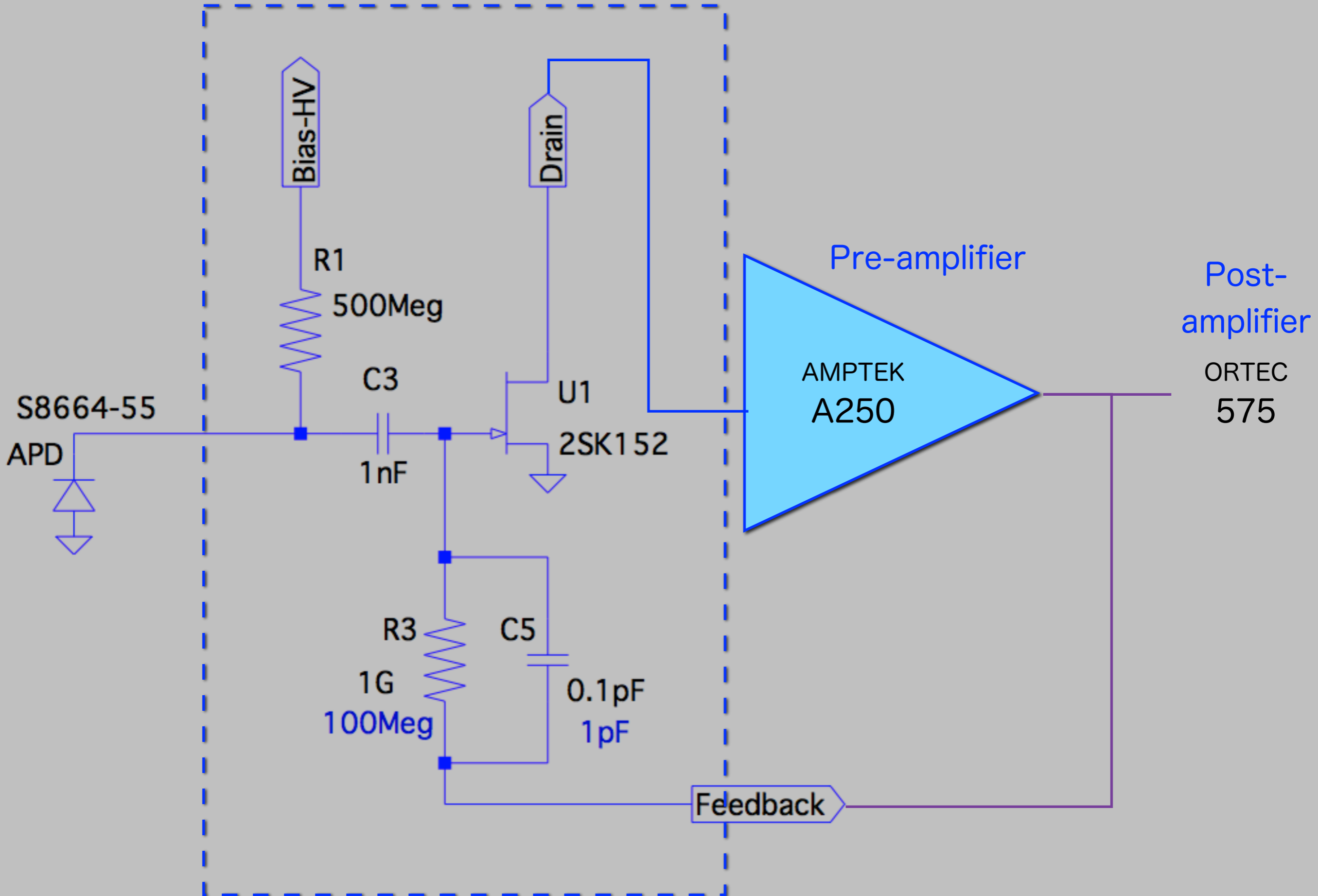


# APD test in Liquid Xe

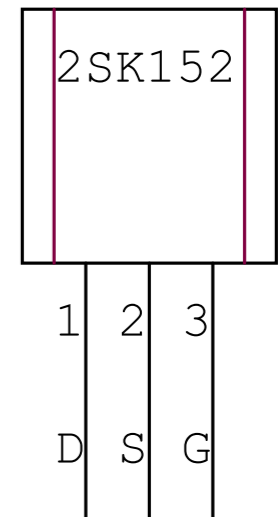
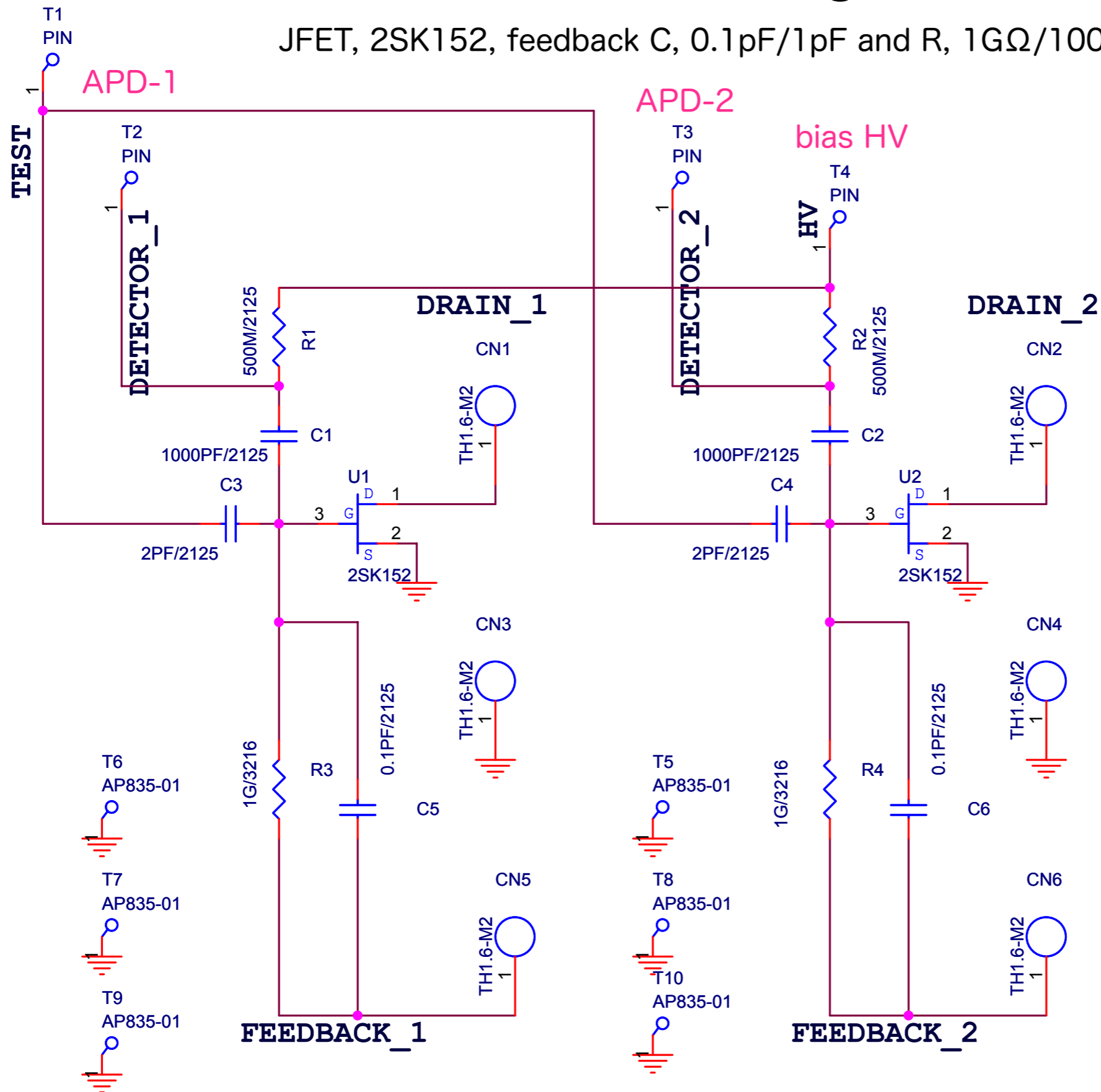
T. Tauchi, KEK

