

# MaxTester 945 OLTS

FULLY AUTOMATED FasTesT™ BIDIRECTIONAL INSERTION LOSS, ORL AND LENGTH MEASUREMENT



Connect<sup>or</sup>Max2

EXFO | Connect

First tablet-inspired multifunction optical loss test set (OLTS) delivering insertion loss (IL), optical return loss (ORL) and fiber-length at two wavelengths in 5 seconds via fully automated bidirectional FasTesT™ analysis.

## KEY FEATURES

Unmatched FasTesT™ performances: 100 % automated bidirectional test at two wavelengths under 5 seconds

100 % automated fiber inspection: one-step process with pass/fail analysis at both fiber ends

On-board assistant and diagnosis to eliminate reference errors and negative loss

Improved short fiber measurement

On-board professional PDF reporting

Best-in-class singlemode distance range of 160 km

Bright, 7-inch high resolution touchscreen display—the biggest in the market

EXFO Connect-ready for cloud-based test assets management

Wi-Fi and Bluetooth connectivity (optional)

## APPLICATIONS

FTTx construction

Telecommunications and outside plant networks testing

## COMPLEMENTARY PRODUCTS



Fiber Inspection Probe  
FIP-400B (Wi-Fi or USB)



Cleaning  
Accessories



Data Post-Processing Software  
FastReporter 2



# THE NEXT GENERATION OF AUTOMATED OLTS: MORE FEATURES, GREATER PERFORMANCE

Ever since its introduction in 1996, the patented FasTesT™ technology revolutionized the industry by fully automating the test sequence, saving countless hours of testing and troubleshooting in the field. Proven in thousands of diverse network deployments across the globe, FasTesT™ truly enables CAPEX/OPEX savings.

The MAX-945 boasts a 7-inch touchscreen, the largest and most user-friendly display in the industry to make life easier for the technician. The MAX-945 also allows for 100 % automated fiber inspection at both ends of the fiber link. Paired with the FIP-400B automated fiber inspection probes and powered by FasTesT™, this OLTS brings the latest and the best in innovation and automation at your fingertips.

## THE BENEFITS

### Trustworthy Test Results

#### On-board step-by-step animated reference assistant

Accurate and repeatable test results starts with proper test cord referencing. Good referencing greatly reduces common mistakes often encountered in the field. Thanks to the reference assistant's animated and interactive interface this step of the testing sequence is now as simple and easy as it can be.



#### Test shorter links than ever before

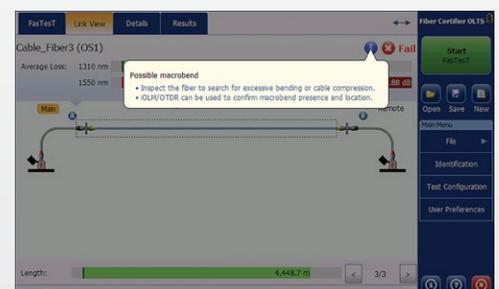
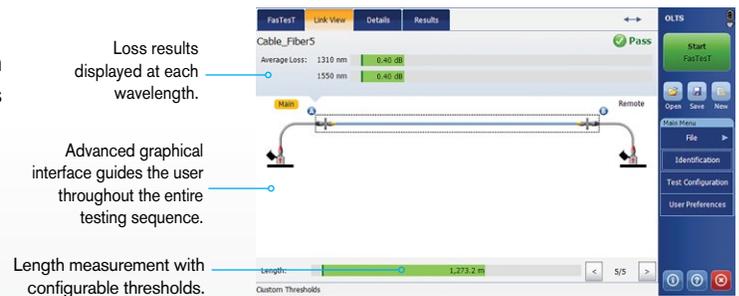
Thanks to highly accurate optics, this OLTS can test with extreme precision short links with very low loss.

#### EXFO's patent-pending one-cord reference method

Greatly reduces test uncertainty for greater test accuracy which is a key factor when testing short fiber links such as drop fibers in FTTH networks.

