

Model C8188 Sampling Optical Oscilloscope

Introduction

Applications

Conclusion



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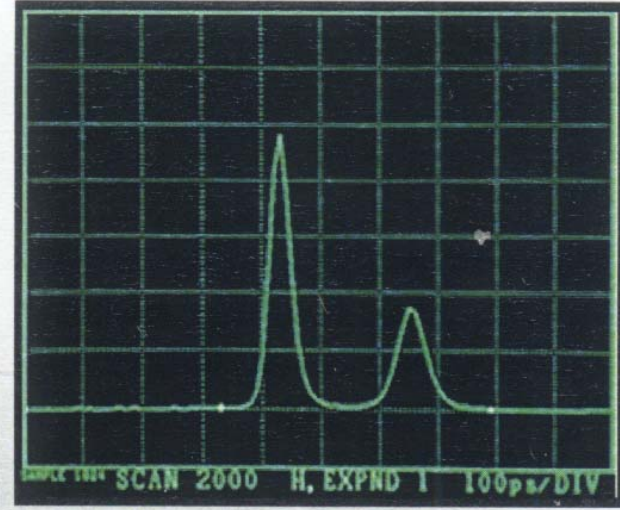
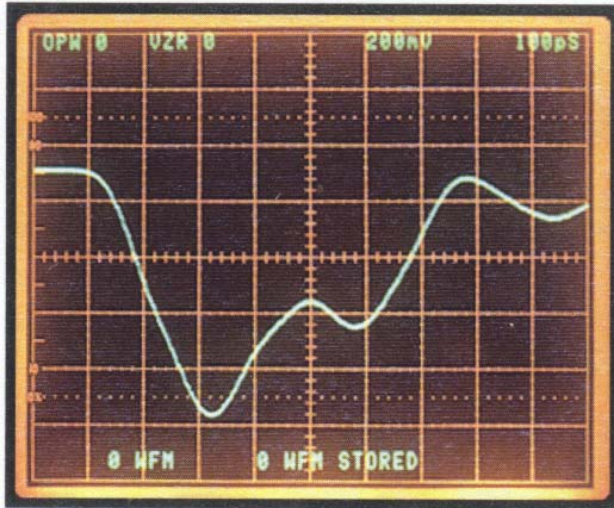
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OOS characteristics

- wide bandwidth; up to 20 GHz
- large detection area; up to 1mm
- no waveform distortion (no electrical transmission line)
- no impedance mismatching
- easy operation; via USB-interface by external PC
- easy adjustment; input slit or FC-connector

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Signal waveform comparism



Electrical sampling oscilloscope
using photo diode

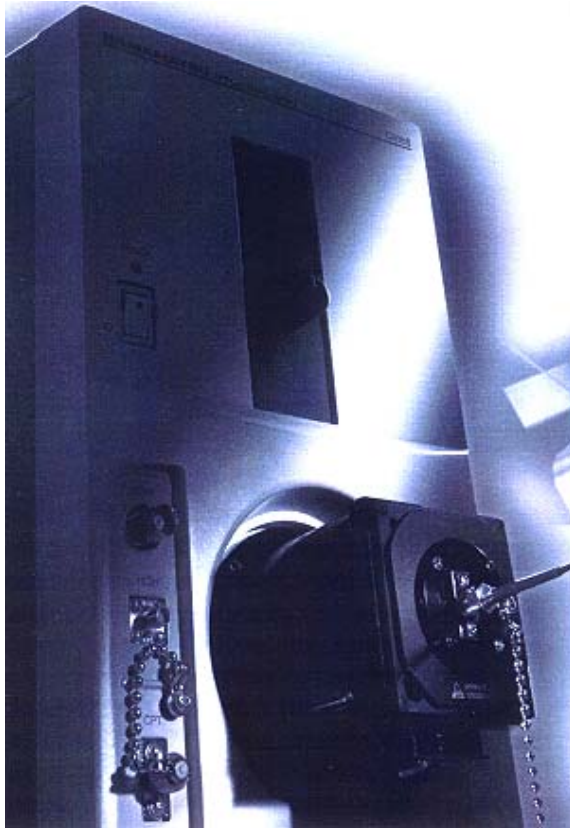
Optical sampling oscilloscope

both 100ps/div

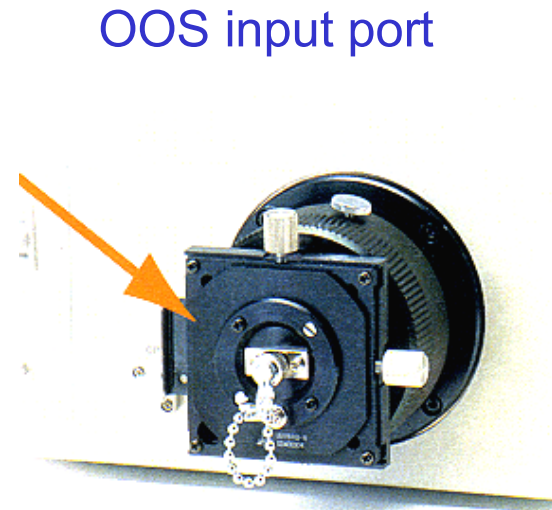
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OOS Sampling Optical Oscilloscope

