

Photomultiplier tube					
Wavelength incident on cathode (W)	400	nm	Energy of photon at wavelength W	$=6.6261E-034*300000000000*10000000/W$	Joules
Incident light power	1.00E-015	watts	Cathode sensitivity (Rlam)	$=Klam*1.6E-019/F3$	amp/watt
Fractional flicker noise	0.01		Radiant power on photocathode (PhiDet)	$=PhiD$	watts
Quantum efficiency of cathode (Klam)	0.2		photocathodic current (Ic)	$=Rlam*PhiDet$	amps
photomultiplier gain (m)	40000		photoanodic current (Ie)	$=m*Rlam*PhiDet$	amps
cathode thermionic emission rate (Rt)	100	Sec-1	Photon noise rms current (PhotNoise)	$=SQRT(2*1.602E-019*m*(1+1/(g-1))*Ie*deltaf)$	
			Themionic anode current (Iat)	$=Rt*m*1.602E-019$	amps
Secondary emission gain per stage	4		Thermionic noise rms current (ThermNoise)	$=SQRT(2*1.602E-019*m*(1+1/(g-1))*Iat*deltaf)$	amps
			Flicker noise current (FlickerNo)	$=Flicker*Ie$	amps
Noise bandwidth (deltaf)	1	Sec-1	Total rms noise	$=SQRT(PhotNoise^2+ThermNoise^2+FlickerNoise^2)$	amps
			Signal-to-noise ratio (SNR)	$=Ie/TotNoise$	
			Percent photon noise	$=PhotNoise/(PhotNoise+ThermNoise+FlickerNoise)$	
			Percent thermal noise	$=ThermNoise/(PhotNoise+ThermNoise+FlickerNoise)$	
			Percent flicker noise	$=FlickerNoise/(PhotNoise+ThermNoise+FlickerNoise)$	