

CMA 4500 Series

Optical Time Domain Reflectometer

The CMA 4500 continues NetTest's tradition as the industry's premier OTDR solution designed with the high performance and scalability necessary to meet the stringent demands of telecommunications professionals, while simultaneously accelerating the deployment of new services and reducing the total cost of measurement.

| Specifications ¹ | | |
|--------------------------------------|--|---|
| | Standard | Desktop |
| Operating System ² | Windows® XPe | Windows® XP Pro with desktop option |
| Data I/O (modular) | CD-R/W (optional) 3.5" 1.44 MB floppy drive (optional) | CD-R/W (standard) 3.5" 1.44 MB floppy drive (optional) |
| Data I/O (fixed) | 20 GB hard drive minimum (standard) | |
| Processor | Ultra-low power 300 MHz | |
| System Memory | 256 MB | |
| Display | Touch screen, 26.4 cm (10.4") XGA LCD (1024 x 768 pixel resolution) | |
| Control Interface | Touch screen, cursor control, dedicated hardkeys and status LEDs | |
| Standard I/O Ports | USB (2), Ethernet 10/100(1), IrDA (1), PS/2 Mouse (1), PS/2 Keyboard (1) | |
| Dimensions (H x W x D) | 24.1 x 34.3 x 9.5 cm (9.5 x 13.5 x 3.75 inches) | |
| Weight | 5.4 kg (12 lbs) includes 1 battery | |

NOTES:

¹ All specifications subject to change

² Although Windows® is the platform operating system, it is not accessible unless the desktop model is ordered

| Power Specifications | |
|----------------------|--|
| AC | Auto switching 92-132 VAC 47-63 Hz, 184-264 VAC 47-63 Hz |
| Battery | Li-Ion - 1 battery standard |
| Battery Life | >3 hours |
| Recharge Time | <3 hours |

| Environmental Specifications | | |
|------------------------------|-----------------------------|--------------------------------|
| | Operation | Storage |
| Temperature | 0° to 45° C (32° to 122° F) | -25° to 60° C (-13° to 140° F) |
| Humidity | 95% max, non-condensing | 95% max, non-condensing |
| Altitude | 15,240 m (50,000 ft) | 15,240 m (50,000 ft) |

| CMA 4500 Series OTDR Specifications - (Single Wavelength Available upon request) | | | | |
|---|--|---|------------------------------------|-----------------------------------|
| Optics | 25 | 35 | 45 | 54 |
| Fiber Type | Single-mode | Single-mode | Single-mode | Single-mode |
| Center Wavelength | 1310 nm ±20 nm 1550 nm ±20 nm | 1310 nm ±20 nm 1550 nm ±20 nm | 1310 nm ±20 nm 1550 nm ±20 nm | 1550 nm ±20 nm |
| Spectral Width (RMS) | 1310 nm: <15 nm 1550 nm: <15 nm | 1310 nm: <15 nm 1550 nm: <15 nm | 1310 nm: <15 nm 1550 nm: <15 nm | 1550 nm: <15 nm |
| Dynamic Range¹ | 1310 nm: 37 dB 1550 nm: 36 dB | 1310 nm: 40 dB 1550 nm: 40 dB | 1310 nm: 43 dB 1550 nm: 45 dB | 1550 nm: 50 dB |
| Initial Reflective Deadzone² | 1310 nm: 4 m 1550 nm: 3.5 m | 1310 nm: 4 m 1550 nm: 3 m | 1310 nm: 5 m 1550 nm: 5 m | 1550 nm: 5 m |
| Initial Non-Reflective Deadzone³ | 1310 nm: 9 m 1550 nm: 9 m | 1310 nm: 8 m 1550 nm: 6 m | 1310 nm: 10 m 1550 nm: 10 m | 1550 nm: 10 m |
| Linearity | 0.04 dB/dB | 0.04 dB/dB | 0.04 dB/dB | 0.04 dB/dB |
| Pulsewidth | 5 ns to 20 µs | 5 ns to 20 µs | 5 ns to 30 µs | 5 ns to 30 µs |
| Optics | 36 | 46 | 66 | 69 |
| Fiber Type | Single-mode | Single-mode | Multimode (62.5 µm) | Multimode (50 µm) |
| Center Wavelength | 1310 nm ±20 nm 1550 nm ±20 nm 1625 nm ±15 nm | 1310 nm ±20 nm 1550 nm ±20 nm 1625 nm ±15 nm | 850 nm ±30 nm 1300 nm ±30 nm | 850 nm ±30 nm 1300 nm ±30 nm |
| Spectral Width (RMS) | 1310 nm: <15 nm 1550 nm: <15 nm 1625 nm: <15 nm | 1310 nm: <15 nm 1550 nm: <15 nm 1625 nm: <15 nm | 850 nm: <15 nm 1300 nm: <15 nm | 850 nm: <15 nm 1300 nm: <15 nm |
| Dynamic Range¹ | 1310 nm: 40 dB 1550 nm: 40 dB 1625 nm: 40 dB | 1310 nm: 43 dB 1550 nm: 45 dB 1625 nm: 43 dB | 850 nm: 24 dB 1300 nm: 26 dB | 850 nm: 24 dB 1300 nm: 26 dB |
| Initial Reflective Deadzone² | 1310 nm: 4 m 1550 nm: 3 m 1625 nm: 3 m | 1310 nm: 6 m 1550 nm: 5 m 1625 nm: 5 m | 850 nm: 2.5 m 1300 nm: 2.5 m | 850 nm: 3 m 1300 nm: 3 m |
| Initial Non-Reflective Deadzone³ | 1310 nm: 8 m 1550 nm: 6 m 1625 nm: 6 m | 1310 nm: 10 m 1550 nm: 10 m 1625 nm: 10 m | 850 nm: 5 m 1300 nm: 7 m | 850 nm: 5 m 1300 nm: 7 m |
| Linearity | 0.04 dB/dB | 0.04 dB/dB | 0.04 dB/dB | 0.04 dB/dB |
| Pulsewidth⁴ | 5 ns to 20 µs | 5 ns to 30 µs | 5 ns to 1 µs | 5 ns to 1 µs |
| Distance Resolution | 0.0001 km, 0.1 m, 1 ft, 0.0001 mi | | | |
| Distance Range Setting^{4,5} | 5, 20, 50, 125, 250, 300 km | | | |
| Loss Resolution | 0.001 dB | | | |
| Distance Sampling^{4,6} (Range Dependent) | 0.125, 0.25, 0.5, 1, 2, 4, 8, 16 m | | | |
| Data Points | Up to 256,000 | | | |
| Distance Accuracy | 0.0025% of distance measurement ± distance resolution ± index uncertainty | | | |
| Laser Safety | Meets IEC60825-1 Class I and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040 | | | |
| Optical Connector | Universal (Uses UC-130-XX adapters) | | | |