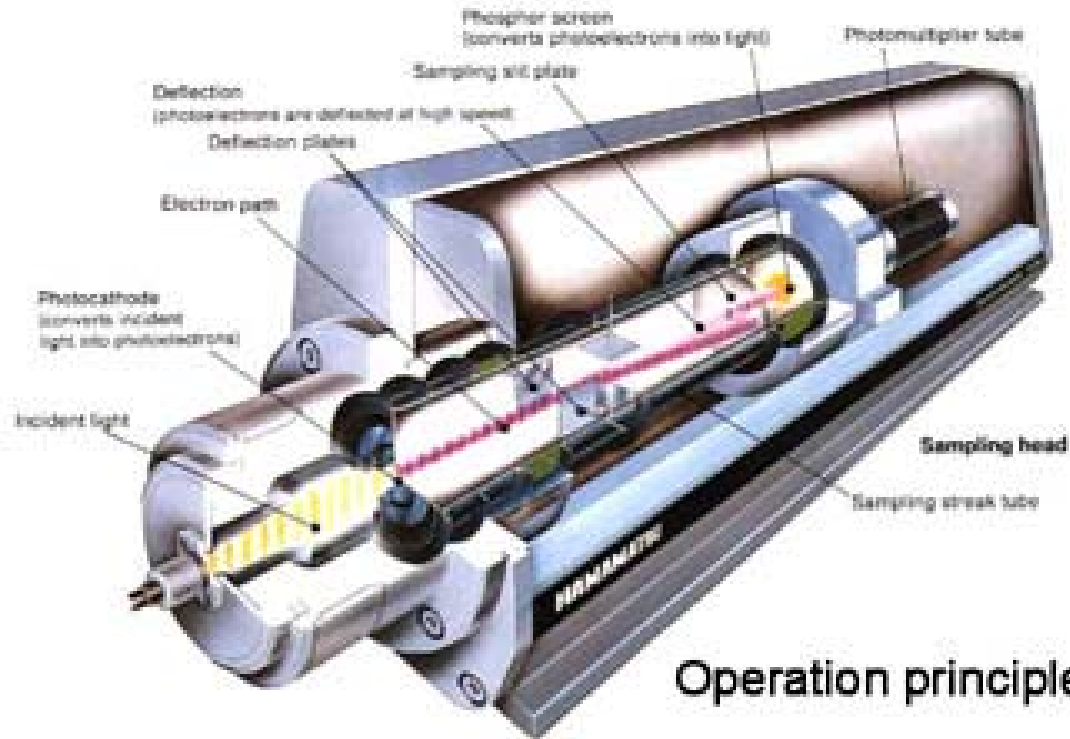


OOS front side



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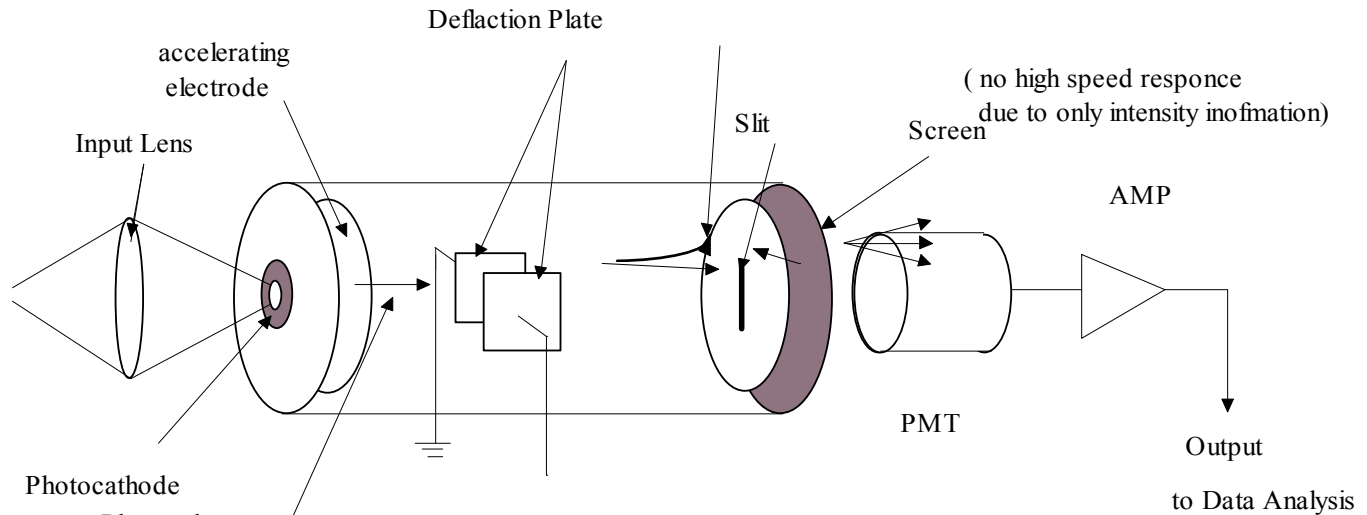


