

MARS

Load/Lay Test Report

**Global Sentinel
March 2007**

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1. INTRODUCTION

The MARS system cable was loaded at the Cascade General Ship yard on Swan Island, Portland, Oregon.

The system cable consisted of three separate pieces of cable (to be jointed together onboard). Two lengths of spare cable were also loaded.

1.1 Scope of Document

This report details:

- a) The test results obtained during the post load testing of the system cable and spare cable following its transfer onto the Global Sentinel
- b) The test results obtained during system installation.
- c) Jointing test results for
 - i) On board joints. (See appendix)
 - ii) Final splice to TRF/CTA cable.

1.2 Test Equipment Lists

On Board Global Sentinel

Equipment type	Model No.	Serial No.	Calibration Due
Anritsu OTDR	MW9076B	SN 610004943	16 Jan 08
AVO Megger	BM11D	6410-729/010601/4533	13 Nov 07
JDS Optical switch	SC24B5-C2FA	JB004851	5 June 07

At Moss Landing Beach Station

Equipment type	Model No.	Serial No.	Calibration Due
Anritsu OTDR	MW9076B	6200048966	10 Dec 07
AVO Megger	BM11D	6410-792/990699/3458	13 Nov 07
Tinsley Submarine Cable Test Set	5910R	275389	19 Jul 07
JDS Optical switch	SC24B5-C2FA	1524	5 Dec 07

2. LOAD TEST RESULTS

2.1 3.655Km Length - Post load Electrical data sheet

Operator J.Roberts / G.Jones
Date 06-Mar-2007
Length 3.655 Km (OTDR)

Electrical measurements:

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	GΩ	> 30 GΩ	> 100 000MΩ/ Km (=27 GΩ)

2.1.1 3.655Km length - Post load OTDR Data Sheet

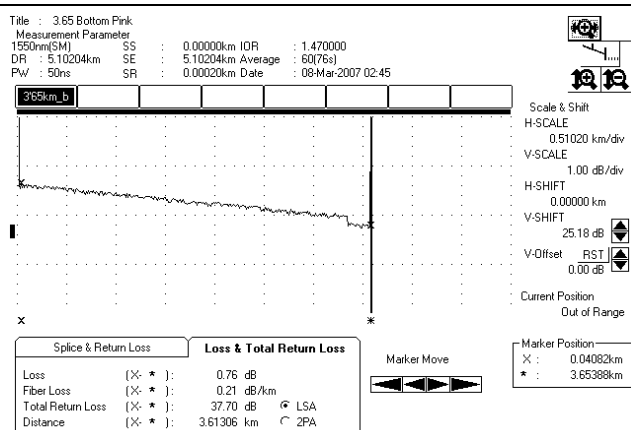
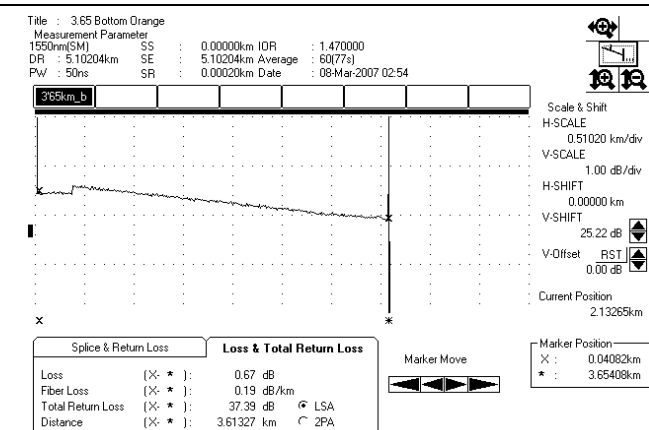
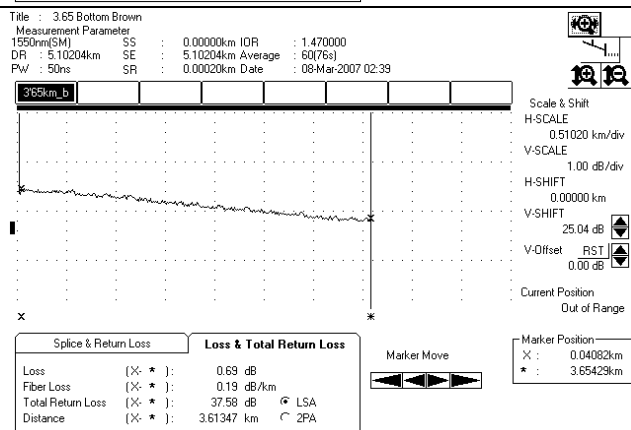
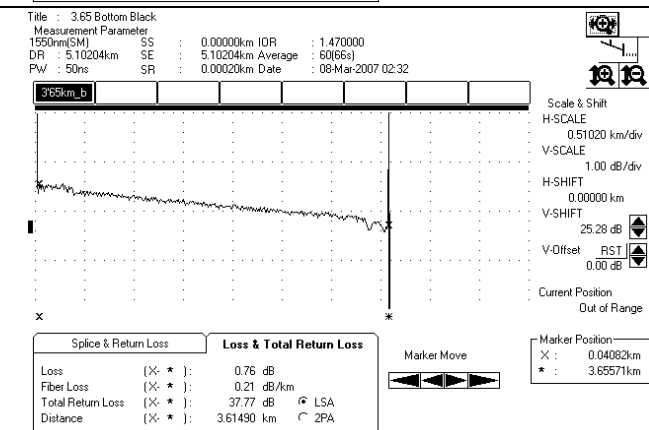
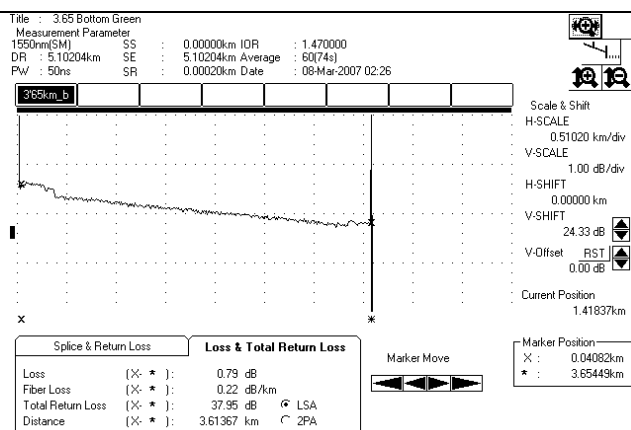
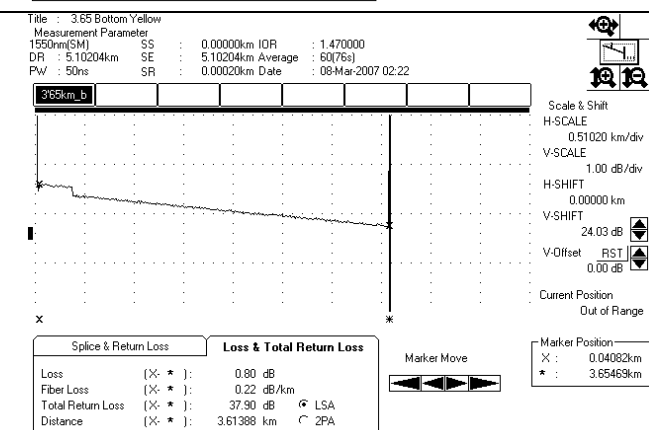
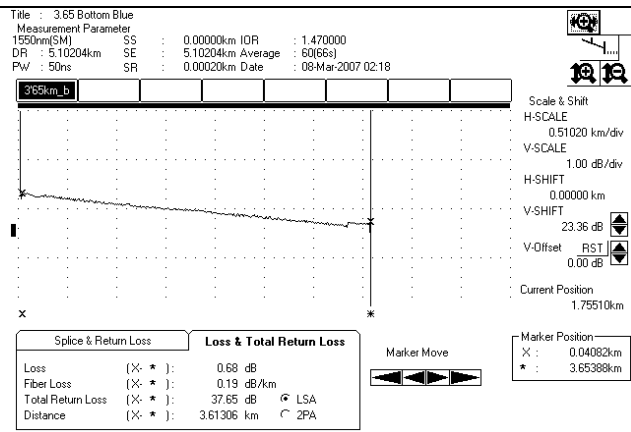
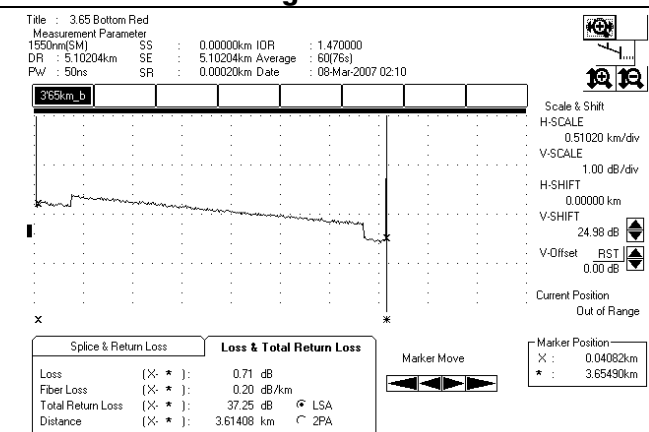
Operator J.Roberts / G.Jones
Date 06-Mar-2007
Length 3.655 Km (OTDR)

OTDR Parameters

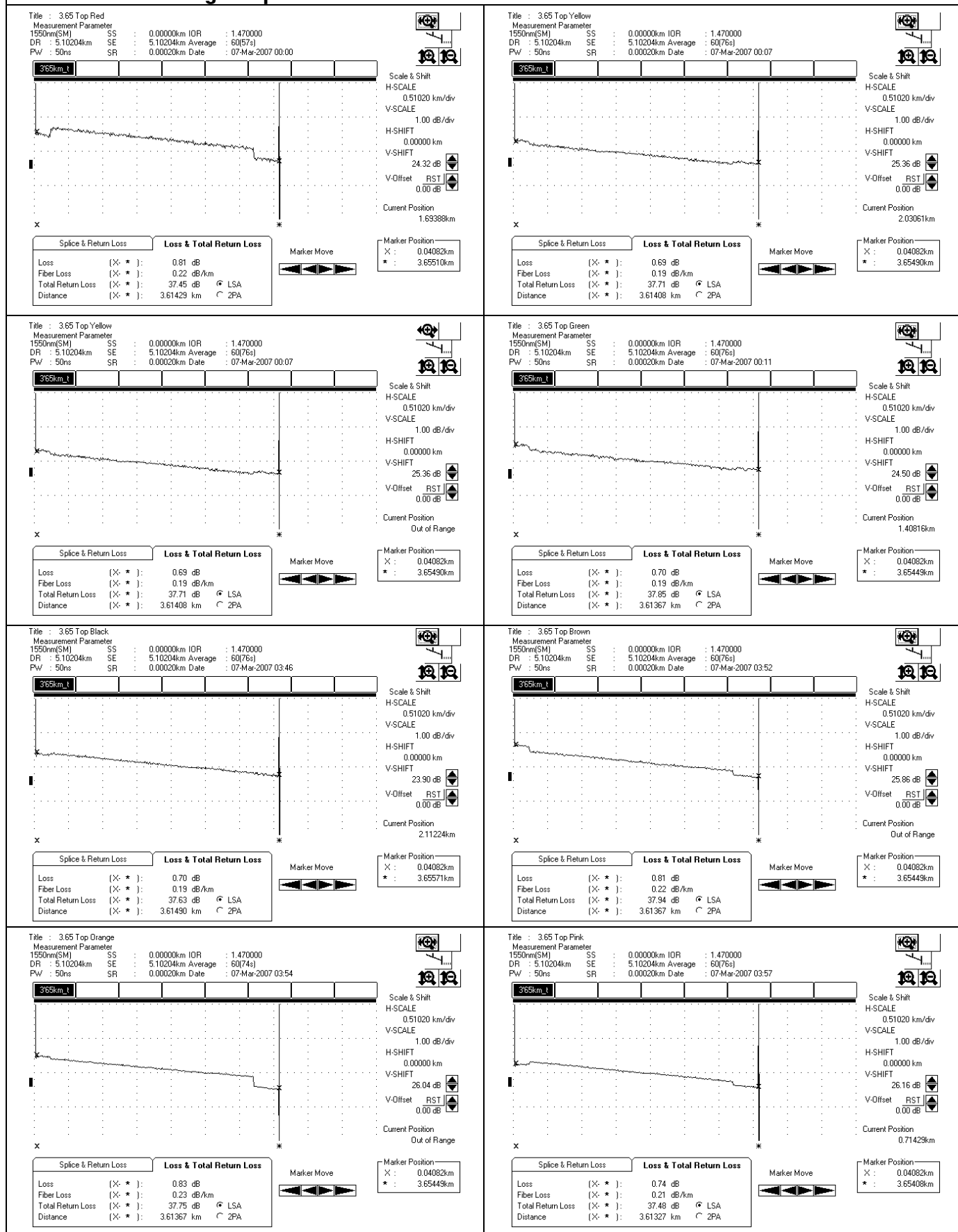
Equipment	Anritsu MW9076B OTDR
Refractive index	1.470
Pulse Width	50 ns
Averaging	60 (76secs)

Fibre			Cursor Position /km		Attenuation	
No.	Bottom	Colour	C1	C2	dB	dB/km
1		Red	0.04082	3.65490	0.71	0.20
2		Blue	0.04082	3.65388	0.68	0.19
3		Yellow	0.04082	3.65469	0.80	0.22
4		Green	0.04082	3.65449	0.79	0.22
5		Black	0.04082	3.65571	0.76	0.21
6		Brown	0.04082	3.65429	0.69	0.19
7		Orange	0.04082	3.65408	0.67	0.19
8		Pink	0.04082	3.65388	0.76	0.21
	Top					
1		Red	0.04082	3.65510	0.81	0.22
2		Blue	0.04082	3.65408	0.82	0.23
3		Yellow	0.04082	3.65490	0.69	0.19
4		Green	0.04082	3.65449	0.70	0.19
5		Black	0.04082	3.65571	0.70	0.19
6		Brown	0.04082	3.65449	0.81	0.22
7		Orange	0.04082	3.65449	0.83	0.23
8		Pink	0.04082	3.65408	0.74	0.21

2.1.2 - 3.655Km Length Bottom. Post Load OTDR



2.1.2 - 3.655Km Length Top. Post Load OTDR



2.2 15.320Km Length. Post load Electrical data sheet

Operator J.Roberts / G.Jones
Date 6-Mar-2007

Length 15.320 Km (OTDR)

Electrical measurements

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	GΩ	> 15 GΩ	>100 000MΩ/Km (=6.5 GΩ)

2.2.1 15.320Km Length. Post load OTDR Data Sheet

Operator J.Roberts / G.Jones
Date 6-Mar-2007

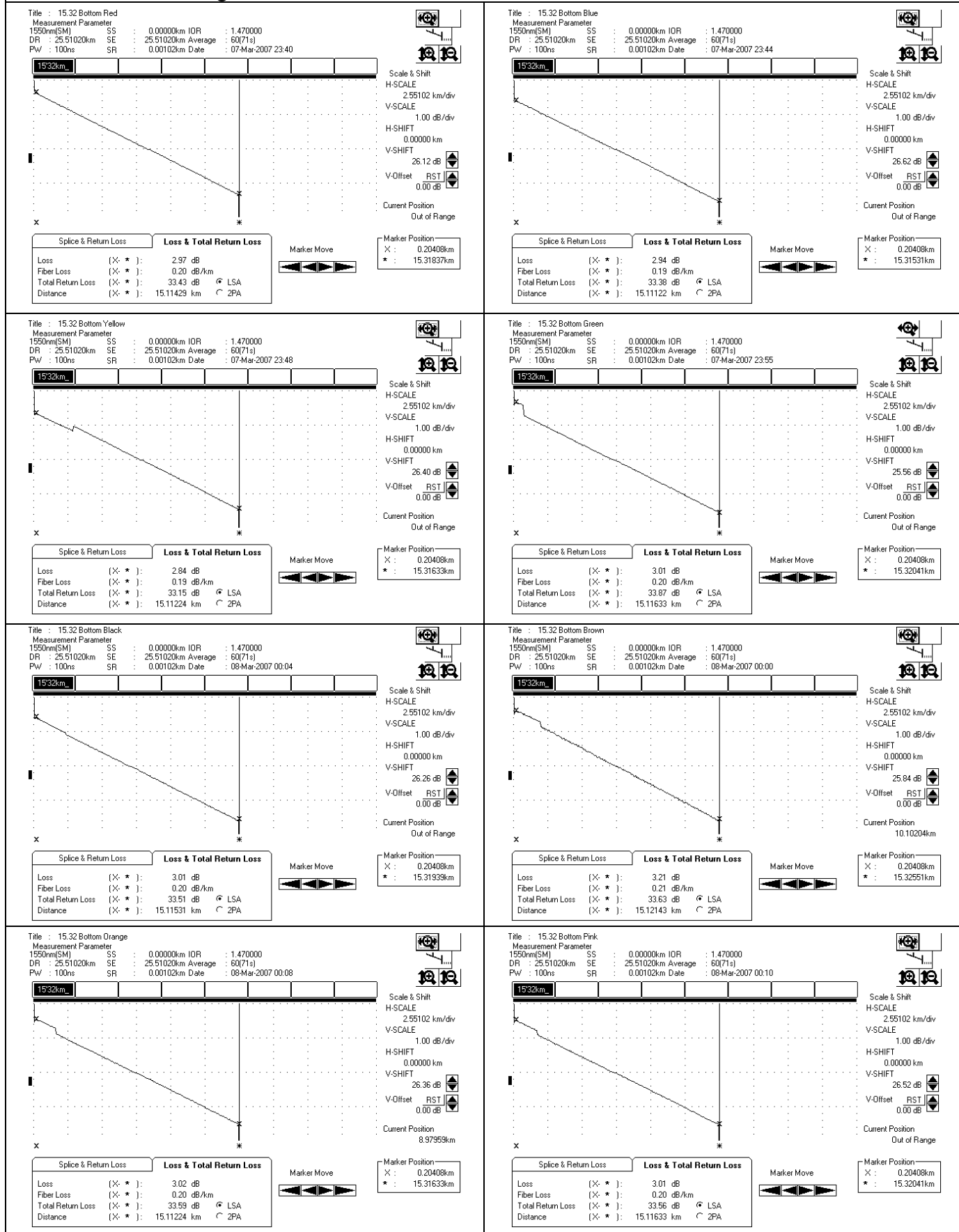
Length 15.320 Km (OTDR)

OTDR Parameters

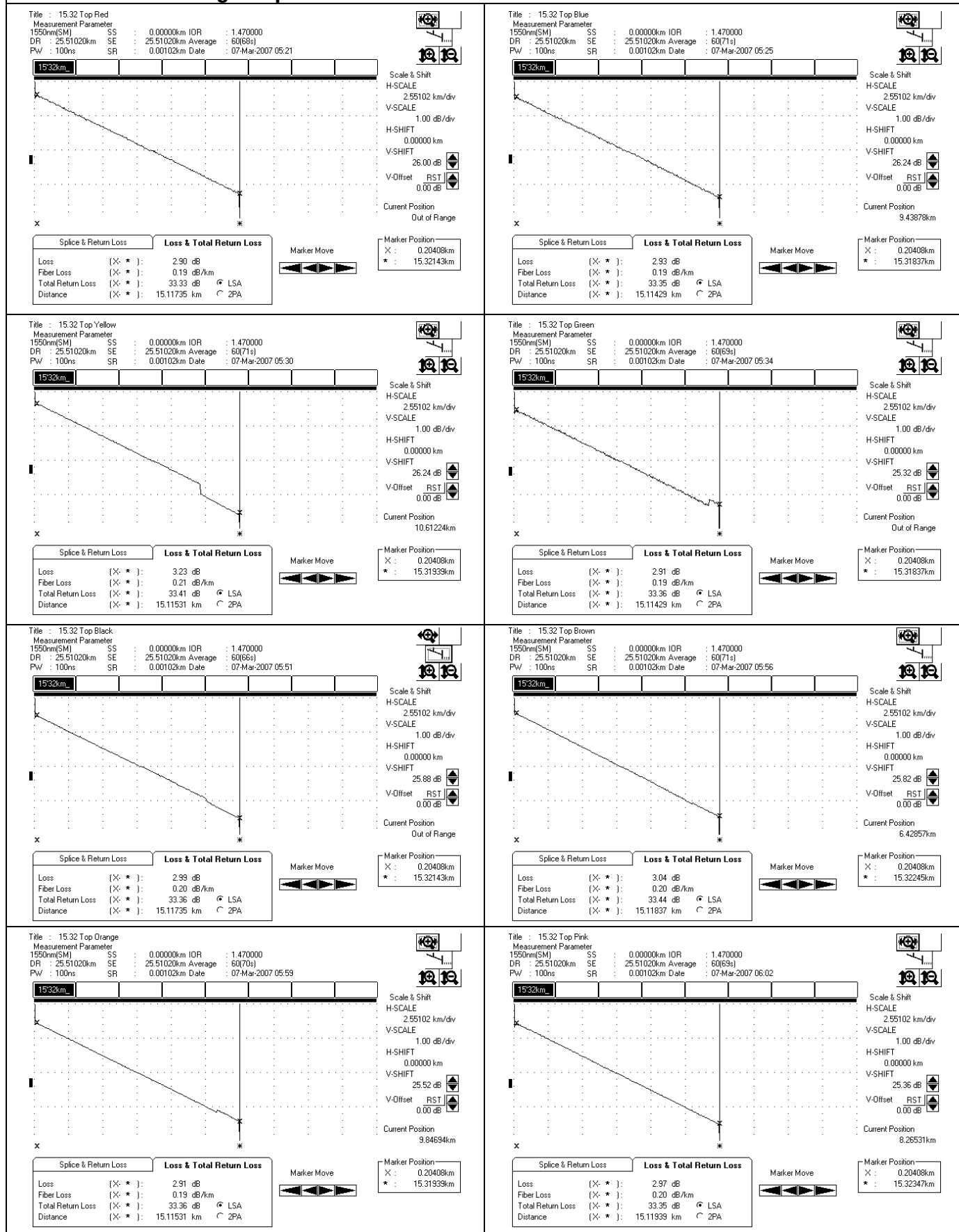
Equipment	Anritsu MW9076B OTDR
Refractive index	1.470
Pulse Width	100 ns
Averaging	60 (71secs)

Fibre			Cursor Position /km		Attenuation	
No.	Bottom	Colour	C1	C2	dB	dB/km
1		Red	0.20408	15.31837	2.97	0.20
2		Blue	0.20408	15.31531	2.94	0.19
3		Yellow	0.20408	15.31633	2.84	0.19
4		Green	0.20408	15.32041	3.01	0.20
5		Black	0.20408	15.31939	3.01	0.20
6		Brown	0.20408	15.32251	3.21	0.21
7		Orange	0.20408	15.31633	3.02	0.20
8		Pink	0.20408	15.32041	3.01	0.20
Top						
1		Red	0.20408	15.32143	2.90	0.19
2		Blue	0.20408	15.31837	2.93	0.19
3		Yellow	0.20408	15.31939	3.23	0.21
4		Green	0.20408	15.31837	2.91	0.19
5		Black	0.20408	15.32143	2.99	0.20
6		Brown	0.20408	15.32245	3.04	0.20
7		Orange	0.20408	15.31939	2.91	0.19
8		Pink	0.20408	15.32347	2.97	0.20

