Technical specification for Single Photon counting Camera (Single –Photon Avalanche Diode Array)

These are the minimum specifications for a single-photon counting cameras which enables simultaneous parallel counting of single photons. Vendors may quote for either of the two alternative technologies, option 1) using a monolithic array of single-photon avalanche photodiodes (SPADs) with integrated counting electronics or option 2) using electron multiplier CCD's based on the minimum specifications in each case.

Single Photon Counting Camera		
	Specification	**Value**
1	Warranty	1 year or more, at no additional cost.
2	Technology	Single-photon avalanche diode array
3	Image sensor size (pixels)	at least 64 pixels x 32 pixels (2048 pixels)
4	Image sensor type	Single-photon counting avalanche diode array
5	Photon counting dynamics range	At least 8-bit or more
6	Spectral sensitivity Range	300 – 900 nm
7	Photon detection efficiency	Peak response at least 50% or more
8	Noise per pixel	less than 200 cps
9	Number of counters per pixel	At least 3 or more
10	Min. spec. of inputs and outputs for each counter	At least 1 trigger input, 1 sync output, 3 external gate inputs
11	Gating function	2 ns or shorter and steps of 50 ps or lesser
12	Number of frames per second	At least 90,000 frames per second
13	Optical port	C-mount
14	Software libraries for integration	Cross-platform DLLs/shared libraries for easy integration
15	Computer and software compatibility	Should be compatible with Windows OS
16	Computer Interface	USB 3.0 (or equivalent)