Operation principle

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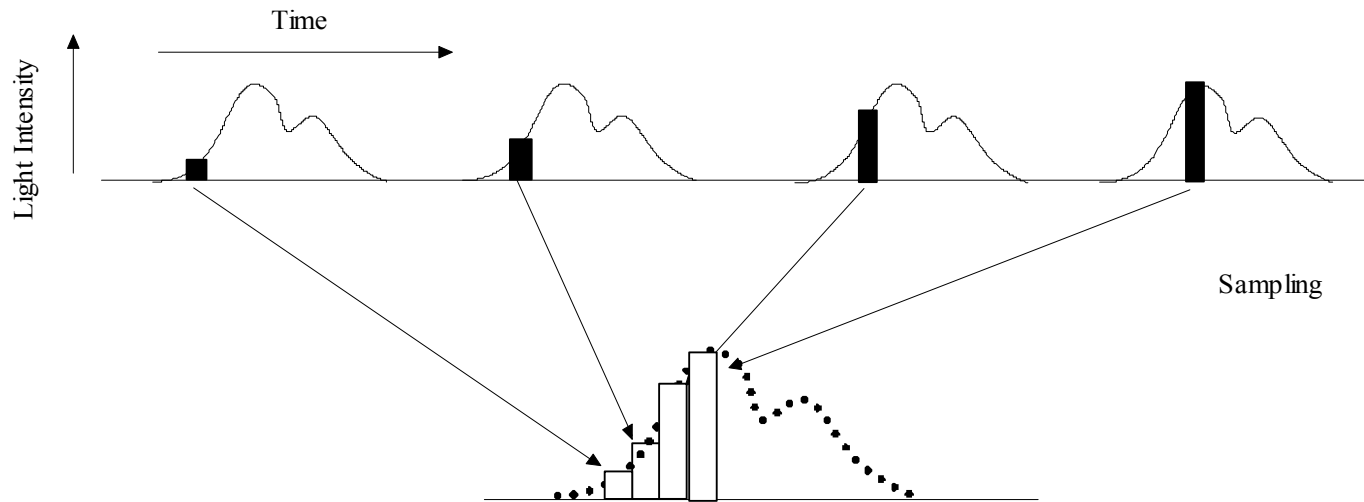
Principle of Operation



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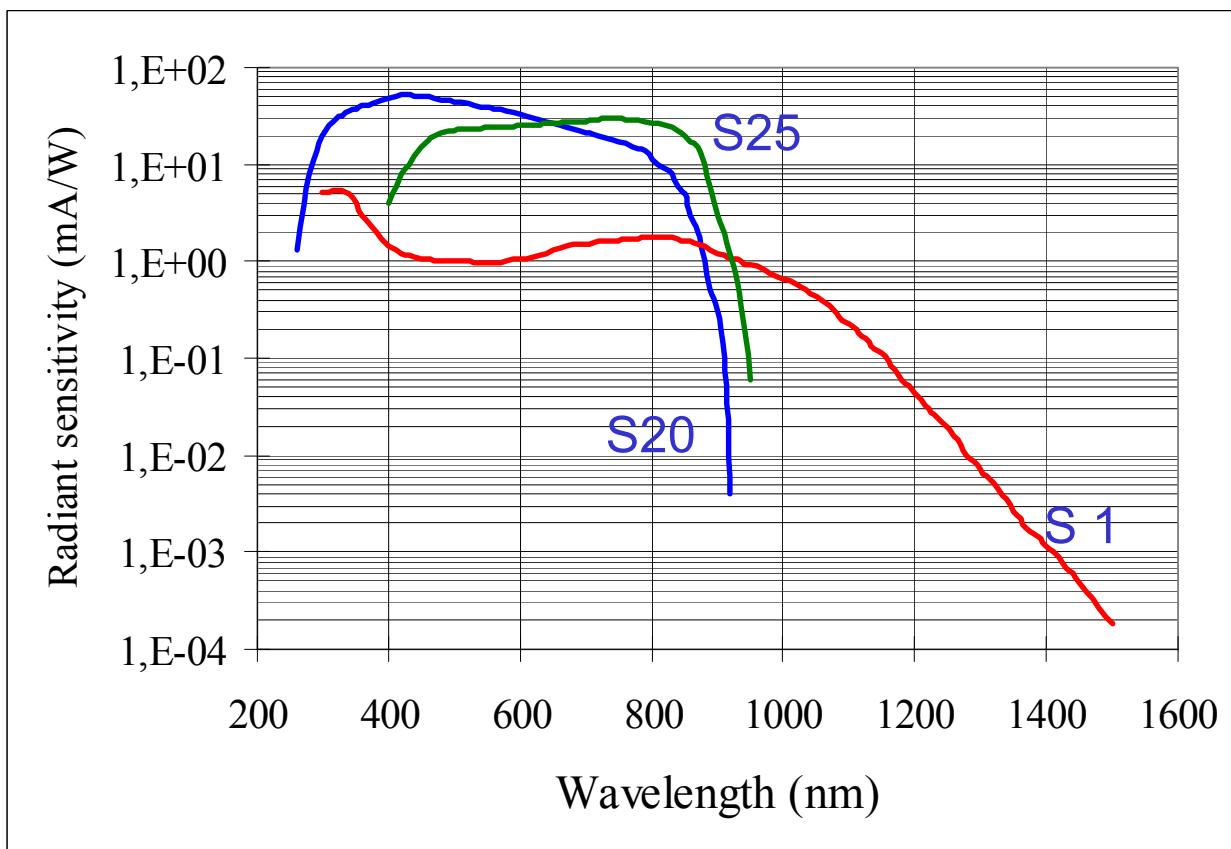
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OOS Principle of electron sampling



