Light Emission Check from Back Direction of Hamamatsu 15"PMT

T. Hayashino, Tohoku University

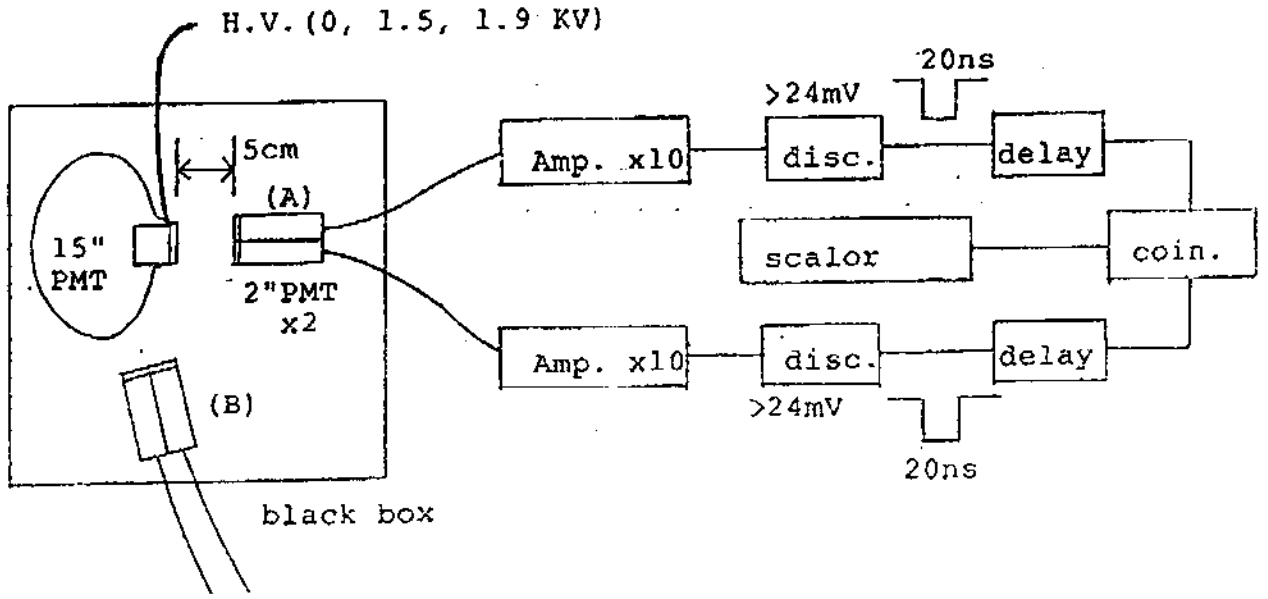
I have investigated light emission from PMT electrode which was seen in IMB experiment. PMT tested is noisy one among Hamamatsu 15"PMT's (R2018-1A), which was previously examined by Dr. OKADA-san at ICRR and found to be noisy. In fact, this one makes a burst like noise in every ~10sec on an oscilloscope screen also at Tohoku.

Employed set up to measure PMT light emission is shown in the figure. Coincidence of two 2"PMT's is used for detection of light from electrode to avoid 2"PMT dark noises. Coincidence timing is adjusted in advance using 23ps pulse laser light.

Applying 1.5 and 1.9 kV to the R2018-1A PMT in a dark box, I measured 2"PMT coincidence rate. Results are the followings.

Position (A)		Position (B)	
15"PMT H.V. (kV)	coin.-rate	15"PMT H.V. (kV)	coin.-rate
0	27/100sec	0	37/100sec
1.5	21/100sec	1.5	32/100sec
1.9	26/100sec	1.9	24/100sec
1.9	211/1000sec		

Two 2"PMT coincidence rate does not increase when high voltage applied grows from 0V to 1.9kV for both positions of 2"PMT ; (A) and (B). Therefore, we can conclude that the tested noisy 15"PMT does not flash at all.



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