Summary of ^{26}Al tests

$E_b = 386$ keV/u

- Attenuated ($\sim 3 \times 10^4 \, s^{-1}$) $^{26}Mg^{6+}$ beam used
- ~ 140 epA $^{26}X^{6+}$ delivered to FC4 (1.5×10^8 pps)

Runs taken

# 12319	$^{26}Mg^{6+}$ into IC, no MCP
# 12320	$^{26}Mg^{6+}$ into IC, MCP
# 12321	$^{26}X^{6+}$ onto closed MSLITX
# 12326	elastics test
# 12328	$^{26}X^{6+}$ into IC, MCP
# 12334	$^{26g}Al(p,\gamma)^{27}Si$ (6+)

Charge state distribution (with ^{26}X)

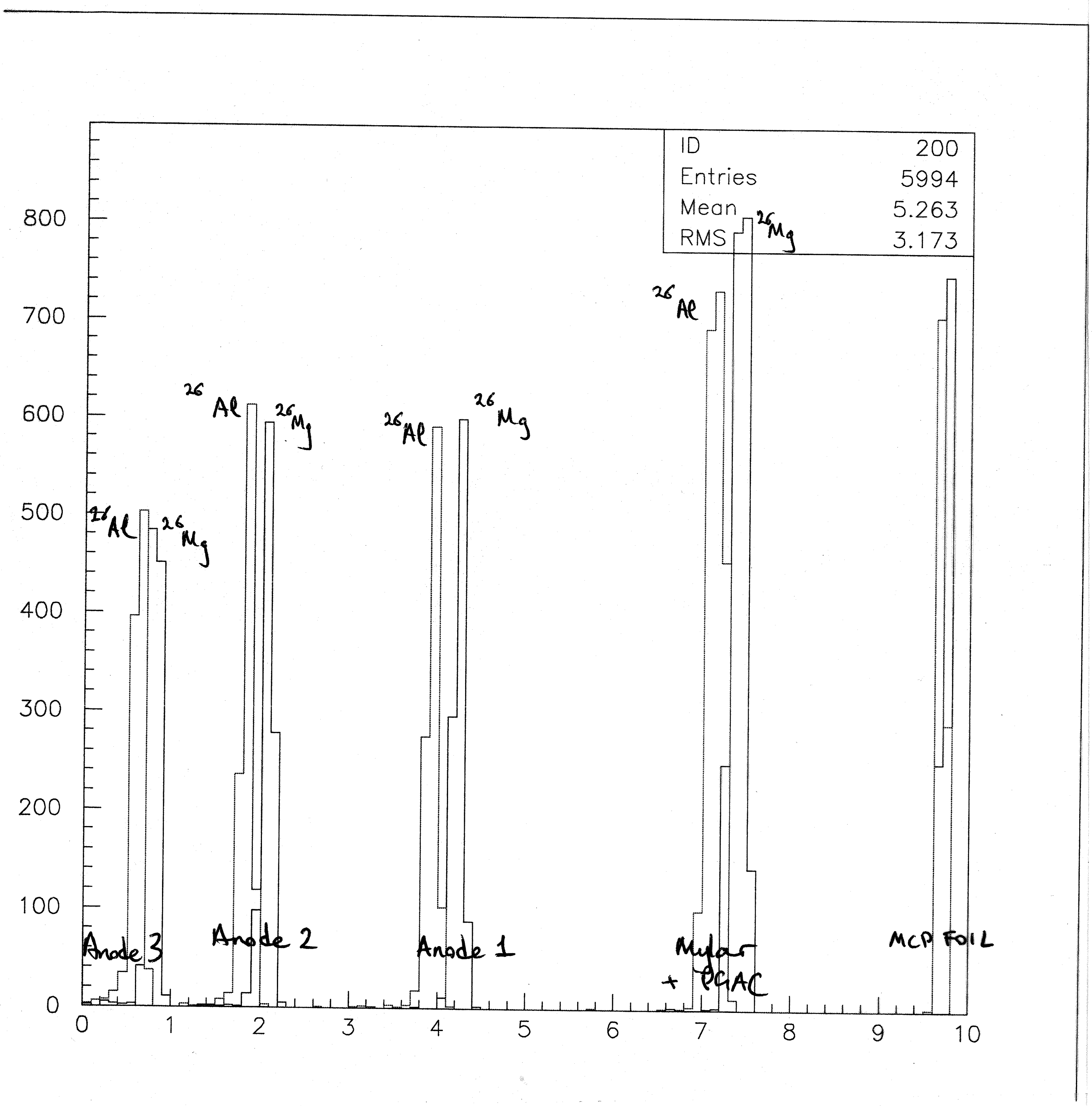
5^+	32 %
6^+	36 %
7^+	12 %
others	20 %

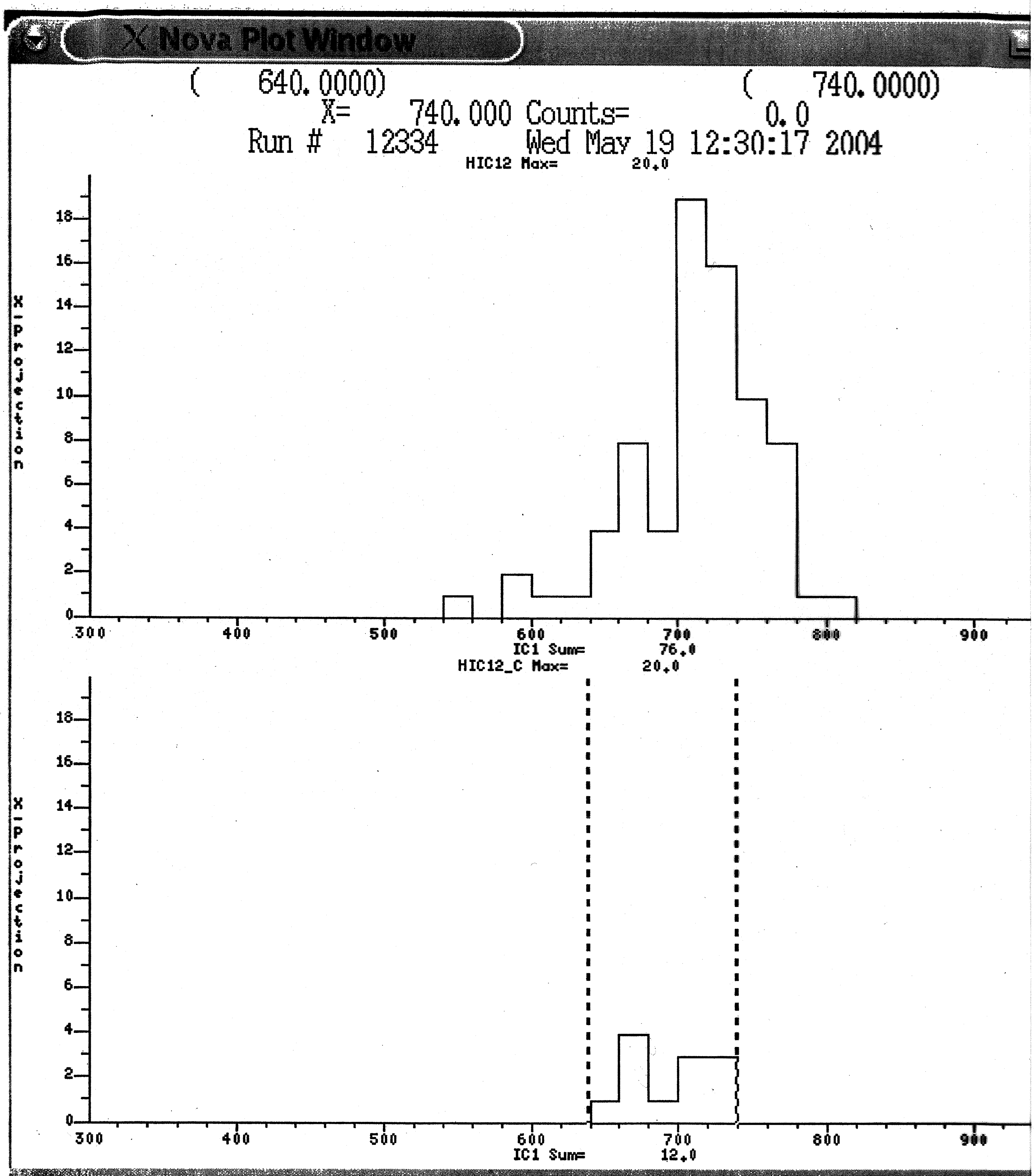
Beam responses in IC

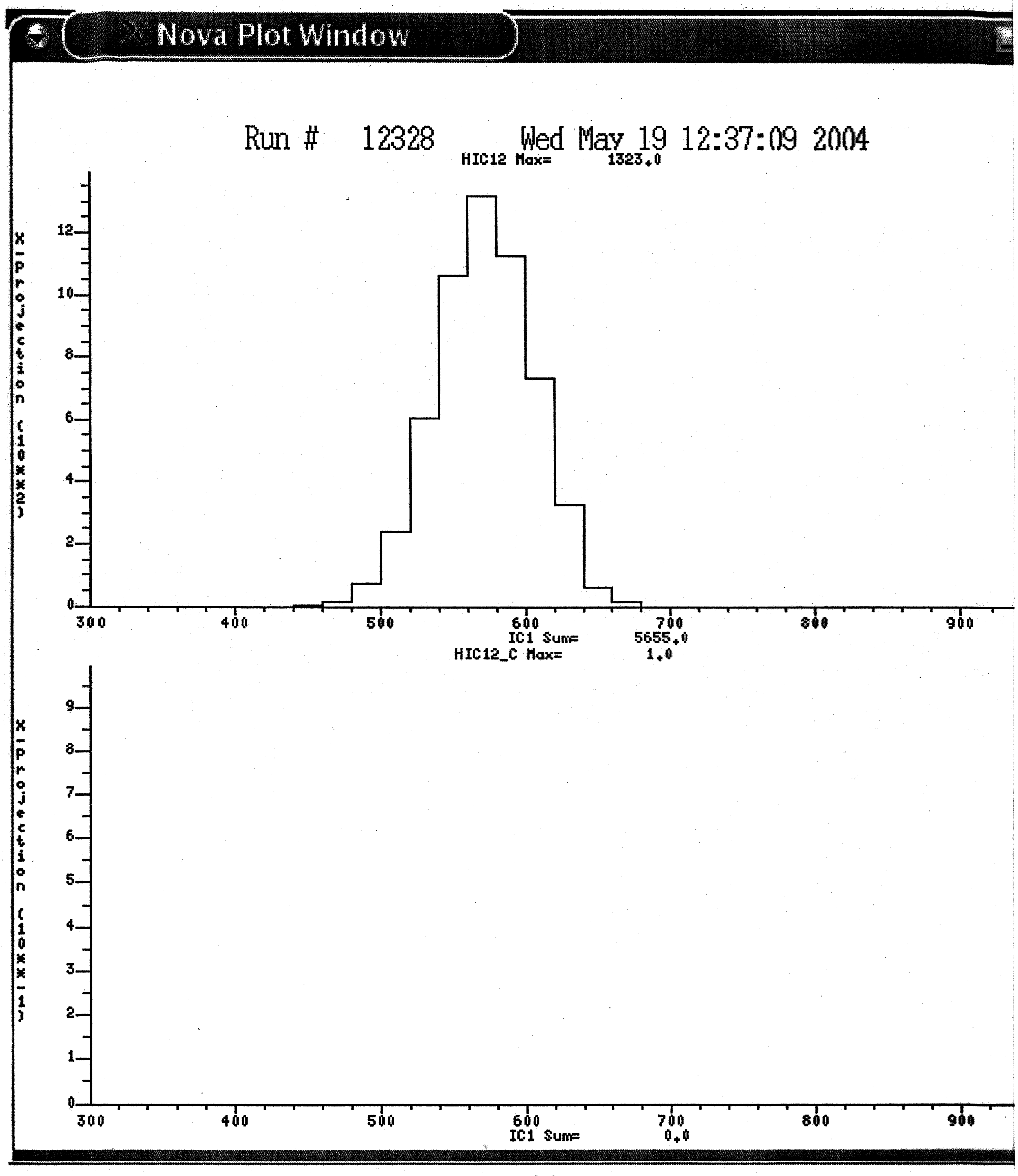
(see M. Anderson's presentation)