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OOS photo cathodes spectral responses

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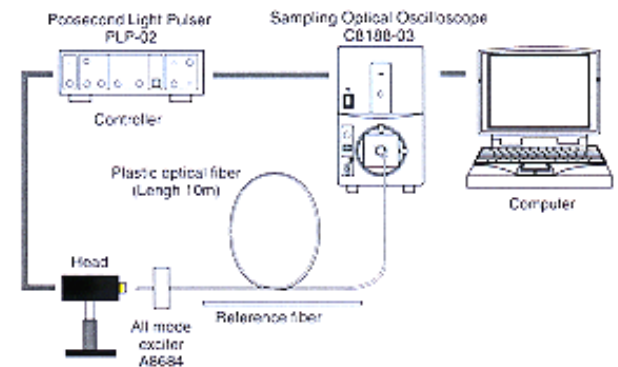
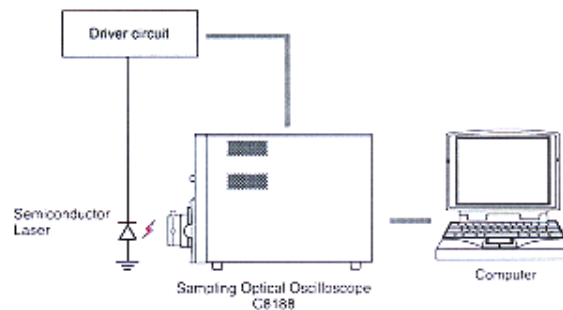
OOS applications

laser waveform analysis, relaxation oscillation measurements

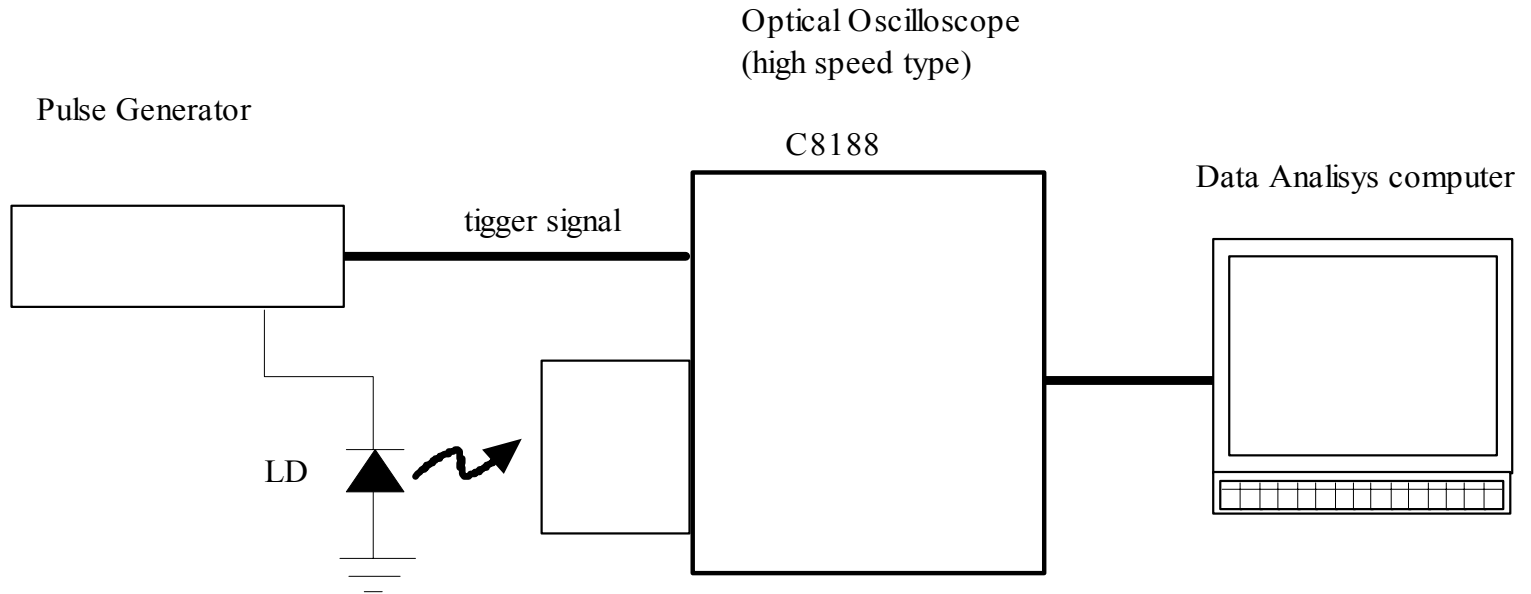
fiber bandwidth measurements on multimode glass fibers and polymer optical fibers (POF)