2.2.2 - 15.320Km Length Bottom. Post Load OTDR



2.2.2 - 15.320Km Length Top. Post Load OTDR



2.3 37.520Km length Post Load Electrical data sheet

Operator J.Roberts / G.Jones
Date 06-Mar-2007
Length 37.520Km (OTDR)

Electrical measurements

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	GΩ	> 50 GΩ	> 100 000MΩ/Km (=2.67GΩ)

2.3.1 37.520Km Length Post load OTDR Data Sheet

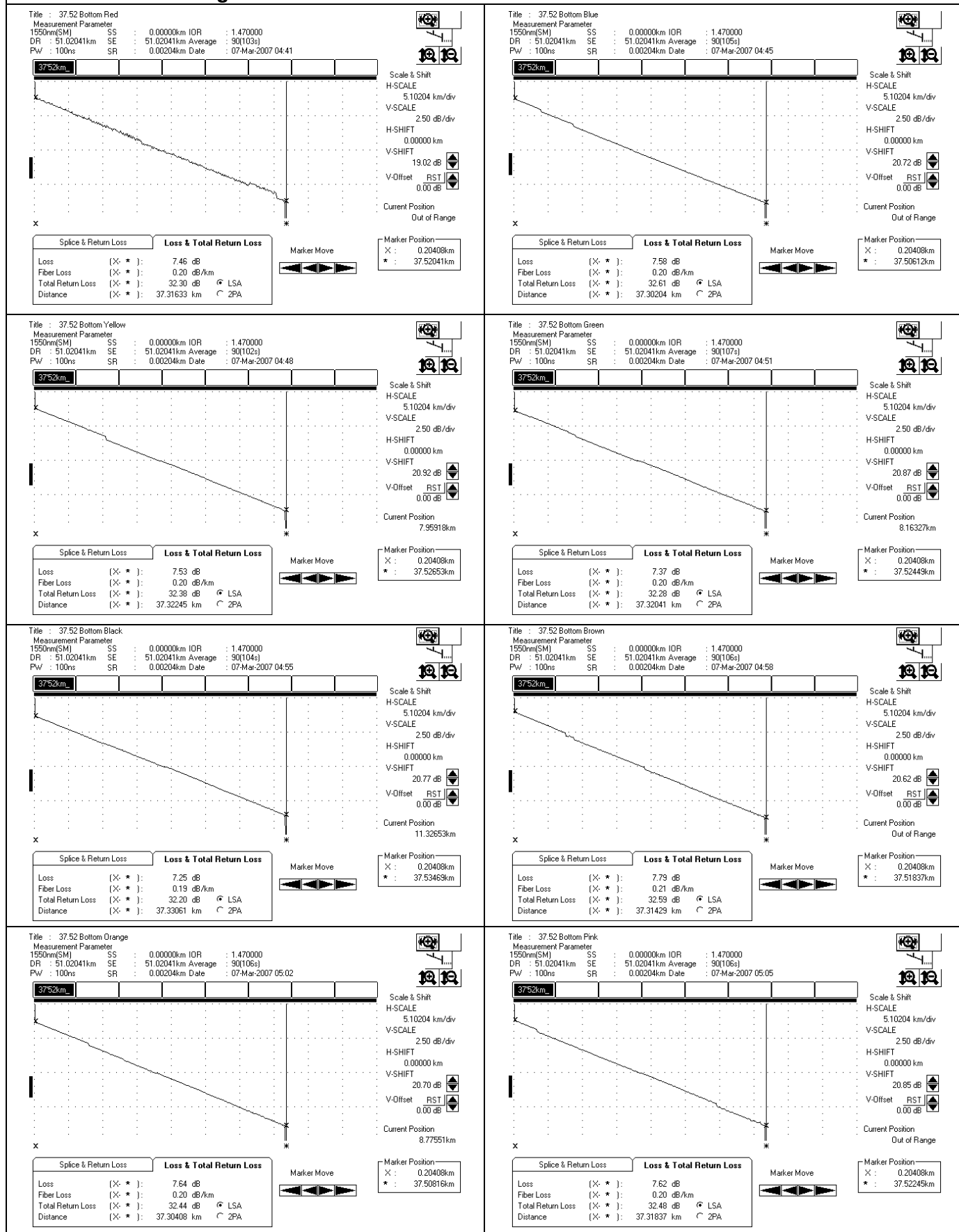
Operator J.Roberts / G.Jones
Date 6-Mar-2007
Length 37.520Km (OTDR)

OTDR Parameters

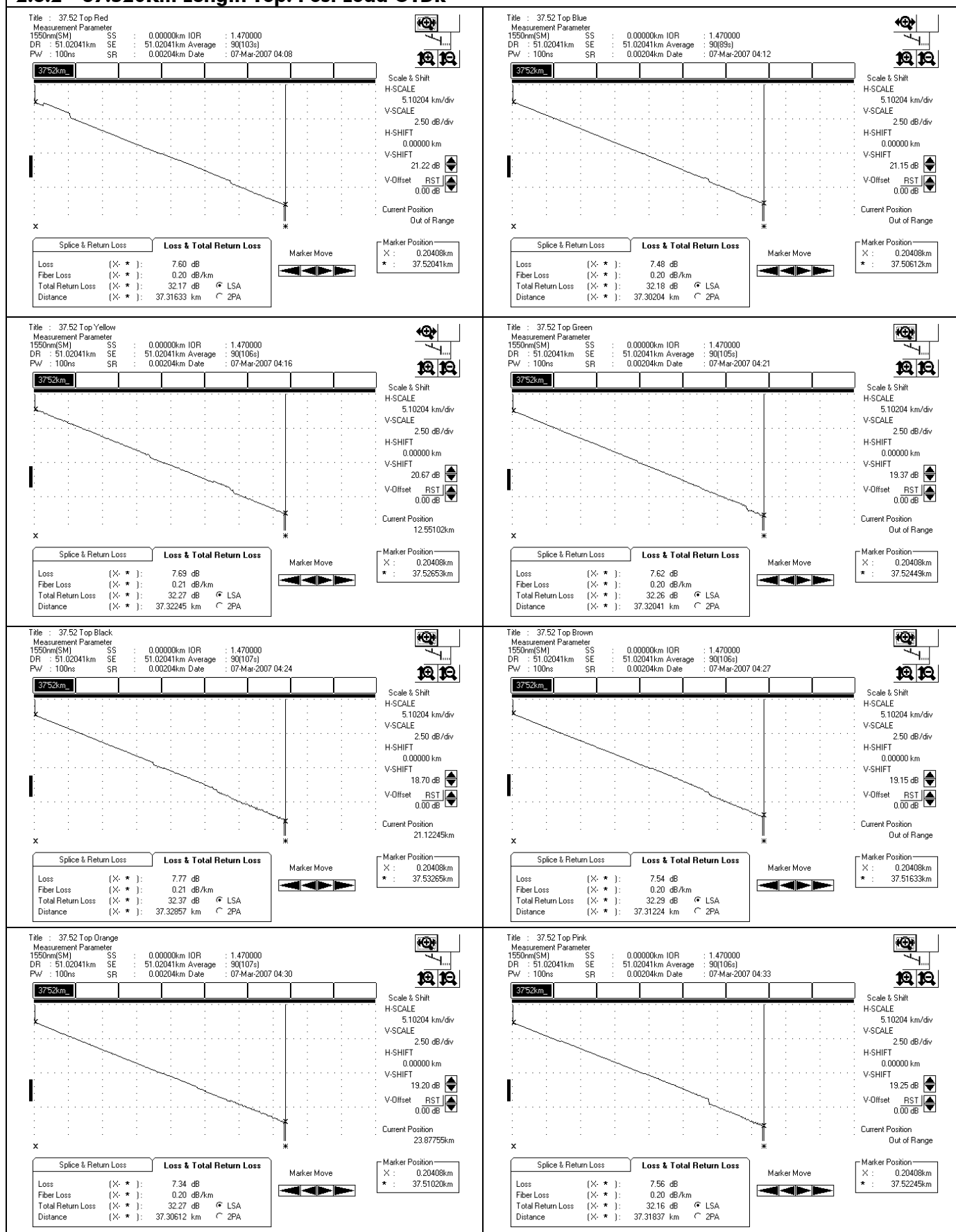
Equipment	Anritsu MW9076B OTDR
Refractive index	1.470
Pulse Width	100 ns
Averaging	90 (103secs)

Fibre			Cursor Position /km		Attenuation	
No.	Bottom	Colour	C1	C2	dB	dB/km
1		Red	0.20408	37.52041	7.46	0.20
2		Blue	0.20408	37.50612	7.58	0.20
3		Yellow	0.20408	37.52653	7.53	0.20
4		Green	0.20408	37.52449	7.37	0.20
5		Black	0.20408	37.53469	7.25	0.19
6		Brown	0.20408	37.51837	7.79	0.21
7		Orange	0.20408	37.50816	7.64	0.20
8		Pink	0.20408	37.52245	7.62	0.20
	Top					
1		Red	0.20408	37.52041	7.60	0.20
2		Blue	0.20408	37.50612	7.48	0.20
3		Yellow	0.20408	37.52653	7.69	0.21
4		Green	0.20408	37.52449	7.62	0.20
5		Black	0.20408	37.53265	7.77	0.21
6		Brown	0.20408	37.51633	7.54	0.20
7		Orange	0.20408	37.51020	7.34	0.20
8		Pink	0.20408	37.52245	7.56	0.20

2.3.2 - 37.520Km Length Bottom. Post Load OTDR



2.3.2 - 37.520Km Length Top. Post Load OTDR



2.4 1.896Km Spare Cable Post load Electrical data sheet

Operator J.Roberts / G.Jones
Date 7-Mar-2007
Length 1.896Km (OTDR)

Electrical measurements

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	Ω	> 50 GΩ (Max Value Recordable)	>100 000MΩ/Km (= 53GΩ)

2.4.1 1.896Km Spare Cable Post load OTDR Data Sheet

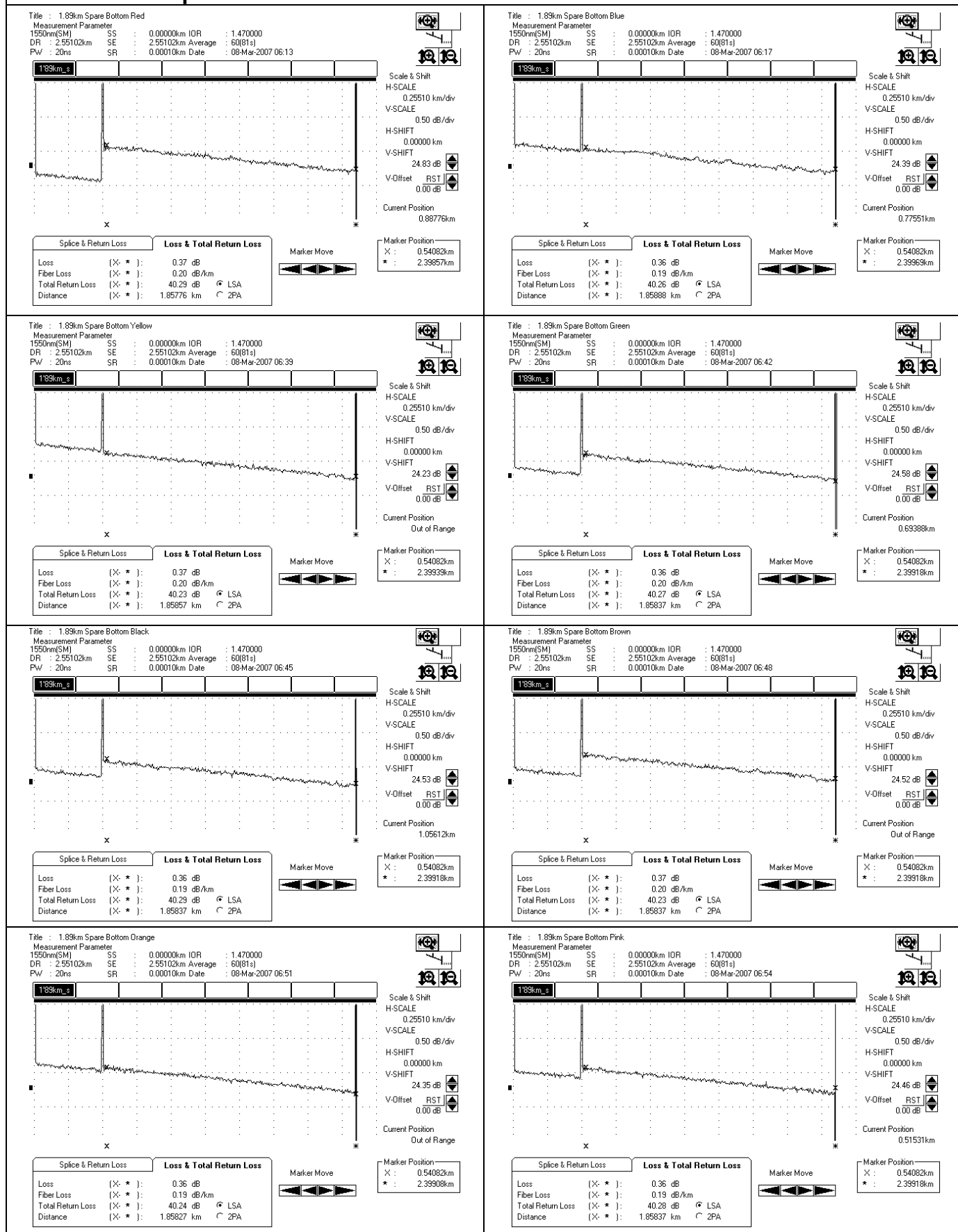
Operator J.Roberts / G.Jones
Date 7-Mar-2007
Length 1.896Km (OTDR)

OTDR Parameters

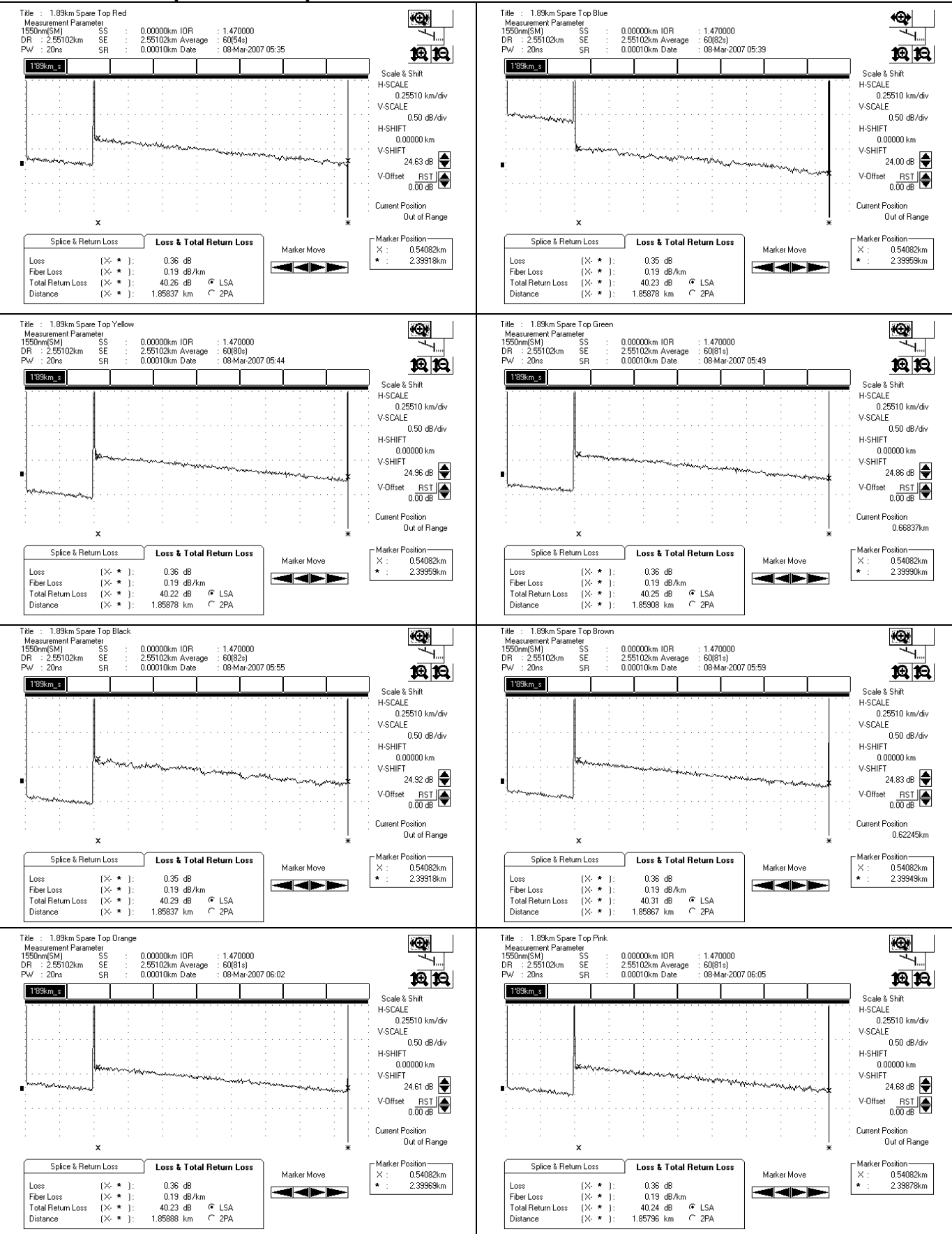
Equipment Anritsu MW9076B OTDR
Refractive index 1.470
Pulse Width 20 ns
Averaging 60 (81sec)

Fibre			Cursor Position /km		Attenuation	
No.	Bottom	Colour	C1	C2	dB	dB/km
1		Red	0.54082	2.39857	0.37	0.20
2		Blue	0.54082	2.39969	0.36	0.19
3		Yellow	0.54082	2.39939	0.37	0.20
4		Green	0.54082	2.39918	0.36	0.20
5		Black	0.54082	2.39918	0.36	0.19
6		Brown	0.54082	2.39918	0.37	0.20
7		Orange	0.54082	2.39908	0.36	0.19
8		Pink	0.54082	2.39918	0.36	0.19
	Top					
1		Red	0.54082	2.39918	0.36	0.19
2		Blue	0.54082	2.39959	0.35	0.19
3		Yellow	0.54082	2.39959	0.36	0.19
4		Green	0.54082	2.39990	0.36	0.19
5		Black	0.54082	2.39918	0.35	0.19
6		Brown	0.54082	2.39949	0.36	0.19
7		Orange	0.54082	2.39969	0.36	0.19
8		Pink	0.54082	2.39878	0.36	0.19

2.4.2 - 1.896Km Spare Cable Bottom. Post Load OTDR



2.4.2 - 1.896Km Spare Cable Top. Post Load OTDR



2.5 10.970Km Spare cable Post load Electrical data sheet

Operator J.Roberts / G.Jones
Date 7-Mar-2007
Length 10.970Km (OTDR)

ELECTRICAL MEASUREMENTS

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	GΩ	> 50 GΩ	> 100 000MΩ/Km = 9.1 GΩ

2.5.1 10.970Km Spare Cable Post load OTDR Data Sheet

Operator J.Roberts / G.Jones
Date 7-Mar-2007
Length 10.970Km (OTDR)

OTDR Parameters

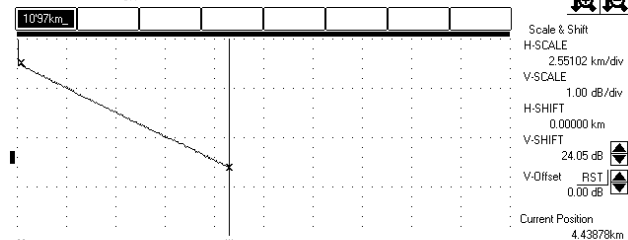
Equipment Anritsu MW9076B OTDR
 Refractive index 1.470
 Pulse Width 100 ns
 Averaging 60 (43sec)

Fibre			Cursor Position /km		Attenuation	
No.	Bottom	Colour	C1	C2	dB	dB/km
1		Red	0.20408	10.97245	2.09	0.19
2		Blue	0.20408	10.96939	2.12	0.20
3		Yellow	0.20408	10.96735	2.17	0.20
4		Green	0.20408	10.97449	2.12	0.20
5		Black	0.20408	10.97245	2.21	0.21
6		Brown	0.20408	10.97449	2.18	0.20
7		Orange	0.20408	10.97347	2.05	0.19
8		Pink	0.20408	10.97449	2.11	0.20
Top						
1		Red	0.20408	10.97245	2.11	0.20
2		Blue	0.20408	10.96939	2.10	0.20
3		Yellow	0.20408	10.96735	2.14	0.20
4		Green	0.20408	10.97449	2.23	0.21
5		Black	0.20408	10.97245	2.18	0.20
6		Brown	0.20408	10.97449	2.14	0.20
7		Orange	0.20408	10.97245	2.25	0.21
8		Pink	0.20408	10.97449	2.11	0.20

2.5.2 - 10.970Km Spare Cable Bottom. Post Load OTDR

Title : 10.97km Spare Bottom Red

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(43s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:29



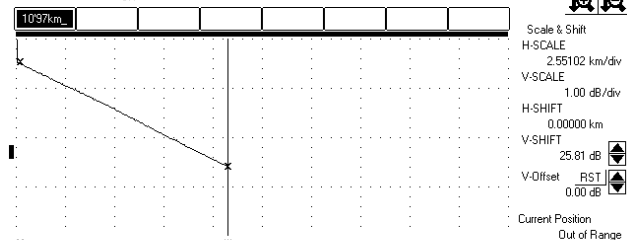
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.09 dB	
Fiber Loss	(X: *):	0.19 dB/km	
Total Return Loss	(X: *):	34.21 dB	LSA
Distance	(X: *):	10.76837 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.97245km

Title : 10.97km Spare Bottom Blue

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(71s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:37



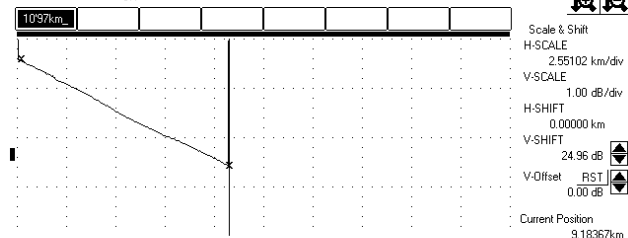
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.12 dB	
Fiber Loss	(X: *):	0.20 dB/km	
Total Return Loss	(X: *):	34.18 dB	LSA
Distance	(X: *):	10.76531 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.96393km

Title : 10.97km Spare Bottom Yellow

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(68s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:42



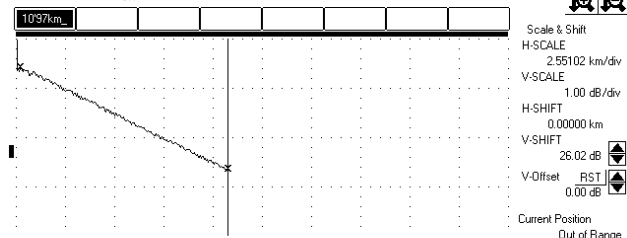
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.17 dB	
Fiber Loss	(X: *):	0.20 dB/km	
Total Return Loss	(X: *):	34.27 dB	LSA
Distance	(X: *):	10.76327 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.96735km

Title : 10.97km Spare Bottom Green

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(71s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:47