# Daughter card

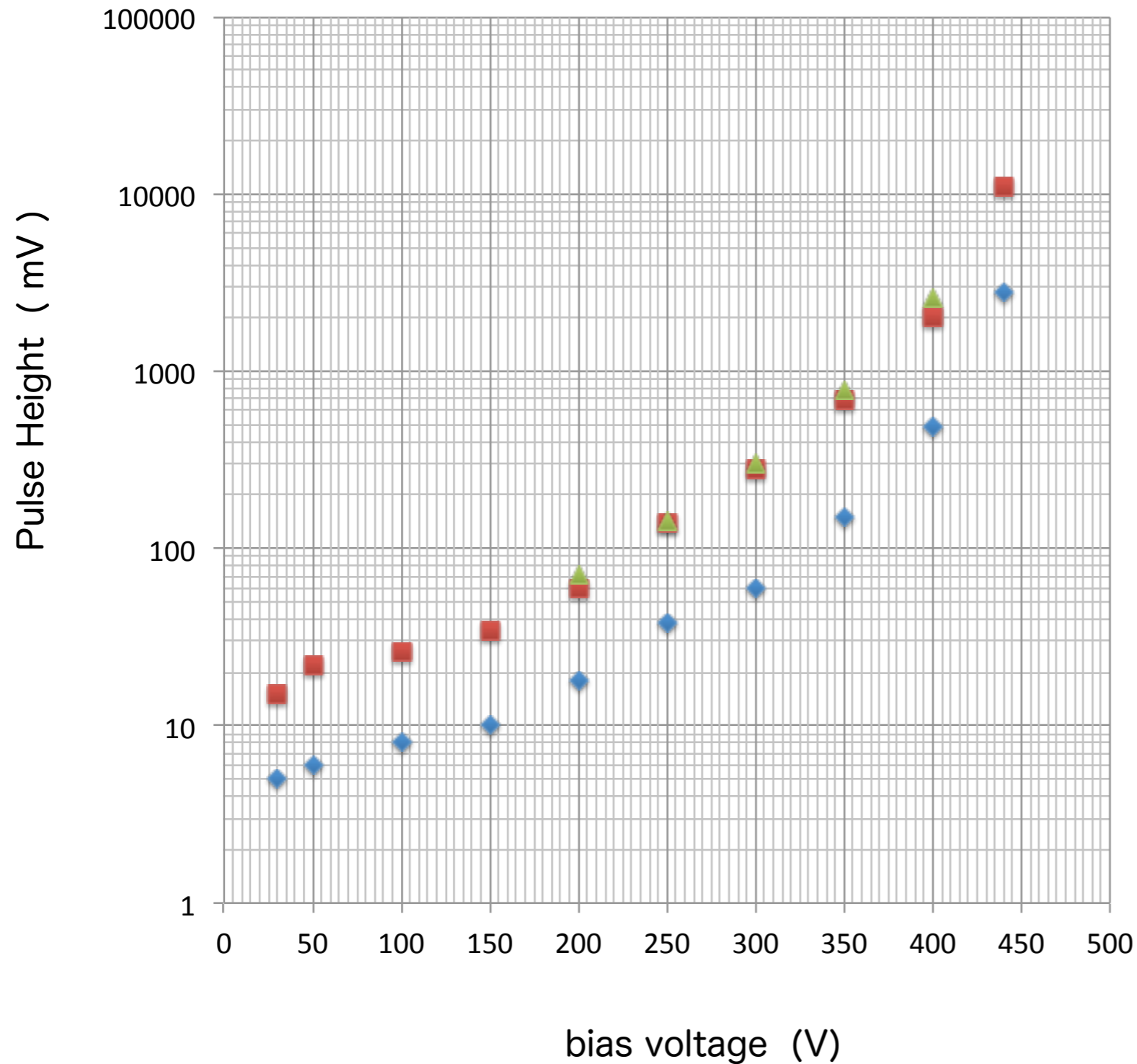


# Circuit in the Daughter card

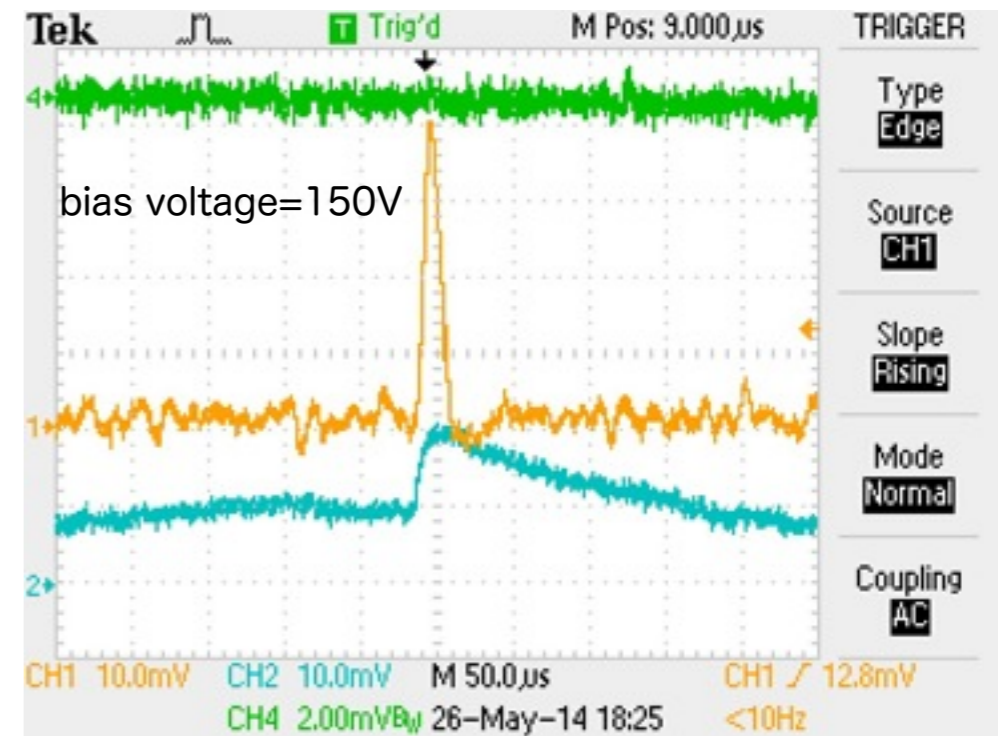
JFET, 2SK152, feedback C, 0.1pF/1pF and R, 1G $\Omega$ /100M $\Omega$



# APD (S8664-55, short cable) with $^{241}\text{AmNaI}$ in room temperature with the feedback capacitor of 0.1pF



- : Postamp
- ◆ : Preamp
- ▲ : Postamp (Vincent)



高エネルギー加速器研究機構 御中

# 検査成績書

型名	S10937-9390(X)
数量	4pcs.
日付	2010年 1月 29日
備考	

検査責任者	検査員
加藤	田中

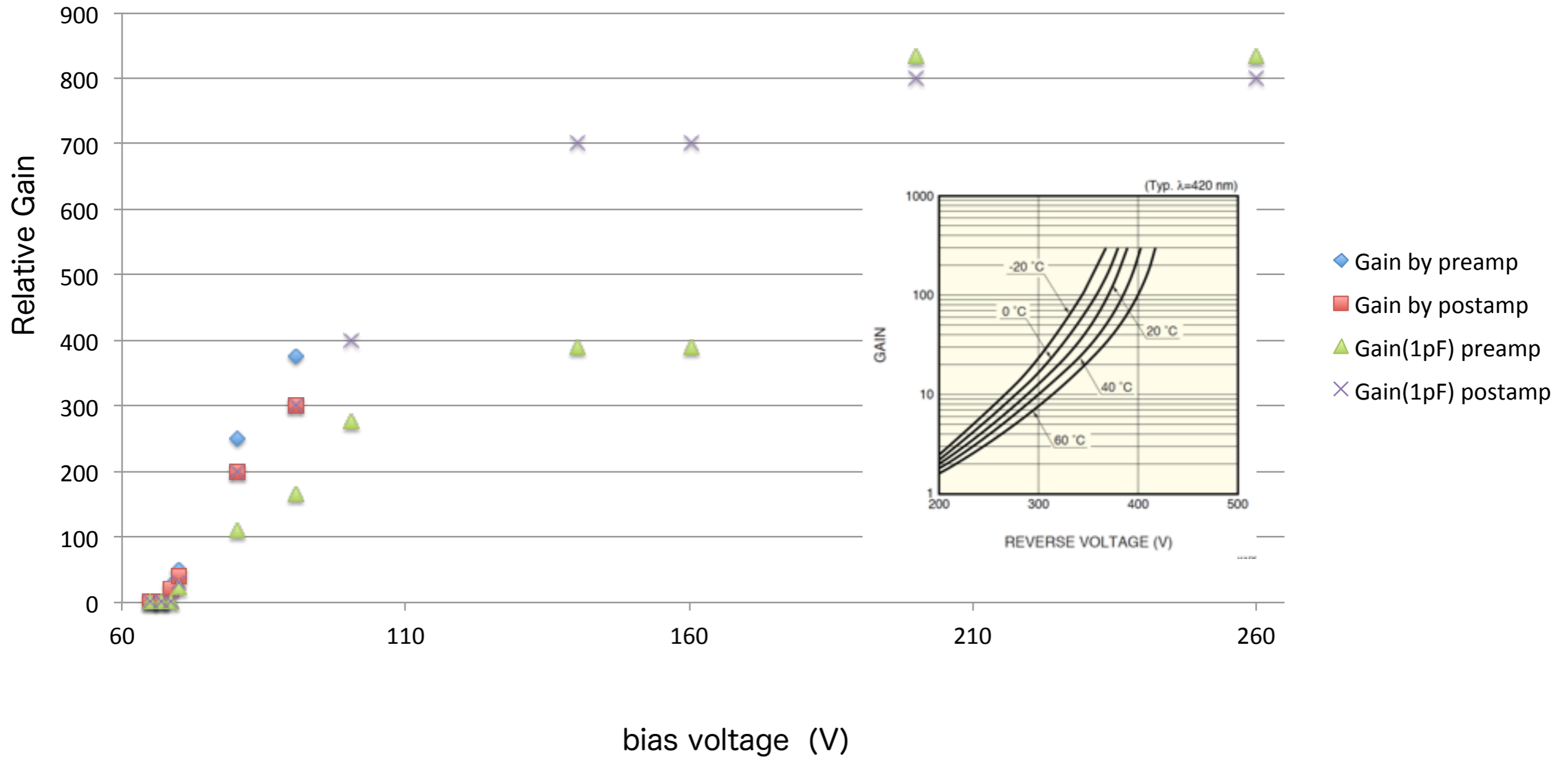
高エネルギー加速器研究機構		御中	2010年 1月 29日							
<b>検査成績書</b>			浜松ホトニクス株式会社							
			固体事業部							
型名	S10937-9390(X)									
数量	4pcs.									
備考										
<input checked="" type="checkbox"/> 受注品 <input type="checkbox"/> サンプル品 <input type="checkbox"/> その他			<input type="checkbox"/> 分納 <input checked="" type="checkbox"/> 完納							
検査条件	VBR: ブレークダウン電圧    ID=100 $\mu$ A VR: 逆電圧    M=50 at $\lambda$ =420nm ID: 暗電流    M=50 Ct: 端子間容量    M=50									
項目	VBR	VR	ID	Ct						
単位	V	V	nA	pF						
規格	Max	-	-	-						
	Typ	400	-	20	80					
	Min	-	-	-	-					
No. 1	440	394.6	40.6	78						
No. 2	445	400.5	48.4	79						
No. 3	441	396.4	30.6	79						
No. 4	443	398.5	50.8	80						