### Test Efficiency

- FasTesT™: acquisition time in 5 seconds
- Online reporting—live from the field
- Maximum simplicity and fast-learning curve with on-board user assistance:
  - **Port LED indicators:** guide the user through the referencing and testing processes. LED indicators show the user on which optical port to connect the fiber and a beep indicates that the connection is established to confirm continuity.
  - **On-board diagnosis:** throughout the referencing and testing processes, the instrument delivers real-time information on the test cord health as well as pass/fail results according to pre-set or custom criteria. When performing testing, the instrument delivers diagnosis about the loss, length and can even identify the presence of a macrobend (refer to side picture).
  - **Margin meters:** indicate the result status as well as the margin according to pre-set thresholds.



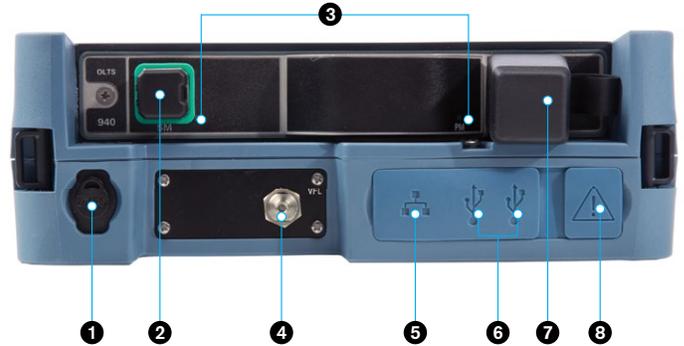
# SMALL ENOUGH TO BE HANDHELD. LARGE ENOUGH FOR FULL-SCREEN VIEWING.

## TABLET-INSPIRED DESIGN

With a 7-inch, high-resolution touchscreen—the most efficient display in the industry—the MAX-945 OLTS delivers an unprecedented user experience. It features integrated Wi-Fi/Bluetooth connectivity and instant boot up. The MAX-945 OLTS also ensures a full day of field work with 12 hours of battery autonomy and its internal memory capacity for 150,000 test results.

## PACKAGED FOR EFFICIENCY

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>❶ Stylus</li> <li>❷ FasTes™ singlemode port</li> <li>❸ Led indicators</li> <li>❹ Visual fault locator (optional)</li> <li>❺ 10/100 Mbit/s Ethernet port</li> <li>❻ Two USB 2.0 ports</li> <li>❼ Power meter</li> </ul> | <ul style="list-style-type: none"> <li>❽ AC adapter</li> <li>❾ Home/switch application and screen capture (hold)</li> <li>❿ Power on/off/standby</li> <li>⓫ Battery LED status</li> <li>⓬ Built-in Wi-Fi/Bluetooth</li> <li>⓭ Stand support</li> </ul> |
|---|--|



# KEEP YOUR CONNECTORS CLEAN. KEEP YOUR NETWORK RUNNING SMOOTHLY.

## AUTOMATION AT YOUR FINGERTIPS.

In combination with EXFO's automated fiber inspection probes and backed by FasTesT™, the MAX-945 OLTS allows for 100 % automated fiber inspection at both ends of the fiber link.

## DISCOVER THE INDUSTRY'S FIRST FULLY AUTOMATED FIBER INSPECTION PROBE

Housing a unique automatic focus adjustment system, the FIP-400B automates each operation in the sequence of inspecting a connector endface. The result: **fiber inspection is now a quick, one-step process that can be performed by technicians of all skill levels.**

## FIVE MODELS TO FIT YOUR BUDGET

**The FIP-430B:** complete and fully automated feature set, includes the powerful fiber image-centering system, focus adjustment and optimization, and on-board pass/fail analysis.