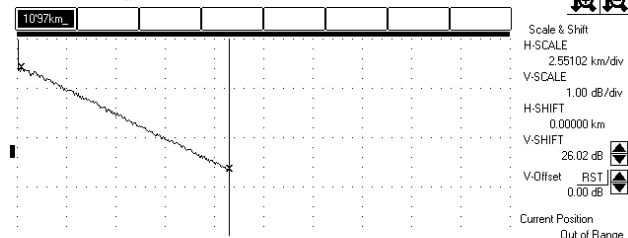
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.12 dB	
Fiber Loss	(X: *):	0.20 dB/km	
Total Return Loss	(X: *):	34.11 dB	LSA
Distance	(X: *):	10.77041 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.97449km

Title : 10.97km Spare Bottom Green

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(71s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:47



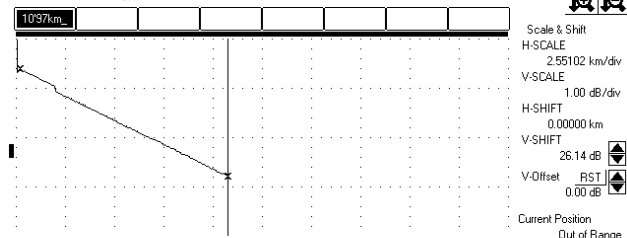
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.12 dB	
Fiber Loss	(X: *):	0.20 dB/km	
Total Return Loss	(X: *):	34.11 dB	LSA
Distance	(X: *):	10.77041 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.97449km

Title : 10.97km Spare Bottom Brown

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(71s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:52



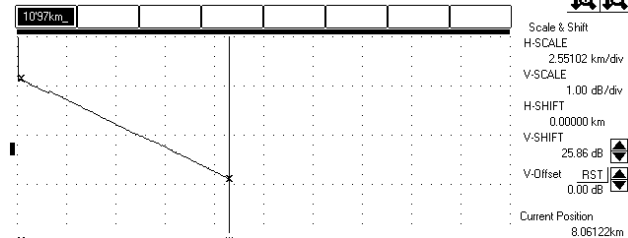
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.18 dB	
Fiber Loss	(X: *):	0.20 dB/km	
Total Return Loss	(X: *):	34.27 dB	LSA
Distance	(X: *):	10.77041 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.97449km

Title : 10.97km Spare Bottom Orange

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(71s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 03:55



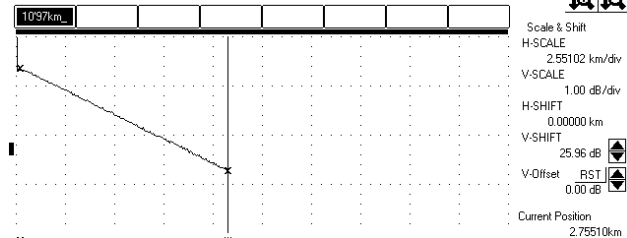
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.05 dB	
Fiber Loss	(X: *):	0.19 dB/km	
Total Return Loss	(X: *):	34.09 dB	LSA
Distance	(X: *):	10.76339 km	2PA

Marker Move

Marker Position
 X : 0.20408km
 * : 10.97347km

Title : 10.97km Spare Bottom Pink

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 25.51020km SE : 25.51020km Average : 60(71s)
 PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:00



Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.11 dB	
Fiber Loss	(X: *):	0.20 dB/km	
Total Return Loss	(X: *):	34.12 dB	LSA
Distance	(X: *):	10.77041 km	2PA

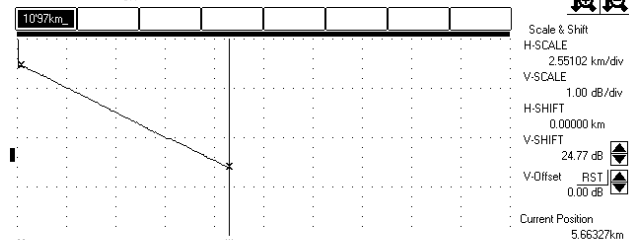
Marker Move

Marker Position
 X : 0.20408km
 * : 10.97449km

2.5.2 - 10.970Km Spare Cable Top. Post Load OTDR

Title : 10.97km Spare Top Red

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:29



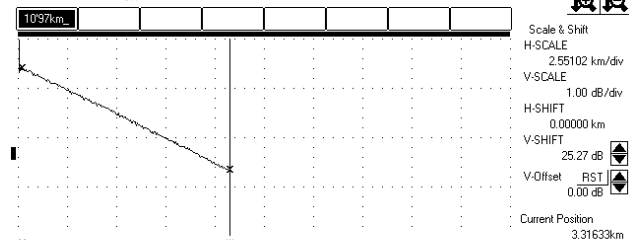
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.11	dB
Fiber Loss	(X: *):	0.20	dB/km
Total Return Loss	(X: *):	34.15	dB
Distance	(X: *):	10.76837	km

Marker Move

Marker Position
X : 0.20408km
* : 10.97245km

Title : 10.97km Spare Top Blue

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:32



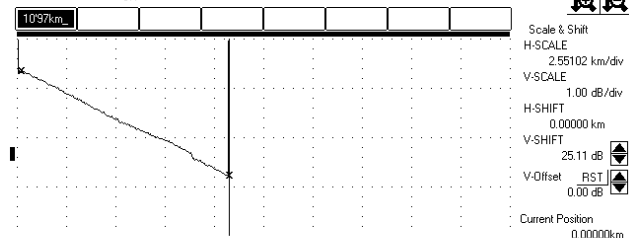
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.10	dB
Fiber Loss	(X: *):	0.20	dB/km
Total Return Loss	(X: *):	34.12	dB
Distance	(X: *):	10.76531	km

Marker Move

Marker Position
X : 0.20408km
* : 10.96393km

Title : 10.97km Spare Top Yellow

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:36



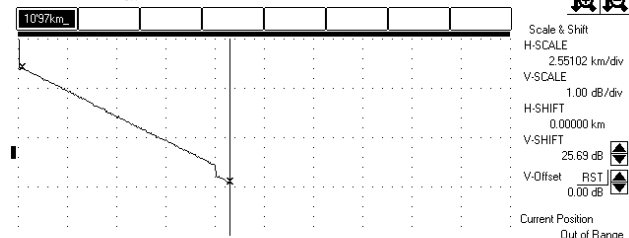
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.14	dB
Fiber Loss	(X: *):	0.20	dB/km
Total Return Loss	(X: *):	34.15	dB
Distance	(X: *):	10.76327	km

Marker Move

Marker Position
X : 0.20408km
* : 10.96735km

Title : 10.97km Spare Top Green

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:42



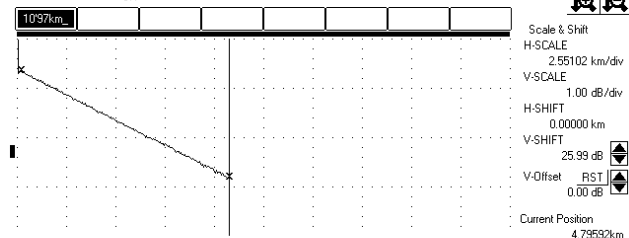
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.23	dB
Fiber Loss	(X: *):	0.21	dB/km
Total Return Loss	(X: *):	34.23	dB
Distance	(X: *):	10.77041	km

Marker Move

Marker Position
X : 0.20408km
* : 10.97449km

Title : 10.97km Spare Top Black

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:45



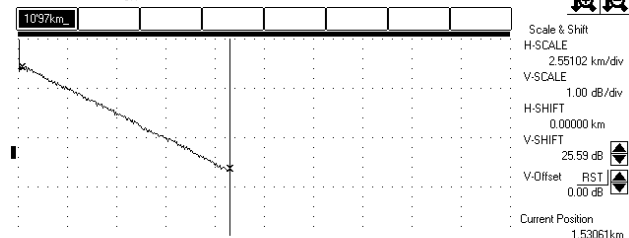
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.18	dB
Fiber Loss	(X: *):	0.20	dB/km
Total Return Loss	(X: *):	34.26	dB
Distance	(X: *):	10.76837	km

Marker Move

Marker Position
X : 0.20408km
* : 10.97245km

Title : 10.97km Spare Top Brown

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:49



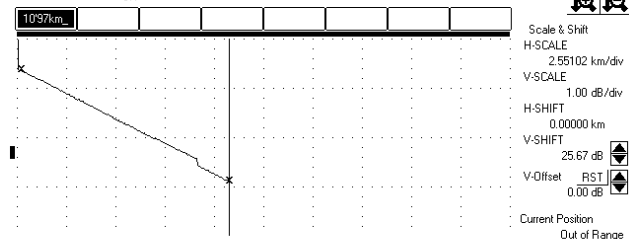
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.14	dB
Fiber Loss	(X: *):	0.20	dB/km
Total Return Loss	(X: *):	34.12	dB
Distance	(X: *):	10.77041	km

Marker Move

Marker Position
X : 0.20408km
* : 10.97449km

Title : 10.97km Spare Top Orange

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 04:53



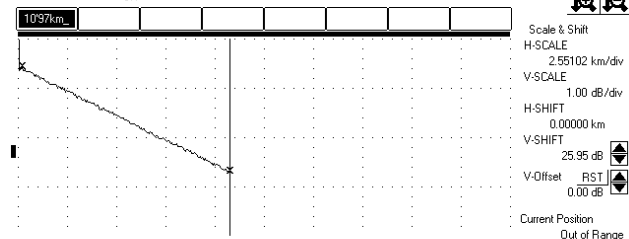
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.25	dB
Fiber Loss	(X: *):	0.21	dB/km
Total Return Loss	(X: *):	34.25	dB
Distance	(X: *):	10.76837	km

Marker Move

Marker Position
X : 0.20408km
* : 10.97245km

Title : 10.97km Spare Top Pink

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 25.51020km SE : 25.51020km Average : 60(71s)
PW : 100ns SR : 0.00102km Date : 08-Mar-2007 05:03



Splice & Return Loss		Loss & Total Return Loss	
Loss	(X: *):	2.11	dB
Fiber Loss	(X: *):	0.20	dB/km
Total Return Loss	(X: *):	34.23	dB
Distance	(X: *):	10.77041	km

Marker Move

Marker Position
X : 0.20408km
* : 10.97449km

2.6 0.100Km TRF unit and tail Post load Electrical data sheet

Operator J. Roberts / G. Jones
Date 28-Mar-2007
Length 0.113Km (OTDR)

ELECTRICAL MEASUREMENTS

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	GΩ	➤ 50GΩ (Max Value Recordable)	>100 000MΩ/Km

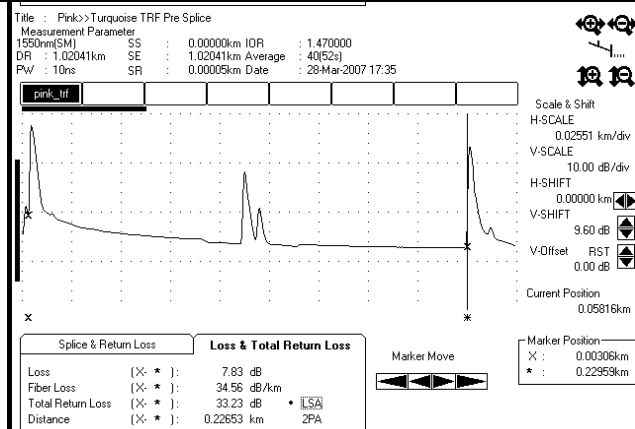
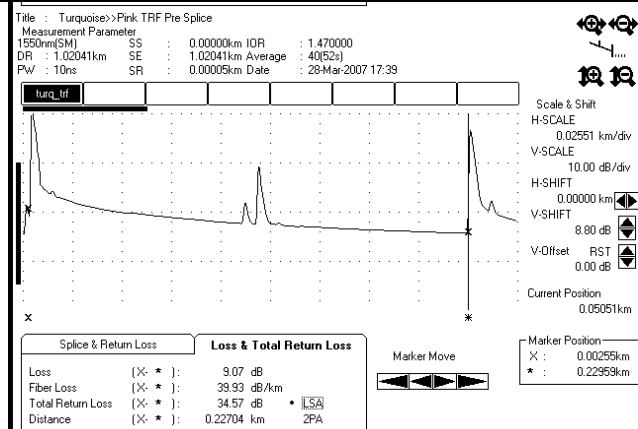
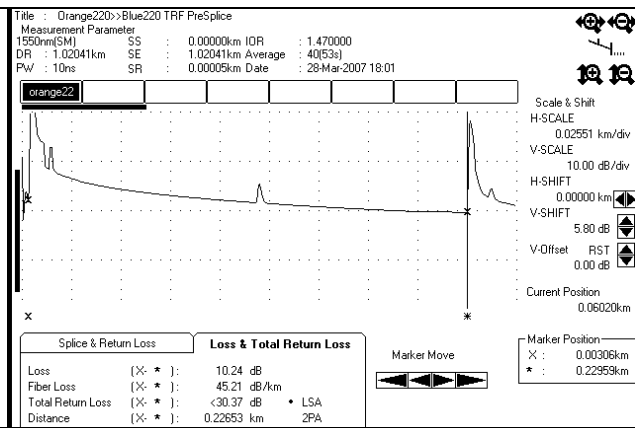
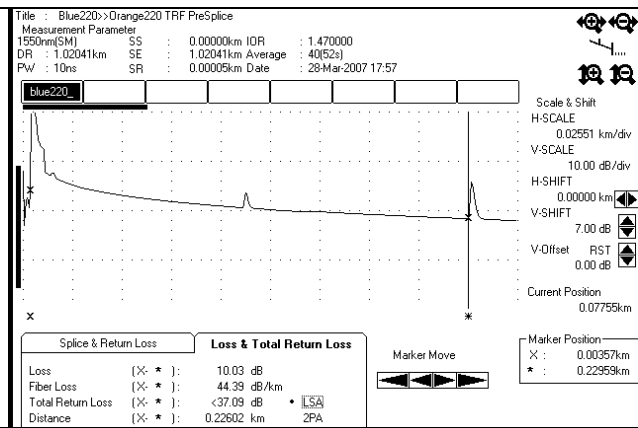
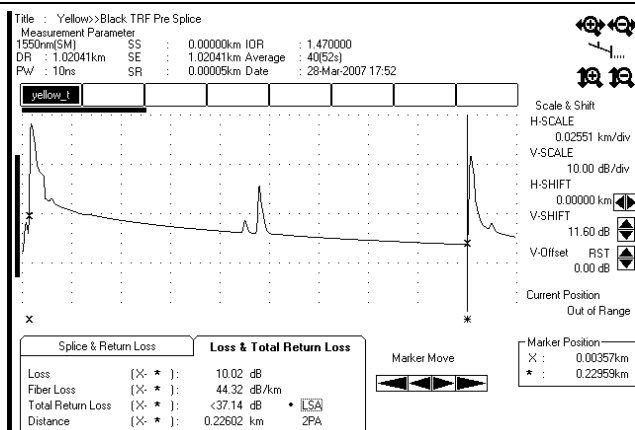
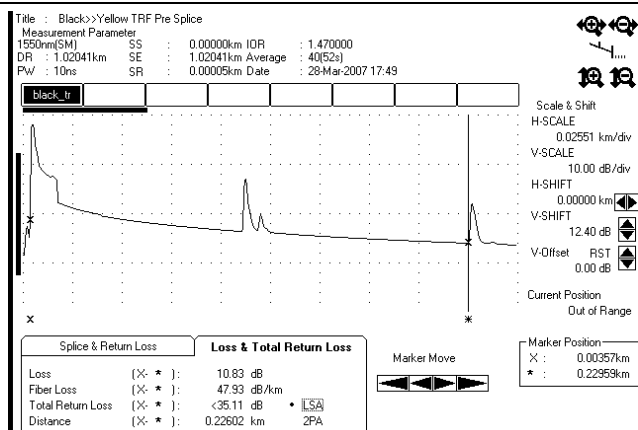
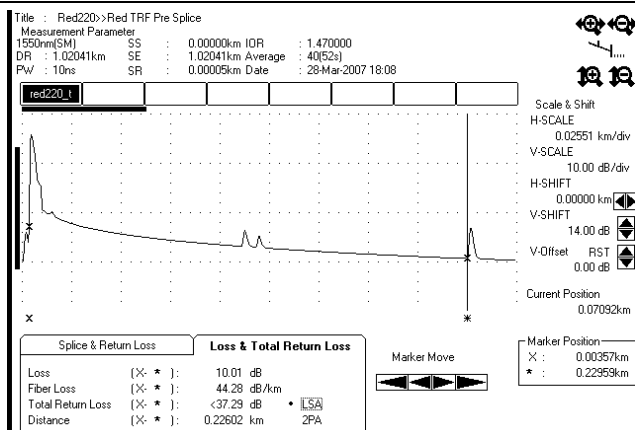
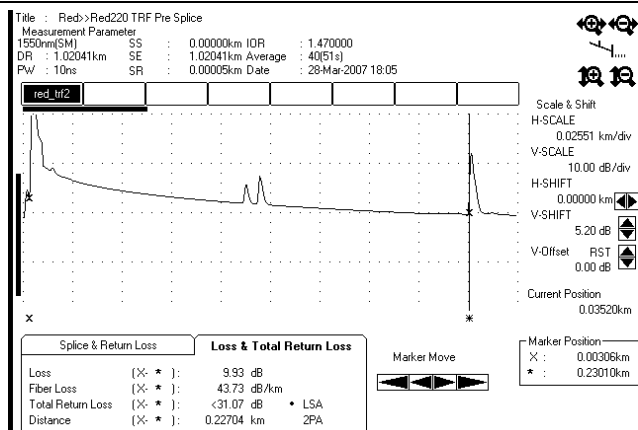
2.6.1 0.100Km TRF / CTA unit Post load OTDR Data Sheet

Operator G. Jones
Date 28-Mar-2007
Length 0.113Km (OTDR)

OTDR Parameters

Equipment	Anritsu MW9076B OTDR
Refractive index	1.470
Pulse Width	10 ns
Averaging	40 (52sec)

2.6.2 - 0.100km TRF / CTA Unit. Post Load OTDR



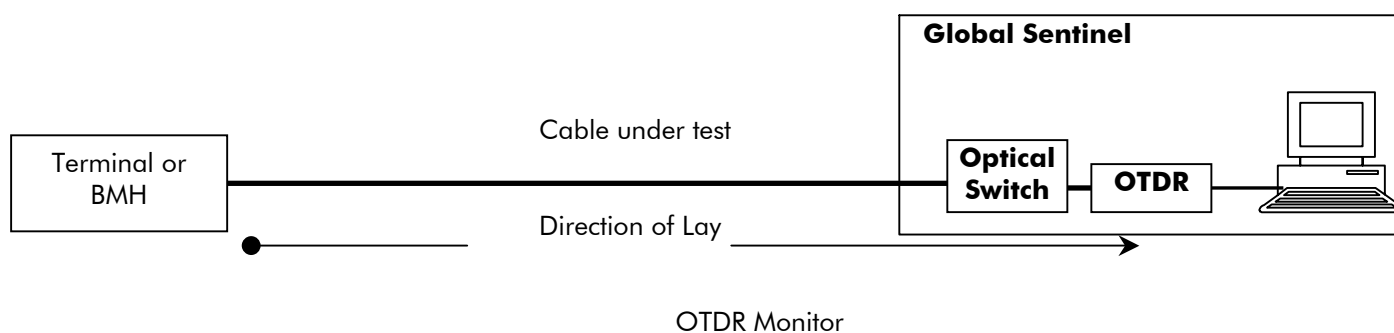
3. LAY TEST RESULTS

3.1 Test Methods during Lay operations.

The following test methods were used during the MARS cable lay.

OTDR Lay Monitor

All 8 fibres of the cable are connected to an optical switch in the test room aboard the lay vessel. The fibres are monitored sequentially by OTDR via the optical switch. The OTDR and optical switch are driven by a computer, which generates a spreadsheet and records the optical loss figure between two markers at either end of the trace displayed on the OTDR. The loss figure for each fibre is recorded approximately every 10 minutes depending on the averaging time set on the OTDR. Graphs were then plotted from the resultant data for each fibre and are provided in this report.



Joint Testing:

Beach Manhole joints / Repair joints / Line Joints were tested by one or a combination of the following methods:

One way OTDR

The value of a splice loss is determined by OTDR back scattering from one direction only.

Two way OTDR

The value of a splice loss is determined by OTDR back scattering from both directions. The two results are then averaged to determine the true loss.