S10937-9355(X)  
No.1

検査日	2010年 1月 8日	25°C
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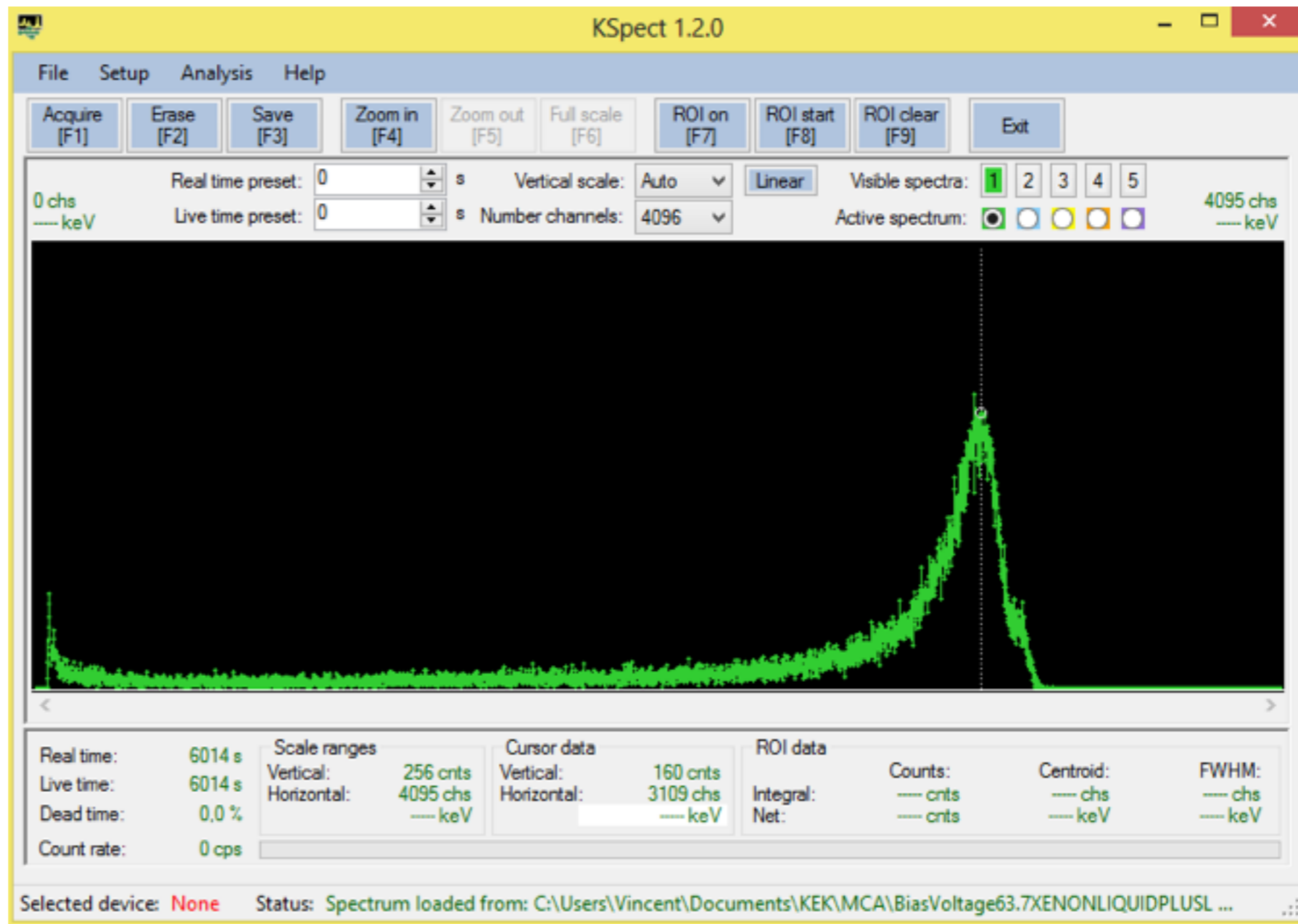
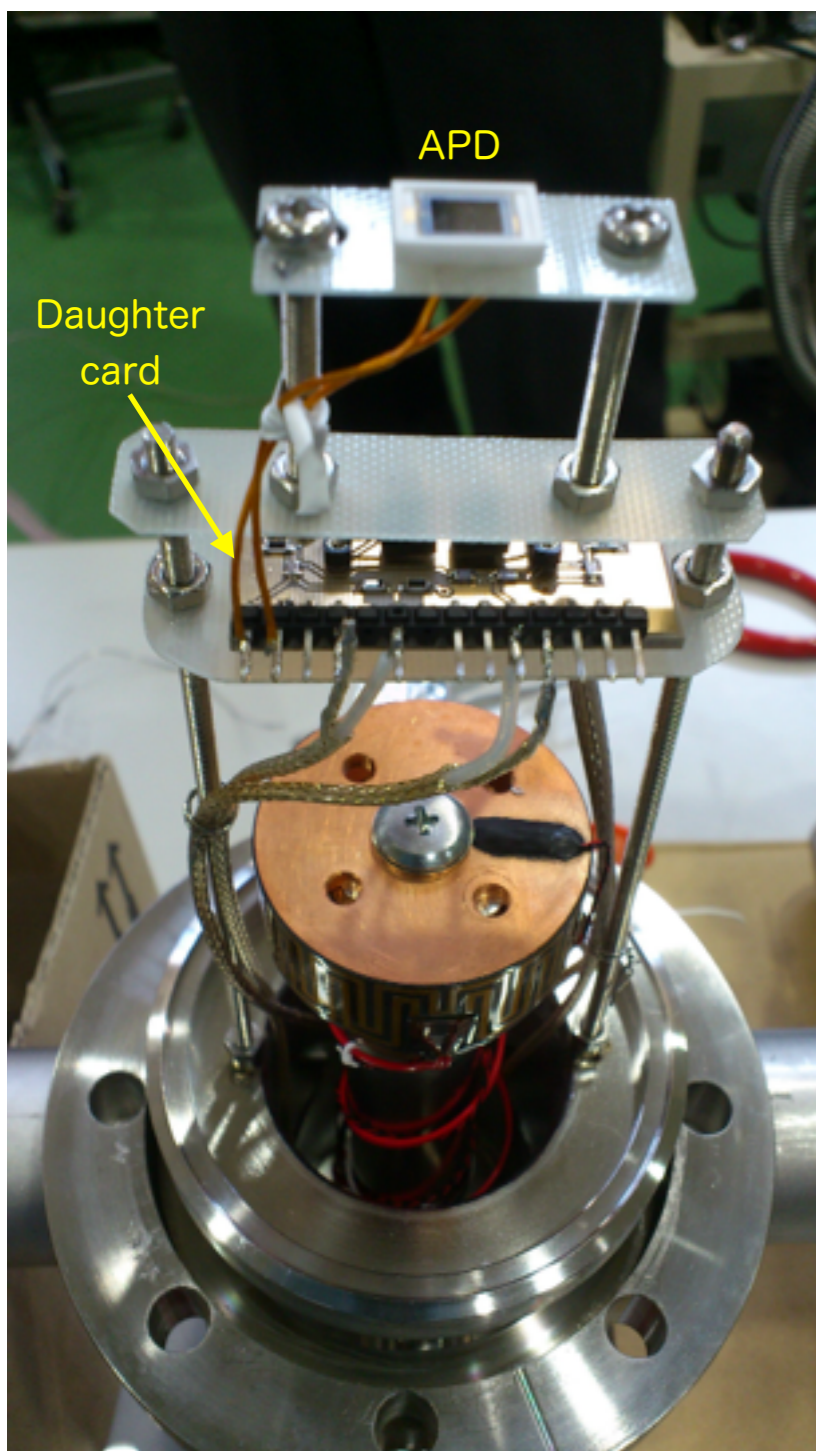
# APD (S10937-9390(x)) with $^{241}\text{AmNaI}$ at room temperature with the feedback capacitor of 1pF