differential mode delay (DMD) measurements on multimode fibers

evaluation of characteristics of optical link systems



Measurement of laser diode relaxation oscillation

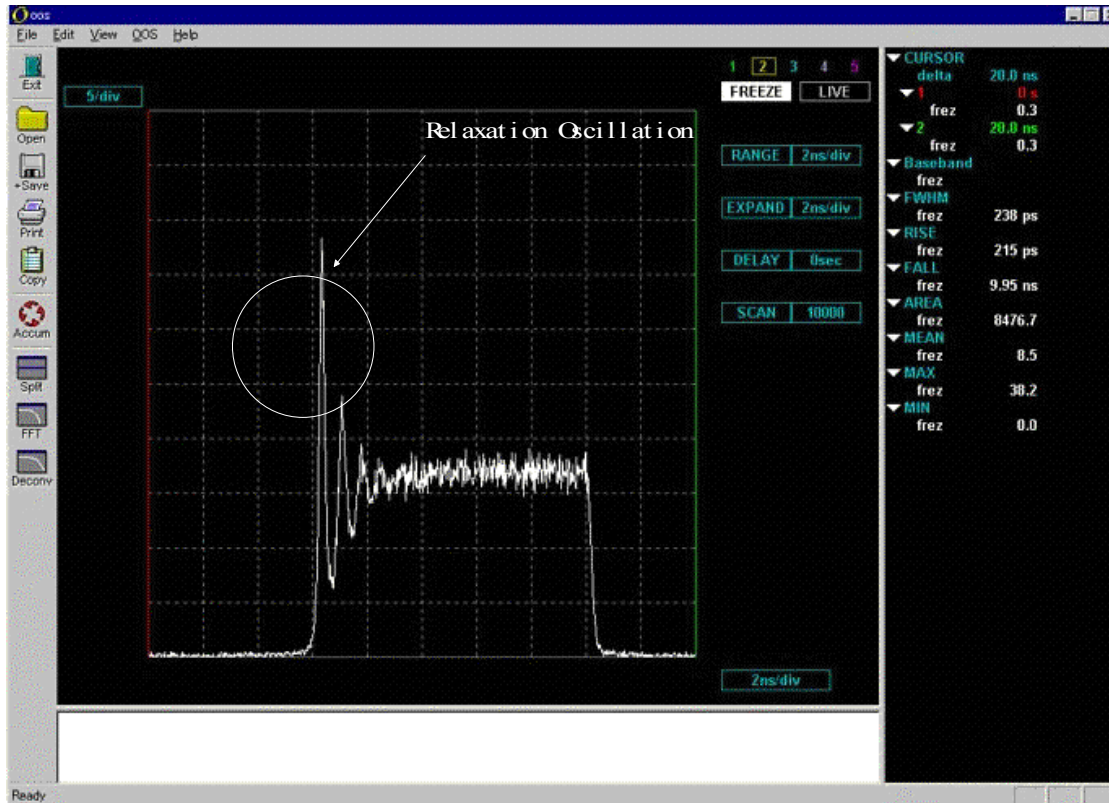


LD
Wavelength : 780nm
Power 30mW
Fast rise time

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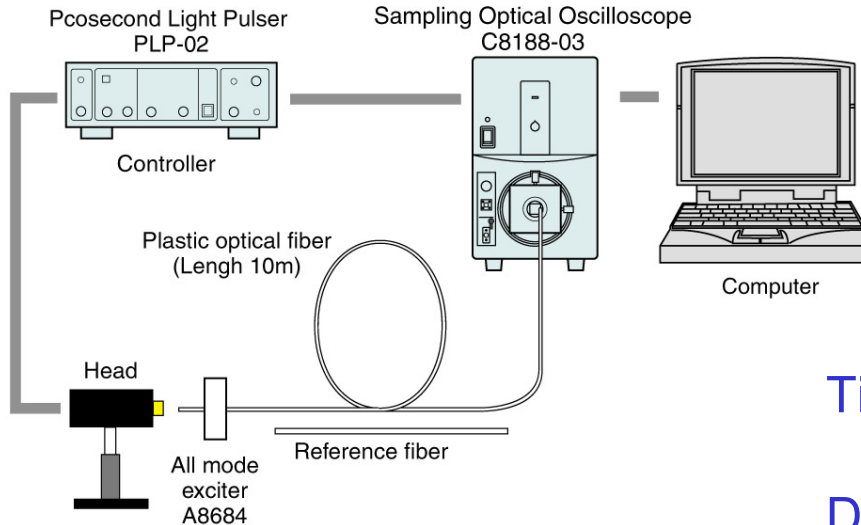
Measurement of laser diode relaxation oscillation



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Bandwidth measurement of POF polymer optical fibers