3.2 MARS OTDR Lay Monitor (Moss Landing to TRF/CTA Position)

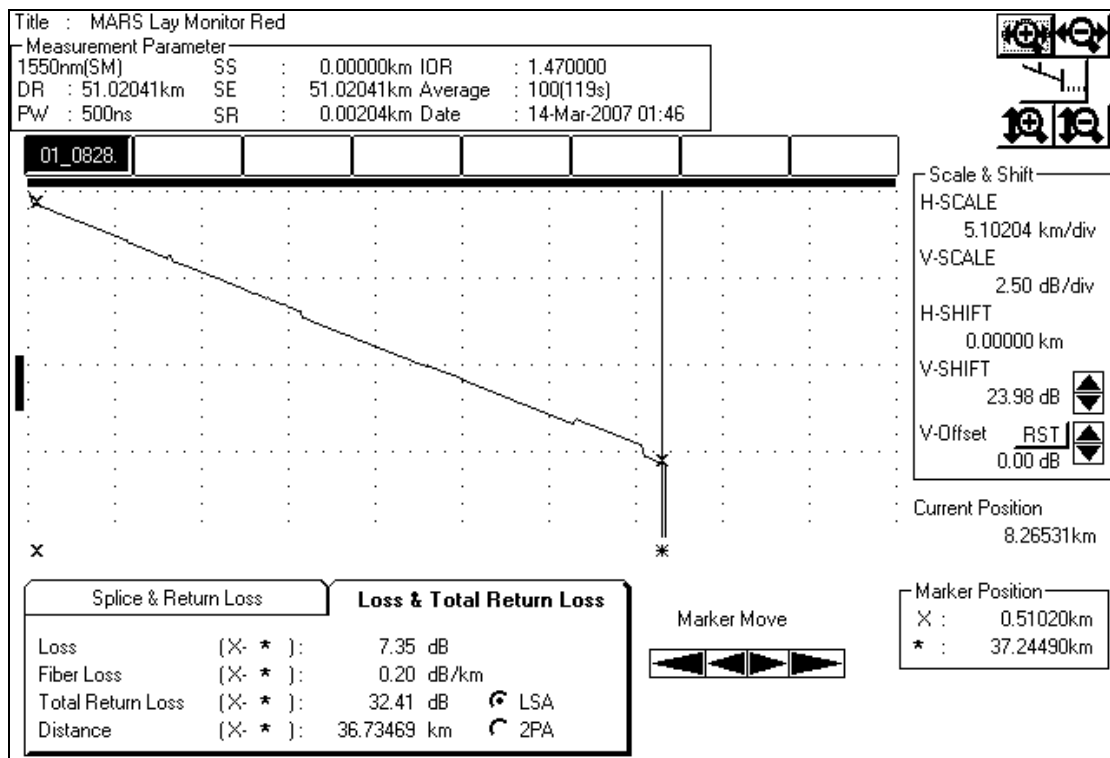
Tester J. Roberts / G. Jones

Date 14 March 2007 – 20 March 2007

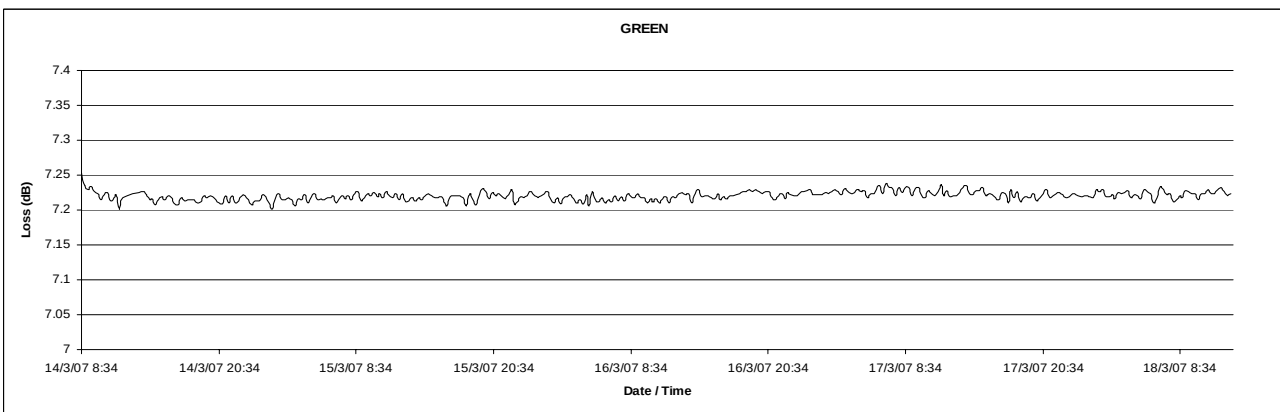
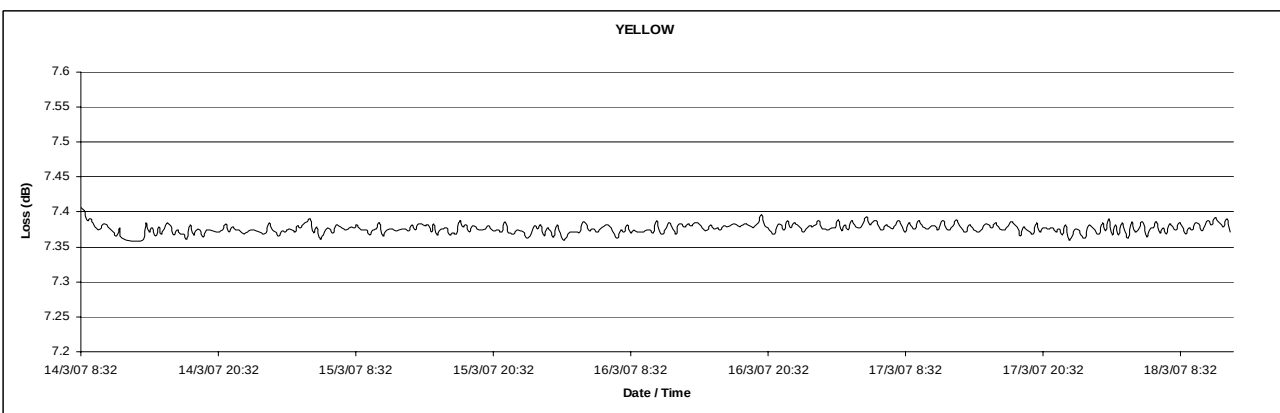
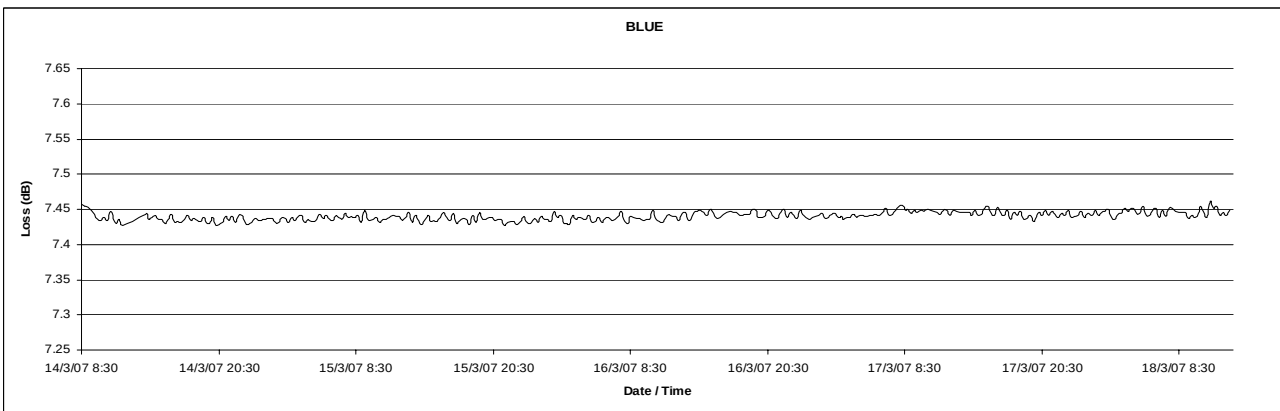
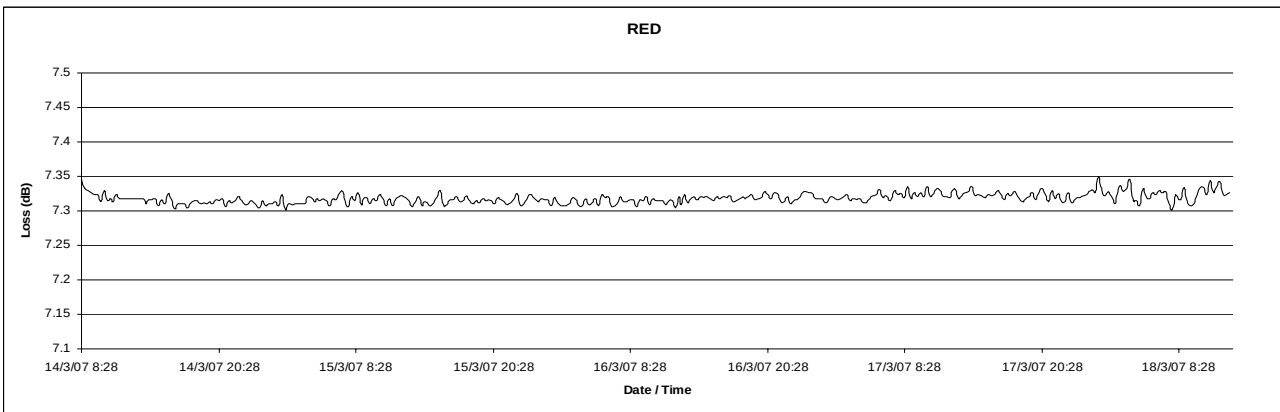
Remarks Lay monitor was started during shore end ops at Moss Landing, and monitored $\approx 33.52\text{km}$ of the system until the vessel reached the position to make joint SJ1 (which added the remaining $\approx 18.98\text{km}$ into the system). Following completion of SJ1, monitor was restarted and included the entire $\approx 52.5\text{km}$ until the lay ended at the TRF/CTA position.

OTDR Parameters

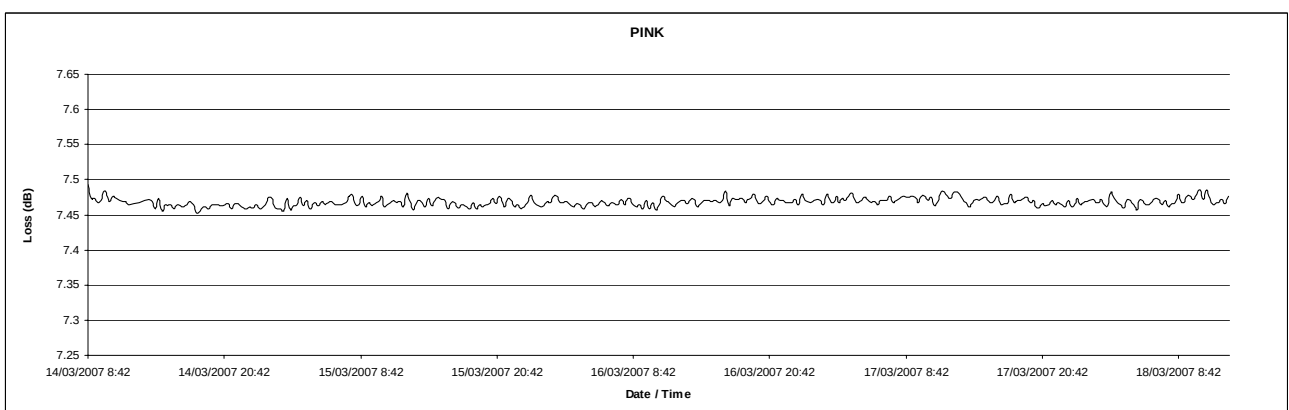
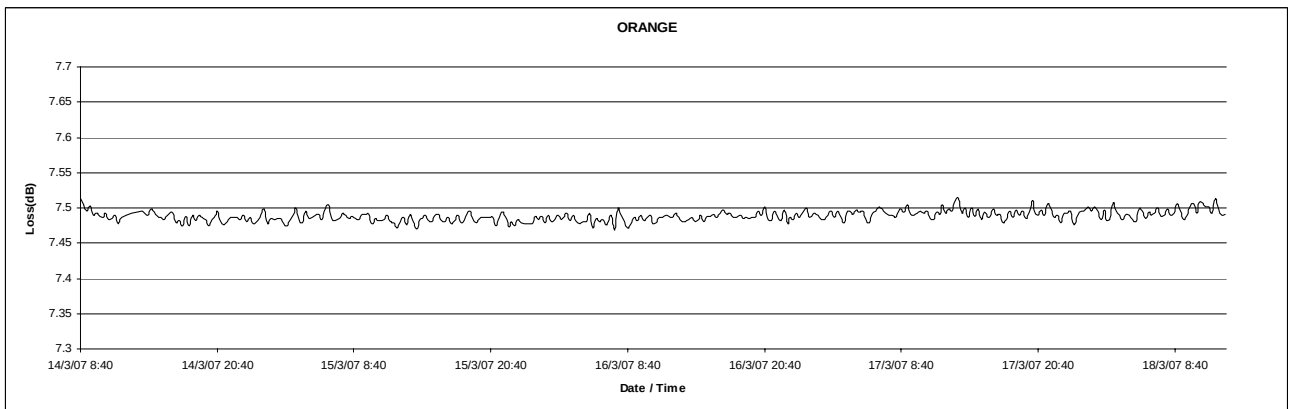
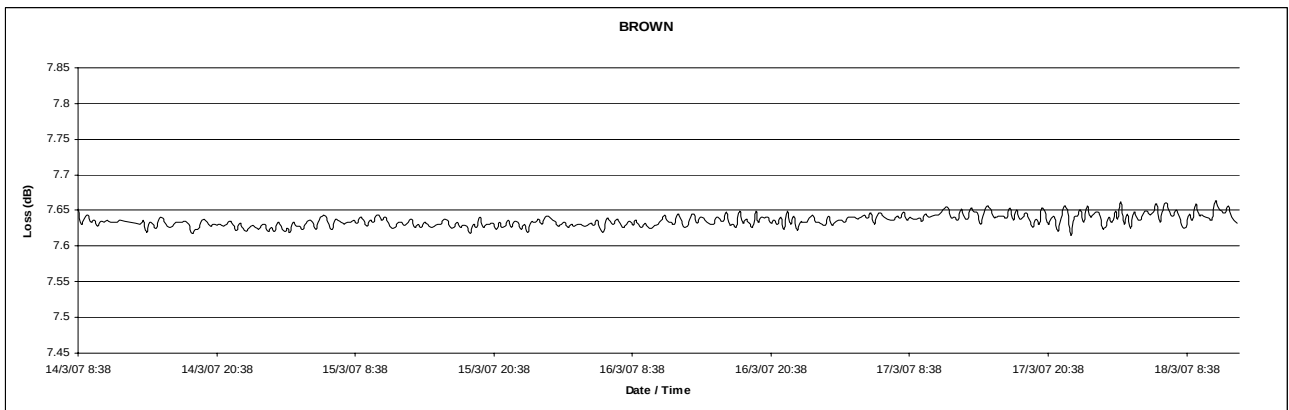
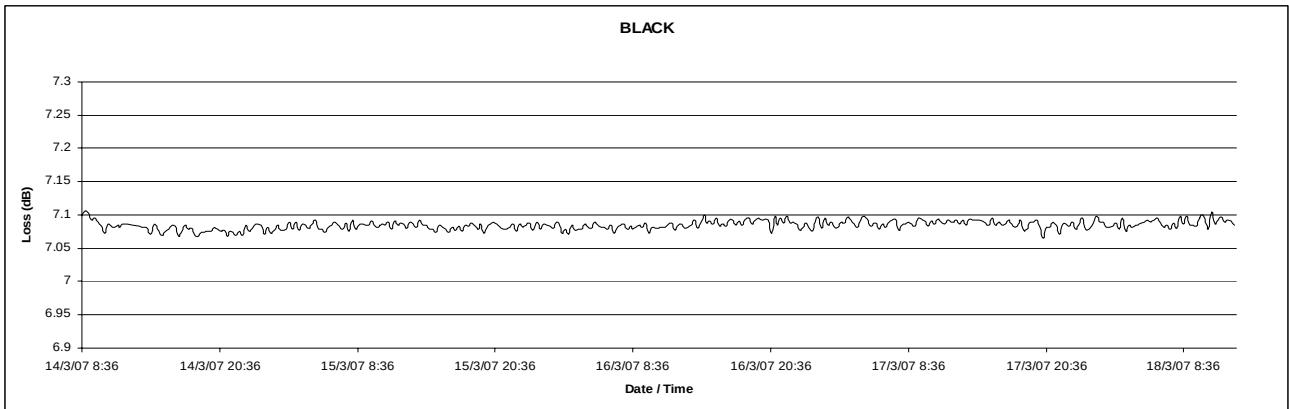
Global Sentinel	
Equipment	Anritsu MW9076B OTDR
Refractive index	1.47
Pulse Width	500ns
Averaging	100(119s)



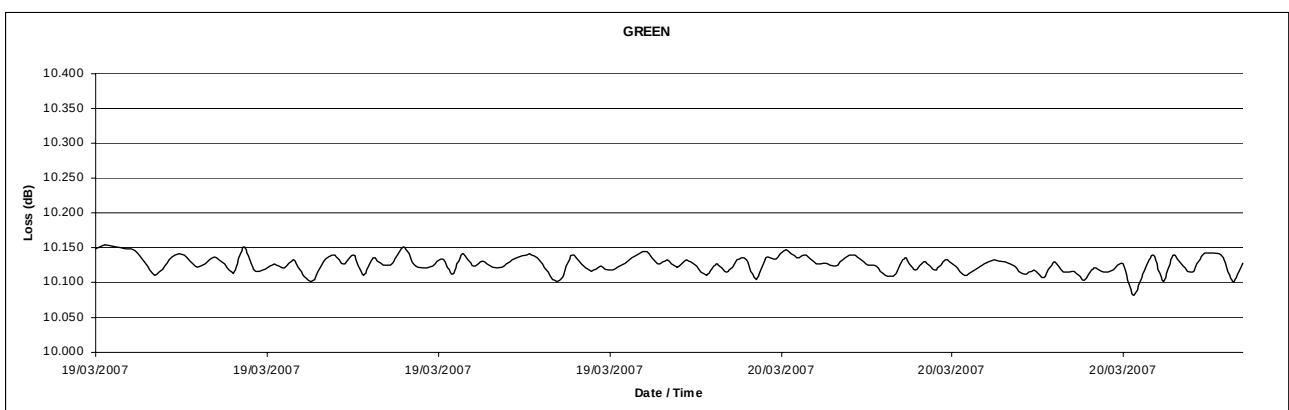
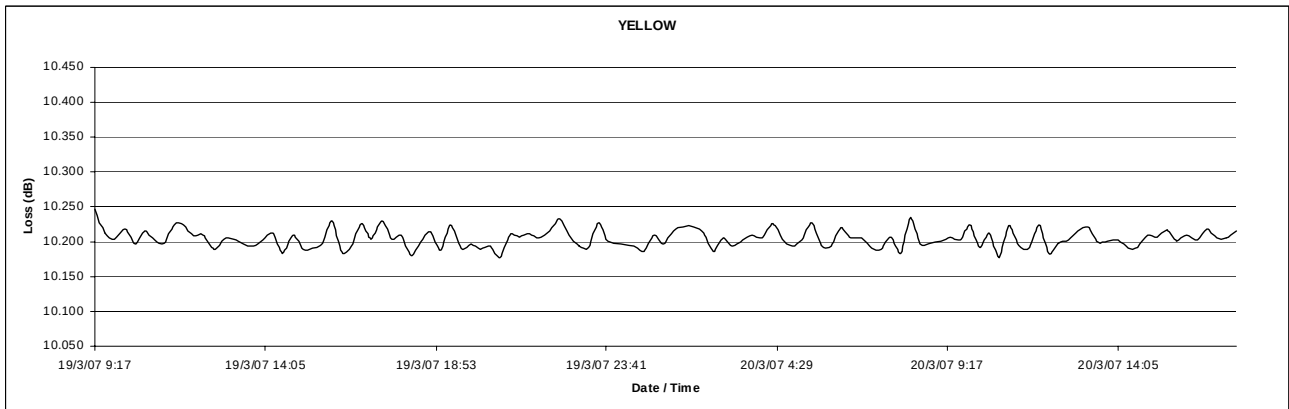
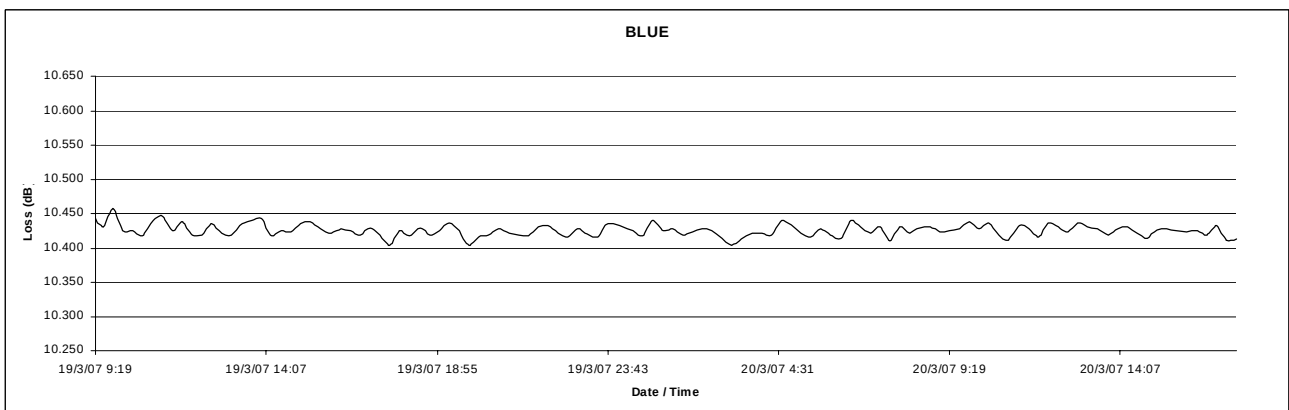
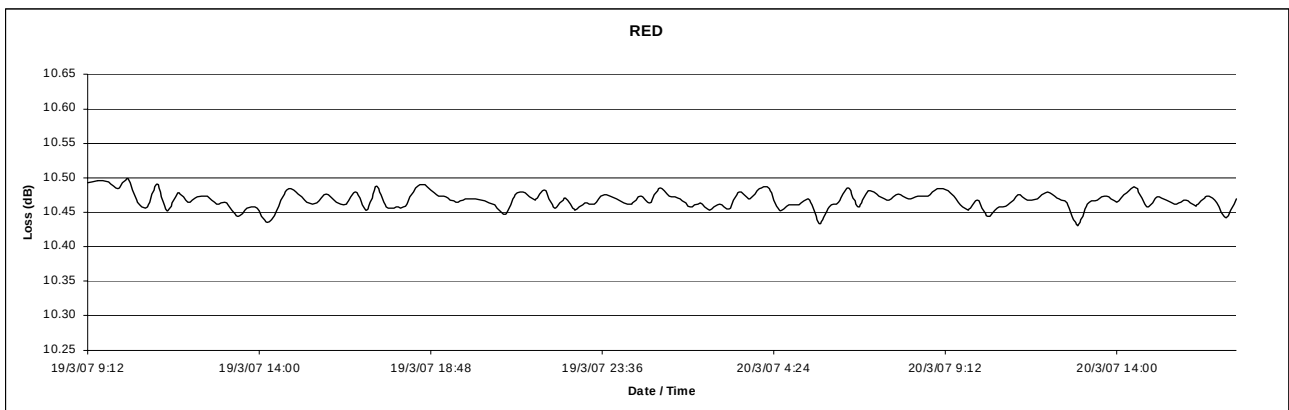
3.2.1 - MARS OTDR Lay Monitor (From Moss Landing to SJ1 position)