Energy loss through anodes.

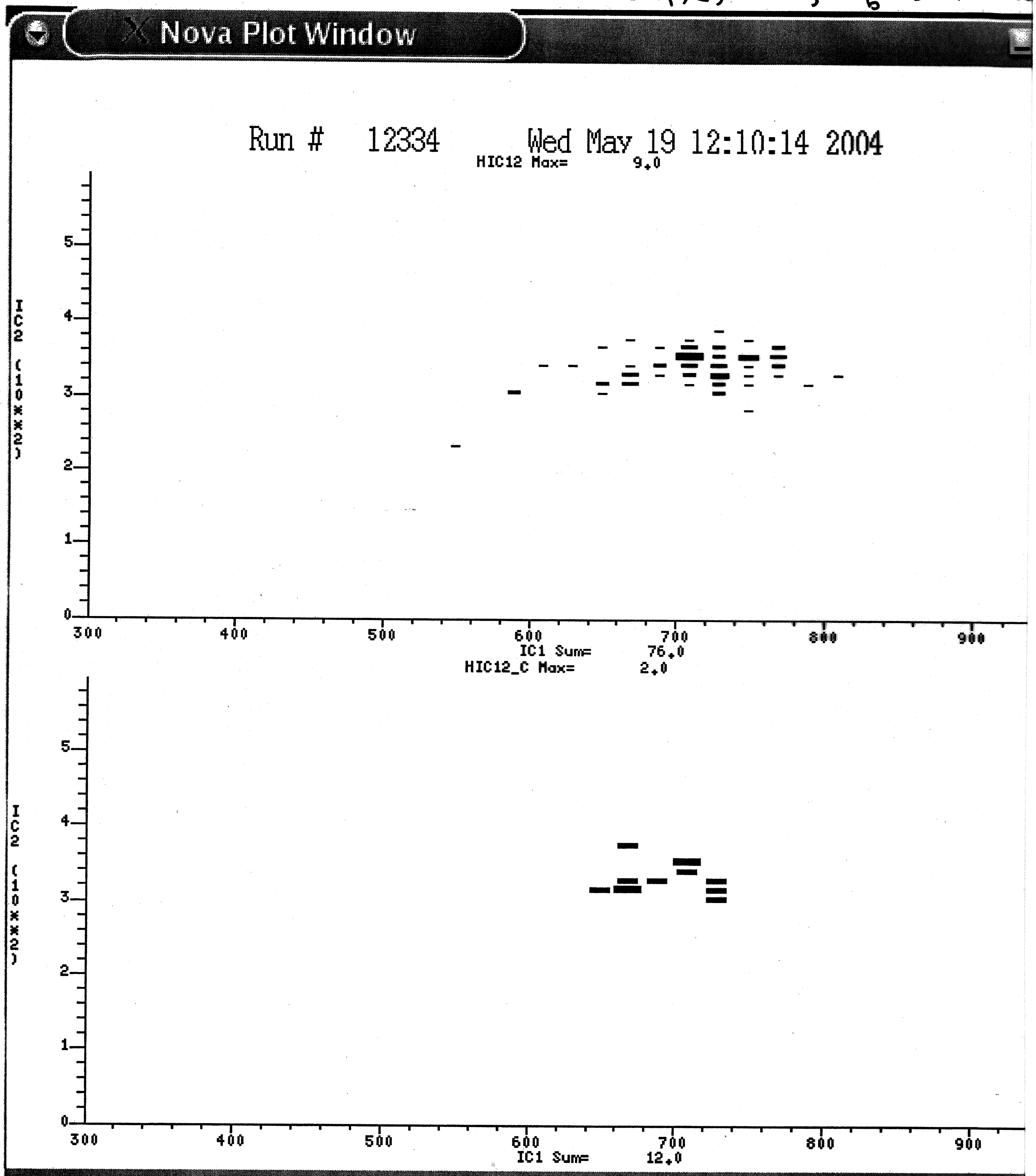
^{26}Mg, ^{26}Al 386 keV/u = 10.036 MeV



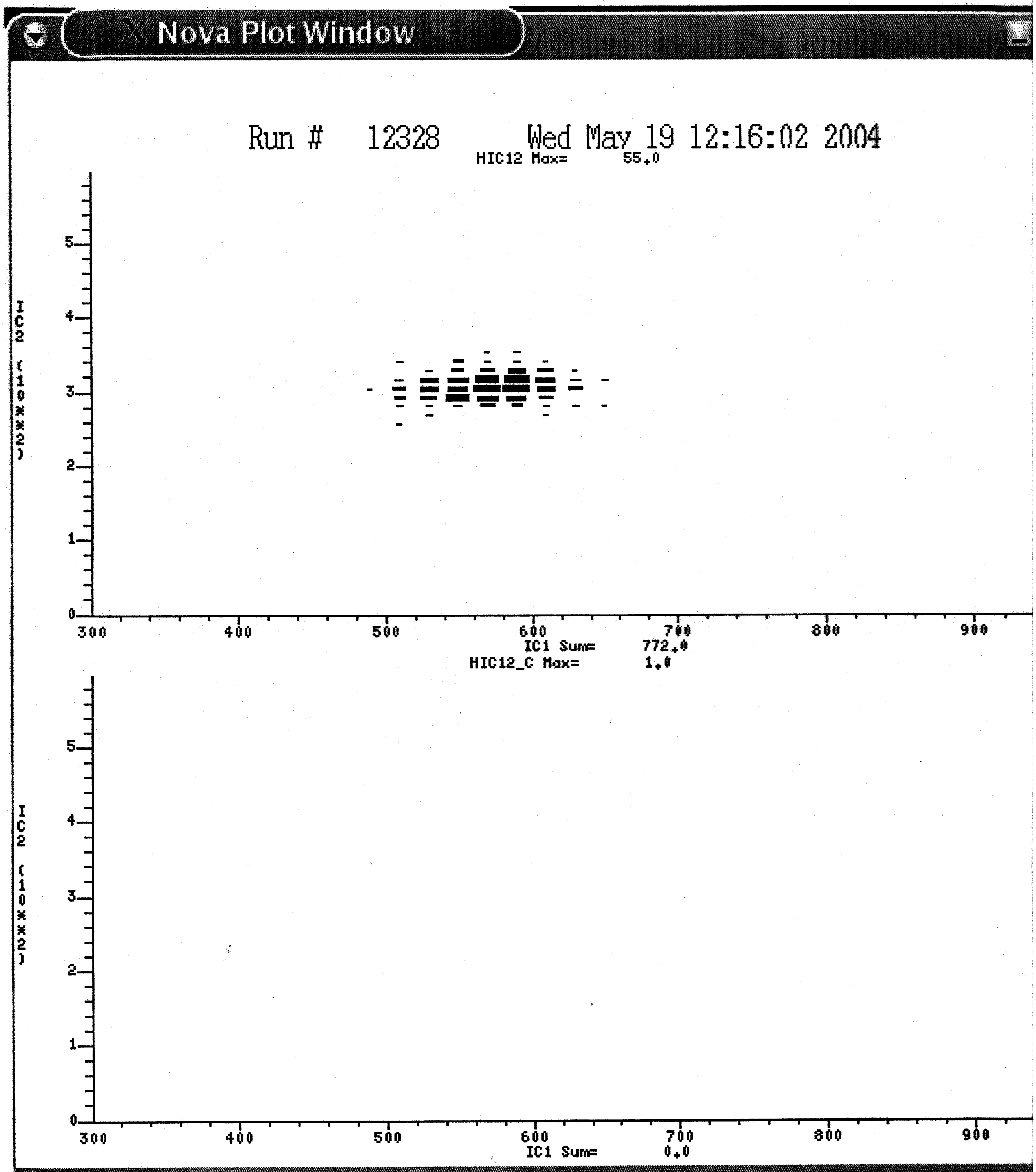

X Nova Plot Window
(640.0000)
