

Measurements in Auto Mode.

The result of the measurements in auto mode of OTDR is the table below:

	Distance, m	Loss, dB	Reflect, dB	Slope, dB/km	Length, m	T. Loss, dB	Type
1	3923,66	0,293	-53,10	0,187	3923,66	0,773	a
2	5875,28	0,065		0,187	1951,61	1,431	b
3	7806,46	0,154		0,192	1931,18	1,868	b
4	11668,81	0,520	-40,10	0,192	3862,36	2,766	a
5	13640,86	0,129		0,202	1972,05	3,683	b
6	15541,39	-0,071		0,189	1900,52	4,168	b
7	17513,44	0,078		0,188	1972,05	4,471	b
8	21416,57	0,088		0,206	3903,23	5,356	b
9	25197,28	0,113		0,187	3780,61	6,145	b
10	27148,89	0,729	-37,18	0,185	1951,61	6,618	a
11	31123,65	0,126		0,185	3974,75	8,149	b
12	34894,04	0,060		0,194	3770,40	8,998	b
13	36845,66	0,210		0,202	1951,61	9,448	b
14	40708,02	0,137		0,152	3862,36	10,264	b
15	44611,24	0,176		0,195	3903,23	11,156	b
16	46491,33		-35,87	0,205	1880,09	11,707	c

We need to clarify types of events from this table.

- *Type A* - reflective event, optical connector with possibility to disconnect parts (patch-panel, adapter)
- *Type B* - non-reflective event, splice or mated connector without disconnect possibility.
- *Type C* - reflective event, fresnel reflection amplitudes from the far end.

Conclusions: on the line with length more than 46km there are 3 mechanical connections and 12 spliced connections.

Measurements in Manual Mode.

Two measurements have been done in the manual mode. They deal with different length of injections a series of optical pulses into the fiber. The first has been done for 10 microseconds and the second for the 10 nanoseconds. It affects the resolution of measurements.

Two tables characterizes the measurements in the manual mode.

Pulse: 10 nanoseconds. Resolution: 64 cm.

	Distance, m	Loss, dB	Reflect, dB	Slope, dB/km	Length, m	T. Loss, dB	Type
1	3923,66	0,298	-73,18	0,194	3923,66	0,745	a
2	7806,46	0,166		0,218	3882,79	1,960	b
3	11668,81	2,544	-54,90	0,172	3862,36	2,579	a
4	13640,86		-74,96		1972,05	3,089	a

5	15541,39		-72,97		1900,52	3,460	a
6	17513,44		-69,26		1972,05	4,246	a
7	23296,76		-64,40		5783,72	5,834	a
8	40708,02					17411,26	b

As we can see errors appear in the measurements after 10th km. And device can't detect correctly the type of connections and the end of the line due to weak signal.

Pulse: 10 microseconds. Resolution: 40 m.

	Distance, m	Loss, dB	Reflect, dB	Slope, dB/km	Length, m	T. Loss, dB	Type
1	3923,66	0,210	-56,51	0,200	3923,66	0,783	a
2	7806,46	0,134		0,229	3882,79	1,880	b
3	11668,81	0,735	-40,42	0,194	3841,92	2,763	a
4	17513,44	0,066		0,167	5844,62	4,477	b
5	21416,57	1,267		0,208	3923,66	5,360	b
6	27148,89	0,623	-37,54	0,185	5722,01	6,632	a
7	44611,24			0,194	17533,87	11,160	

Here due to the big resolution (40m) some connections was neglected in the report. But type of connection was detected correctly and the end of the line should be. (unfortunately we forgot make zoom out and one/some last events was not included in the report, but the idea is understandable.)

Short pulse => precisely measurements for a short distance, but no measurements for a long distance. Long pulse => "dirty" measurements for the whole distance.