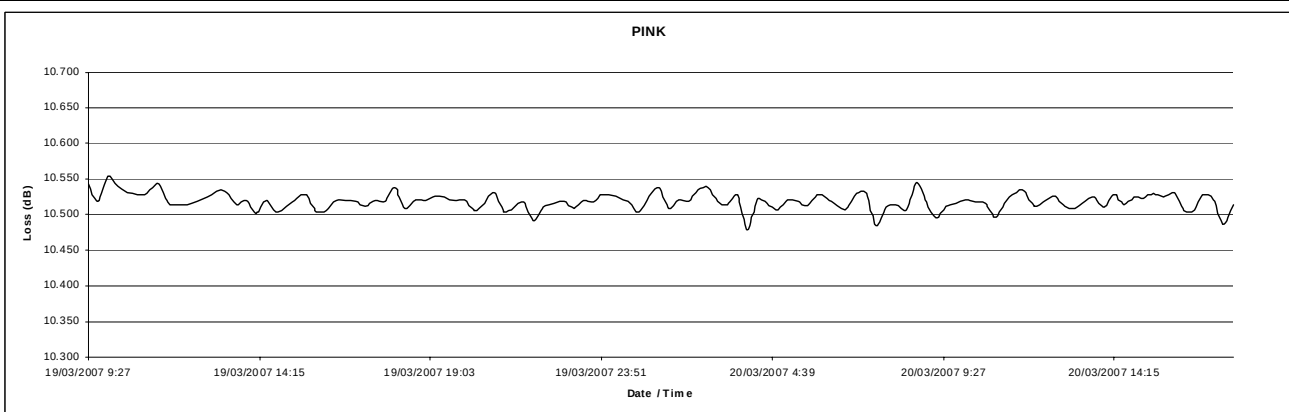
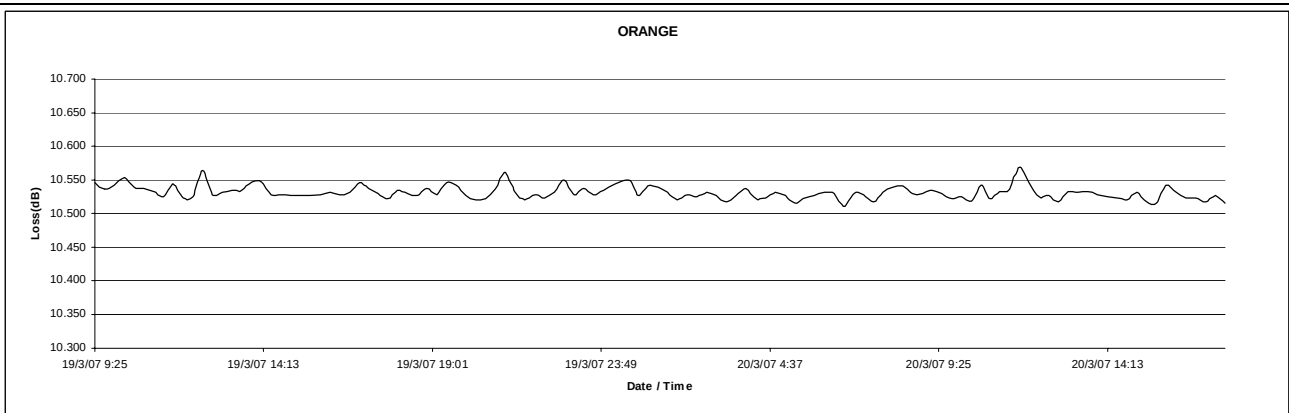
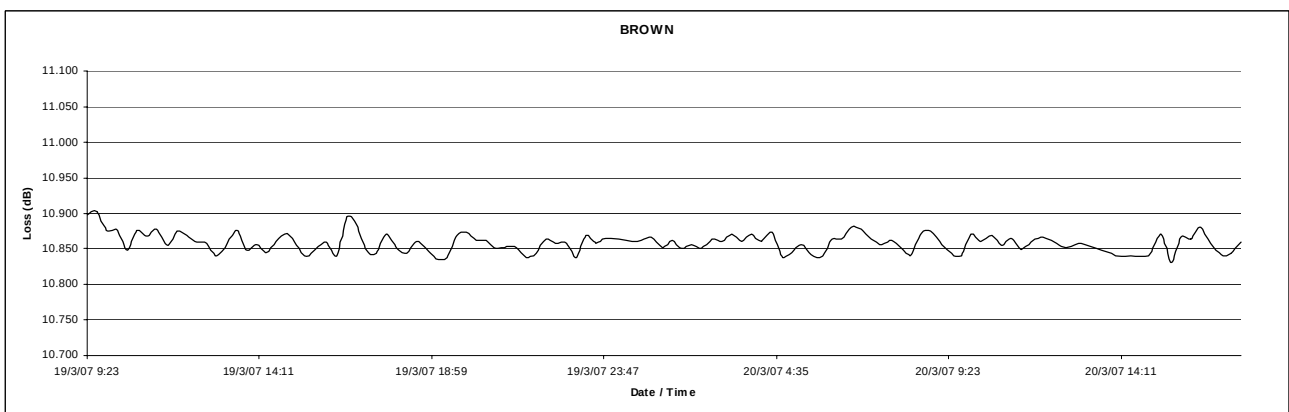
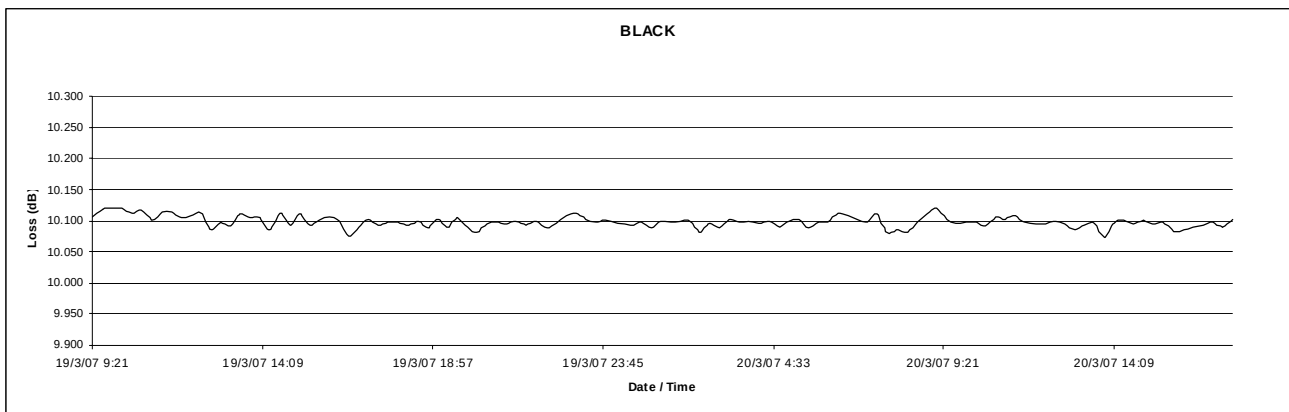
3.2.1 - MARS OTDR Lay Monitor (From Moss Landing to SJ1 position)



3.2.2 - MARS OTDR Lay Monitor (From SJ1 position to End of Lay)



3.2.2 - MARS OTDR Lay Monitor (From SJ1 position to End of Lay)

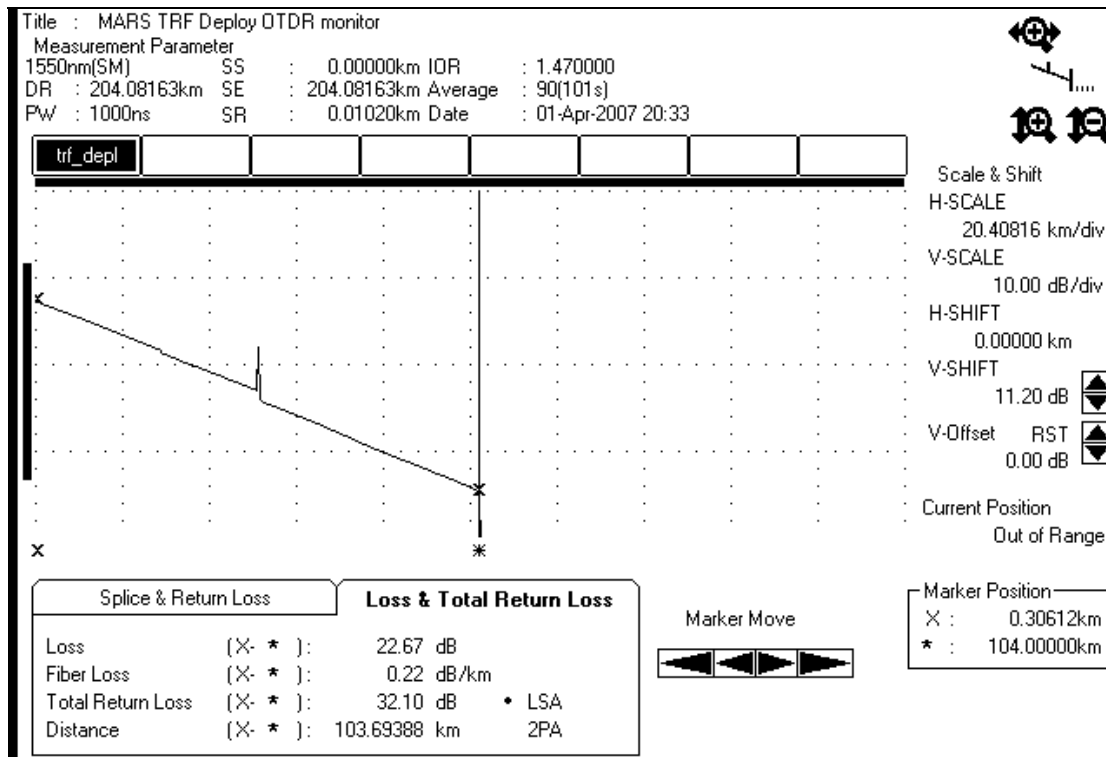


3.3 MARS OTDR Lay Monitor During TRF/CTA Deployment

Tester J. Roberts
Date 30 March 2007

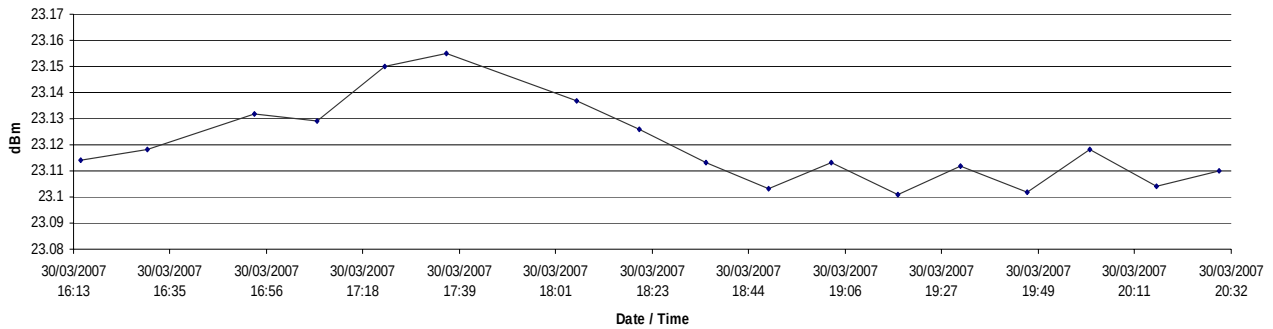
OTDR Parameters

Global Sentinel	
Equipment	Anritsu MW9076B OTDR
Refractive index	1.47
Pulse Width	1000ns
Averaging	90(101s)

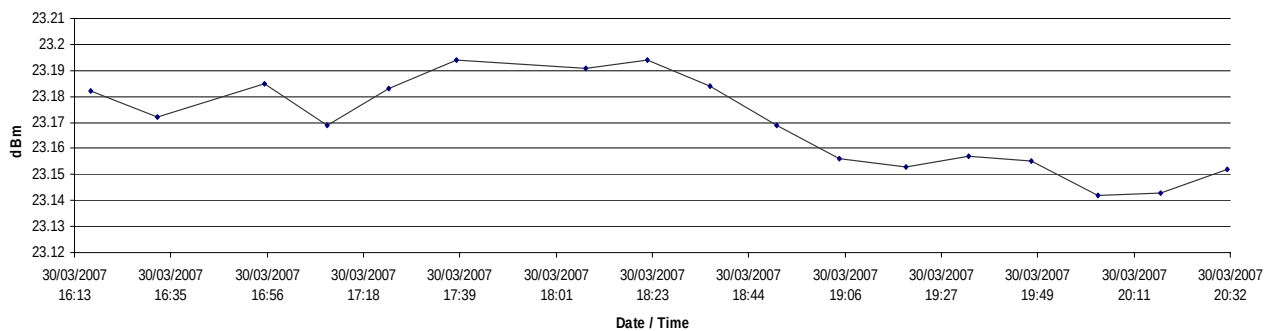


3.3.1 - OTDR Monitor (During deployment of TRF)

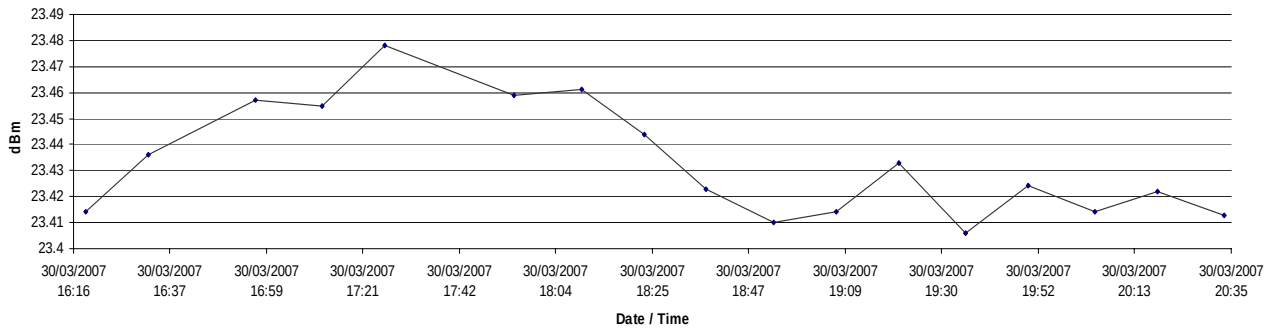
BLACK



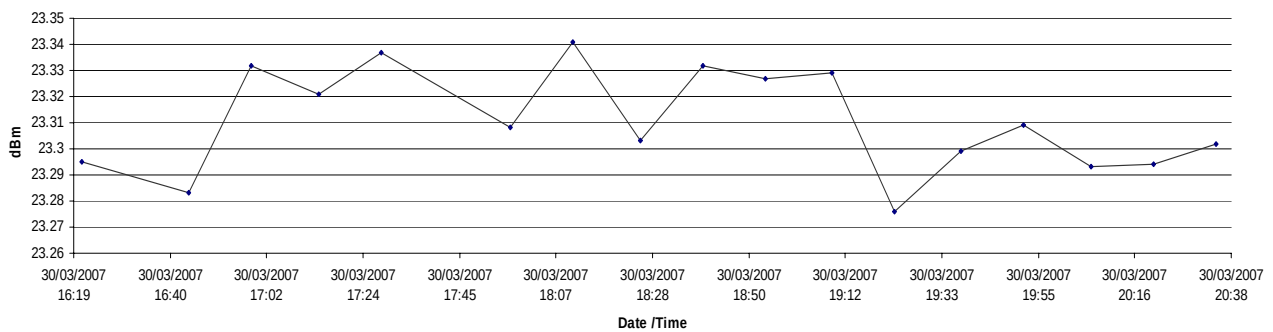
YELLOW



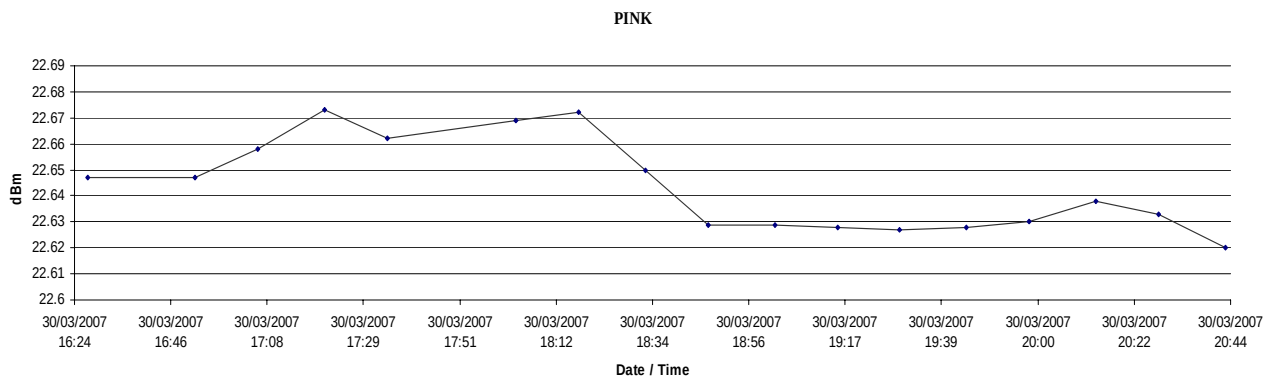
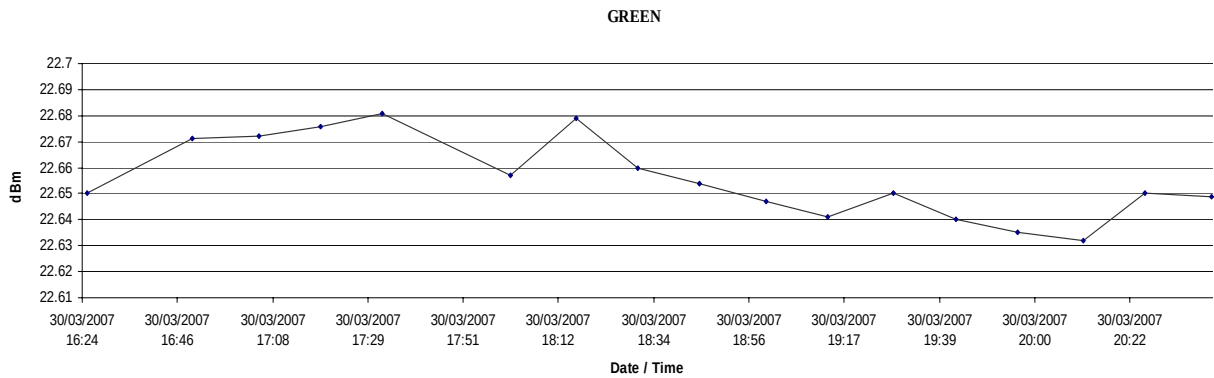
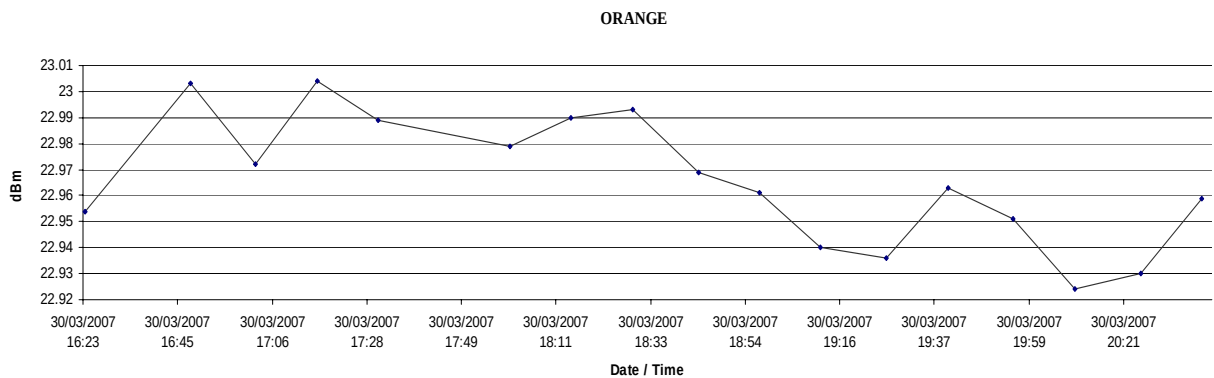
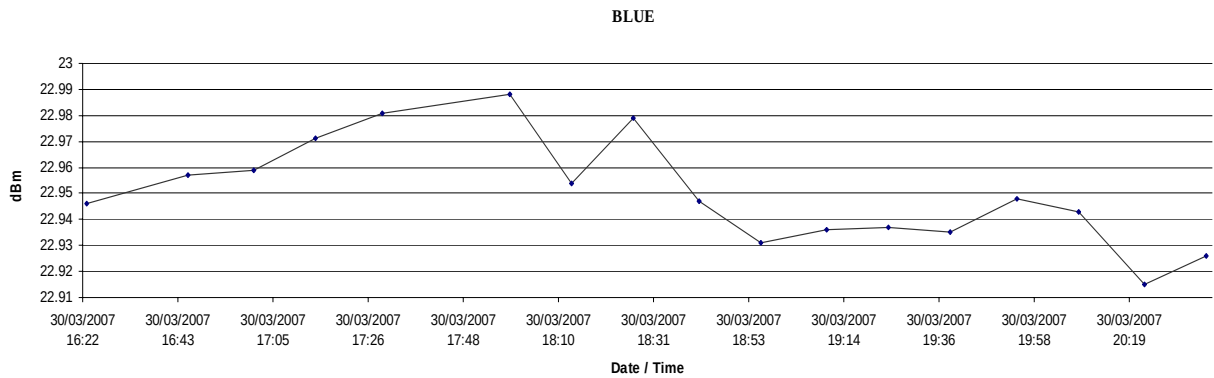
RED



BROWN



3.3.1 - OTDR Monitor (During deployment of TRF)



3.4 MARS End of Lay OTDR from Global Sentinel

Tester G. Jones
Date 20th March 2007

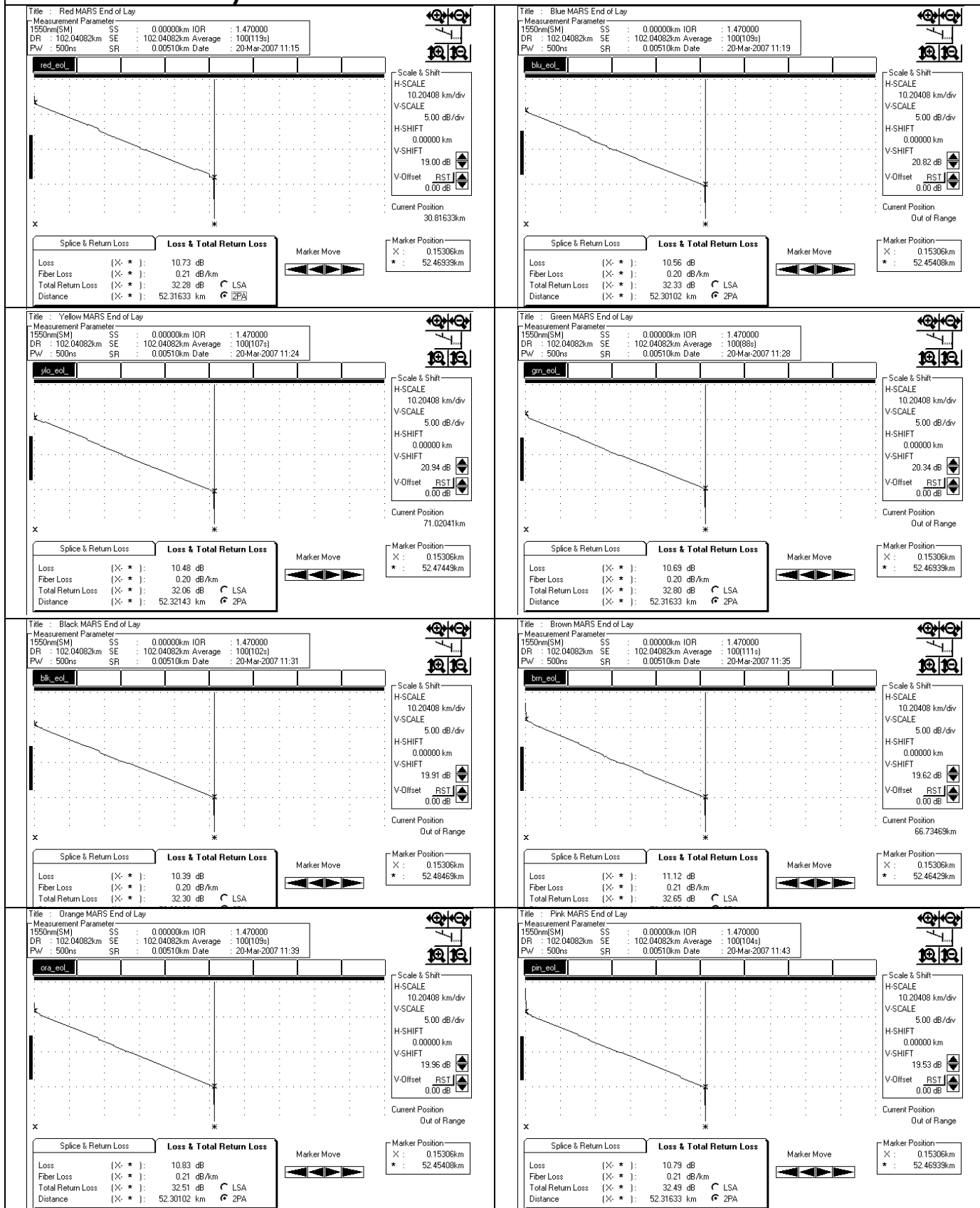
Test: One way OTDR (From vessel)

OTDR Parameters

Global Sentinel	
Equipment	Anritsu MW9076B OTDR
Refractive index	1.47
Pulse Width	500ns
Averaging	100(119s)