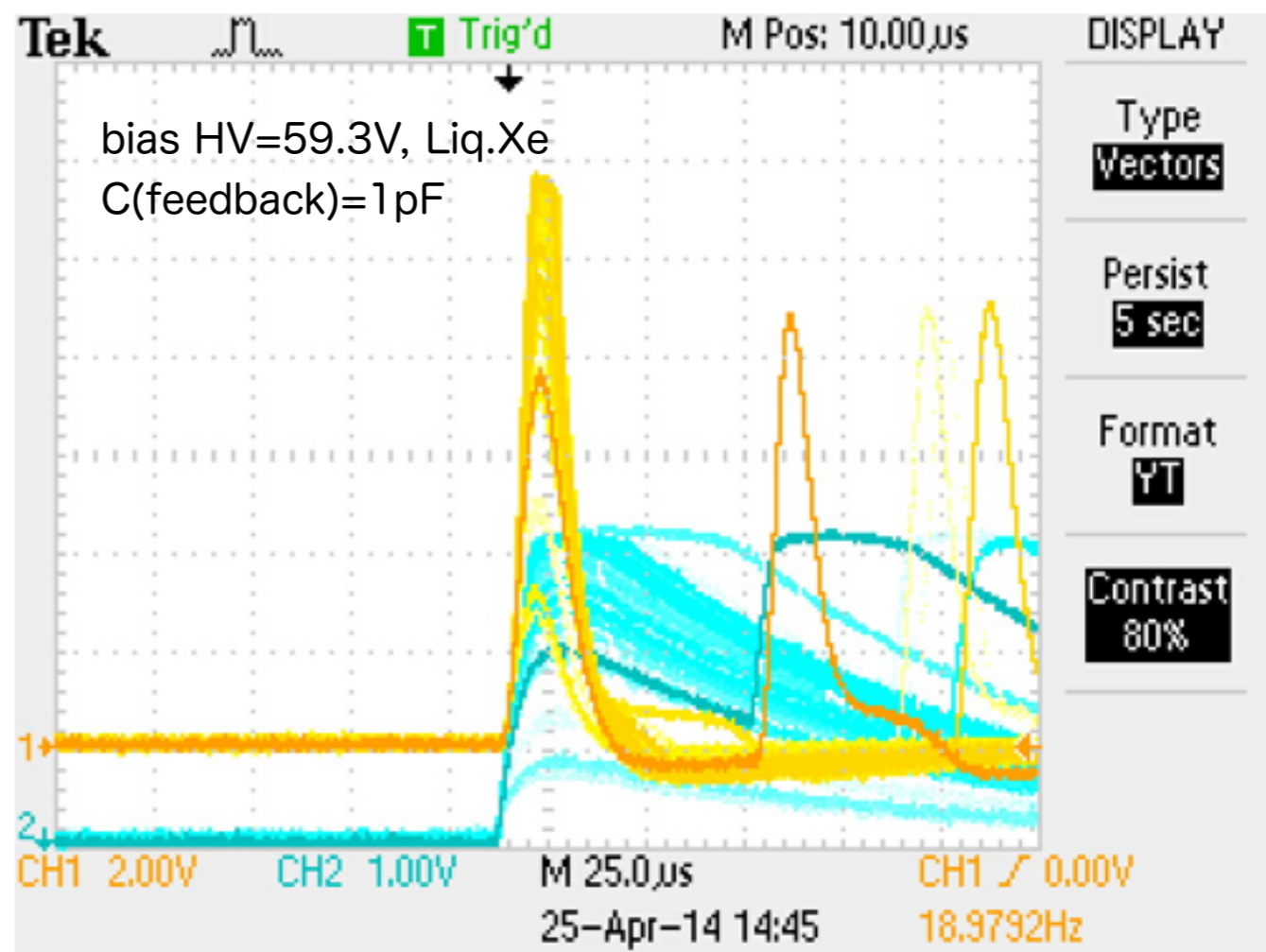
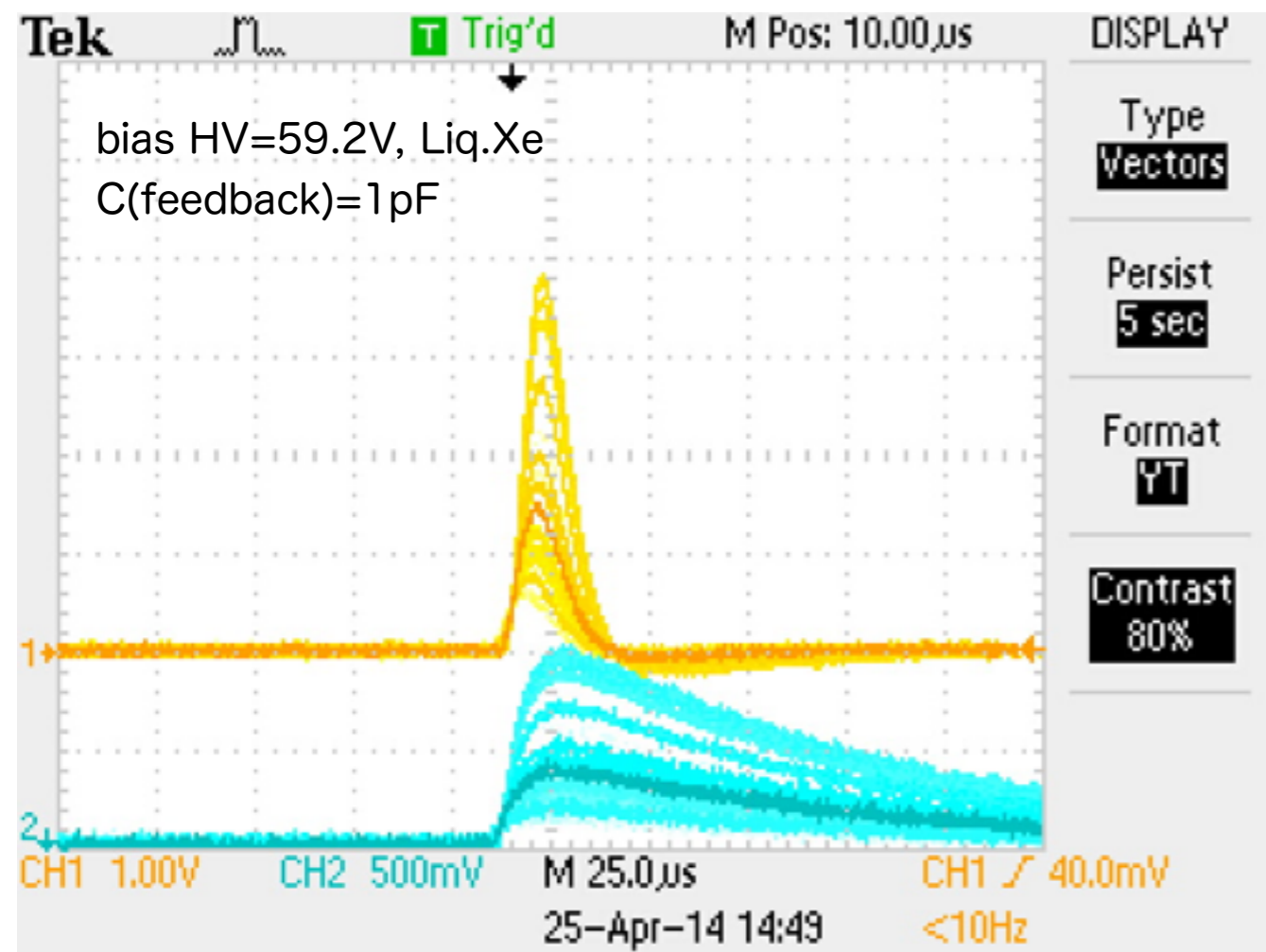
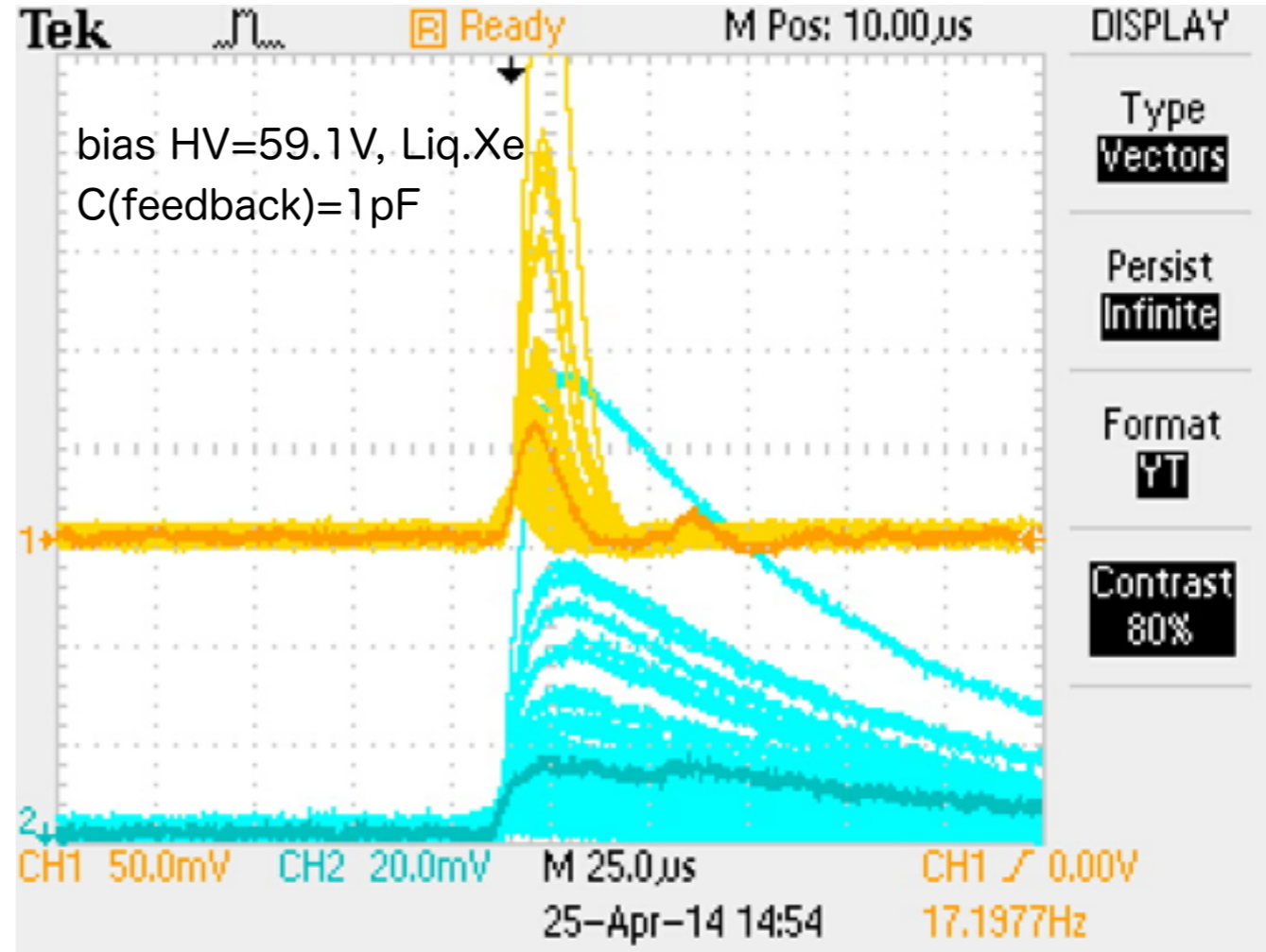
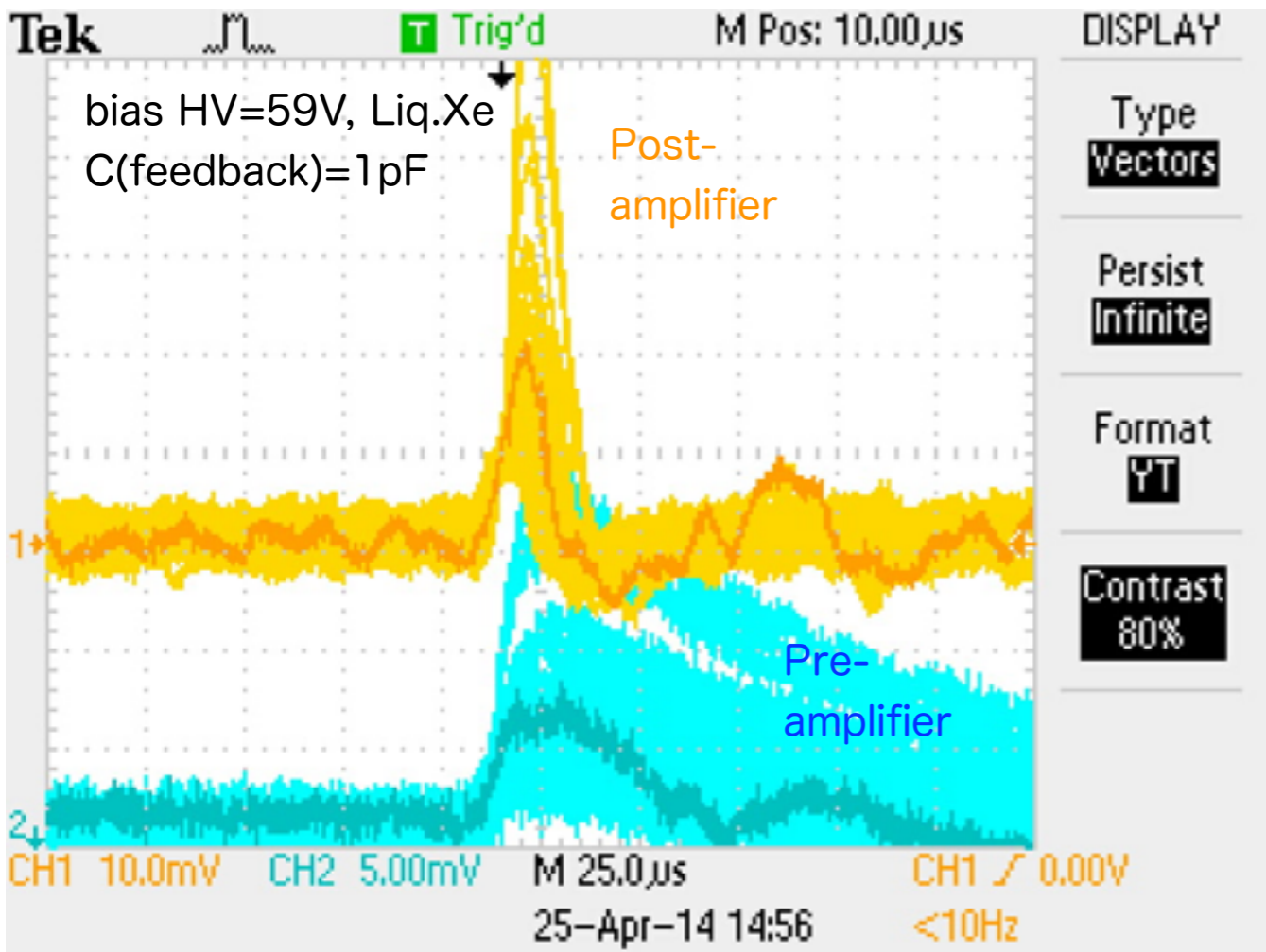