(740.0000)
X= 740.000 Counts= 0.0
Run # 12334 Wed May 19 12:30:17 2004
HIC12 Max= 20.0
X-projection
IC1 Sum= 76.0
HIC12_C Max= 20.0
X-projection
IC1 Sum= 12.0

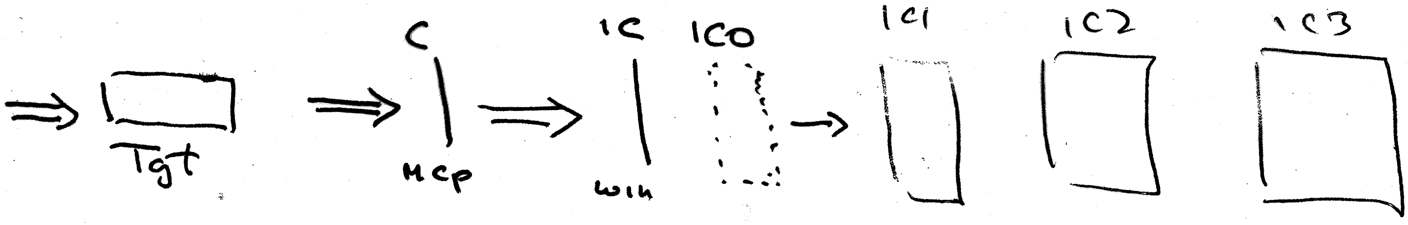

Nova Plot Window
Run # 12328 Wed May 19 12:37:09 2004
HIC12 Max= 1323.0
X-projection (10**2)
IC1 Sum= 5655.0
HIC12_C Max= 1.0
X-projection (10**-1)
IC1 Sum= 0.0