MARS End of Lay OTDR (from Global Sentinel)					
Fibre		Cursor Position /Km		Attenuation	
Number	Colour	C1	C2	dB	dB/Km
1	Red	0.153	52.469	10.73	0.208
2	Yellow	0.153	52.454	10.56	0.202
3	Blue	0.153	52.474	10.48	0.200
4	Green	0.153	52.469	10.69	0.204
5	Black	0.153	52.484	10.39	0.199
6	Brown	0.153	52.464	11.12	0.213
7	Orange	0.153	52.454	10.83	0.207
8	Pink	0.153	52.469	10.79	0.206

3.4.1 - MARS End of Lay OTDR Test Results



3.5 MARS Final Length OTDR (from cs Global Sentinel)

Tester G. Jones
Date 30th March 2007

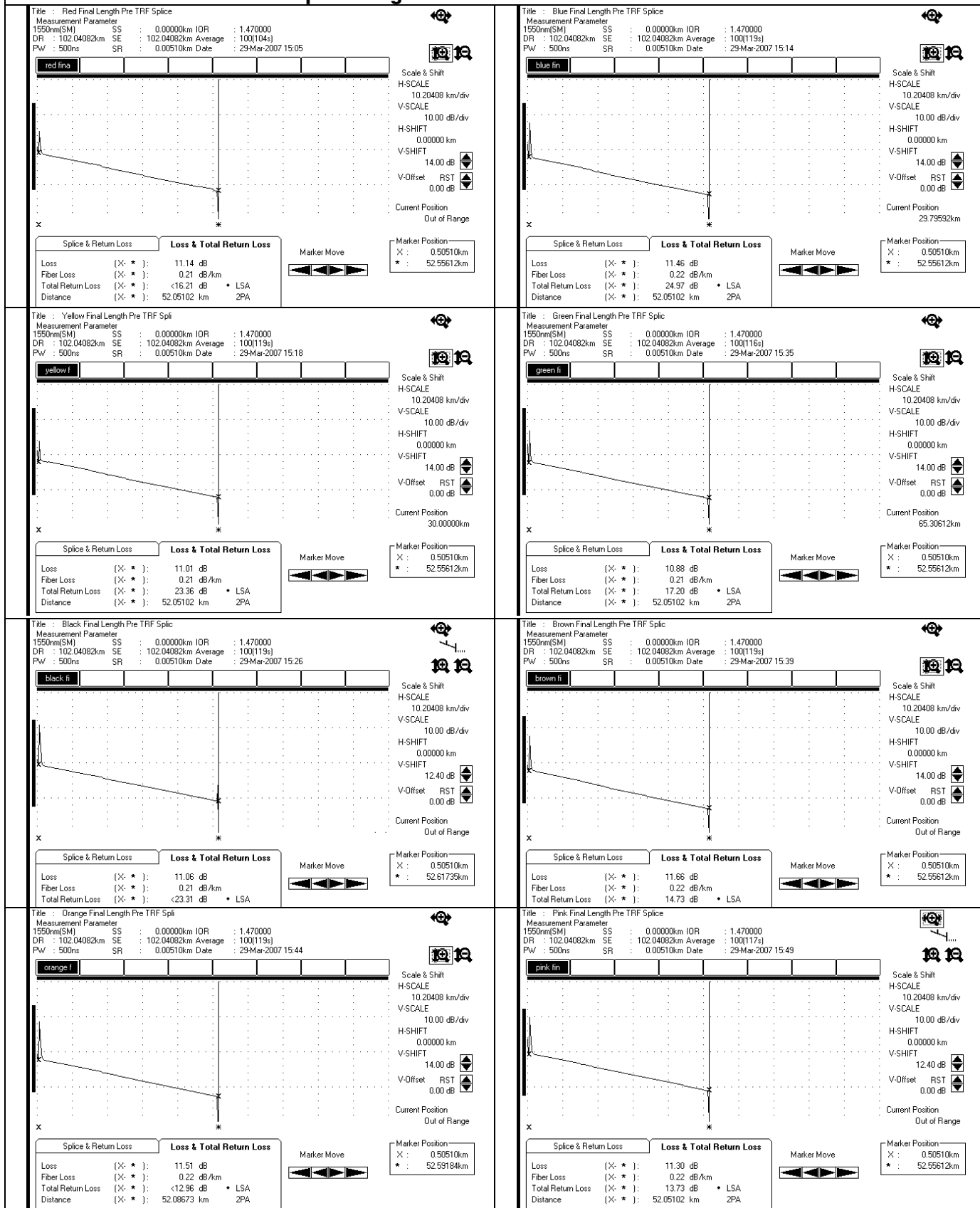
Test: One way OTDR From vessel to determine system length prior to Final Splice / CTA.

OTDR Parameters

Global Sentinel	
Equipment	Anritsu MW9076B OTDR
Refractive index	1.47
Pulse Width	500ns
Averaging	100(119s)

MARS Final Length OTDR from Global Sentinel					
Fibre		Cursor Position /Km		Attenuation	
Number	Colour	C1	C2	dB	dB/Km
1	Red	0.505	52.556	11.14	0.21
2	Yellow	0.505	52.556	11.01	0.21
3	Blue	0.505	52.556	11.46	0.22
4	Green	0.505	52.556	10.88	0.21
5	Black	0.505	52.617	11.06	0.21
6	Brown	0.505	52.556	11.66	0.22
7	Orange	0.505	52.591	11.51	0.22
8	Pink	0.505	52.556	11.30	0.22

3.5.1 - MARS OTDR Pre Final Splice Length Check



4. JOINT TEST RESULTS

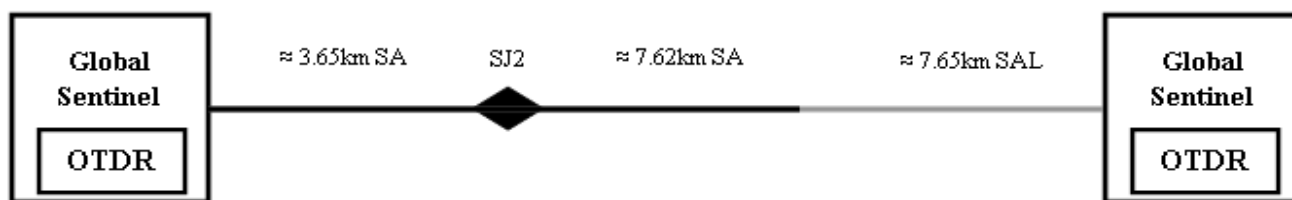
4.1 Joint SJ2

Operator J.Roberts / G.Jones

Date 10-March-2007

Test method Two way OTDR. (Both ends on board the Global Sentinel)

Remarks This joint was made during the transit from Portland to Monterey Bay.



Test set up Joint SJ2

OTDR Parameters

(3.65km SA end)

Equipment Anritsu MW9076B OTDR
Refractive index 1.470
Pulse Width 100ns
Averaging 90 (104secs)

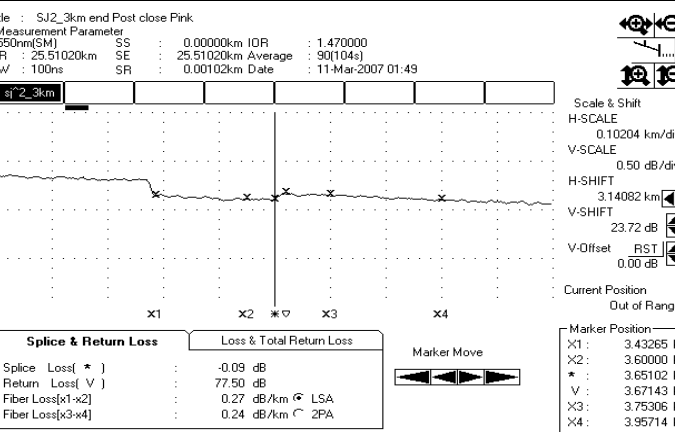
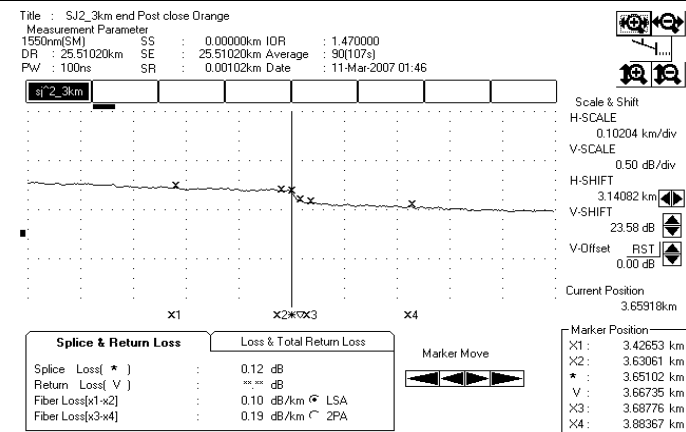
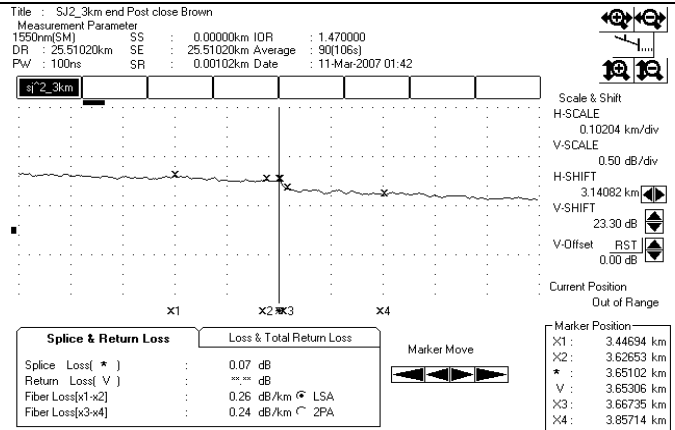
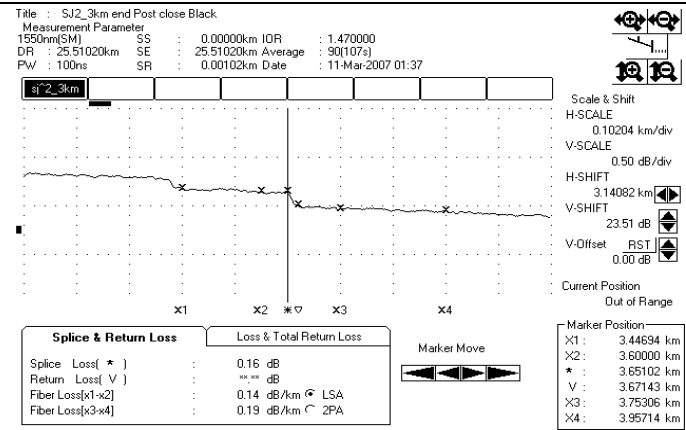
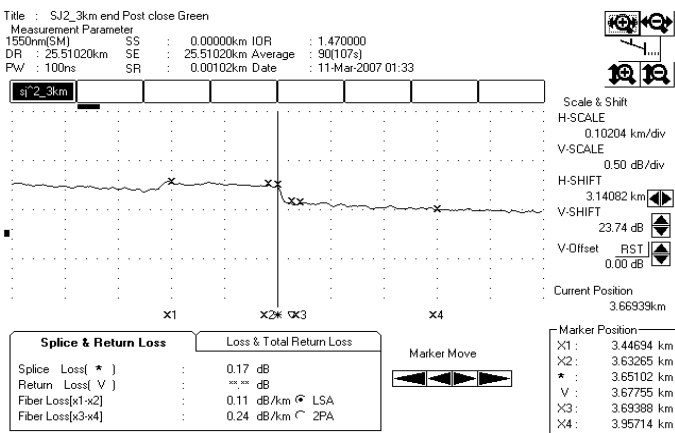
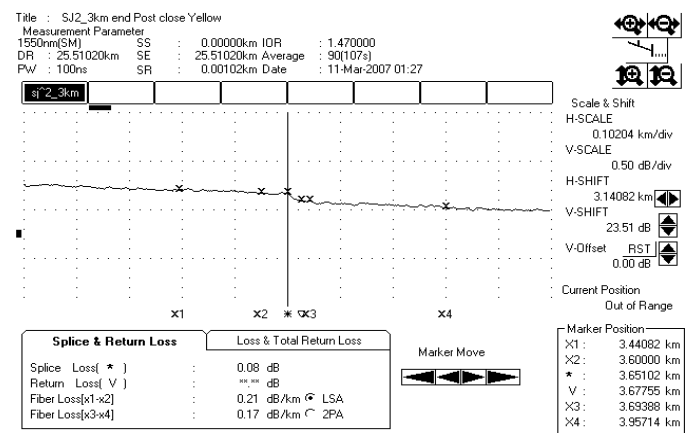
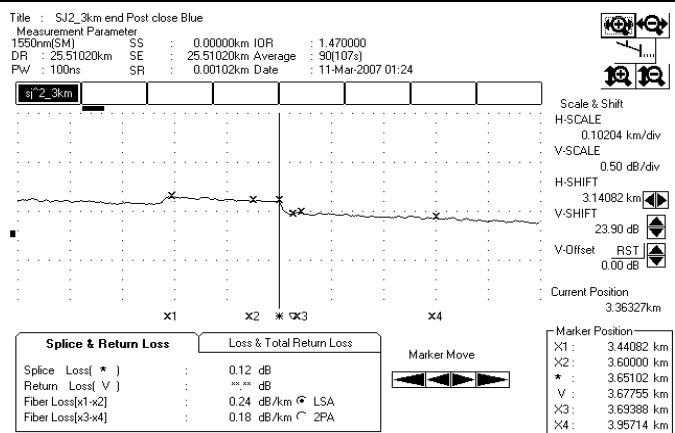
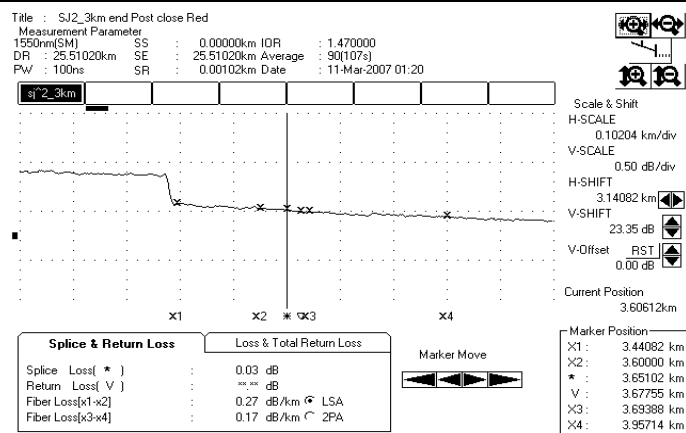
(7.65km SAL end)

Equipment Anritsu MW9076B OTDR
Refractive index 1.470
Pulse Width 100ns
Averaging 90 (107secs)

Splice loss OTDR measurement. Joint SJ2 (post close)

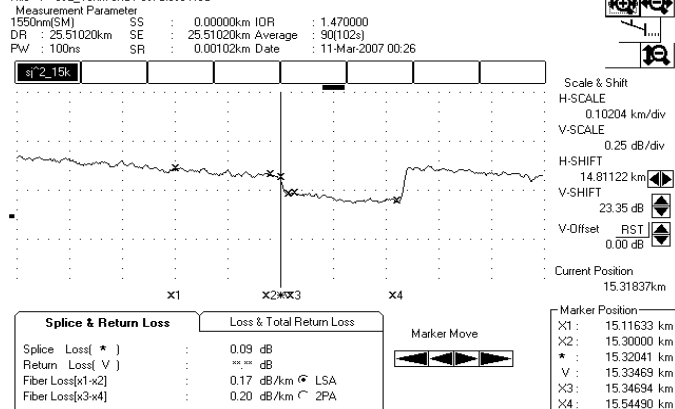
Fibre	From 3.65km SA end (dB)	From 7.65km SAL end (dB)	Average loss (dB)
Red	0.10	0.09	0.10
Blue	0.12	-0.08	0.02
Yellow	0.08	0.11	0.10
Green	0.17	-0.05	0.06
Black	0.16	-0.04	0.06
Brown	0.07	-0.01	0.03
Orange	0.12	-0.04	0.04
Pink	-0.09	0.17	0.04

4.1 - Joint SJ2 Post close OTDR from 3.65km SA End

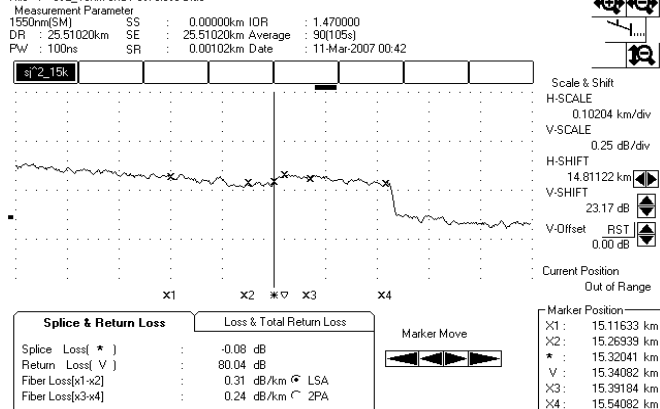


4.1 - Joint SJ2 Post close OTDR (from 7.65km SAL End)

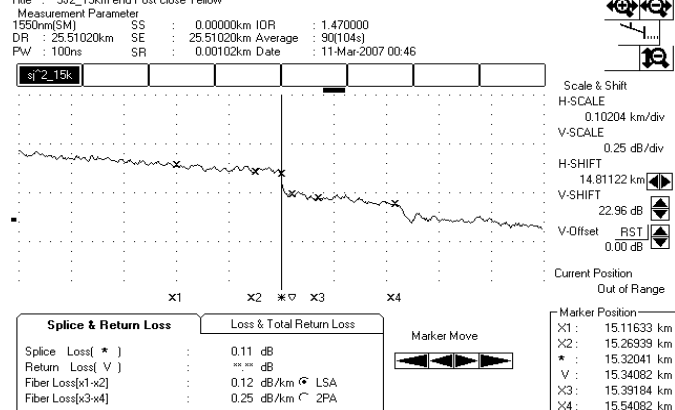
Title : SJ2_15km end Post close Red



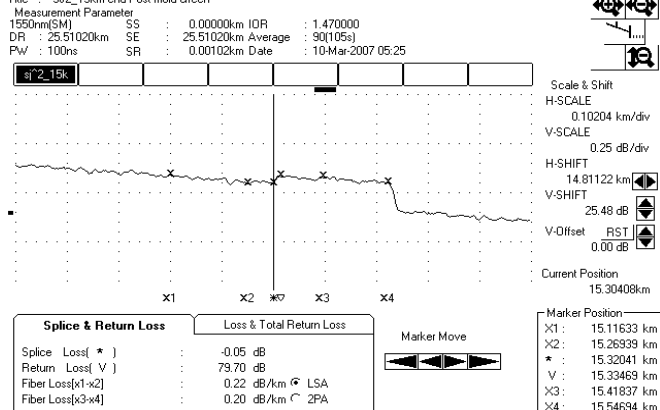
Title : SJ2_15km end Post close Blue



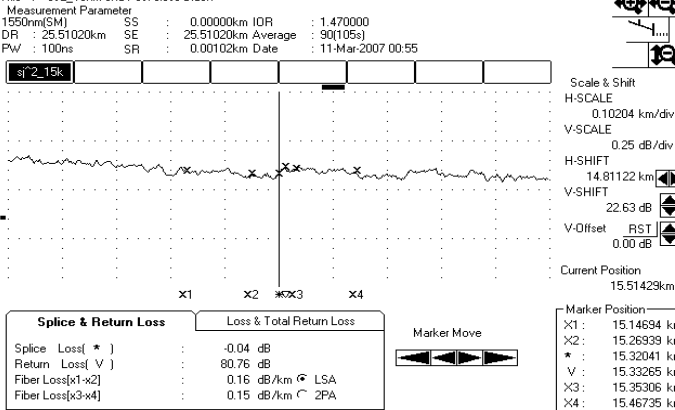
Title : SJ2_15km end Post close Yellow



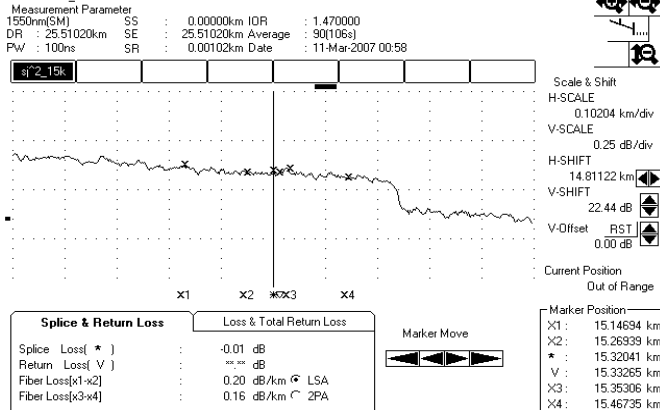
Title : SJ2_15km end Post mold Green



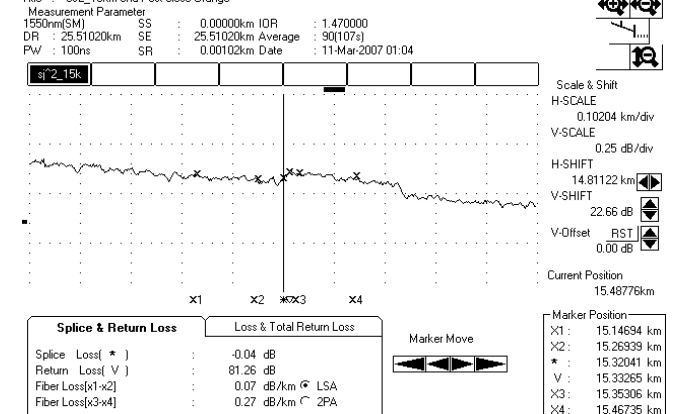
Title : SJ2_15km end Post close Black



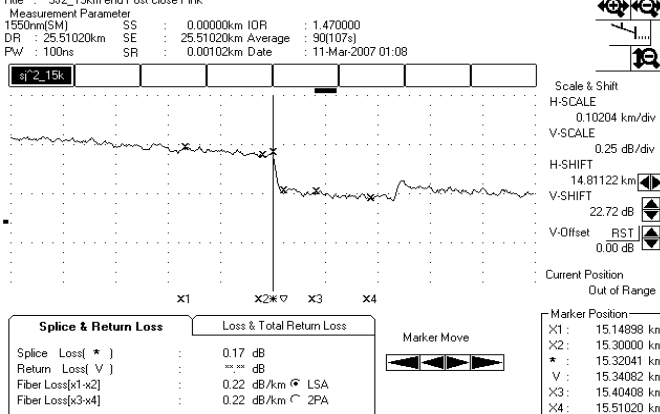
Title : SJ2_15km end Post close Brown



Title : SJ2_15km end Post close Orange



Title : SJ2_15km end Post close Pink



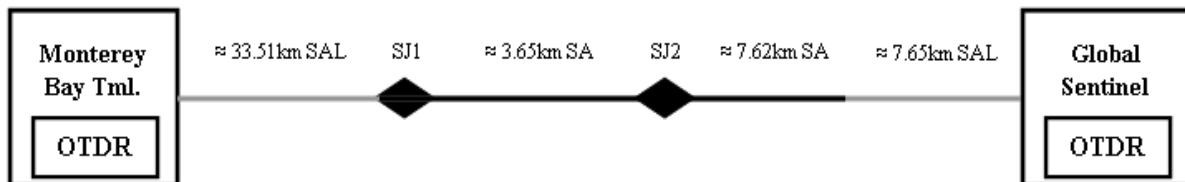
4.2 Joint SJ1 SA to SA

Operator J. Roberts / G. Jones

Date 19-March-2007

Test method Two way OTDR. (From Global Sentinel & Monterey Bay Terminal)

Remarks Joint was made after laying 33.51km.