# Windowless No.2 in the chamber

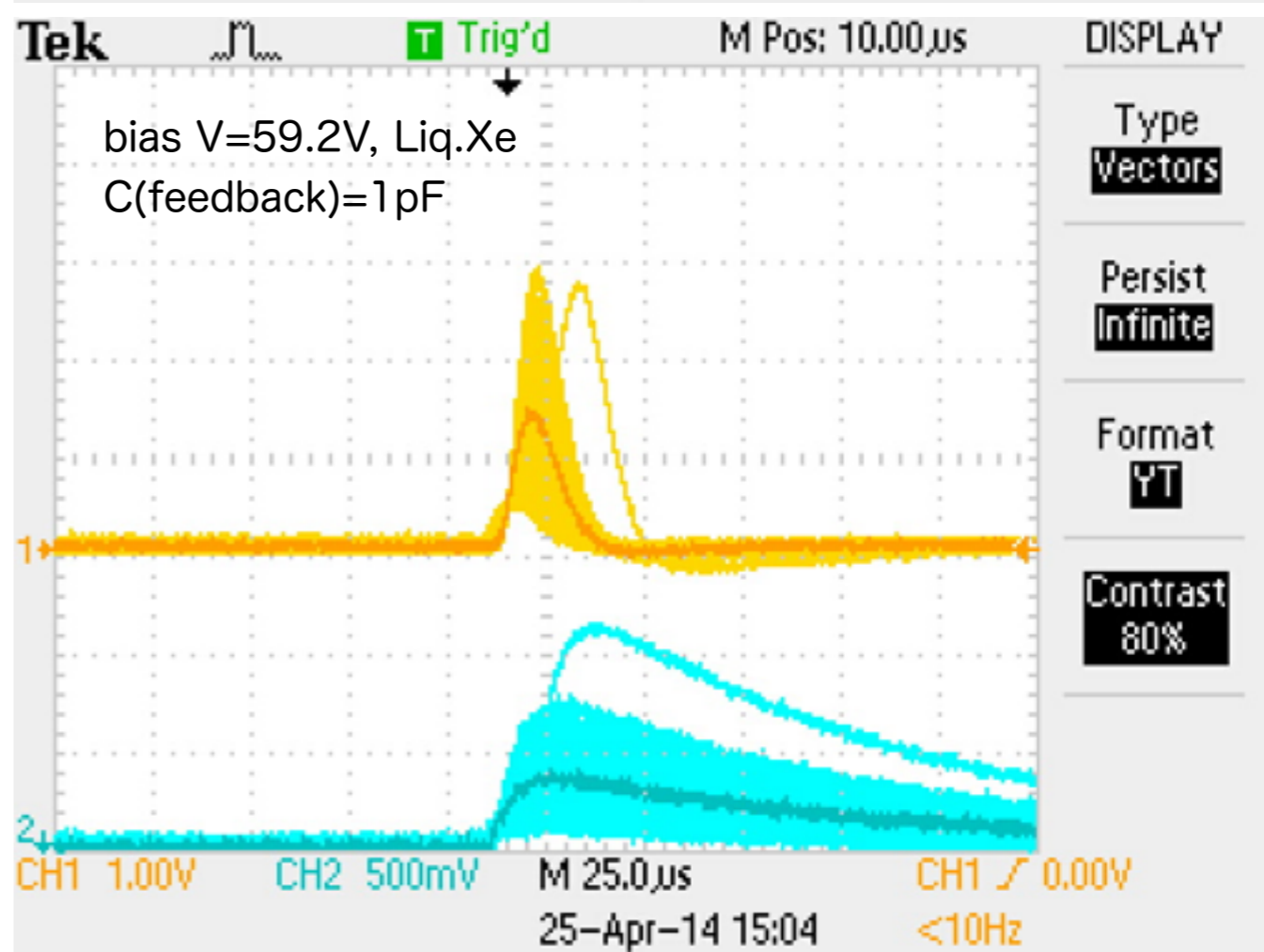
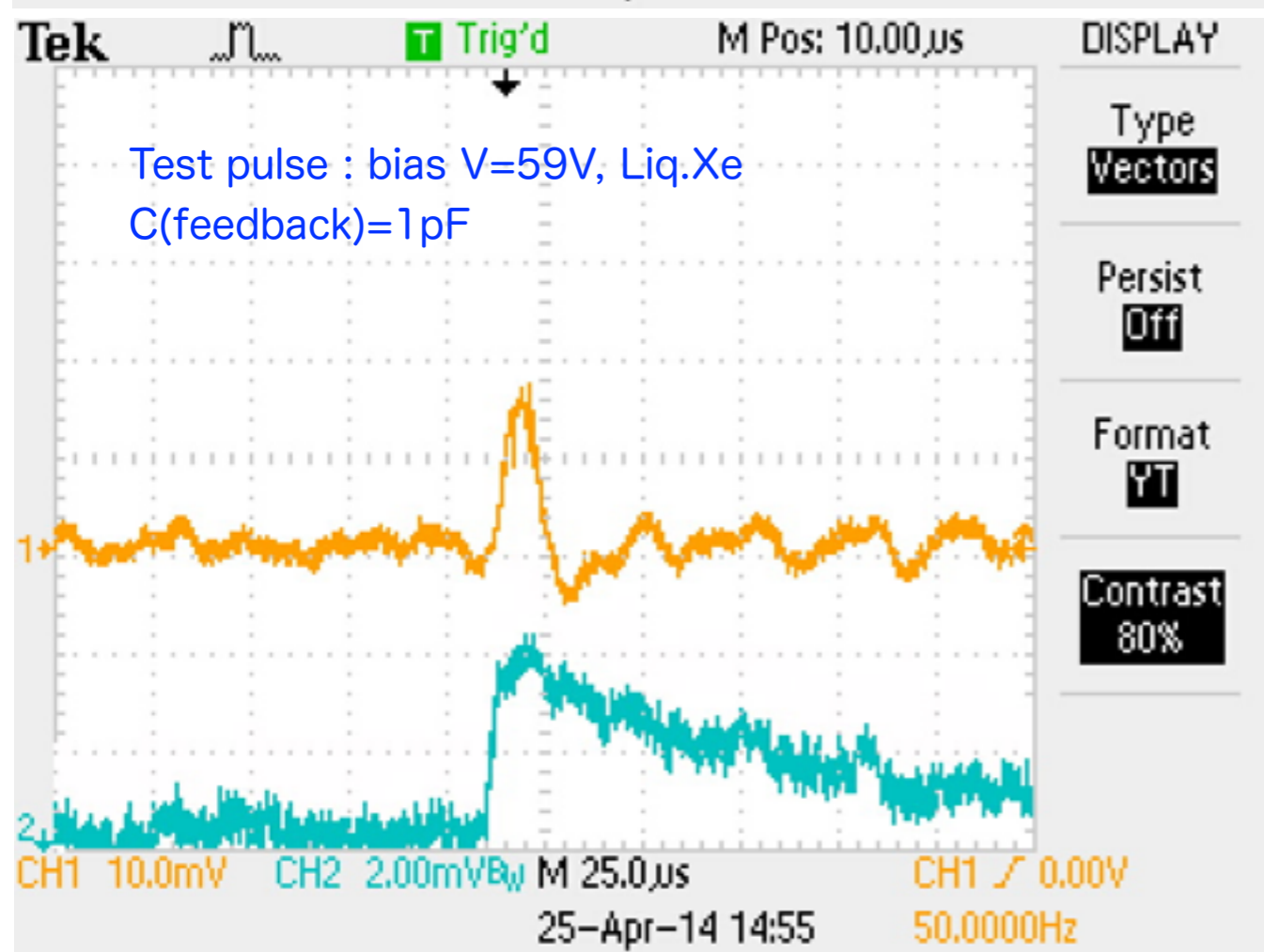
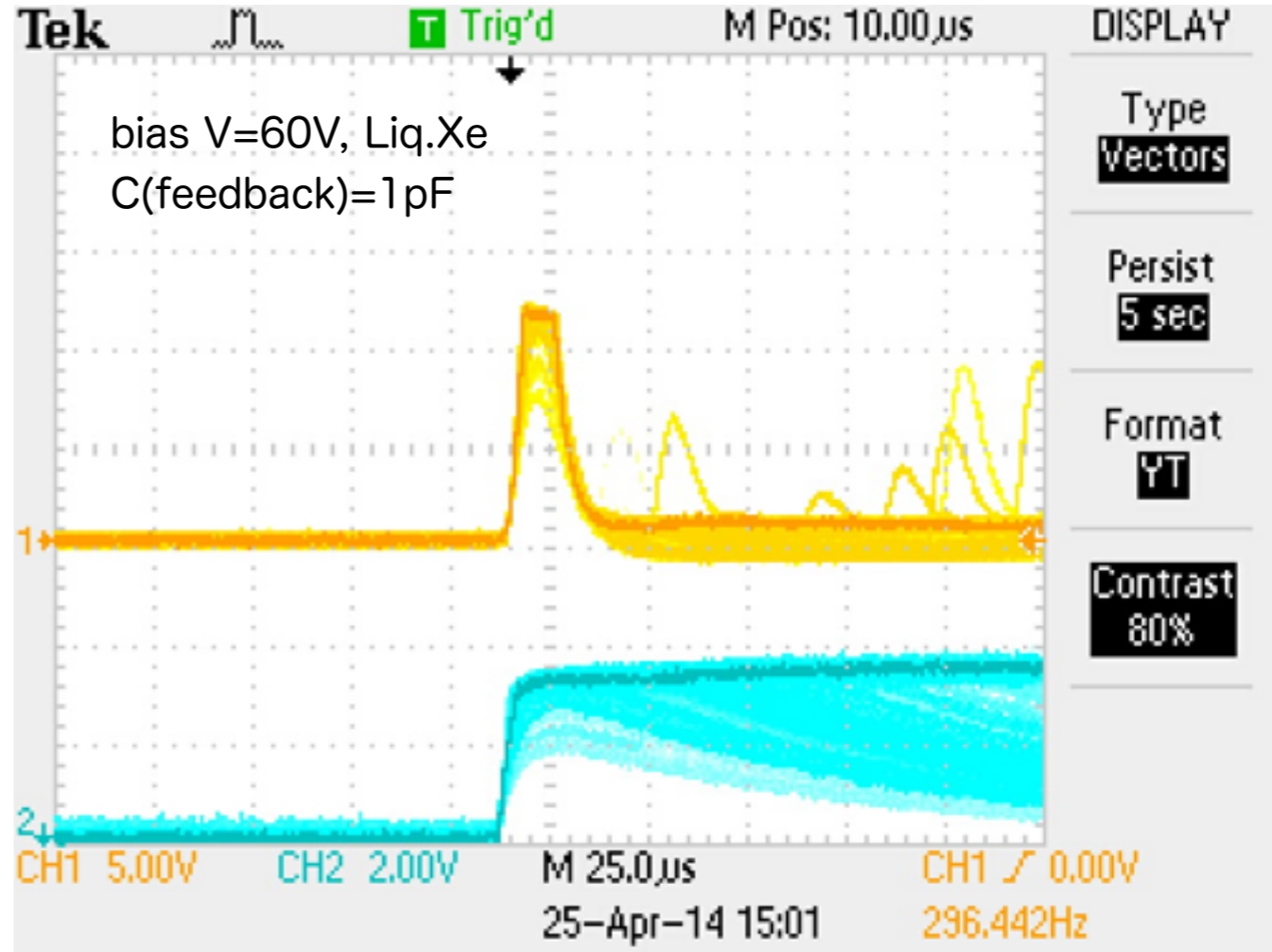
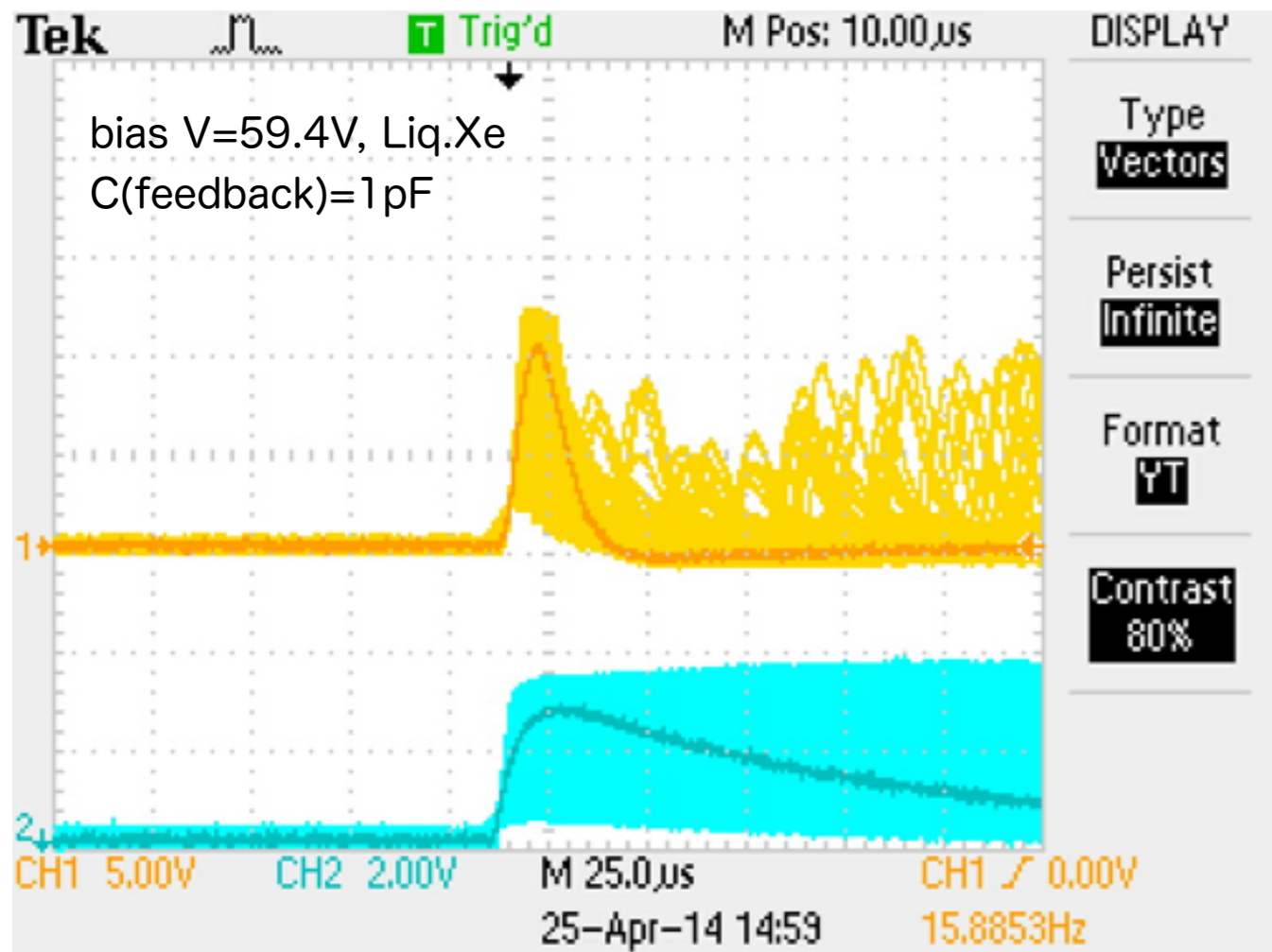
APD (S10937-9390(x)) with  $^{137}\text{Cs}$  in Liquid Xe