Notes:

Specifications are subject to change without notice

¹ SNR=1 with up to 256k averages (typical, subtract approximately 2 dB of range to 98% peak noise. Bellcore TR-TSY-000196 Issue 2)

² Using Bellcore TR-TSY-000196 Issue 2 (typical)

³ Deadzones measured on -45 dB reflections (typical)

⁴ Wavelength dependent

⁵ 66 and 69 Optics Distance Range is 5, 20, 50, 125 km

⁶ 66 and 69 Optics Distance Sampling is 0.125, 0.25, 0.5, 1, 2, 4, 8 m

| CMA 4500 Series OTDR Specifications | | |
|--|--|-----------------------------------|
| Optics | 61 | |
| Fiber Type | Single-mode | Multimode (62.5µm) |
| Center Wavelength | 1310 nm ±20 nm 1550 nm ±20 nm | 850 nm ±30 nm 1300 nm ±30 nm |
| Spectral Width (RMS) | 1310 nm: <15 nm 1550 nm: <15 nm | 850 nm: <15 nm 1300 nm: <15 nm |
| Dynamic Range¹ | 1310 nm: 35 dB 1550 nm: 35 dB | 850 nm: 24 dB 1300 nm: 26 dB |
| Initial Reflective Deadzone² | 1310 nm: 5 m 1550 nm: 5 m | 850 nm: 5 m 1300 nm: 5 m |
| Initial Non-Reflective Deadzone³ | 1310 nm: 10 m 1550 nm: 10 m | 850 nm: 7 m 1300 nm: 8.5 m |
| Linearity | 0.04 dB/dB | 0.04 dB/dB |
| Pulsewidth | 5 ns to 20 µs | 5 ns to 1 µs |
| Distance Resolution | 0.0001 km, 0.1 m, 1 ft, 0.0001 mi | |
| Distance Range Setting^{4,5} | 5, 20, 50, 125, 250, 300 km | |
| Loss Resolution | 0.001 dB | |
| Distance Sampling^{4,6} (Range Dependent) | 0.125, 0.25, 0.5, 1, 2, 4, 8, 16 m | |
| Data Points | Up to 256,000 | |
| Distance Accuracy | 0.0025% of distance measurement ± distance resolution ± index uncertainty | |
| Laser Safety | Meets IEC60825-1 Class I and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040 | |
| Optical Connector | Universal (Uses UC-130-XX adapters) | |

Notes:

Specifications are subject to change without notice

¹ SNR=1 with up to 256k averages (typical, subtract approximately 2 dB of range to 98% peak noise. Bellcore TR-TSY-000196 Issue 2)

² Using Bellcore TR-TSY-000196 Issue 2 (typical)

³ Deadzones measured on -45 dB reflections (typical)