**The FIP-435B:** go one step further with the wireless probe. Includes all FIP-430B features.

**The semi-automated FIP-420B:** same features as the FIP-430B, without the automated focus adjustment.

**The semi-automated FIP-425B:** wireless version of the semi-automated FIP-420B.

**The FIP-410B:** all basic inspection features needed for manual inspection only.

100%  
Automated<sup>a</sup>

1-step  
Process<sup>a</sup>

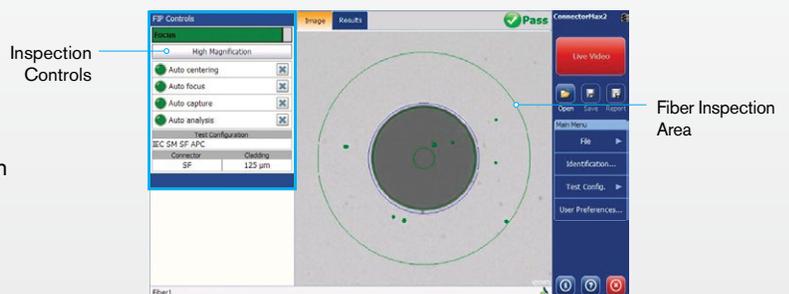
57%  
Shorter Test Time<sup>b</sup>



FEATURES	USB WIRED			WIRELESS	
	Basic FIP-410B	Semi-Automated FIP-420B	Fully-Automated FIP-430B	Semi-Automated FIP-425B	Fully-Automated FIP-435B
Three magnification levels	✓	✓	✓	✓	✓
Image capture	✓	✓	✓	✓	✓
Five-megapixel CMOS capturing device	✓	✓	✓	✓	✓
Automatic fiber image-centering function	✗	✓	✓	✓	✓
Automatic focus adjustment	✗	✗	✓	✗	✓
On-board pass/fail analysis	✗	✓	✓	✓	✓
Pass/fail LED indicator	✗	✓	✓	✓	✓
Wi-Fi Connectivity	✗	✗	✗	✓	✓

## POWERFUL CONNECTOR ENDFACE IMAGE VIEWING AND ANALYSIS SOFTWARE

- › Automatic pass/fail analysis of the connector endfaces
- › Lightning-fast results in seconds with simple one-touch operation
- › Complete test reports for future referencing
- › Stores images and results for recordkeeping



**Notes**

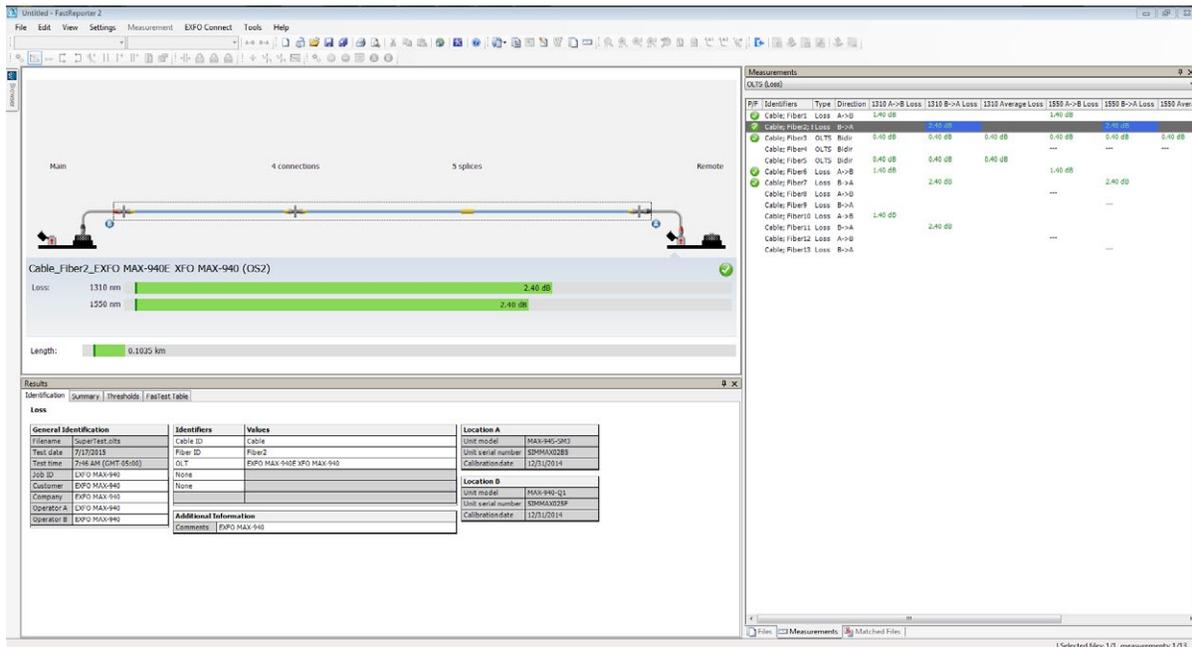
- a. Models FIP-430B and FIP-435B.
- b. Data sourced from EXFO's case study, with calculation based on typical analysis time.