with the feedback capacitor of 0.1pF





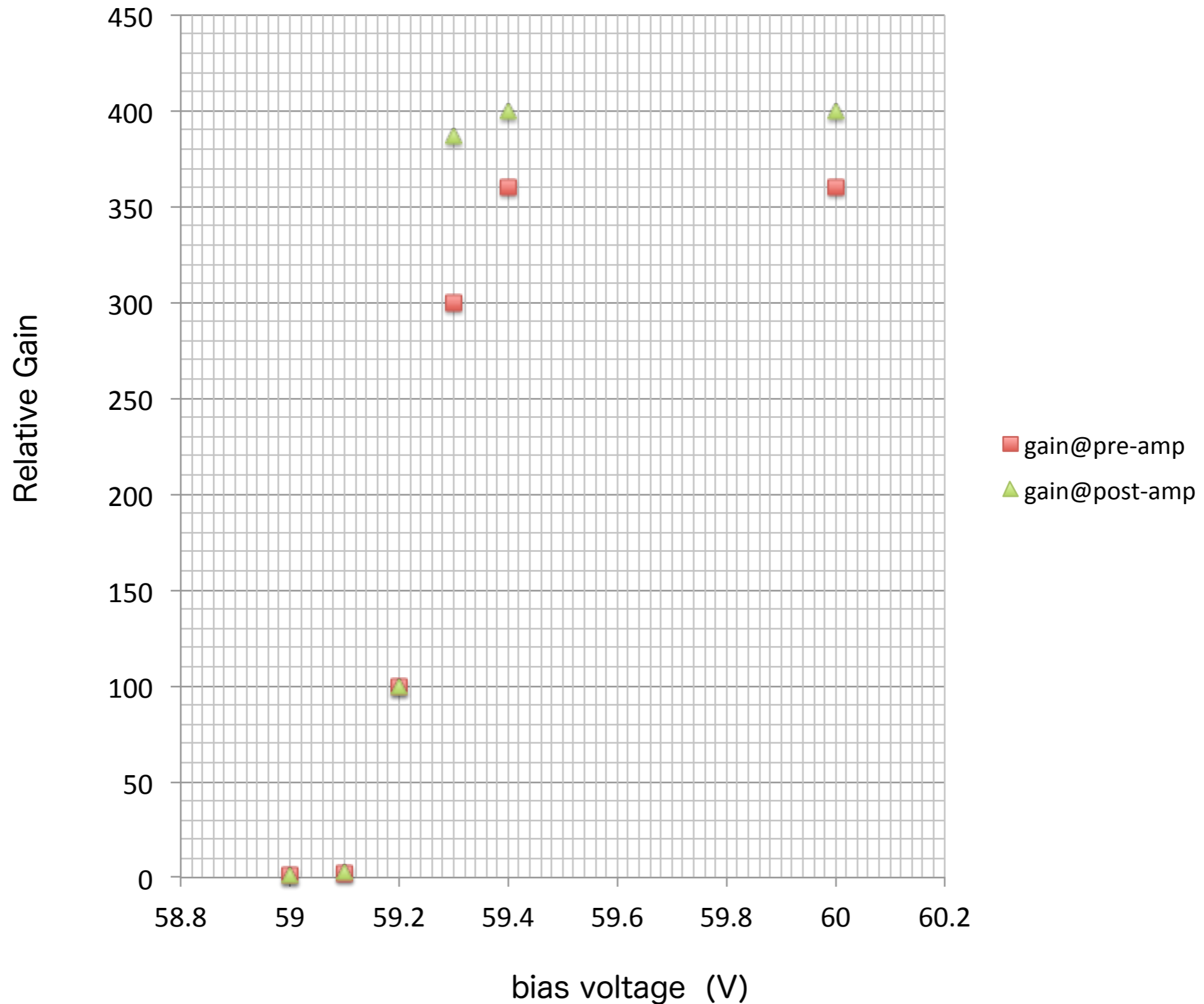




# Windowless No.2 in the chamber

APD (S10937-9390(x)) with  $^{137}\text{Cs}$  in Liquid Xe

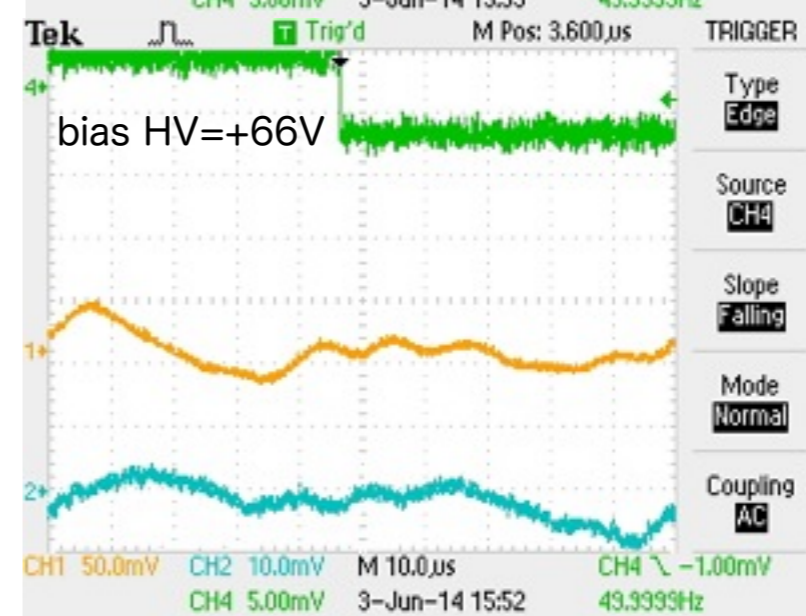
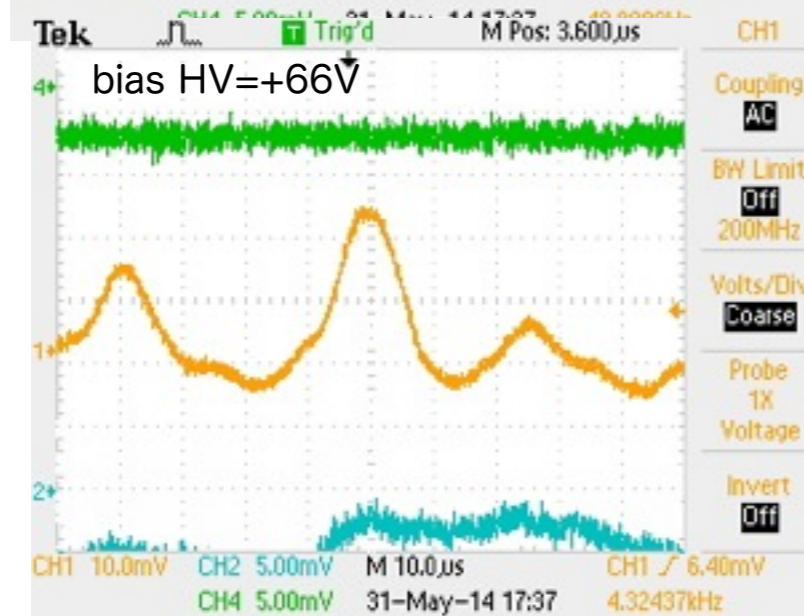
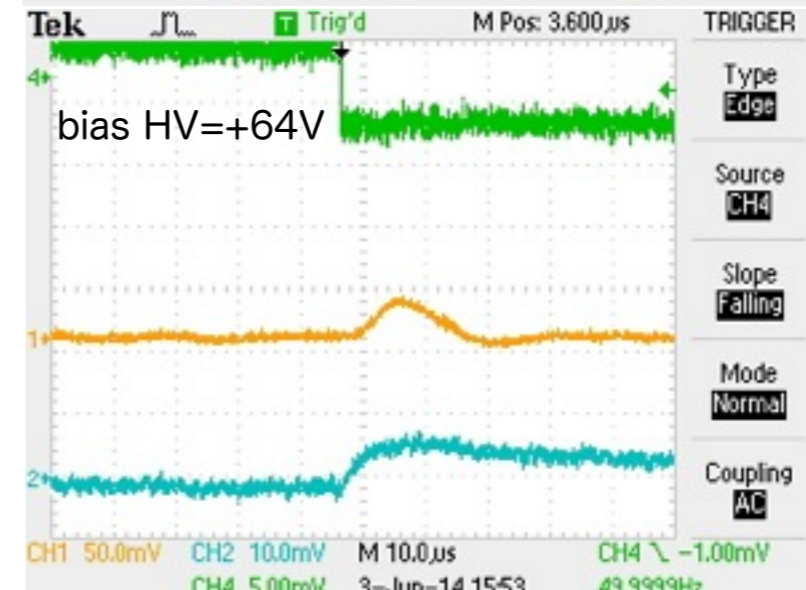
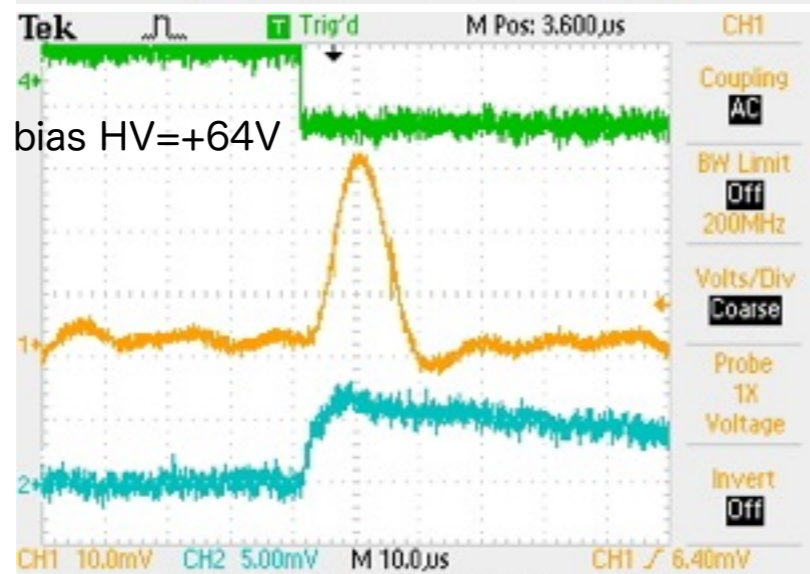
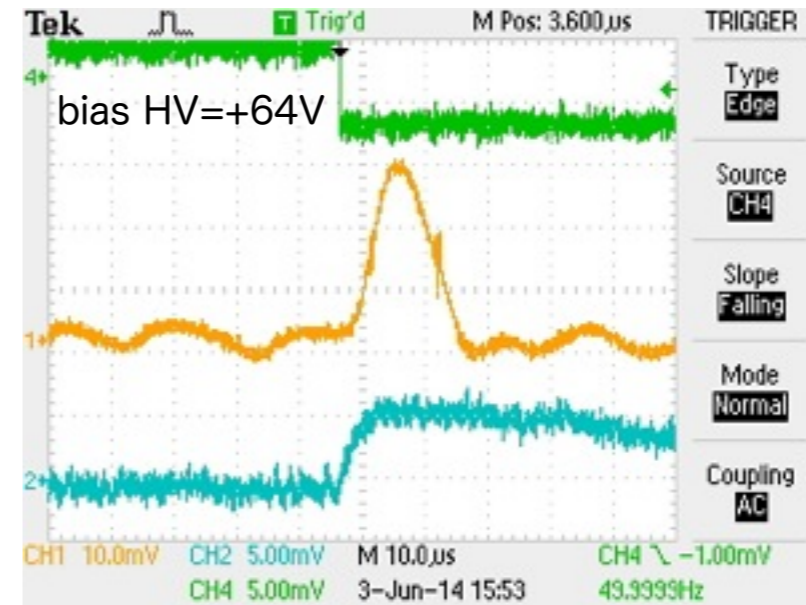
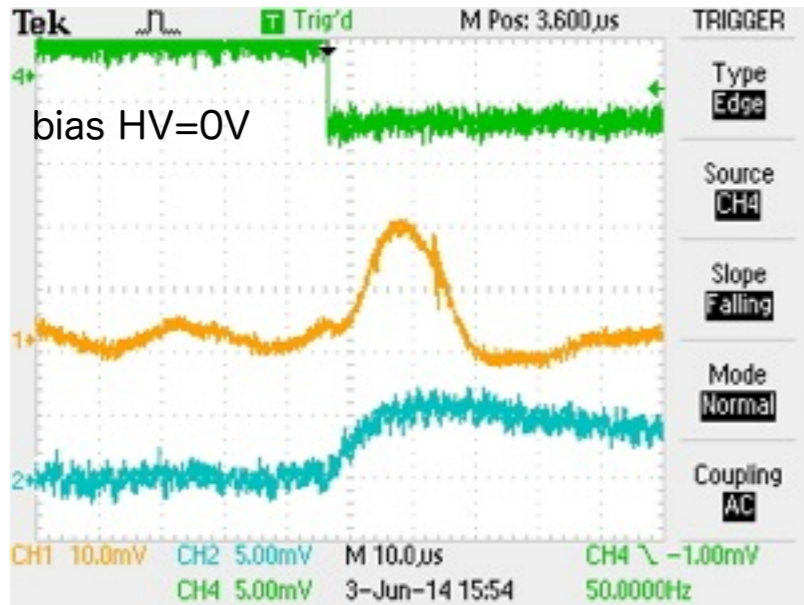
with the feedback capacitor of 1pF