$^{26g}Al(p,\gamma)^{27}Si$; $E_b = 389$ keV/u

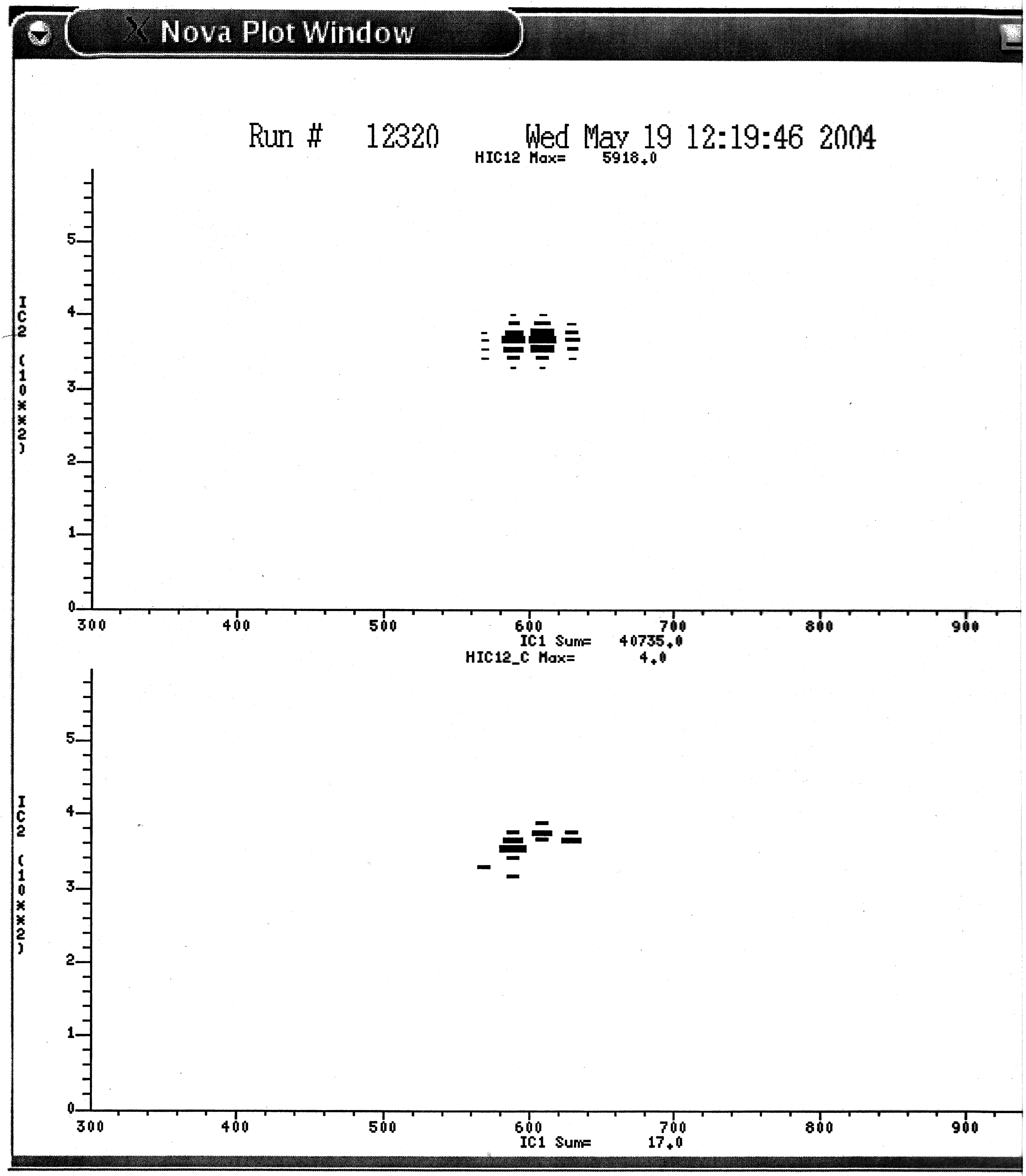


[^{26}Al + ^{26}Na (~10%)] beam, E_b = 389 keV/u





^{26}Mg beam, $E_b \sim 389$ keV/u



- Ratio of count rates $\frac{^{26m}Al}{^{26}Na} = 0.094$
- Factor in $\frac{1}{\tau}$'s of decay rates, then

$$\frac{^{26m}Al}{^{26}Na} = 0.49$$ (overcorrection?)*

- β-monitor is highly more efficient at counting β's from ^{26}Na than it is for ^{26m}Al

$$E(^{26m}Al) = 3.21 \text{ MeV} \Rightarrow \varepsilon = 0.00276$$

$$E(^{26}Na) = 7.4 \text{ MeV} \Rightarrow \varepsilon = 0.5125$$

$$\text{c.f. } E(^{21}Na) = 2.51 \text{ MeV} \Rightarrow \varepsilon = 0.000134$$

This would imply $\frac{^{26m}Al}{^{26}Na} = \underline{91.6}$!!

* $\frac{^{26m}Al}{^{26}Na} = 17$ if no overcorrection.

~~If 8π ratios correct ($\frac{1}{60}$) then $I(^{26m}Al) \sim 2.5\times10^6$ s~~

8π claim $\frac{^{26m}Al}{^{26}Na} = \frac{1}{60}$! ~~$I(^{26}Na) \sim 2.7\times10^4$ s~~

