

# Certificate of Compliance

Model Number	<b>FTB-200-S1</b> <b>I</b>
Serial Number	<b>870000966</b>
Published Specifications	<b>SPFTB200.4AN</b>

At the time of shipment, the instrument met or exceeded its published specifications.

Certified by: S m Pan  
Production Technician approval or delegate

Date issued: 24 June 2018  
YYYY-MM-DD

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# Certificate of Compliance

Model Number	<i>FTB-7200D-12CD-23B-EI</i>	<i>Q</i>
Serial Number	<i>436186</i>	
Published Specifications	<i>SPFTB7200D.3AN</i>	

At the time of shipment, the instrument met or exceeded its published specifications.

Certified by: *Bo Zhang*  
Production Technician approval or delegate

Date issued: 24 June 2018  
YYYY-MM-DD

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## CALIBRATION CERTIFICATE

Customer:	Fibernet Ltd, Ist Turkey	Address:	
Description:	Optical Time Domain Reflectometer (OTDR)		
Serial no.:	436186	Model no.:	FTB-7200D-12CD-23B
Calibration location:	Trescal B.V. ,Storkstraat 2-4, 2722 NN Zoetermeer P.O. BOX 142, 2700 AC Zoetermeer, Netherland	Calibration date:	2018/06/24

<b>As found</b>					
<input checked="" type="checkbox"/> Initial calibration	<input type="checkbox"/> Within specifications (i)	<input type="checkbox"/> Within specifications* (ii)	<input type="checkbox"/> Outside specifications* (iii)	<input type="checkbox"/> Outside specifications (iv)	<input type="checkbox"/> Defective operation
*See results page of the Calibration Certificate for details on "As found" status					
Comments on unit status:					
<b>Action taken</b>					
<input type="checkbox"/> No adjustment was made		<input checked="" type="checkbox"/> Adjustments were made		<input type="checkbox"/> Repair was performed	
				RMA report no.:	
<b>As left</b>					
<input checked="" type="checkbox"/> Within specifications			<input type="checkbox"/> Outside specifications		
<b>Calibration conditions</b>					
Temperature	23 °C ± 2 °C				
<b>Standards used to establish traceability</b>					
Description	Inventory number	Calibration date	Calibration validity		
Singlemode reference fiber	EME 08781	2006-03-08	Indefinite		
Multimode reference fiber	EME 09402	2007-05-22	Indefinite		

Remarks:

Optical ports are always cleaned before calibration.

EXFO certifies that the unit has been calibrated using standards traceable to a national metrology institute (NIST, NPL, NRC, METAS or other), natural physical constants or using ratio measurements. NIST is the National Institute of Standards and Technology in the USA, NPL is the National Physical Laboratory in the UK, NRC is the National Research Council in Canada and METAS is the Swiss Federal Office for Metrology. All uncertainties are reported with a level of confidence of 95 %. Calibration is based on the ISO/IEC 17025 standard.

The certificate shall not be reproduced, except in full, without the written approval of EXFO.

*Bo Zhang*  
Bo Zhang  
Technician

2018/06/24

Date

CERT-00095L

Dynamic range test (singlemode)				Linearity test (singlemode)			
Procedure: IETA-00141 (pulse: 10 μs, range: 80 km, time: 45 s)				Procedure: IETA-00142 (wavelength: 1310 nm, pulse: 10 μs, time: 45 s, range: 17 dB)			
Nominal wavelength (nm)	Measured dynamic range (dB)	Test limit (dB)	Verification (Pass/Fail)	Measured non linearity (dB/dB)	Test limit (dB/dB)	Verification (Pass/Fail)	
As found				As found			
1310	N/A	33.1	N/A	N/A	0.03	N/A	
N/A	N/A	N/A	N/A				
N/A	N/A	N/A	N/A				
1550	N/A	31.3	N/A				
N/A	N/A	N/A	N/A				
As left				As left			
1310	34.0	33.1	Pass	0.007	0.03	Pass	
N/A	N/A	N/A	N/A				
N/A	N/A	N/A	N/A				
1550	33.0	31.3	Pass				
N/A	N/A	N/A	N/A				
Distance calibration (singlemode)							
Procedure: IETA-00143 (pulse: 30 ns, time: 15 s, range: 3.5 km, high resolution mode)							
Nominal wavelength (nm)	Measured length (m)	Reference length (m)	Deviation (m)	Uncertainty (m)	Specification (m)	Conformance limit (m)	Verification*
As found							
1310	N/A	2066.07	N/A	0.10	0.842	0.760	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1550	N/A	2066.97	N/A	0.26	0.842	0.628	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
As left							
1310	2066.086	2066.07	0.016	0.10	0.842	0.760	i
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1550	2066.808	2066.97	-0.162	0.26	0.842	0.628	i
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Attenuation dead zone test (singlemode)				Event dead zone test (singlemode)			
Procedure: IETA-00144 (pulse: 10 ns, time: 30 s, range: 1.3 km, reflectance: -45 dB)				Procedure: IETA-00144 (pulse: 5 ns, time: 10 s, range: 1.3 km, reflectance: -45 dB)			
Nominal wavelength (nm)	Measured attenuation dead zone (m)	Test limit (m)	Verification (Pass/Fail)	Nominal wavelength (nm)	Measured event dead zone (m)	Test limit (m)	Verification (Pass/Fail)
As found				As found			
1310	N/A	5.70	N/A	1310	N/A	1.00	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1550	N/A	6.40	N/A	1550	N/A	1.00	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
As left				As left			
1310	3.99	5.70	Pass	1310	0.80	1.00	Pass
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1550	4.39	6.40	Pass	1550	0.88	1.00	Pass
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

