measurement ± distance
•	resolution ± index uncertainty	resolution ± index uncertainty
Distance Range Setting	2/4/8/16/32/64/128/256 km	2/4/8/16/32/64/128/256 km
oss Resolution	0.001 dB	0.001 dB
aser Safety	Meets CDRH Class 1 Requirements (Eye Safe) 21 CFR	Meets CDRH Class 1 Requirements (Eye Safe) 21 CF
Models	4463	4464
Center Wavelength	1240 nm ± 6 nm	1240 nm ± 6 nm
	1550 nm ± 20 nm	1625 nm ± 10 nm
iber Type	Singlemode	Singlemode
pectral Width (RMS)	1240 nm: ≤ 15 nm	1240 nm: ≤ 15 nm
	1550 nm: ≤ 15 nm	1625 nm: ≤ 15 nm
Oynamic Range <sup>1</sup>	1240 nm: 36 dB	1240 nm: 36 dB
(SNR = 1)	1550 nm: 34 dB	1625 nm: 36 dB
nitial Reflective Deadzone <sup>2</sup>	1240 nm: 3 meters (typical)	1240 nm: 3 meters (typical)
Color Bullett	1550 nm: 3 meters (typical)	1625 nm: 3.5 meters (typical)
nitial Non-Reflective Deadzone <sup>2</sup>	1240 nm: 10 meters (typical) 1550 nm: 12 meters (typical)	1240 nm: 10 meters (typical) 1625 nm: 15 meters (typical)
Pulsewidth	(3)	(3)
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi
Distance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)
Distance Accuracy	0.0025% of distance measurement ± distance	0.0025% of distance measurement ± distance
•	resolution ± index uncertainty	resolution ± index uncertainty
Distance Range Setting	2/4/8/16/32/64/128/256 km	2/4/8/16/32/64/128/256 km
oss Resolution	0.001 dB	0.001 dB
aser Safety	Meets CDRH Class 1 Requirements (Eye Safe) 21 CFR	Meets CDRH Class 1 Requirements (Eye Safe) 21 CF
<b>Models</b> Tenter Wavelength	4471 1625 nm ± 10 nm	4472 1310 nm ± 20 nm
enter wavelength	102311111 ± 10 11111	1625 nm ± 10 nm
iber Type	Singlemode	Singlemode
pectral Width (RMS)	1625 nm: ≤ 10 nm	1310 nm: ≤ 10 nm
pectral width (kivis)	1023 11111. \( \sigma 10 11111	1625 nm: < 10 nm
Dynamic Range <sup>1</sup>	1625 nm: 36 dB	1310 nm: 36 dB
(SNR = 1)	1025 Hill. 50 GB	1625 nm: 36 dB
nitial Reflective Deadzone <sup>2</sup>	1625 nm: 4 motors (typical)	
inda Reflective Deduzoffe	1625 nm: 4 meters (typical)	1310 nm: 3 meters (typical) 1625 nm: 4 meters (typical)
nitial Non-Reflective Deadzone <sup>2</sup>	1625 nm: 12 meters (typical)	1310 nm: 10 meters (typical)
N. L. C. P. H.		1625 nm: 12 meters (typical)
Pulsewidth	0.00041	0.00041
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi
Distance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)
Distance Accuracy	0.0025% of distance measurement ± distance	0.0025% of distance measurement ± distance
Sistern Brown S. Hi	resolution ± index uncertainty	resolution ± index uncertainty
Distance Range Setting	2/4/8/16/32/64/128/256 km	2/4/8/16/32/64/128/256 km
Loss Resolution	0.001 dB	0.001 dB
Laser Safety	Meets CDRH Class 1 Requirements (Eye Safe) 21 CFR	Meets CDRH Class 1 Requirements (Eye Safe) 21 CF

Models	4473
Center Wavelength	1550 nm ± 20 nm
	1625 nm ± 10 nm
Fiber Type	Singlemode
Spectral Width (RMS)	1550 nm: ≤ 10 nm
	1625 nm: ≤ 10 nm
Dynamic Range <sup>1</sup>	1550 nm: 34 dB
(SNR = 1)	1625 nm: 36 dB
Initial Reflective Deadzone <sup>2</sup>	1550 nm: 4 meters (typical)
	1625 nm: 4 meters (typical)
Initial Non-Reflective Deadzone <sup>2</sup>	1550 nm: 12 meters (typical)
	1625 nm: 12 meters (typical)
Pulsewidth	
Distance Resolution	0.0001 km; 0.1 meters; 0.001 kft, 1 ft, 0.0001 mi
Distance Sampling	0.25, 0.5, 1, 2, 4, 8, 16 meters (range dependent)
Distance Accuracy	$0.0025\%$ of distance measurement $\pm$ distance resolution $\pm$ index uncertainty
Distance Range Setting	2/4/8/16/32/64/128/256 km
Loss Resolution	0.001 dB
Laser Safety	Meets CDRH Class 1 Requirements (Eye Safe) 21 CFR

#### Notes:

- 1. Subtract approximately 2 dB of range to 98% peak noise. Bellcore TR-TSY-000196 Issue 2
- 2. Using Bellcore TR-TSY-000196 Issue 2. Deadzones measured on -45 dB reflections.