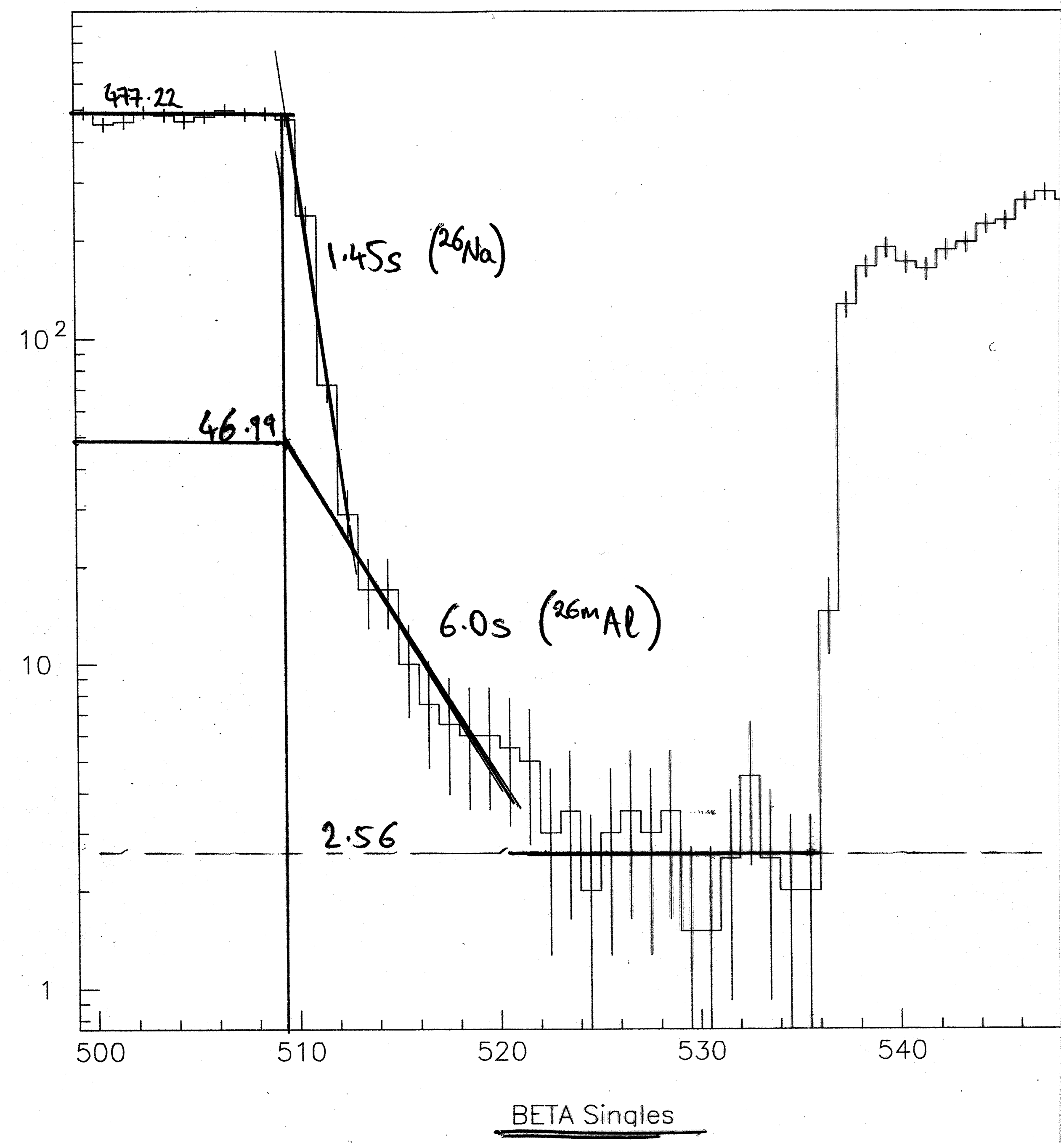
Quick estimate of $\omega\gamma$ gave 45 meV
c.f. 65 ± 18 meV
(L.B)

III Relative

TITLE Contamination Measurements Using β-monitor

Project No.______
Book No.______

From Pa



Therefore, if efficiency was same for ^{26m}A

$^{26m}Al / ^{26}Na \simeq \frac{44.43}{474.66} = 9$

Need to now factor in relative β-detection

To

Witnessed & Understood by me, | Date | Invented by | Date

Anode pulse height spectra (simulated)