# FAST TRACK DATA POST-PROCESSING WITH FASTREPORTER 2

## ONE SOFTWARE DOES IT ALL

This powerful reporting software is the perfect complement to your MAX-945 OLTS. It allows creating and customizing reports to fully address your needs.



Being able to rely on a single software to manage all your data and generate all your reports for your entire optical-layer test applications is your best option for maximum efficiency. FastReporter 2 was designed to handle everything for you.

## CHALLENGE NO. 1 EDITING MULTIPLE MEASUREMENT FILES

### Batch documenting

- Document an entire project/cable
- Manage separate measurements simultaneously

### Batch standardization

- Adjust cable and fiber parameters
- Add/remove OTDR events
- Adjust detection thresholds
- Perform manual measurements on OTDR files
- Set pass/fail thresholds

## CHALLENGE NO. 2 ANALYZING MULTIPLE MEASUREMENT FILES

### Specialized analysis tool to:

- Perform OTDR-iOLM bidirectional batch analysis
- Detect duplicated measurements
- Easily identify results that don't meet network requirements
- Apply new configurations, threshold and/or standards in batch

## CHALLENGE NO. 3 DOCUMENTING YOUR NETWORK

### Flexibility

- Various report templates and formats (PDF, Excel, HTML)
- Report customization via Excel or Crystal Reports
- Combined reports such as:
  - Fiber characterization (CD, PMD, OTDR and OLTS)
  - OTDR and fiber inspection (FIP)
  - iOLM and fiber inspection (FIP)

**POWER METER SPECIFICATIONS<sup>a</sup>**

Input connector	Interchangeable adapter <sup>b</sup>
Detector type	InGaAs
Measurement range (dBm)	5 to -75
Uncertainty (pW) <sup>c</sup>	$\pm(5\% + 32)$
Wavelengths range (nm)	800 to 1650

**FASTesT™ LOSS/LENGTH SPECIFICATIONS<sup>a</sup>**

Testing speed <sup>d</sup>	FasTesT™ Duplex: 2.6 seconds (two wavelengths, one direction, automated, IL + length) FasTesT™ Simplex: 5.0 seconds (two wavelengths, bidirectional, automated, IL + ORL + length)	
Input/Output connectors	Interchangeable adapter <sup>b</sup> iCERT model: LC, SC or FC EUI SM1, SM3 and SM4 models: All EUI	
Wavelengths (nm) <sup>d</sup>	Multimode (LED) 850 $\pm$ 20 1300 $\pm$ 20	Singlemode (Laser) 1310 $\pm$ 20 1490 $\pm$ 20 1550 $\pm$ 20 1625 $\pm$ 20
Launch condition <sup>e</sup>	EF compliancy guaranteed at multimode source port Within TIA-526-14-B, ISO/IEC 14763-3 and IEC 61280-4-1 Encircled Flux template limits at the end of an EXFO reference-grade 50/125 $\mu$ m test cord	
Loss range (dB) <sup>f</sup>	Multimode: 20 Singlemode: 45	
Length measurement range (km)	Multimode: 20 <sup>g</sup> Singlemode: 160	
Length measurement uncertainty <sup>d, h</sup>	$\pm(0.5 \text{ m} + 0.5\% \times \text{length})$	
ORL measurement range (dB)	45	
ORL measurement uncertainty <sup>d, i, j</sup>	$\pm 1.5 \text{ dB}$	
<b>Source</b>		
Output power (dBm) <sup>d</sup>	Multimode : -25 (850 nm and 1300 nm) SM1 : 2.5 (1310 nm and 1550 nm) SM3 : -1 (1310 nm and 1550 nm) / -7 (1625 nm) SM4 : -1 (1310 nm and 1550 nm) / -7 (1490 nm)	
Output power stability (dB)	$\pm 0.05$ over 8 hours	
Spectral width (FWHM) (nm)	850 nm: 30 to 60 1300 nm: 100 to 150	

**Notes**

- a. At 23 °C  $\pm$  1 °C and 1550 nm, on batteries and after 15 minutes of warm up, unless specified otherwise.  
b. Specifications are provided with FC type connectors.  
c. Uncertainty is valid at calibration conditions.  
d. Typical.  
e. Measured at 850 nm.  
f. Typical value, at 850 nm for MM and 1550 nm for SM.  
g. At 1300 nm.  
h. In duplex.  
i. No punctual reflectance greater than -65 dB.  
j. For an ORL of 40 dB or less.