### **Multi-Test Functions**

### Dual Source (441X and 442X optics only, factory installed)

Wavelength  $1310/1550 \pm 20 \text{ nm (except } 4457 \text{ module } 1550 \pm 30 \text{ nm)}$ 

-10 dBm (typical) Output Transmission Mode CW, 1 KHz and 2 KHz **Output Fiber** 9/125µm SM fiber **Optical Connector** Same as OTDR **Modes of Operation** CW, 1 KHz and 2 KHz Stability ± 0.2 dB (8 hours) Spectral Width Same as OTDR Safety Same as OTDR

## **Optical Meter (factory installed)** +20 dBm meter option available

Detector Type 2 mm Ge PIN photodiode

Wavelength 800 - 1800 nm

Range +10 to -55 dBm or +20 to -45 dBm with AM460 filter

Calibrated Wavelengths 3 total: 850, 1310, 1550
Universal Connector Yes (use AM-430-xx adapter caps)
Resolution 0.01 dB, dBm, 0.01% Watts

Store Reference Mode Yes

Accuracy  $\pm$  4% ( $\pm$  0.18 dB) @ +5 dBm to -50 dBm  $\pm$  8% ( $\pm$  0.36 dB) @ + 10 dBm to +5 dBm and

@ -50 dBm to -55 dBm + 0.04 dB. +5 dBm to -50

Linearity  $\pm$  0.04 dB, +5 dBm to -50 dBm

## Visual Fault Locator (field installed)

 $\begin{array}{lll} Wavelength & 635 \pm 10 \text{ nm} \\ \text{Output} & 0 \text{ dBm} \\ \text{Transmission Mode} & CW \text{ or 2 Hz} \\ \text{Output Fiber} & 9/125 \mu\text{m, SM fiber} \end{array}$ 

Optical Connector FC, SC, ST - fixed connector

Safety IEC 825 Class 2, FDA (21 CFR 1040. 10 class 2)

#### Note:

1. Specification applies to  $\pm 10$  dBm meter not to  $\pm 20$  dBm meter.

### CMA4000 Optional Accessories (must be added as separate line item):

TD-400	Hard transit case	TD-459US	US style keyboard
TD-410	Deluxe soft case	TD-459GE	German CE style keyboard
TD-415	Soft carry bag	TD-459FR	French CE style keyboard
TD-405	Printer w/cable	TD-459SP	Spanish CE style keyboard
TD-309	Printer paper (5 rolls/pack)	TD-459IT	Italian CE style keyboard
TD-409	Case of paper (5 packs/case)	TD-30163	Additional User's Manual
TD-453	12 v lead acid battery	TD-30162	Additional Training Manual
TD-29621	12 v DC power adapter	TD-30711	Parallel cable - DB25M to DB25M
TD-30710	Serial cable DB9F to DB9F (null)	TD-30712	Serial cable DB9F to DB9M (straight)

### CMA4000 Mainframe:

**Control Unit:** 

P/N TD-14XXX PC-based modular platform

### **Standard Accessories:**

- 8-inch VGA LCD display
- Multi-tasking operating system
- User's & Training Manuals
- 1 VGA port
- Internal memory (up to 140 traces)
- 1 carry strap
- AC adapter/charger
- AC line cord (choose style see below)
- 2 serial ports
- 1 parallel port
- 1 mouse port
- 1 PS/2 keyboard port
- 12 v rechargeable battery (qty 2)
- Floppy drive
- Built-in keyboard

### **AC Power Cord Options:**

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TD-11685	US power cord	TD-30362	Australian power cord
TD-30358	Euro power cord	TD-30359	UK power cord
TD-30361	Italian power cord	TD-30360	Swiss power cord

### **OTDR/Source Connector Adapter:**

Adapters for PC and Ultra Polish:

UC-130-10	Biconic	UC-130-35	SMA 905/906
UC-130-15	DIN 47256	UC-130-40	Diamond HP HMS-10
UC-130-20	D4	UC-130-45	Diamond HP HMS-0
UC-130-25	FC	UC-130-50	Diamond HP-HMS-10/A
UC-130-30	ST	UC-130-55	SC

### Adapters for Angle Polish:

UC-130-60	FC NTT	UC-130-70	DIN/HRL-10
UC-130-60A	FC Seiko Giken	UC-130-75	ST
UC-130-65	SC	UC-130-80	Diamond E-2000

Meter Connector Adapter (select one when ordering power meter):

AM-430-10	Biconic	AM-430-50	ST
AM-430-15	D4	AM-430-75	VFO/PFO
AM-430-20	SMA 906	AM-430-85	DIN
AM-430-25	Diamond GFS-3	AM-430-90	SC
AM-430-45	FC	AM-430-100	FDDI

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