# Windowless No.2 in the chamber

Test pulse

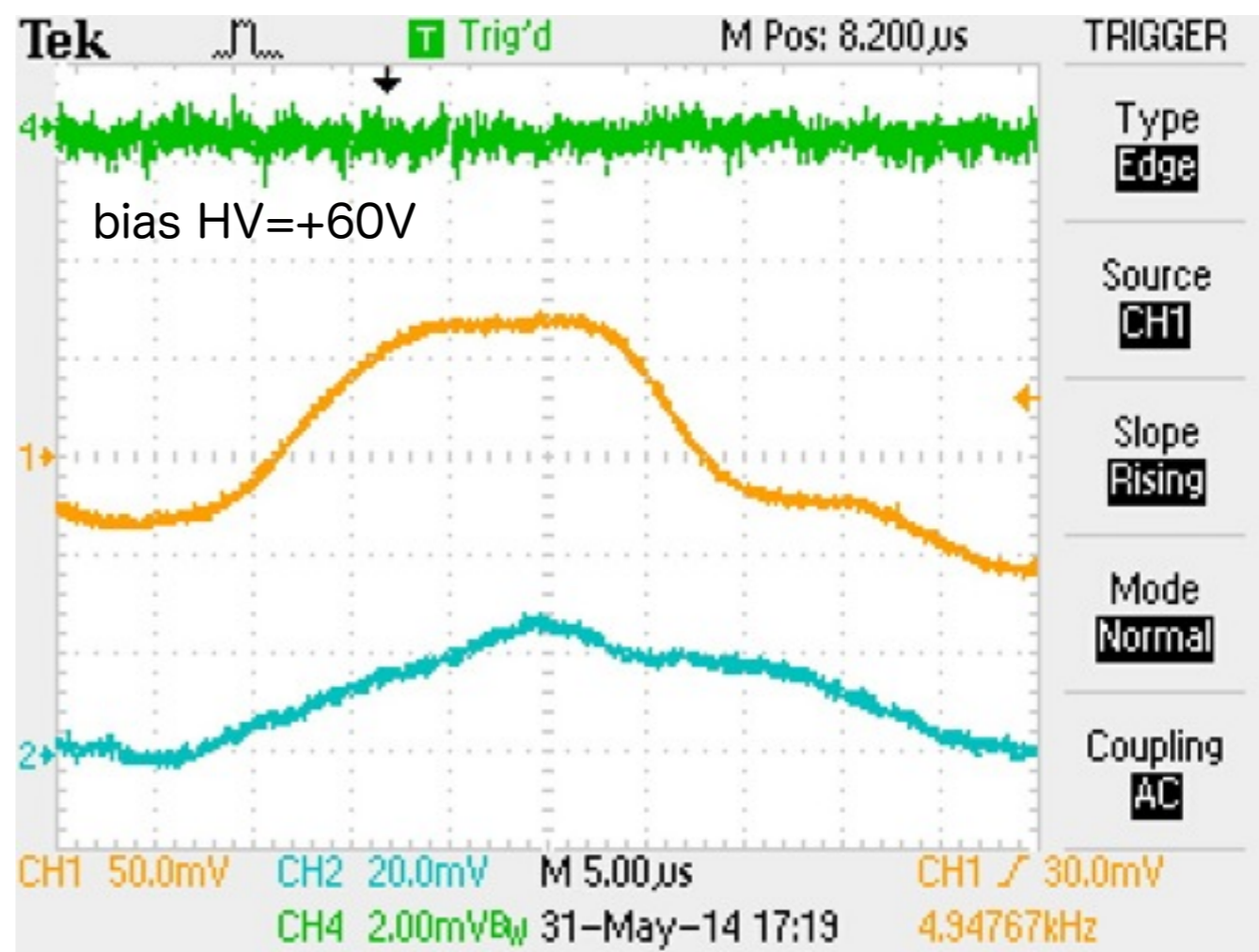
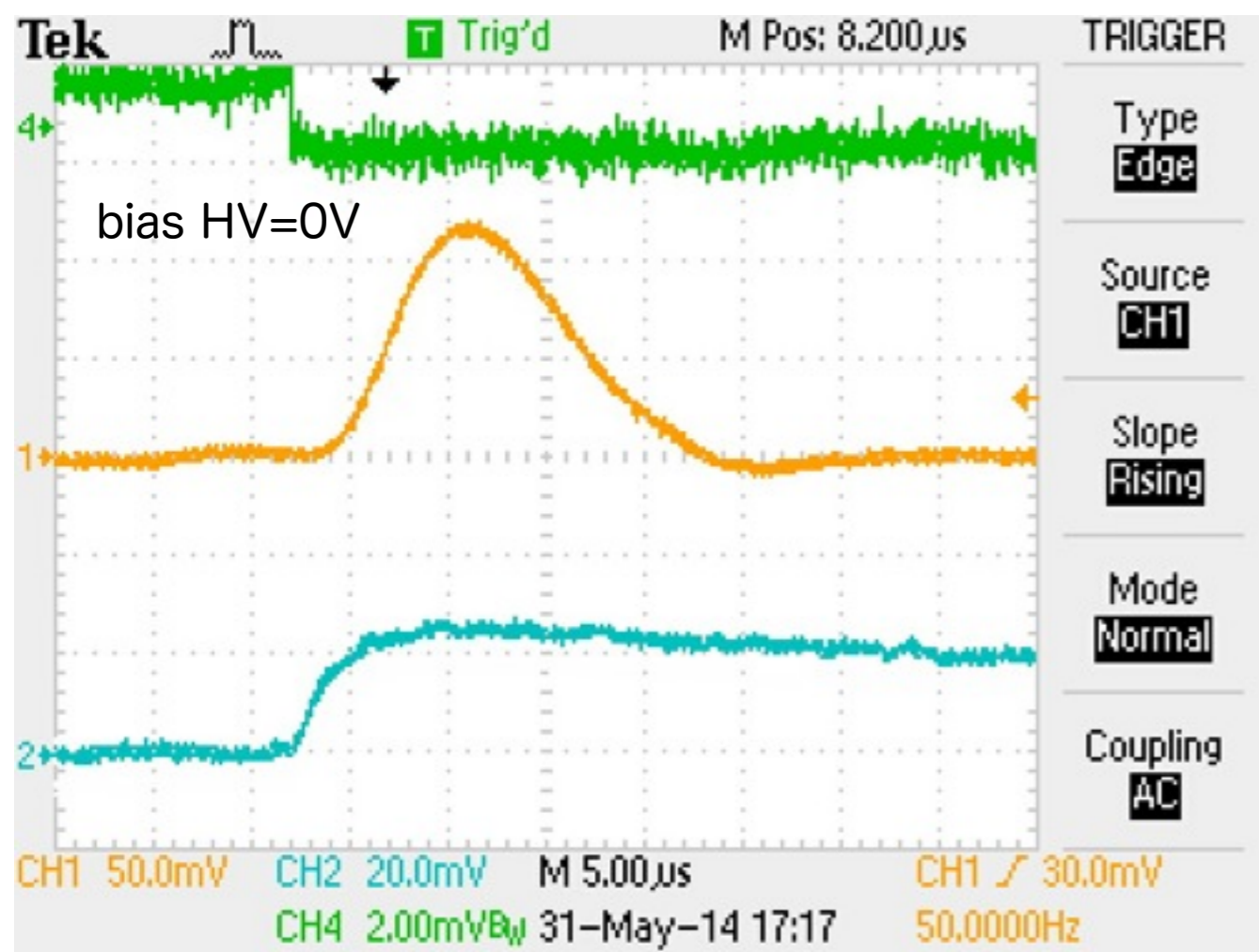
becomes very unstable at the bias HV > +66V