\* Verification status legend:

i) Within specifications;

ii) Within specifications: All measured results are within specification limits. In conformance with ISO/IEC 17025, full compliance cannot be stated because of measurement uncertainties. Nevertheless, results indicate that the instrument is likely to perform according to specifications;

iii) Outside specifications: Some measured results are outside specification limits. Nevertheless, as per ISO/IEC 17025, non compliance cannot be stated because of measurement uncertainties;

iv) Outside specifications.

Unless otherwise stated, 100 % of shipped units have all "As left" results in case i.



Dynamic range test (multimode)				Linearity test (multimode)		
Procedure: IETA-00141 (pulse: 1 μs, range: 40 km, time: 45 s)				Procedure: IETA-00142 (wavelength: 850 nm, pulse: 1 μs, time: 45 s, range: 11 dB)		
Nominal wavelength (nm)	Measured dynamic range (dB)	Test limit (dB)	Verification (Pass/Fail)	Measured non linearity (dB/dB)	Test limit (dB/dB)	Verification (Pass/Fail)
As found				As found		
850	N/A	24.1	N/A	N/A	0.03	N/A
1300	N/A	23.9	N/A			
As left				As left		
850	25.70	24.1	Pass	0.002	0.03	Pass
1300	25.97	23.9	Pass			

Distance calibration (multimode)							
Procedure: IETA-00143 (pulse: 30 ns, time: 45 s, range: 0.3 km, high resolution mode)							
Nominal wavelength (nm)	Measured length (m)	Reference length (m)	Deviation (m)	Uncertainty (m)	Specification (m)	Conformance limit (m)	Verification*
As found							
850	N/A	107.930	N/A	0.070	0.793	0.735	N/A
1300	N/A	107.520	N/A	0.070	0.793	0.735	N/A
As left							
850	107.682	107.930	-0.248	0.070	0.793	0.735	i
1300	107.281	107.520	-0.239	0.070	0.793	0.735	i

Attenuation dead zone test (multimode)				Event dead zone test (multimode)			
Procedure: IETA-00144 (pulse: 10 ns, time: 3 min, range: 1.3 km, reflectance: -35 dB)				Procedure: IETA-00144 (pulse: 5 ns, time: 45 s, range: 1.3 km, reflectance: -35 dB)			
Nominal wavelength (nm)	Measured attenuation dead zone (m)	Test limit (m)	Verification (Pass/Fail)	Nominal wavelength (nm)	Measured event dead zone (m)	Test limit (m)	Verification (Pass/Fail)
As found				As found			
850	N/A	4.00	N/A	850	N/A	1.00	N/A
1300	N/A	6.00	N/A	1300	N/A	1.00	N/A
As left				As left			
850	3.14	4.00	Pass	850	0.71	1.00	Pass
1300	4.25	6.00	Pass	1300	0.71	1.00	Pass

\* Verification status legend:

- i) Within specifications;
- ii) Within specifications: All measured results are within specification limits. In conformance with ISO/IEC 17025, full compliance cannot be stated because of measurement uncertainties. Nevertheless, results indicate that the instrument is likely to perform according to specifications;
- iii) Outside specifications: Some measured results are outside specification limits. Nevertheless, as per ISO/IEC 17025, non compliance cannot be stated because of measurement uncertainties;
- iv) Outside specifications.

Unless otherwise stated, 100 % of shipped units have all "As left" results in case i.