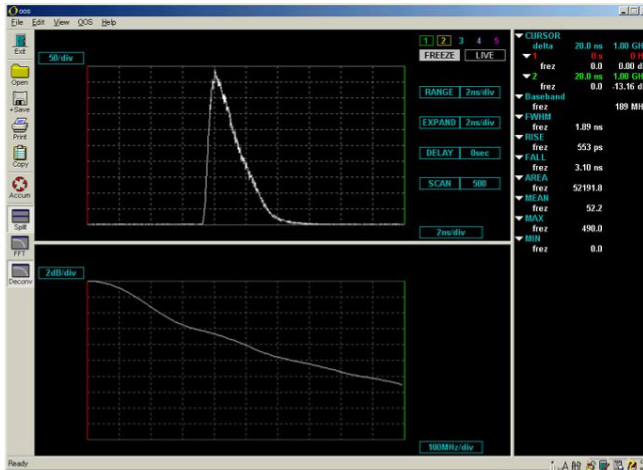


Time measurement

Deconvolution

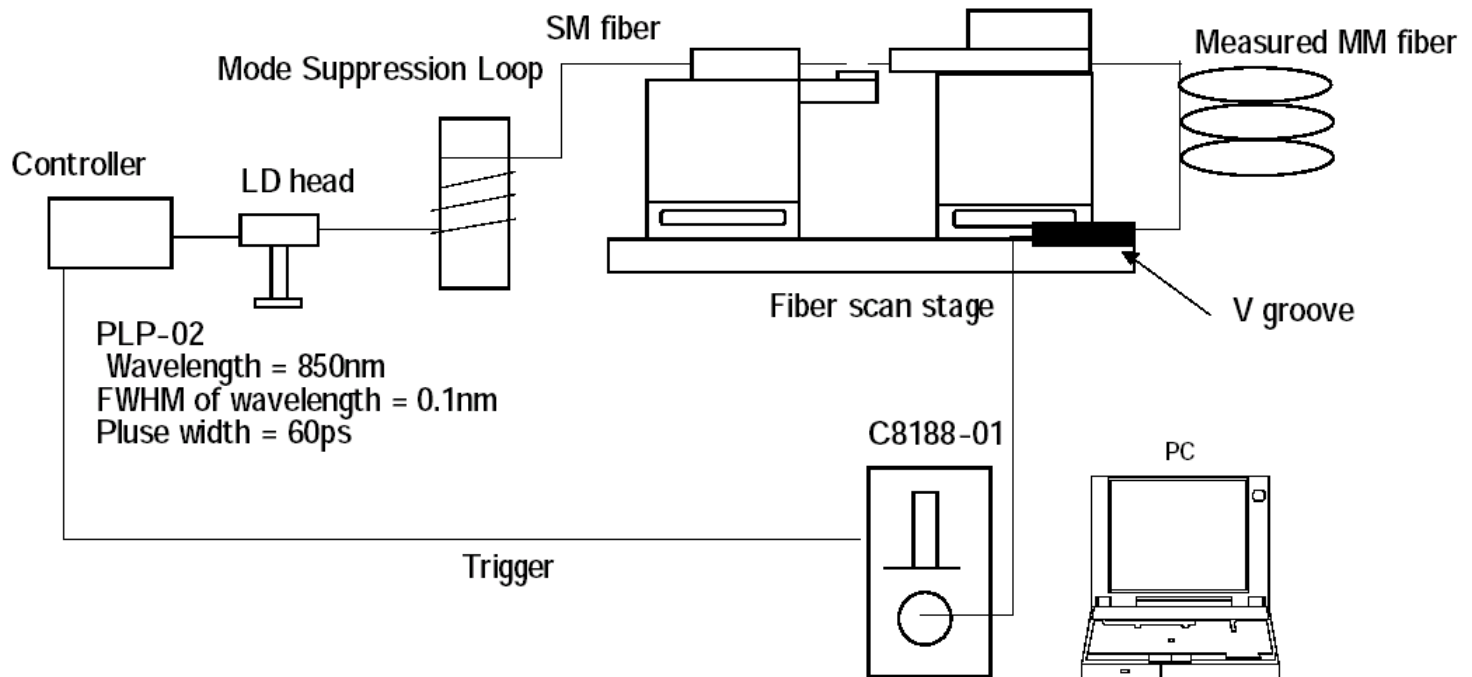
Fast Fourier Transformation

Time-to-Frequency conversion



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DMD Differential Mode Delay Workstation