**VISUAL FAULT LOCATOR (VFL) (OPTIONAL)**

Laser, 650 nm $\pm$ 10 nm
CW/Modulate 1 Hz
Typical P <sub>out</sub> in 62.5/125 $\mu$ m: $> -1.5 \text{ dBm}$ (0.7 mW)
Laser safety: Class 2

**LASER SAFETY**

If VFL option is available



## ENVIRONMENTAL SPECIFICATIONS

Temperature	Operating	-10 °C to 50 °C (14 °F to 122 °F)
	Storage	-30 °C to 70 °C (-22 °F to 158 °F) <sup>a</sup>
Relative humidity		0 % to 95 % noncondensing

## GENERAL SPECIFICATIONS

Display	7-in (178-mm) outdoor-enhanced touchscreen, 800 x 480 TFT
Size (H x W x D)	166 mm x 200 mm x 68 mm (6 <sup>9</sup> / <sub>16</sub> in x 7 <sup>7</sup> / <sub>8</sub> in x 2 <sup>3</sup> / <sub>4</sub> in)
Weight (with battery)	1.5 kg (3.3 lb)
Interfaces	Two USB 2.0 ports RJ45 LAN 10/100 Mbit/s Optional Wi-Fi/Bluetooth
Storage	2 GB internal memory (150 000 test results, typical)
Battery <sup>b</sup>	Rechargeable lithium-polymer battery 12 hours of operation
Power supply	Power supply AC/DC adapter, input 100-240 VAC, 50-60 Hz
Warranty	Three (3) years
Recommended recalibration period	Three (3) years

### Notes

a. -20 °C to 60 °C (-4 °F to 140 °F) with the battery pack.

b. Typical.

## ORDERING INFORMATION

MAX-945-XX-XX-XX-XX-XX-XX-XX

**Model**

MAX-945 = OLTS

**Optical configuration**

SM1 = Singlemode 1310/1550nm, IL & ORL  
 SM3 = Singlemode 1310/1550/1625nm, IL & ORL  
 SM4 = Singlemode 1310/1490/1550nm, IL & ORL  
 ICERT-Q1-QUAD = QUAD 850/1300;  
 1310/1550nm, IL & ORL

**Connector**

EI-EUI-28 = UPC/DIN 47256  
 EI-EUI-76 = UPC/HMS-10/AG  
 EI-EUI-89 = UPC/FC narrow key  
 EI-EUI-90 = UPC/ST  
 EI-EUI-91 = UPC/SC  
 EI-EUI-95 = UPC/E-2000  
 EI-EUI-98 = UPC/LC  
 EA-EUI-28 = APC/DIN 47256  
 EA-EUI-89 = APC/FC narrow key  
 EA-EUI-91 = APC/SC  
 EA-EUI-95 = APC/E-2000  
 EA-EUI-98 = APC/LC

**VFL**

00 = Without VFL  
 VFL = With VFL

**Wi-Fi and Bluetooth**

00 = Without RF components  
 RF = With RF capability (Wi-Fi and Bluetooth)

**Inspection probe model**

00 = Without inspection Probe

FP410B = Digital video inspection probe  
 Triple magnification

FP420B = Analysis digital video inspection probe  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering

FP425B = Wireless digital video inspection probe<sup>f</sup>  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering

FP430B = Automated analysis digital video inspection probe  
 Automated focus  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering

FP435B = Wireless analysis digital video inspection probe<sup>f</sup>  
 Automated focus  
 Automated pass/fail analysis  
 Triple magnification  
 Autocentering

