

## Light Curve (LC) Protocol

The protocol called Light Curve (LC) was designed to acquire parameters for construction of Light Response Curve relating the rate of photosynthesis to photon flux density. The method is based on successive measurements of the sample exposed to a stepwise increase of light intensity. The effective quantum yields of photosynthesis are determined under various light intensities of continuous illumination. Measurement is based on pulse modulated fluorometry (PAM).

Several LC protocols are predefined in AP. These differ in number and duration of individual light phases and light intensities.

	# of phases	Phase duration	Light intensities [ $\mu\text{mol.m}^{-2}.\text{s}^{-1}$ ]
<b>LC1</b>	6	60s	10; 20; 50; 100; 300; 500
<b>LC2</b>	5	30s	100; 200; 300; 500; 1000
<b>LC3</b>	7	60s	10; 20; 50; 100; 300; 500; 1000

Tab. 1 LC Protocols.

The protocol includes following measured and calculated parameters:

Abbreviation	Explanation
<b>F<sub>0</sub></b>	minimum fluorescence in dark-adapted state
<b>F<sub>m</sub></b>	maximum fluorescence in dark-adapted state
<b>F<sub>m_Ln</sub><sup>‡</sup></b>	maximum fluorescence in light adaptation state
<b>F<sub>t_Ln</sub><sup>‡</sup></b>	instantaneous fluorescence during light adaptation
<b>QY<sub>max</sub><sup>*</sup></b>	maximum quantum yield of PSII in dark-adapted state - Fv/Fm
<b>QY<sub_ln< sub=""><sup>‡**</sup></sub_ln<></b>	instantaneous PSII quantum yield induced in light