# Windowless No.3

Test pulse

becomes very unstable at the bias HV > +60V



# Windowless No.4

Very noisy with  $^{241}\text{Am-NaI}$  light pulser especially at the bias HV > +66V

But, stable without the light pulser with no dependence of the bias HV

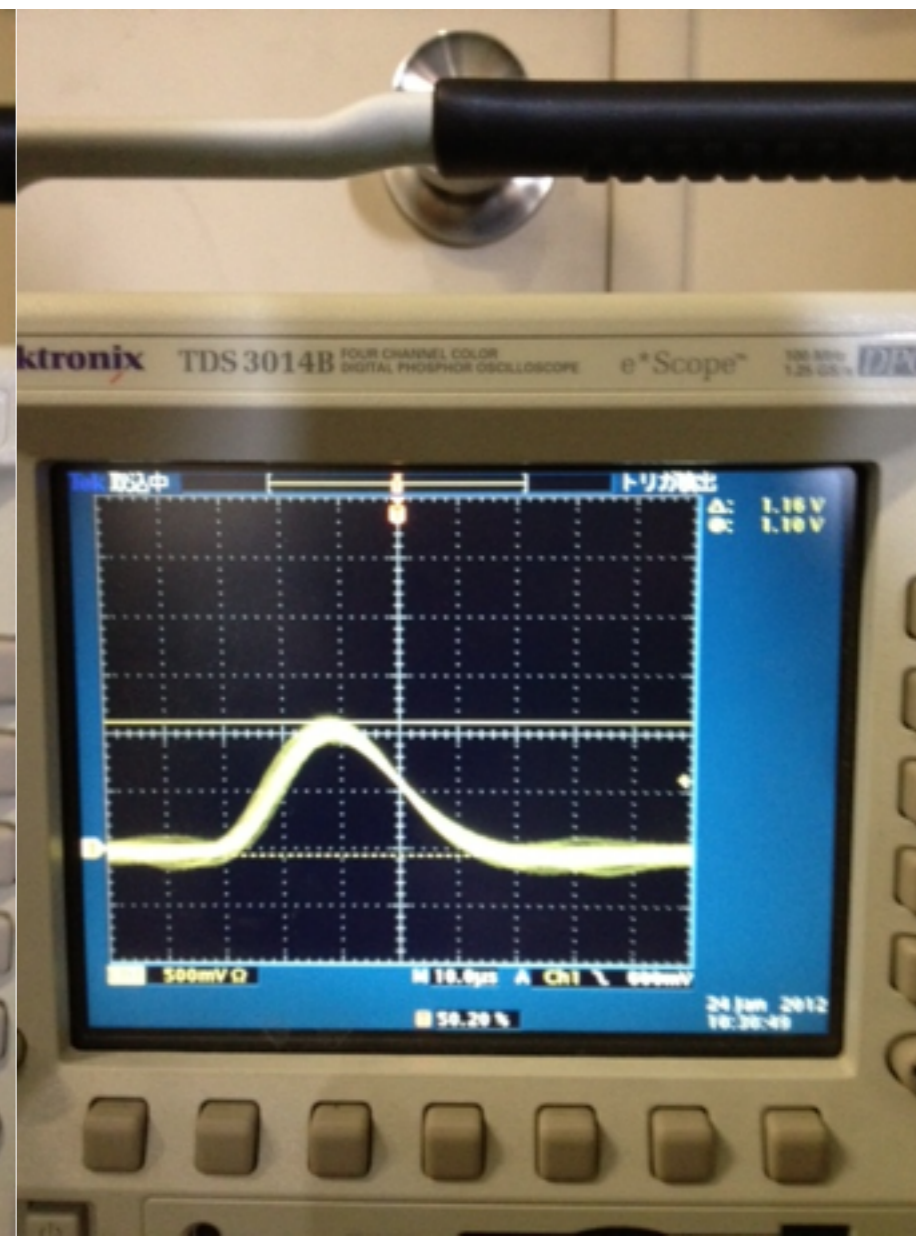
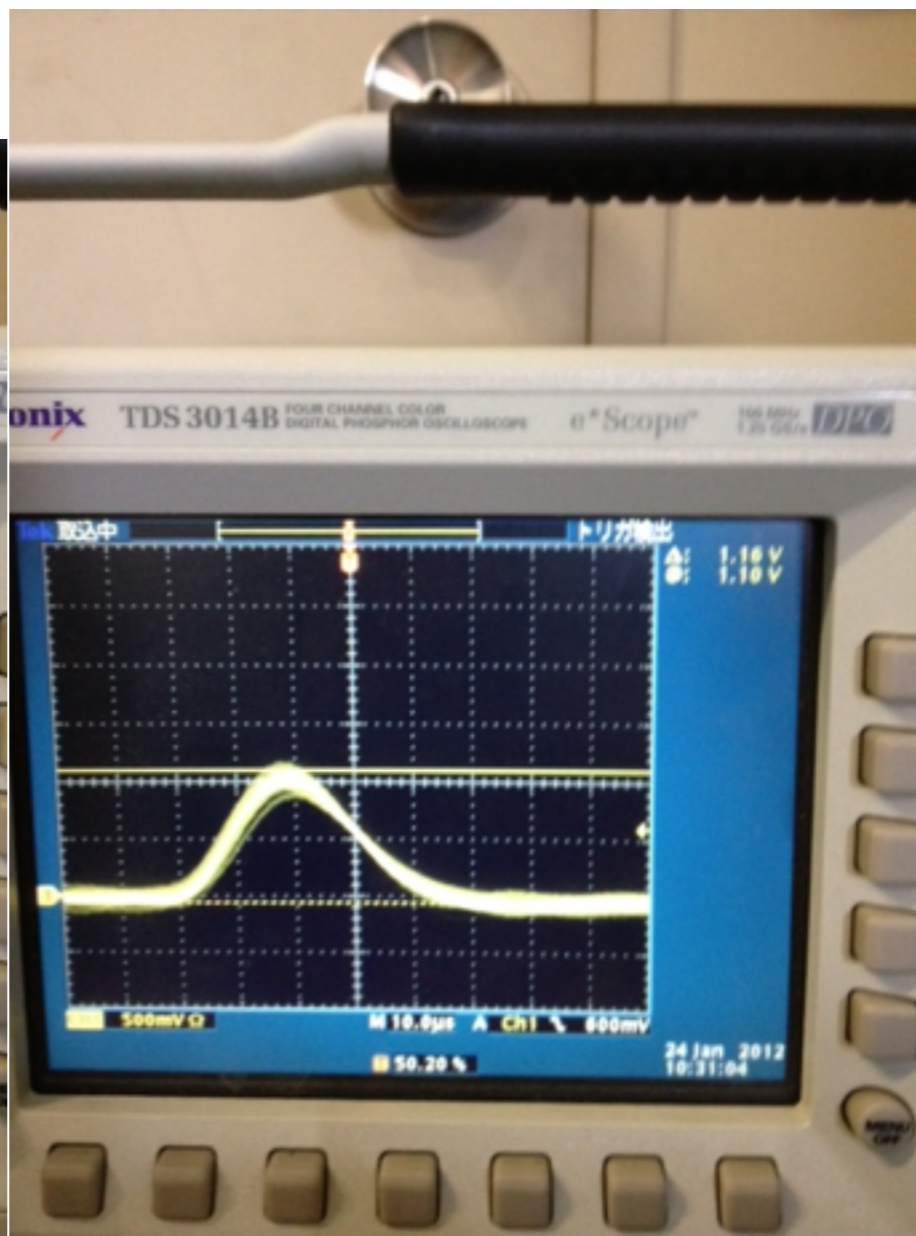
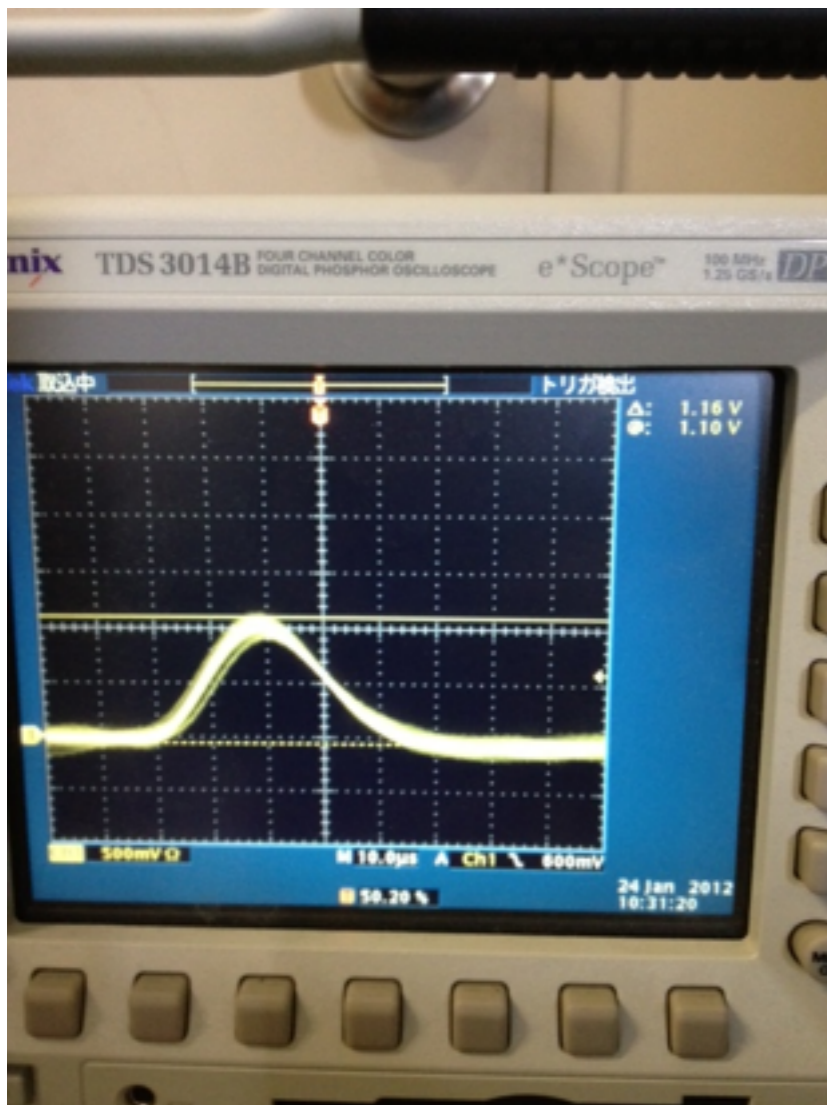
# Windowless No.3

Test with LED as light source

bias HV=200V

bias HV=300V

bias HV=0V



名越（横浜国大）、2012年1月24日：No.3とNo.4のAPDをお借りしているのですが、No.3は信号を確認したあとにHVをかけたのですが、0V,200V,400Vのプリアンプとメインアンプを通ったあとの波形、波高値は同じでした。No.4は信号を確認したあと(ただしNo.3に比べて波高値が小さかった)、HVを350V付近まであげたら、信号がおかしくなり、それ以降はHVを250V程度まで上げると同じような現象が起こることが確認できました。