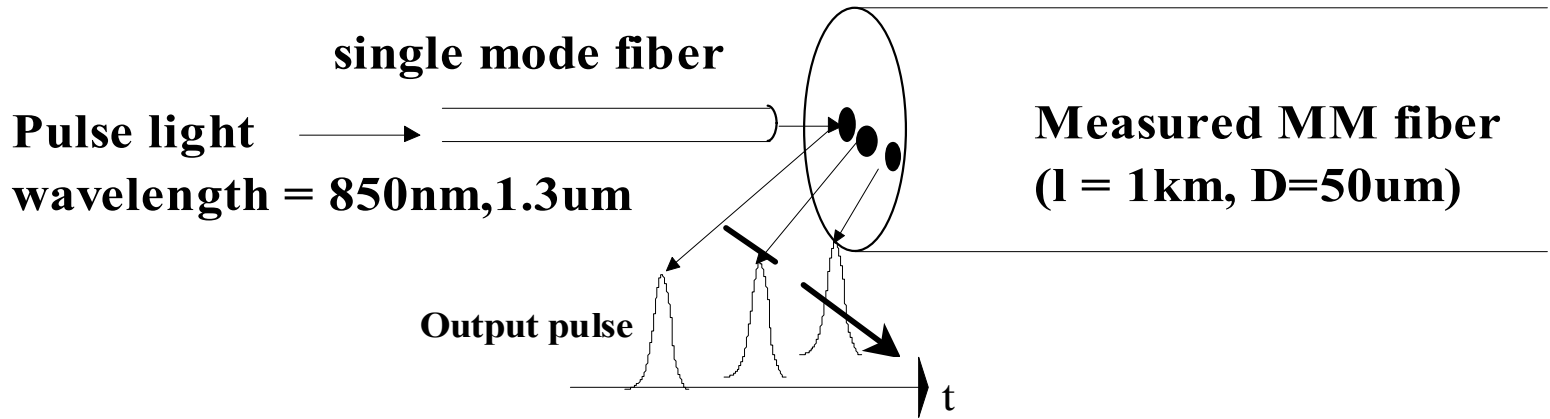


For DMD measurements according
FOTP-220 and IEC 60793-1-49

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Principle of DMD measurement

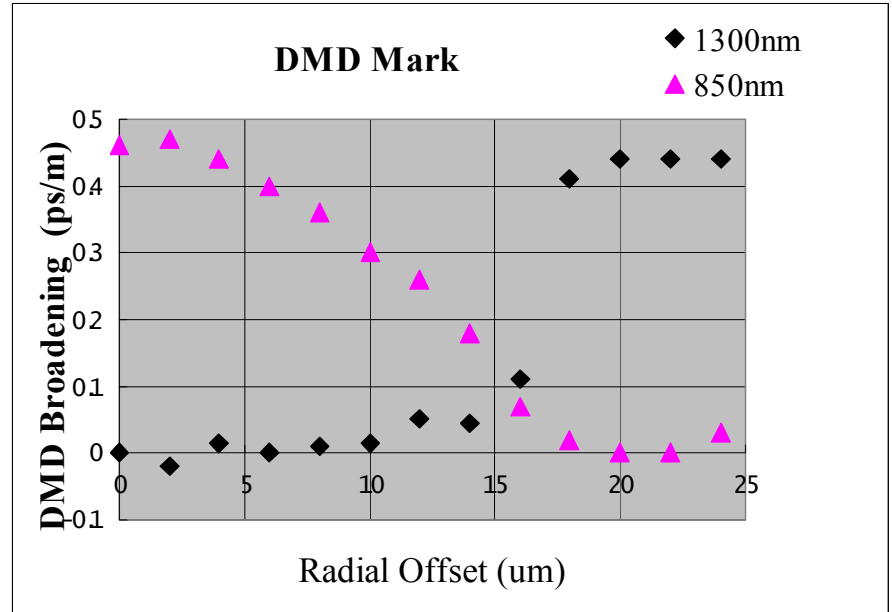
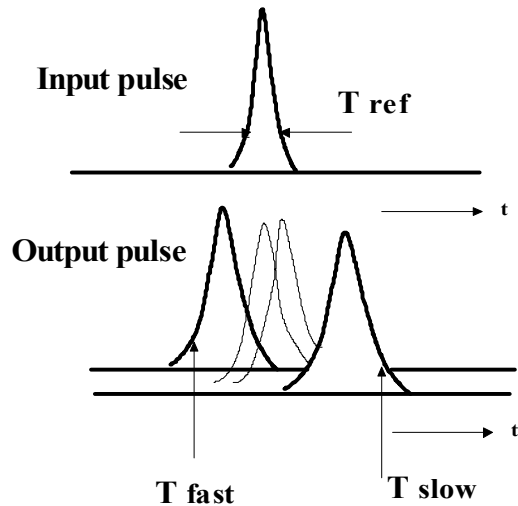