⁴ Wavelength dependent

⁵ 66 and 69 Optics Distance Range is 5, 20, 50, 125 km

⁶ 66 and 69 Optics Distance Sampling is 0.125, 0.25, 0.5, 1, 2, 4, 8 m

| Light Source (optional - factory installed) ² | | |
|--|---|-------------------------------------|
| | Single-mode | Multimode |
| Type | Laser | LED |
| Wavelengths | Same as corresponding OTDR module | 850/1300 nm ± 20 nm |
| Output | -8 dBm (min.) | -25 dBm (min.) |
| Output Fiber | 9/125 µm single-mode fiber | 62.5 or 50 µm multimode |
| Optical Connector | Universal (uses UC-130-XX adapters) | Universal (uses UC-130-XX adapters) |
| Modes of Operation | CW, 1 KHz and 2 KHz | CW, 1 KHz and 2 KHz |
| Stability ¹ | ±0.2 dB (8 hours) | ±0.1 dB (8 hours) |
| Spectral Width (RMS) | <15 nm | <50/<125 FWHM |
| Safety | Meets IEC60825-1 Class I and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040 | |

Notes:

¹ At 23° C

² 4500-61 quad singlemode and multi-mode only features a singlemode light source

Specifications are subject to change without notice

| Power Meter (optional - factory installed) | |
|--|--|
| Detector Type | InGaAs |
| Wavelength Range | 780 - 1800 nm |
| Range | +20 to -45 dBm |
| Calibrated Wavelengths | 850, 1300, 1310, 1550, 1625 nm |
| Optical Connector | Universal (uses LP-XX adapter caps) |
| Resolution | 0.01 dB, 0.01% Watts |
| Store Reference Mode | Yes |
| Accuracy | ±4% @ +5 dBm to -50 dBm ±8% @ +10 dBm to -5 dBm, -50 dBm to -55 dBm |
| Linearity | ±0.10 dB, +5 dBm to -55 dBm |

| Visual Fault Locator (optional - factory installed) | |
|---|---|
| Wavelength | 650 nm ±20 nm |
| Output (max) | 0 dBm into 9/125 µm |
| Transmission Mode | CW or 2 Hz |
| Output Fiber | 9/125 µm, SM fiber |
| Optical Connector | 2.5 mm Universal |
| Safety | IEC 60825-1 Class II, FDA (21 CFR 1040. 10 Class 2) |

Standard Accessories

Color display with touch screen, operator's manual, support CD, Li-Ion battery (1), AC charger/adaptor, 10/100 MB Ethernet Port, and choice of AC line cord.

Optical Accessories ¹

| | |
|------------------|---|
| Option-501CD-RW | CMA 4500/5000 internal CD/read/write module |
| Option-502FLOPPY | CMA 4500/5000 internal floppy drive module |
| Option-507KEYUS | CMA 4500/5000 US keyboard |
| 4500-BATT | Replacement Li-Ion battery |
| Option-511AC | Replacement AC charger/adaptor |
| Option-515PRINT | CMA 4500/5000 portable external printer with cable and case |
| 4500-MANUAL | Replacement operator's manual |
| 4500-HARDCASE | CMA 4500 hard transit case |
| 4500-SOFTCASE | CMA 4500 soft transit case |
| 4500-USBKEY | USB keyboard with trackball |
| 4500-USBFLOPPY | USB external floppy drive |
| 4500-USBCDRW | USB external CD-R/W |
| 4500-EXT1 | CMA 4500 1 Year extended warranty |
| 4500-EXT2 | CMA 4500 2 Year extended warranty |
| 4500-AUTO | Cigarette lighter charger/adaptor |

NOTES:

¹ Must be added as a separate line item

AC Power Cord Options

| | | | |
|------------------|-----------------------------|------------------|--------------------------|
| OPTION-570LINEUS | US/Japan AC line cord | OPTION-570LINESW | Switzerland AC line cord |
| OPTION-570LINEEU | Europe AC line cord | OPTION-570LINEIT | Italy AC line cord |
| OPTION-570LINEUK | United Kingdom AC line cord | OPTION-570LINEAU | Australia AC line cord |

Option for use with CMA 4500 Desktop only

| | |
|----------------|--|
| Option-580DATA | USB data transfer kit, includes software and cable for Windows® 98/2000/XP |
|----------------|--|

USB Video Inspection Probe (see VIP Application datasheet for additional information)

The CMA 4500/5000 video inspection probe features a 200X/400X user selectable probe that allows fiber optic connectors to be viewed, stored and analyzed (with option 546) through the CMA 4500 USB port.

| | |
|----------------|---|
| Option-545VIP | USB probe with basic viewing/image capture software, FC, SC, ST, 1.25 mm and 2.5 mm tips |
| Option-546VIPA | USB probe with basic viewing/image capture/advanced analysis software, hard case, FC, SC, ST, 1.25 mm and 2.5 mm tips (USB feature key) |



NetTest A/S

Kirkebjerg Allé 90
DK-2605 Brøndby
Denmark
Tel: +45 72 11 23 00
Fax: +45 72 11 23 50
E-mail: nordic@nettest.com

NetTest Sales Offices

| | | | |
|---------|-------------------|-----------|--------------------|
| China | +86 10 6467 9888 | Italy | +39 06 43 36 24 00 |
| Denmark | +45 72 11 22 00 | Singapore | +65 6220 9575 |
| France | +33 1 64 53 64 00 | Spain | +34 91 372 92 27 |
| Germany | +49 89 99 89 01-0 | USA | +1 315 266 5000 |

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