**Extra FIPT-400B tips****Bulkhead tips**

FIPT-400-FC-APC = FCAPC tip for bulkhead adapter  
 FIPT-400-FC-SC = FC and SC tip for bulkhead adapter<sup>c</sup>  
 FIPT-400-LC = LC tip for bulkhead adapters  
 FIPT-400-LC-APC = LC/APC tip for bulkhead adapter  
 FIPT-400-MU = MU tip for bulkhead adapters  
 FIPT-400-SC-APC = SC APC tip for bulkhead adapter<sup>d</sup>  
 FIPT-400-SC-UPC = SC UPC tip for bulkhead adapter  
 FIPT-400-ST = ST tip for bulkhead adapter

**Patchcord tips**

FIPT-400-U12M = Universal patchcord tip for 1.25 mm ferrules  
 FIPT-400-U12MA = Universal patchcord tip for 1.25 mm ferrules APC  
 FIPT-400-U16M = Universal patchcord tip for 1.6 mm ferrules  
 FIPT-400-U20M2 = Universal patchcord tip for 2.0 mm ferrules (D4, Lemo)  
 FIPT-400-U25M = Universal patchcord tip for 2.5 mm ferrules<sup>c</sup>  
 FIPT-400-U25MA = Universal patchcord tip for 2.5 mm ferrules APC<sup>d</sup>

**Multifiber tips**

FIPT-400-MTP2 = MTP/MPO UPC tip for bulkhead adapter  
 FIPT-400-MTPA2 = MTP/MPO APC tip for bulkhead adapter  
 FIPT-400-MTP-MTR = MTP/MPO multirow UPC tip for bulkhead adapter  
 FIPT-400-MTP-MTRA = MTP/MPO multirow APC tip for bulkhead adapter

**Tip kits**

FIPT-400-LC-K = LC tip kit including: FIPT-400-LC: LC tip for bulkhead adapters, FIPT-400-LC-APC: LC/APC tip for bulkhead adapter, FIPT-400-U12M: Universal patchcord tip for 1.25 mm ferrules, FIPT-400-U12MA: Universal patchcord tip for 1.25 mm ferrules APC  
 FIPT-400-LC-K-APC = LC tip kit including: FIPT-400-LC-APC: LC/APC tip for bulkhead adapter and FIPT-400-U12MA: Universal patchcord tip for 1.25 mm ferrules APC  
 FIPT-400-LC-K-UPC = LC tip kit including: FIPT-400-LC: LC tip for bulkhead adapters and FIPT-400-U12M: Universal patchcord tip for 1.25 mm ferrules  
 FIPT-400-MTP-MTR-K = MTP/MPO multirow APC and UPC tip for bulkhead adapter<sup>e</sup>

**Base tips**

APC = Includes FIPT-400-U25MA and FIPT-400-SC-APC  
 UPC = Includes FIPT-400-U25M and FIPT-400-FC-SC

Example: MAX-945-EI-EUI-89-VFL-RF-FP435B-UPC

**Notes**

- Includes ConnectorMax2 software.
- This list represents a selection of fiber inspection tips that covers the most common connectors and applications but does not reflect all the tips available. EXFO offers a wide range of inspection tips, bulkhead adapters and kits to cover many more connector types and different applications. Please contact your local EXFO sales representative or visit [www.EXFO.com/FIPTips](http://www.EXFO.com/FIPTips) for more information.
- Included when UPC base tips are selected.
- Included when APC base tips are selected.
- Includes a bulkhead adapter for patch cord inspection.
- RF option mandatory and included with this model.
- Power meter connector type is the same as the EUI connector type.

EXFO Headquarters > Tel.: +1 418 683-0211 | Toll-free: +1 800 663-3936 (USA and Canada) | Fax: +1 418 683-2170 | [info@EXFO.com](mailto:info@EXFO.com) | [www.EXFO.com](http://www.EXFO.com)

EXFO serves over 2000 customers in more than 100 countries. To find your local office contact details, please go to [www.EXFO.com/contact](http://www.EXFO.com/contact).

EXFO is certified ISO 9001 and attests to the quality of these products. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit [www.EXFO.com/recycle](http://www.EXFO.com/recycle). **Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.**

For the most recent version of this spec sheet, please go to the EXFO website at [www.EXFO.com/specs](http://www.EXFO.com/specs).

In case of discrepancy, the Web version takes precedence over any printed literature.