Pulse time vary depending on input position of the light source

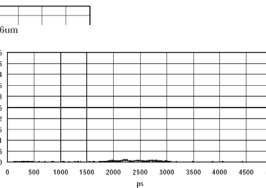
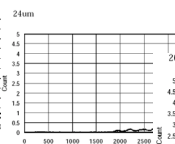
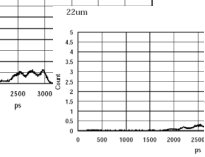
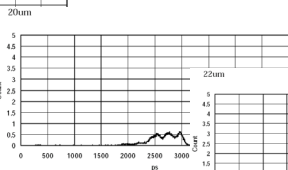
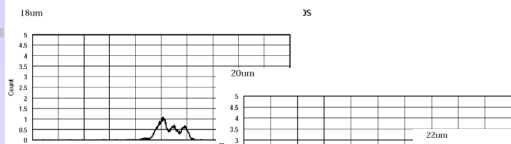
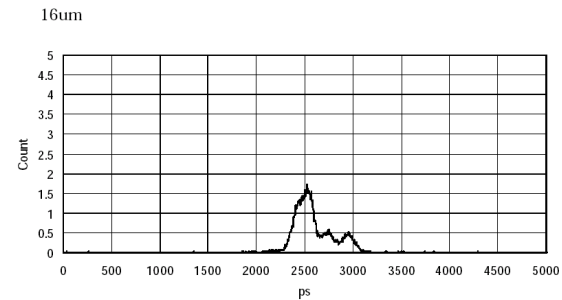
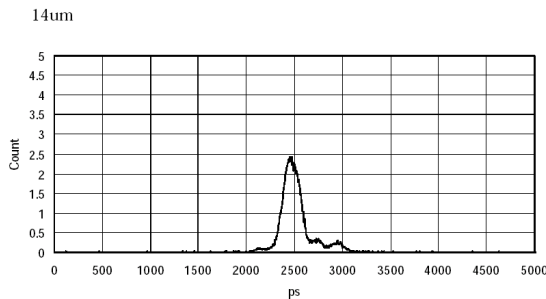
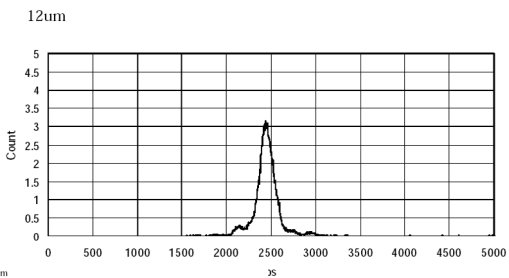
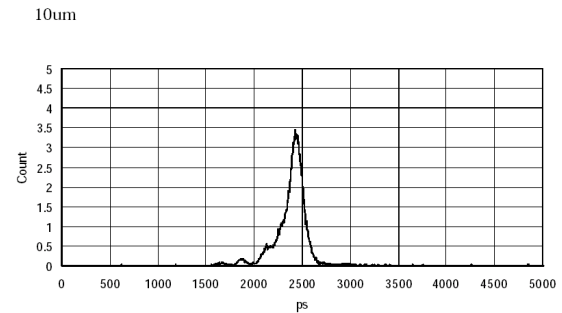
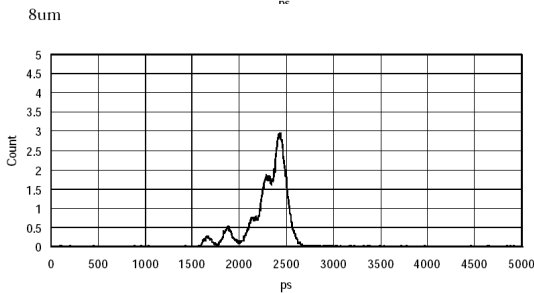
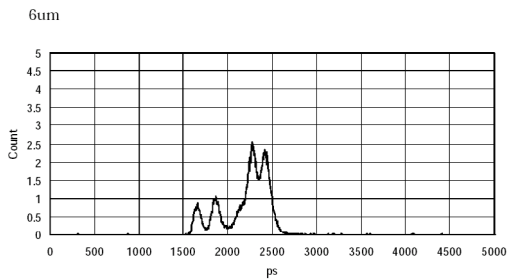
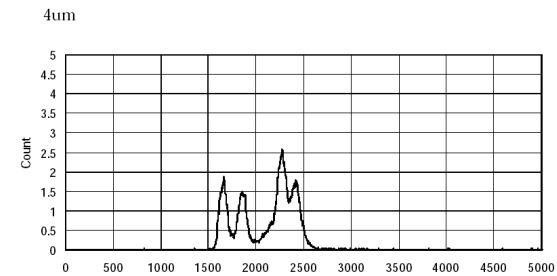
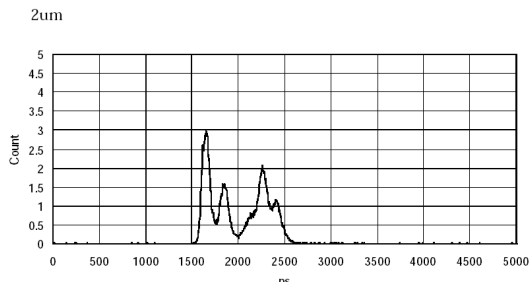
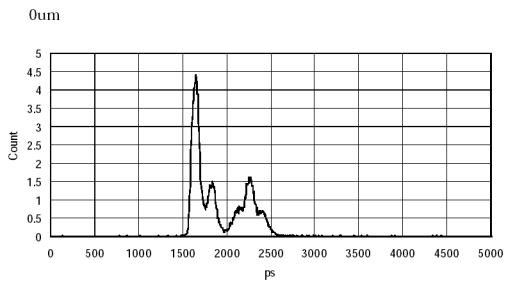
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DMD measurement results

- $DMD = (T_{slow} - T_{fast}) - T_{ref}$



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DMD actual results 50 μ m multimode fiber, 4km

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Conclusion

for temporal analysis of active and passive light sources
lasers, LEDs, optical glass fibers, POF

bandwidth measurements up to 20GHz

response characteristic of 20ps

virtually no waveform distortion (no reflections or ringing)

high sensitive; short measuring time

large detection area, suitable for POF bandwidth measurements

easy operation; no consideration about electrical impedance

easy control from PC or laptop via USB interface



Thank you very much

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