<sup>‡</sup> n represents a sequential number of light phase

<sup>\*</sup> Calculated as  $(F_m - F_0) / F_m$

<sup>\*\*</sup> Calculated as  $(F_{m\_Lx} - F_{t\_Lx}) / F_{m\_Lx}$

# Light Curve 1 Protocol

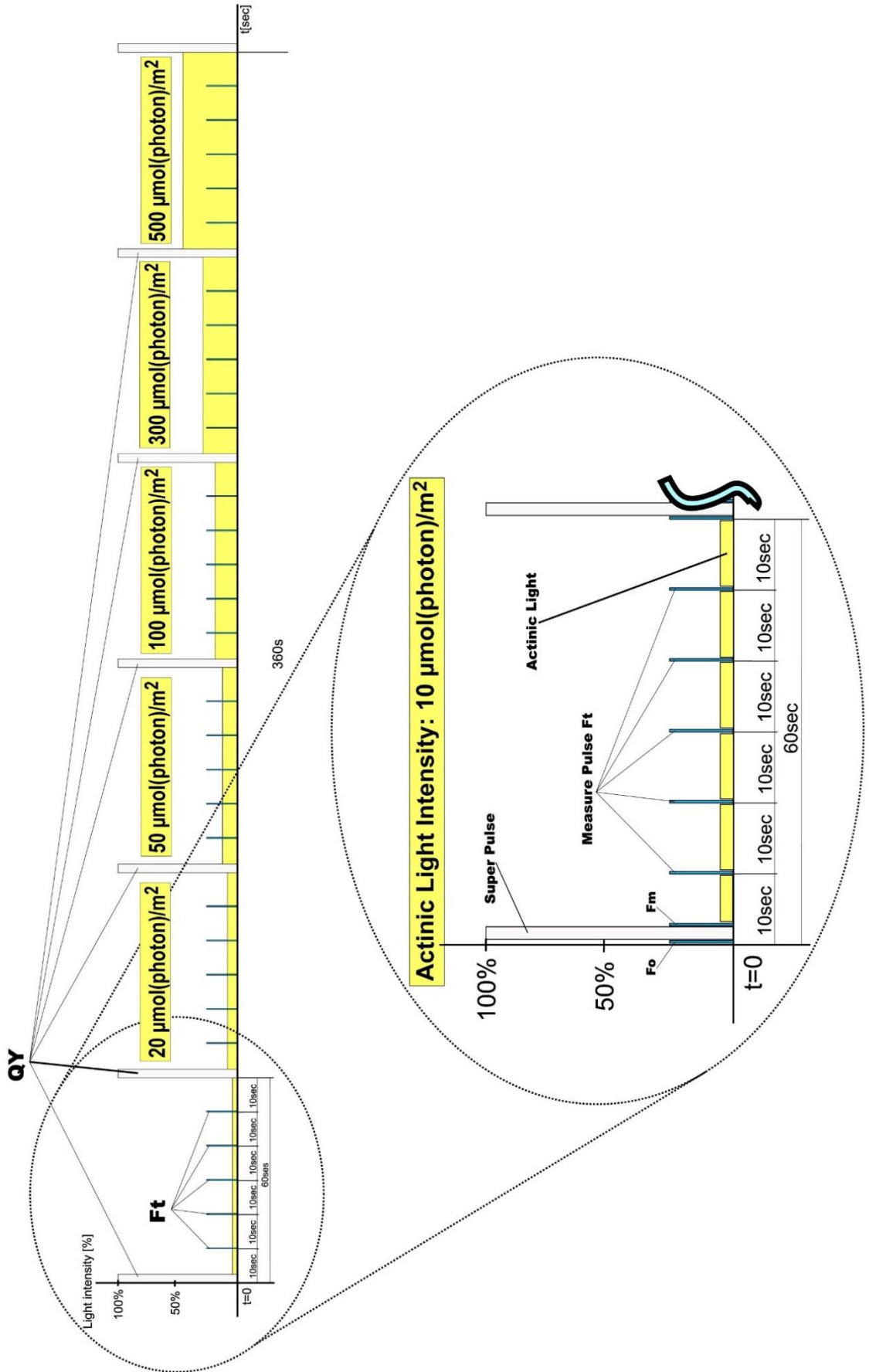


Fig. 1 LC1 Protocol

# Light Curve 2 Protocol

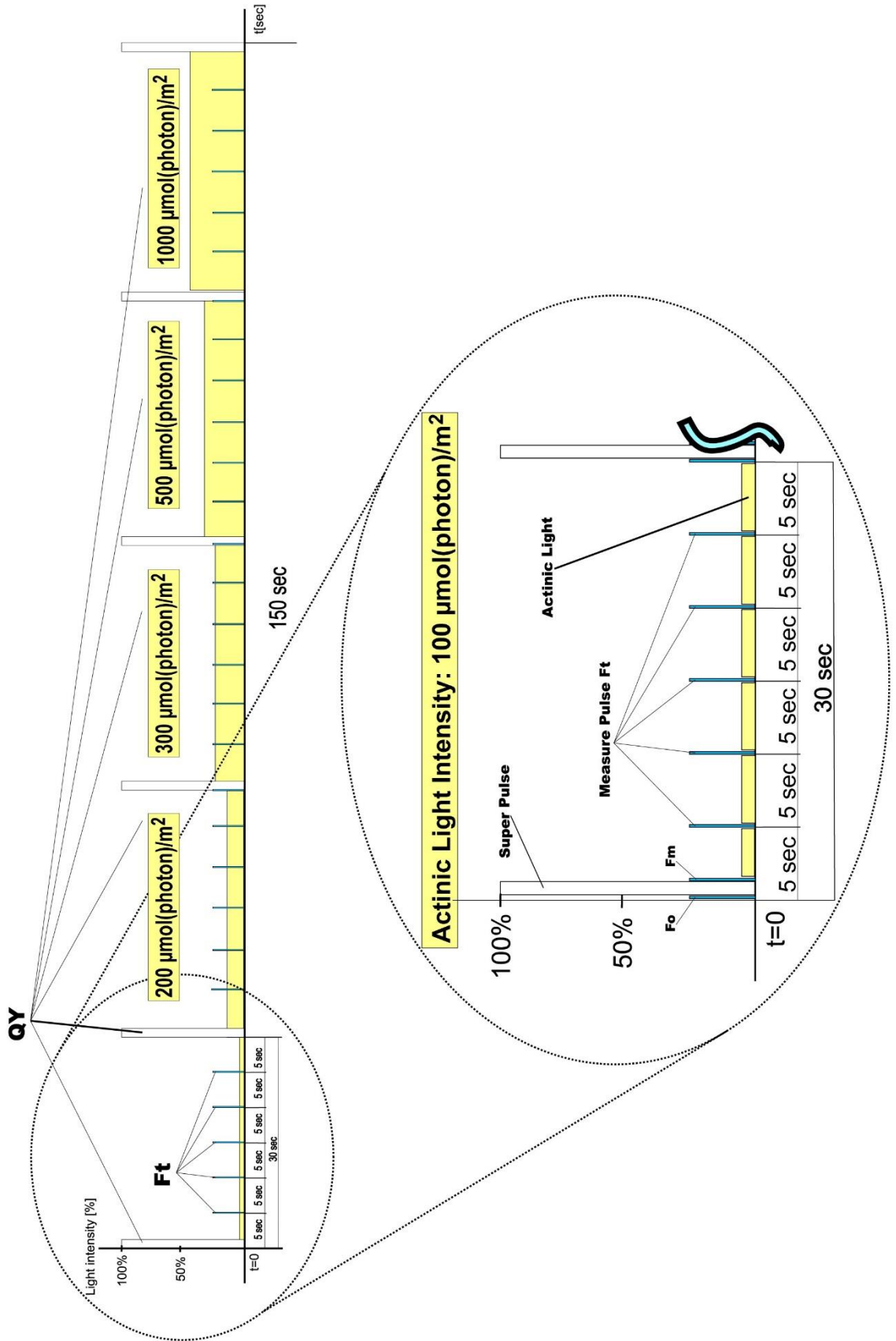


Fig. 2 LC2 Protocol