Test set up Joint SJ1

OTDR Parameters

Global Sentinel
 Equipment Anritsu MW9076B OTDR
 Refractive index 1.47
 Pulse Width 100ns
 Averaging 90 (106secs)

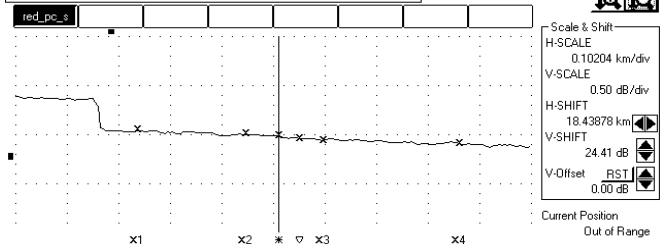
Monterey Bay Terminal
 Equipment Anritsu MW9076B OTDR
 Refractive index 1.47
 Pulse Width 500ns
 Averaging 120 (140secs)

Fibre	From Global Sentinel (dB)	From Monterey Bay (dB)	Average loss (dB)
Red	0.02	0.01	0.01
Blue	0.15	0.15	0.15
Yellow	0.15	0.01	0.08
Green	0.09	0.04	0.06
Black	0.22	-0.15	0.03
Brown	-0.01	0.17	0.08
Orange	-0.08	0.24	0.08
Pink	0.03	0.04	0.03

4.2 - Joint SJ1 Post close OTDR (From Global Sentinel End)

Title : RED SJ1 Post close from Ship

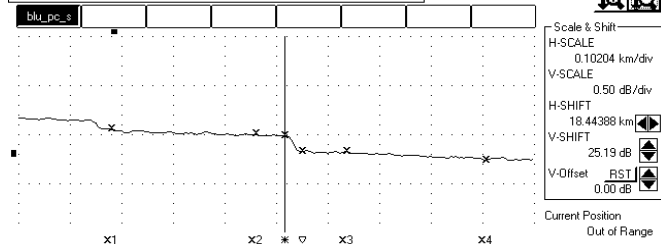
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:12



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : 0.02 dB		
Return Loss(V) : -- dB		
Fiber Loss(x1-x2) : 0.21 dB/km LSA		
Fiber Loss(x3-x4) : 0.18 dB/km 2PA		

Title : BLU SJ1 Post close from Ship

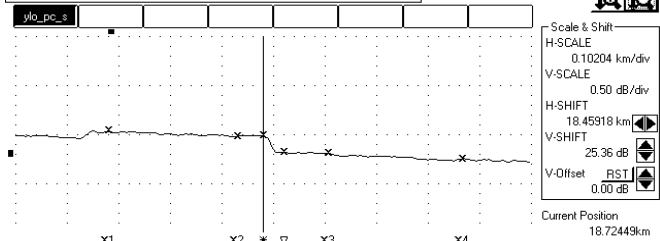
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:15



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : 0.15 dB		
Return Loss(V) : -- dB		
Fiber Loss(x1-x2) : 0.16 dB/km LSA		
Fiber Loss(x3-x4) : 0.22 dB/km 2PA		

Title : YLO SJ1 Post close from Ship

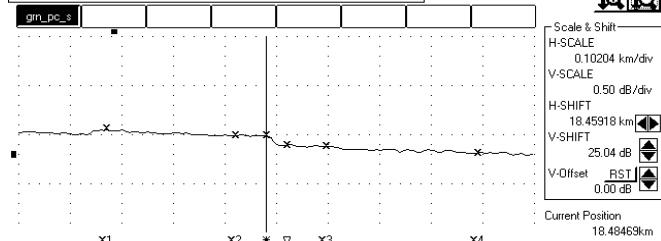
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:19



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : 0.15 dB		
Return Loss(V) : -- dB		
Fiber Loss(x1-x2) : 0.20 dB/km LSA		
Fiber Loss(x3-x4) : 0.24 dB/km 2PA		

Title : GRN SJ1 Post close from Ship

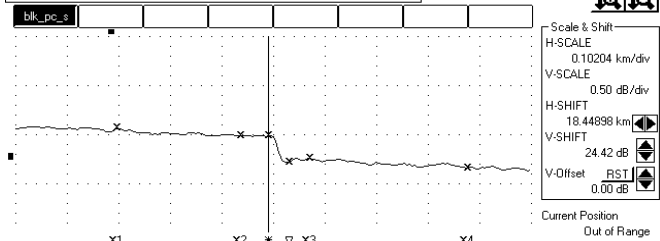
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:22



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : 0.09 dB		
Return Loss(V) : -- dB		
Fiber Loss(x1-x2) : 0.23 dB/km LSA		
Fiber Loss(x3-x4) : 0.18 dB/km 2PA		

Title : BLK SJ1 Post close from Ship

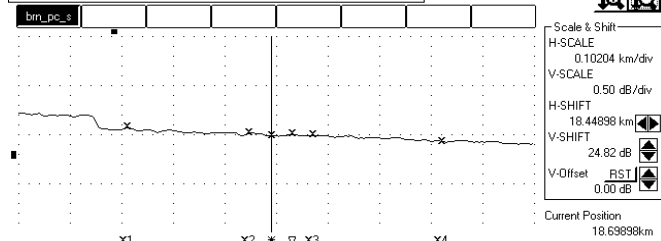
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:25



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : 0.22 dB		
Return Loss(V) : -- dB		
Fiber Loss(x1-x2) : 0.23 dB/km LSA		
Fiber Loss(x3-x4) : 0.23 dB/km 2PA		

Title : BRN SJ1 Post Close from Ship

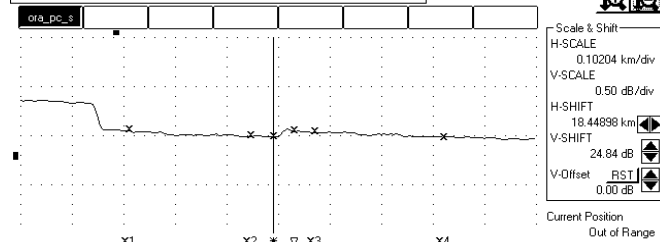
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:28



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : -0.01 dB		
Return Loss(V) : 83.78 dB		
Fiber Loss(x1-x2) : 0.21 dB/km LSA		
Fiber Loss(x3-x4) : 0.23 dB/km 2PA		

Title : ORA SJ1 Post Close from Ship

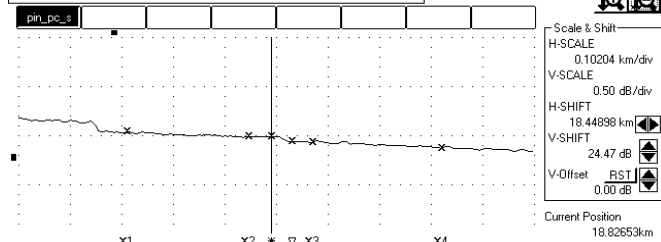
Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:32



Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : -0.08 dB		
Return Loss(V) : 77.67 dB		
Fiber Loss(x1-x2) : 0.20 dB/km LSA		
Fiber Loss(x3-x4) : 0.22 dB/km 2PA		

Title : PIN SJ1 Post Close from Ship

Measurement Parameter
1550nm(SM) SS : 0.00000km IOR : 1.470000
DR : 102.04082km SE : 102.04082km Average : 90(106s)
PW : 100ns SR : 0.00510km Date : 19-Mar-2007 01:35

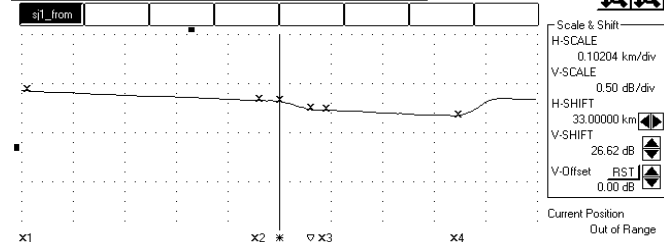


Splice & Return Loss	Loss & Total Return Loss	Marker Move
Splice Loss(*) : 0.03 dB		
Return Loss(V) : -- dB		
Fiber Loss(x1-x2) : 0.20 dB/km LSA		
Fiber Loss(x3-x4) : 0.23 dB/km 2PA		

4.2 - Joint SJ1 Post close OTDR from Moss Landing End

Title : SJ1 From shore Station PC Red

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(140s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:00

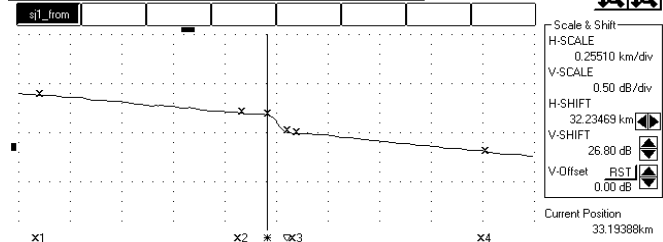


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.07 dB
Return Loss(V)	∞ dB
Fiber Loss(x1-x2)	0.21 dB/km LSA
Fiber Loss(x3-x4)	0.23 dB/km 2PA

Marker Position
X1 : 33.01020 km
X2 : 33.46939 km
* : 33.51020 km
V : 33.57143 km
X3 : 33.60204 km
X4 : 33.86224 km

Title : SJ1 From shore Station PC Blue

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(143s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:04

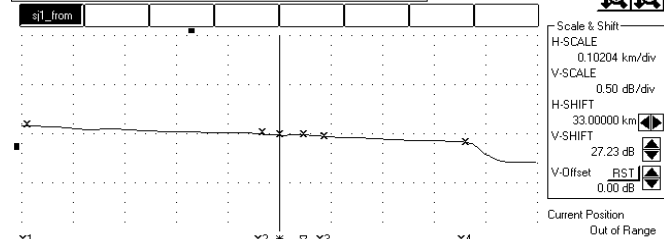


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.15 dB
Return Loss(V)	∞ dB
Fiber Loss(x1-x2)	0.19 dB/km LSA
Fiber Loss(x3-x4)	0.21 dB/km 2PA

Marker Position
X1 : 32.33673 km
X2 : 33.36673 km
* : 33.46429 km
V : 33.56122 km
X3 : 33.60714 km
X4 : 34.54082 km

Title : SJ1 From shore Station PC Yellow

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(143s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:08

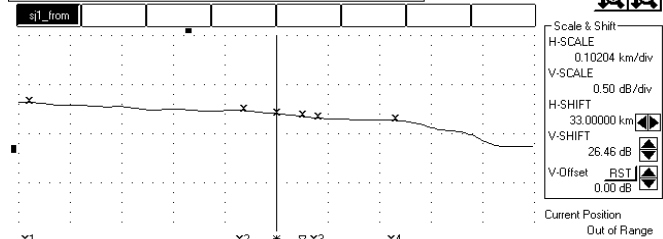


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.01 dB
Return Loss(V)	87.88 dB
Fiber Loss(x1-x2)	0.16 dB/km LSA
Fiber Loss(x3-x4)	0.19 dB/km 2PA

Marker Position
X1 : 33.01020 km
X2 : 33.47449 km
* : 33.51020 km
V : 33.55612 km
X3 : 33.59694 km
X4 : 33.87755 km

Title : SJ1 From shore Station PC Green

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(140s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:13

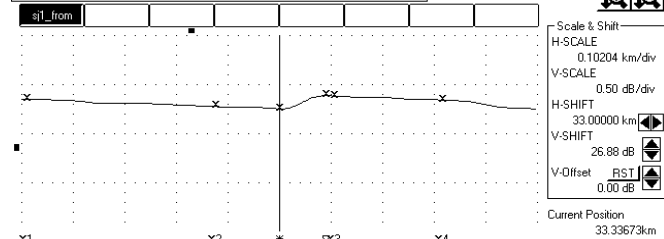


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.04 dB
Return Loss(V)	∞ dB
Fiber Loss(x1-x2)	0.20 dB/km LSA
Fiber Loss(x3-x4)	0.14 dB/km 2PA

Marker Position
X1 : 33.02041 km
X2 : 33.44388 km
* : 33.51020 km
V : 33.56122 km
X3 : 33.59184 km
X4 : 33.74490 km

Title : SJ1 From shore Station PC Black

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(142s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:17

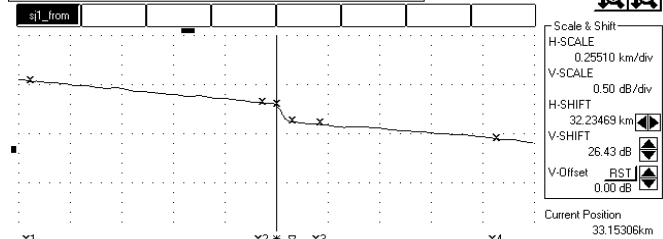


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	-0.15 dB
Return Loss(V)	67.40 dB
Fiber Loss(x1-x2)	0.20 dB/km LSA
Fiber Loss(x3-x4)	0.19 dB/km 2PA

Marker Position
X1 : 33.01020 km
X2 : 33.38265 km
* : 33.51020 km
V : 33.60204 km
X3 : 33.61735 km
X4 : 33.83163 km

Title : SJ1 From shore Station PC Brown

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(141s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:21

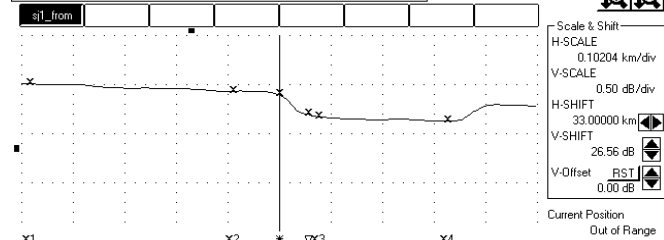


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.17 dB
Return Loss(V)	∞ dB
Fiber Loss(x1-x2)	0.19 dB/km LSA
Fiber Loss(x3-x4)	0.17 dB/km 2PA

Marker Position
X1 : 32.29082 km
X2 : 33.43878 km
* : 33.51020 km
V : 33.58673 km
X3 : 33.72449 km
X4 : 34.59694 km

Title : SJ1 From shore Station PC Orange

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(141s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:26

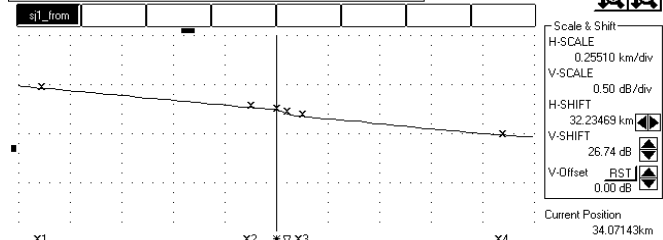


Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.24 dB
Return Loss(V)	∞ dB
Fiber Loss(x1-x2)	0.19 dB/km LSA
Fiber Loss(x3-x4)	0.13 dB/km 2PA

Marker Position
X1 : 33.01531 km
X2 : 33.41837 km
* : 33.51020 km
V : 33.56633 km
X3 : 33.58673 km
X4 : 33.84184 km

Title : SJ1 From shore Station PC Pink

Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 102.04082km SE : 102.04082km Average : 120(141s)
 PW : 500ns SR : 0.00510km Date : 19-Mar-2007 18:39



Splice & Return Loss	Loss & Total Return Loss
Splice Loss(*)	0.04 dB
Return Loss(V)	∞ dB
Fiber Loss(x1-x2)	0.19 dB/km LSA
Fiber Loss(x3-x4)	0.20 dB/km 2PA

Marker Position
X1 : 32.34694 km
X2 : 33.38265 km
* : 33.51020 km
V : 33.56122 km
X3 : 33.63776 km
X4 : 34.62755 km

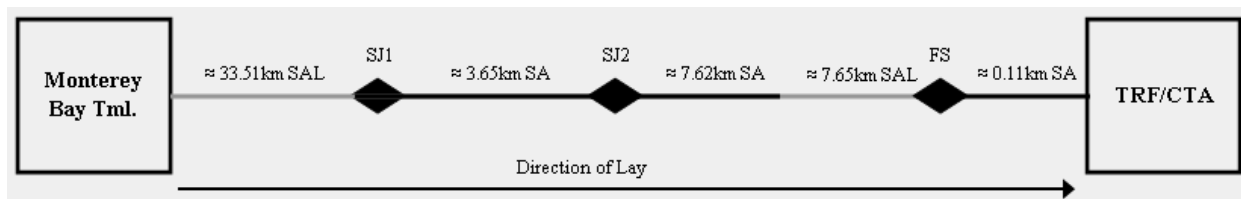
4.3 Final Splice

Operator J.Roberts / G.Jones

Date 31-March-2007

Test method Two way OTDR from terminal by means of loop-back terminations in the CTA.

Remarks Given the proximity of the FS to the end of the cable, OTDR traces here show losses that include the loop back termination at the CTA, as well as an existing splice in the CTA cable tail.



Test set up Joint FS

OTDR Parameters

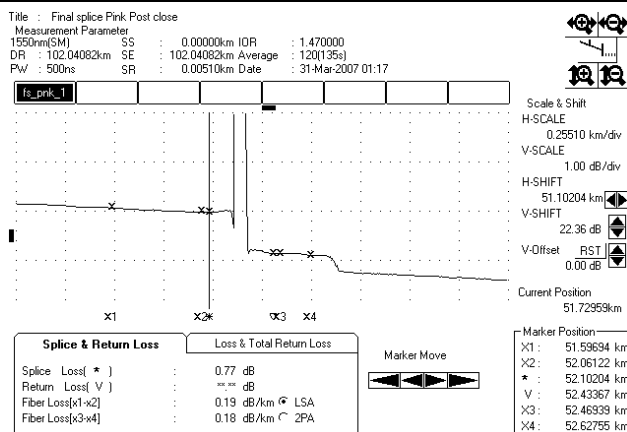
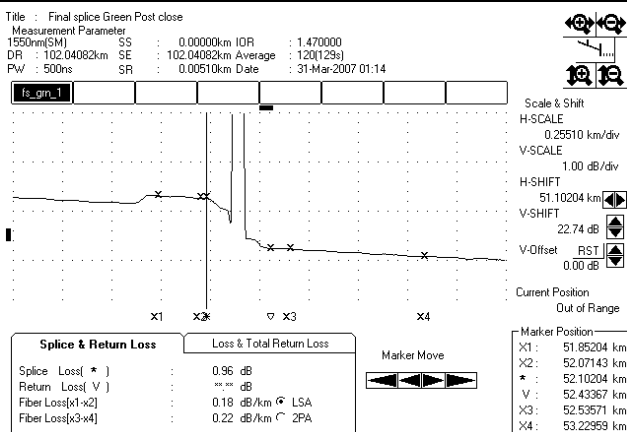
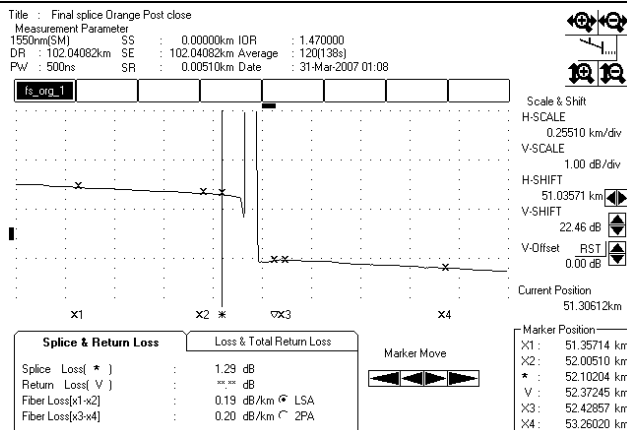
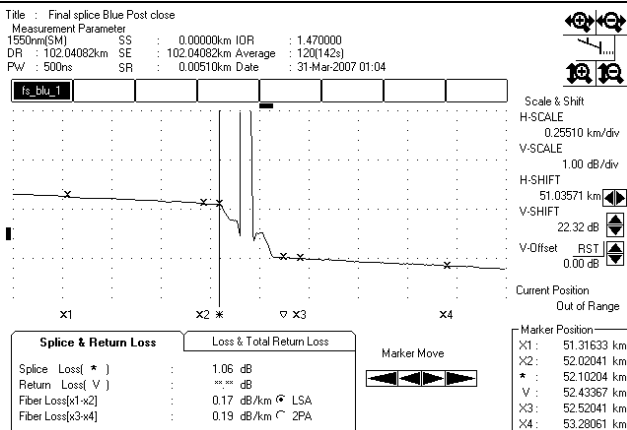
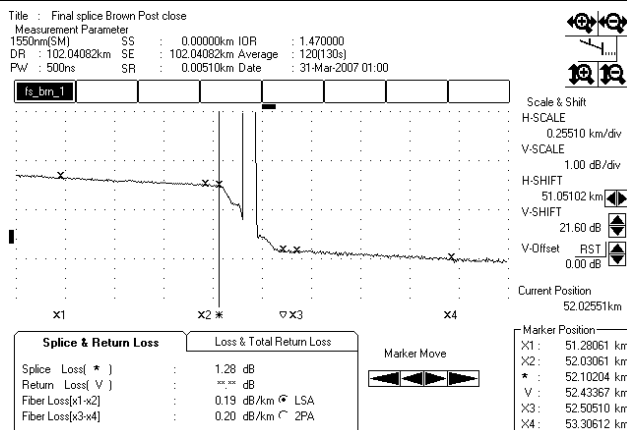
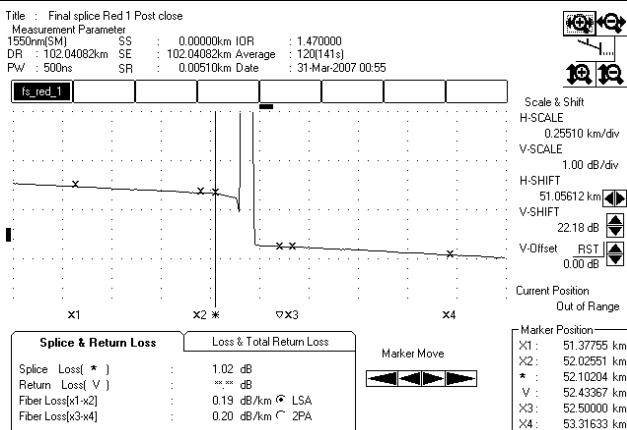
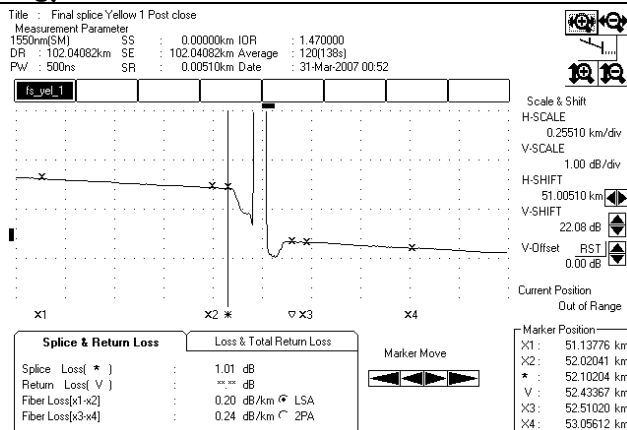
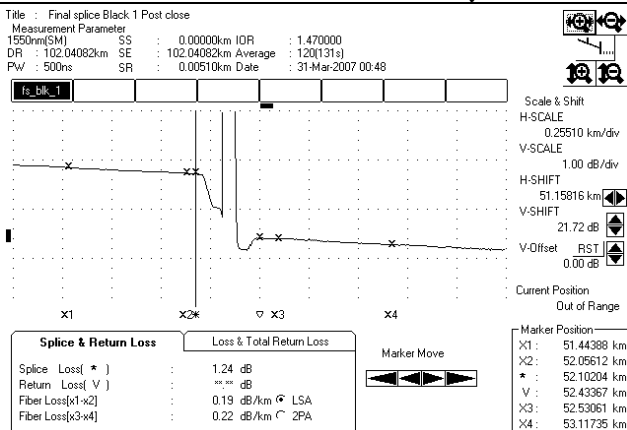
Equipment	Anritsu MW9076B OTDR
Refractive index	1.470
Pulse Width	500ns
Averaging	120 (138secs)

Splice loss OTDR measurement. FS (post close)

Fibre Colour		Loss A > B (dB)	Loss B > A (dB)	Average loss (dB)**
A	B			
Black	Yellow	1.24	1.01	1.13
Red	Brown	1.02	1.28	1.15
Blue	Orange	1.06	1.29	1.18
Green	Pink	0.96	0.77	0.87

** See remarks above.

4.3 - FINAL SPLICE Post close OTDR (From Moss Landing)



5. COMMISSIONING RESULTS

5.1 104.490Km System Cable Commissioning Electrical Data Sheet

Operator J.Roberts
Date 2-Apr-2007
Length 104.490Km (OTDR)

ELECTRICAL MEASUREMENTS

	Units	Post Load	Limits
Insulation Resistance @ 500V for 5 mins	GΩ	> 30 GΩ	> 100 000MΩ/Km

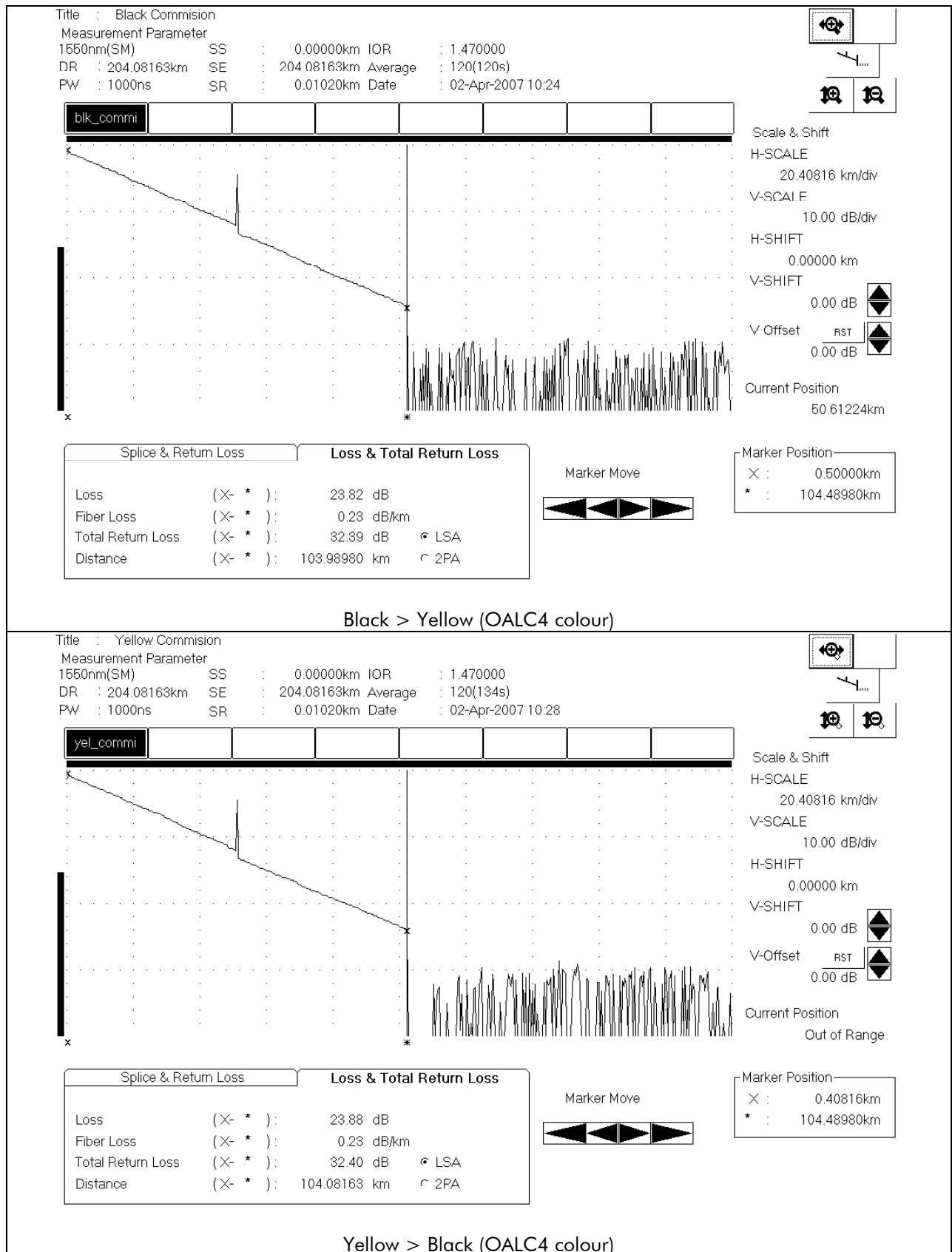
2.5.1 104.490Km System Cable Commissioning Electrical Data Sheet

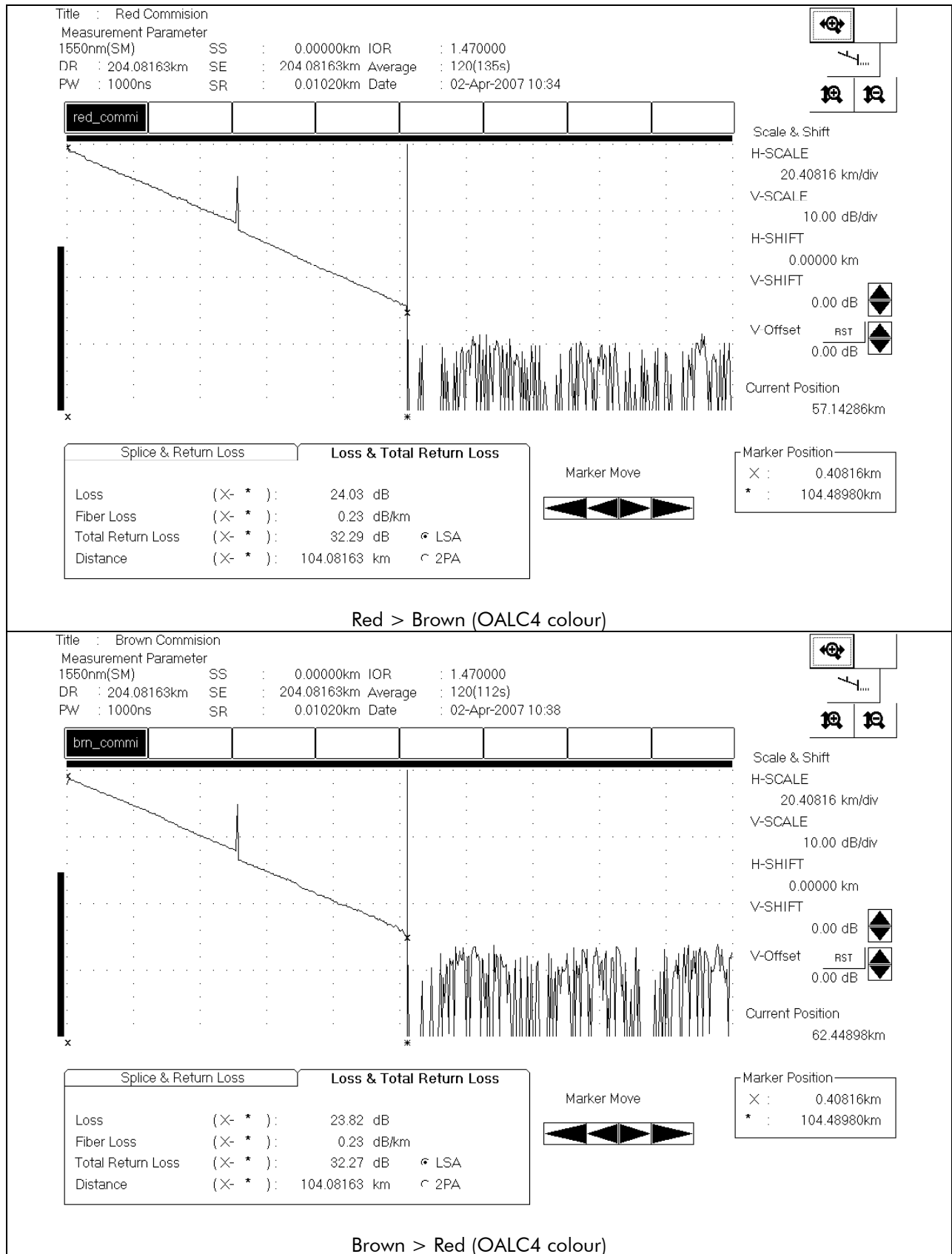
Operator J.Roberts
Date 2-Apr-2007
Length 104.490Km (OTDR)

OTDR Parameters

Equipment Anritsu MW9076B OTDR
 Refractive index 1.470
 Pulse Width 100 ns
 Averaging 60 (43sec)

		Cursor Position /km		Attenuation	
No.	OALC4 Colour (Via CTA)	C1	C2	dB	dB/km
1	Black > Yellow	0.408	104.489	23.82	0.23
2	Yellow > Black	0.408	104.489	23.88	0.23
3	Red > Brown	0.408	104.489	24.03	0.23
4	Brown > Red	0.408	104.489	23.82	0.23
5	Blue > Orange	0.408	104.489	23.57	0.23
6	Orange > Blue	0.408	104.489	23.51	0.23
7	Green > Pink	0.408	104.489	23.11	0.22
8	Pink > Green	0.408	104.489	23.14	0.22





Red > Brown (OALC4 colour)

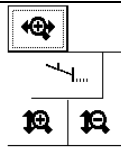
Title : Brown Commision

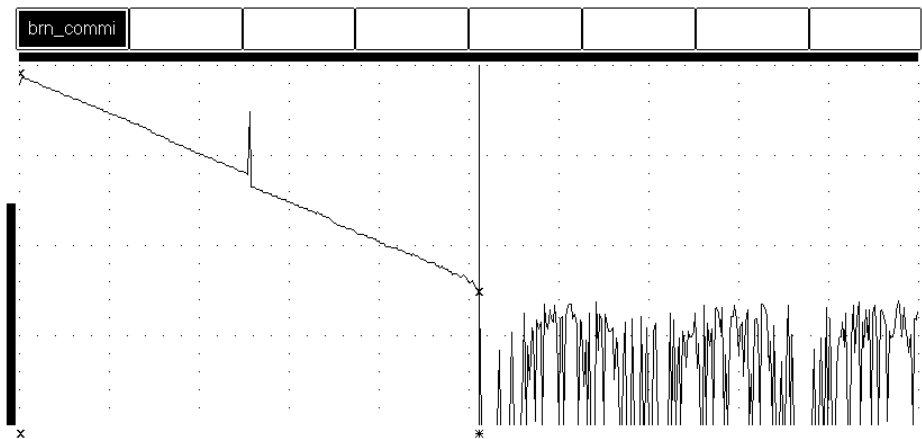
Measurement Parameter

1550nm(SM) SS : 0.00000km IOR : 1.470000

DR : 204.08163km SE : 204.08163km Average : 120(112s)

PW : 1000ns SR : 0.01020km Date : 02-Apr-2007 10:38





Scale & Shift

H-SCALE
20.40816 km/div

V-SCALE
10.00 dB/div

H-SHIFT
0.00000 km

V-SHIFT
0.00 dB

V-Offset
RST
0.00 dB

Current Position
62.44898km

Splice & Return Loss		Loss & Total Return Loss	
Loss	(X- *) :	23.82	dB
Fiber Loss	(X- *) :	0.23	dB/km
Total Return Loss	(X- *) :	32.27	dB LSA
Distance	(X- *) :	104.08163	km 2PA

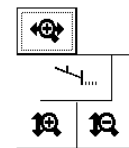
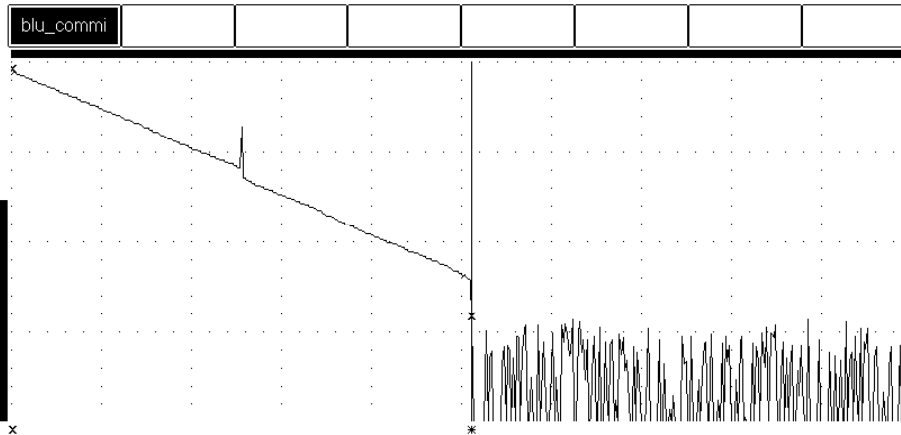
Marker Move



Marker Position	
X :	0.40816km
* :	104.48980km

Brown > Red (OALC4 colour)

Title : Blue Commision
 Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 204.08163km SE : 204.08163km Average : 120(135s)
 PW : 1000ns SR : 0.01020km Date : 02-Apr-2007 10:46



Scale & Shift
 H-SCALE
 20.40816 km/div
 V-SCALE
 10.00 dB/div
 H-SHIFT
 0.00000 km
 V-SHIFT
 0.00 dB
 V Offset RST
 0.00 dB
 Current Position
 5.71429km

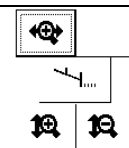
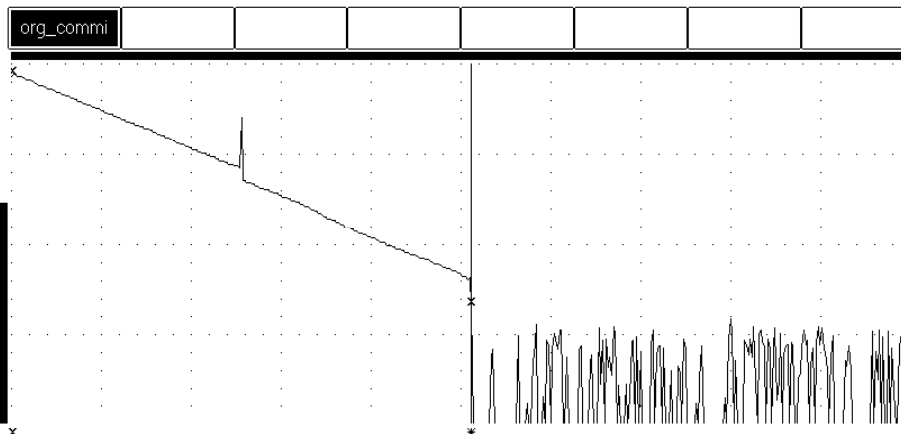
Splice & Return Loss		Loss & Total Return Loss	
Loss	(X- *) :	23.57 dB	
Fiber Loss	(X- *) :	0.23 dB/km	
Total Return Loss	(X- *) :	32.30 dB	LSA
Distance	(X- *) :	104.08163 km	2PA



Marker Position
 X : 0.40816km
 * : 104.48980km

Blue > Orange (OALC4 colour)

Title : Orange Commision
 Measurement Parameter
 1550nm(SM) SS : 0.00000km IOR : 1.470000
 DR : 204.08163km SE : 204.08163km Average : 120(136s)
 PW : 1000ns SR : 0.01020km Date : 02-Apr-2007 10:52



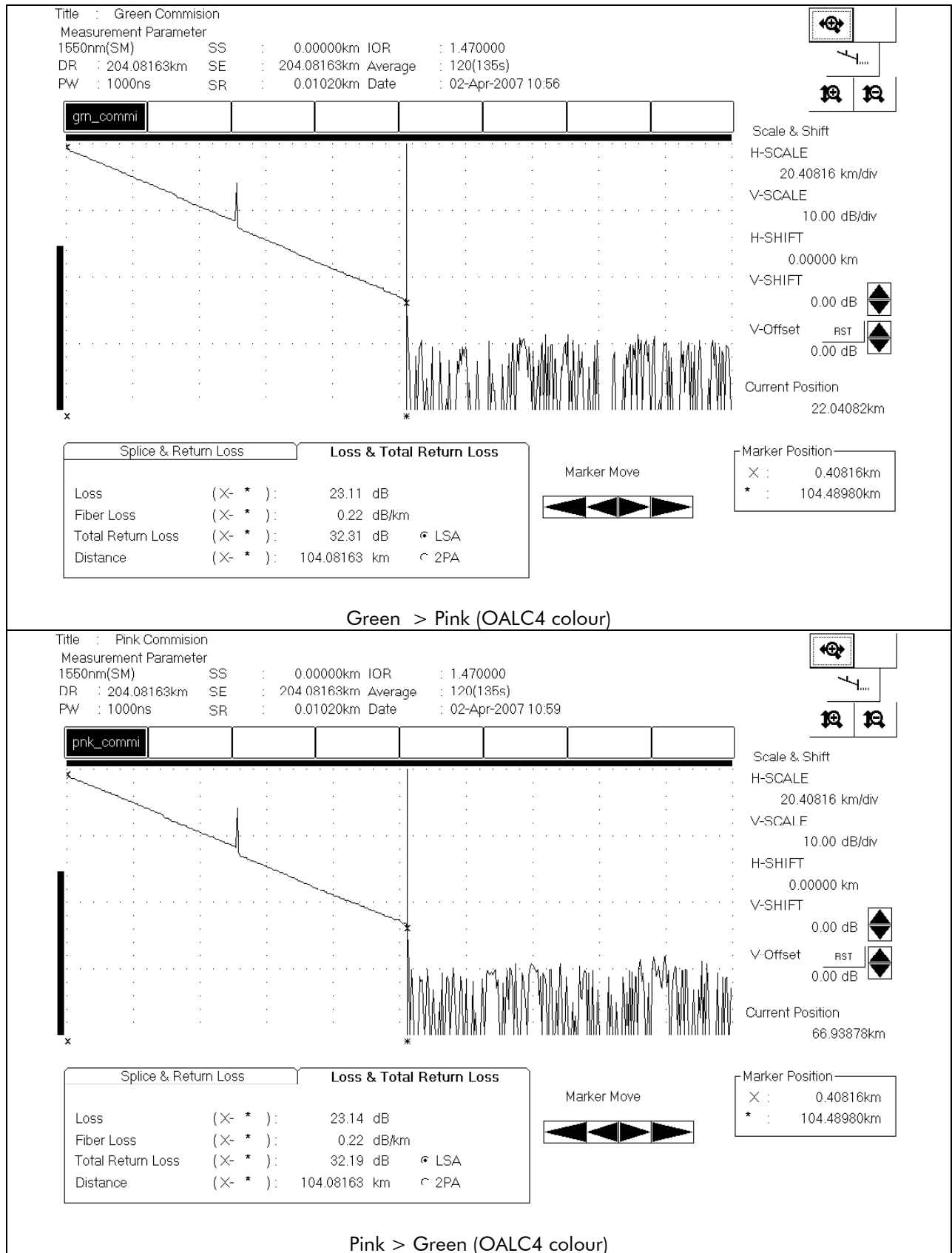
Scale & Shift
 H-SCALE
 20.40816 km/div
 V-SCALE
 10.00 dB/div
 H-SHIFT
 0.00000 km
 V-SHIFT
 0.00 dB
 V Offset RST
 0.00 dB
 Current Position
 26.93878km

Splice & Return Loss		Loss & Total Return Loss	
Loss	(X- *) :	23.51 dB	
Fiber Loss	(X- *) :	0.23 dB/km	
Total Return Loss	(X- *) :	32.28 dB	LSA
Distance	(X- *) :	104.08163 km	2PA



Marker Position
 X : 0.40816km
 * : 104.48980km

Orange > Blue (OALC4 colour)



Green > Pink (OALC4 colour)

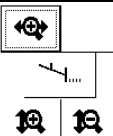
Title : Pink Commision

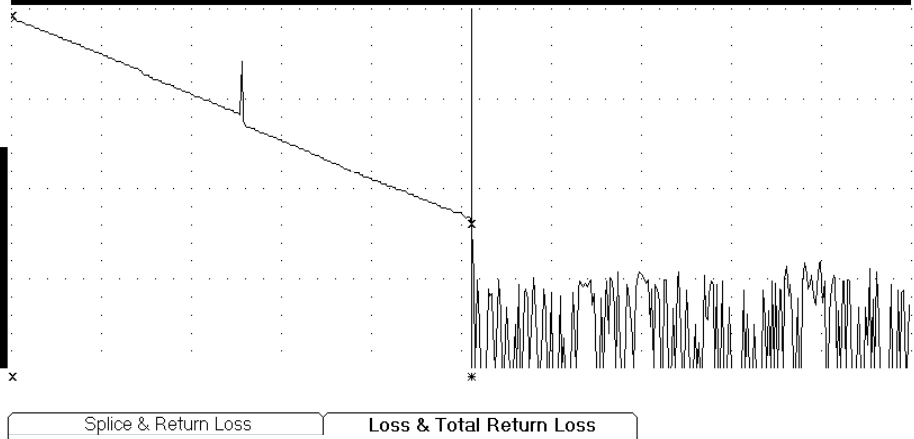
Measurement Parameter

1550nm(SM) SS : 0.00000km IOR : 1.470000

DR : 204.08163km SE : 204.08163km Average : 120(135s)

PW : 1000ns SR : 0.01020km Date : 02-Apr-2007 10:59





Scale & Shift

H-SCALE
20.40816 km/div

V-SCALE
10.00 dB/div

H-SHIFT
0.00000 km

V-SHIFT
0.00 dB

V Offset
RST
0.00 dB

Current Position
66.93878km

Splice & Return Loss		Loss & Total Return Loss	
Loss	(X- *) :	23.14 dB	
Fiber Loss	(X- *) :	0.22 dB/km	
Total Return Loss	(X- *) :	32.19 dB	LSA
Distance	(X- *) :	104.08163 km	2PA

Marker Move



Marker Position	
X :	0.40816km
* :	104.48980km

Pink > Green (OALC4 colour)

6. MOSS LANDING ODF FIBRE TRAY CONFIGURATION

ODF Position	OALC4 Fibre Colour	Pig Tail Fibre Colour
1	Black	Blue
2	Yellow	Orange
3	Red	Green
4	Brown	Brown
5	Blue	Blue
6	Orange	Orange
7	Green	Green
8	Pink	Brown

Fibre Tray at Moss Landing ODF:

