PQB Meeting

Intermediate Frequency (IF) Cards Study
& BPMs Summary

March 24, 2009

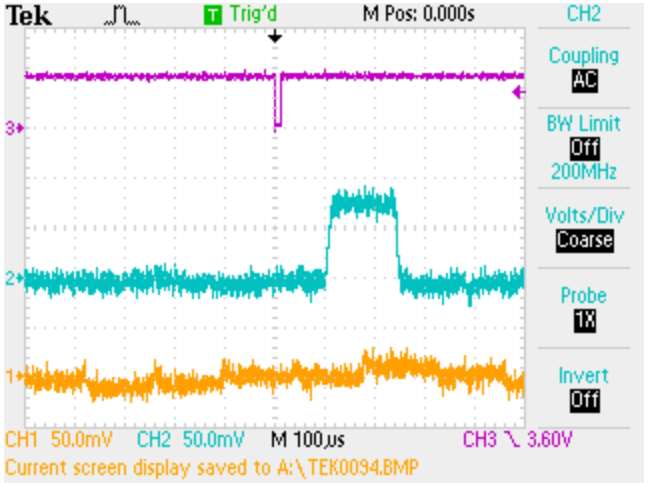
TRANSPORT IF Cards

TRANSPORT IF Cards

Notes:

1. Chan 1: 1I02 X+, Chan 2: 1I02 X-, Chan 3: T_Settle (Trigger)

Pockels Cell ON



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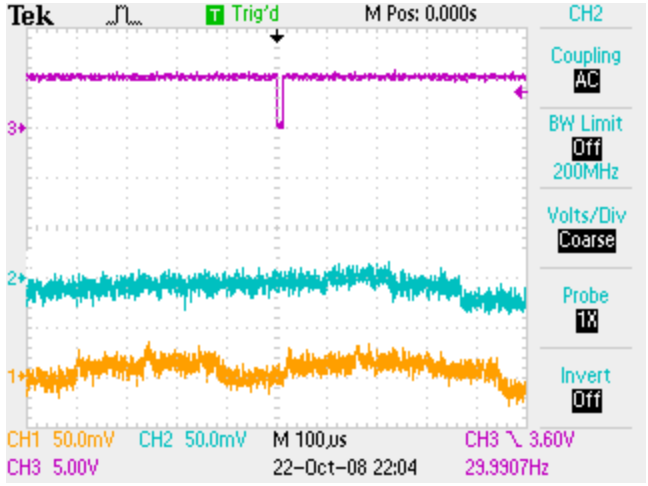

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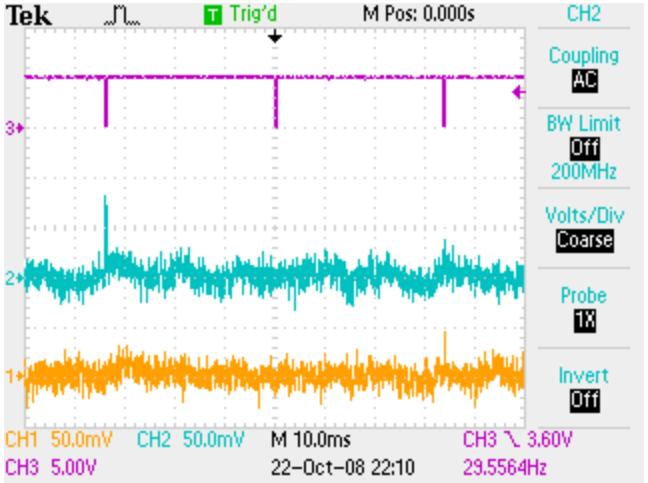

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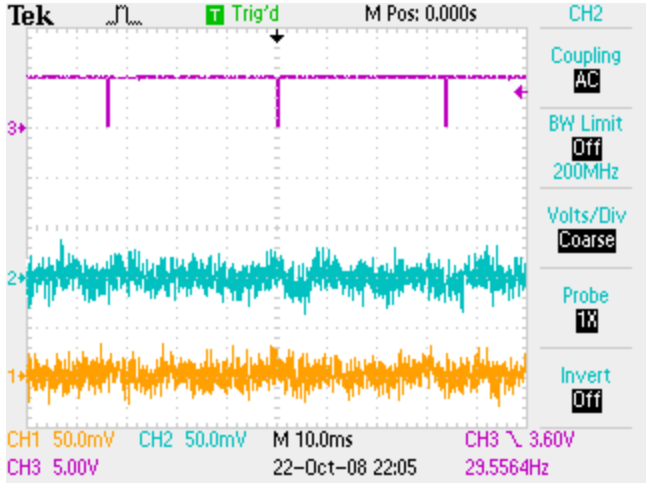
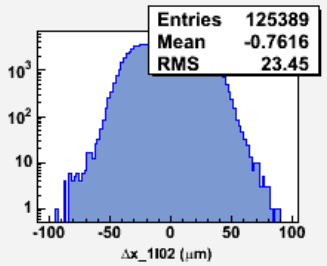
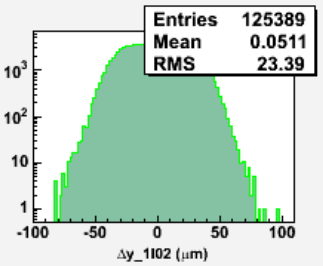
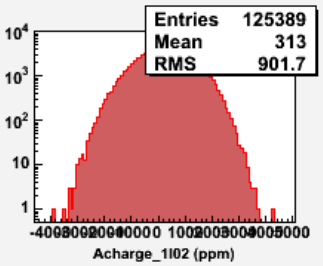


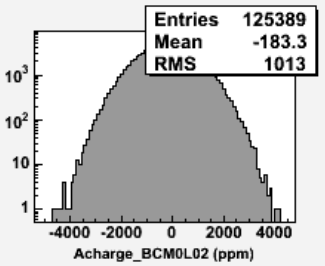
PC ON
1 kHz
100 µs

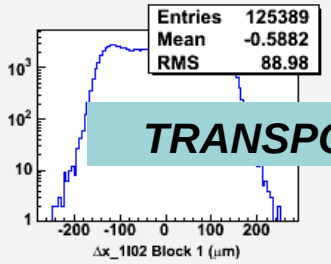
TRANSPORT IF Cards

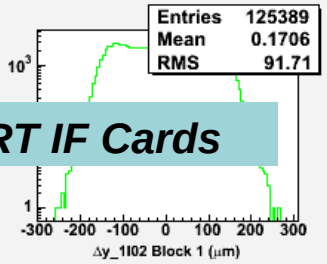


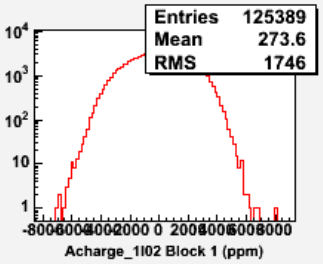


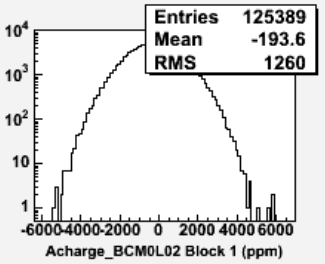


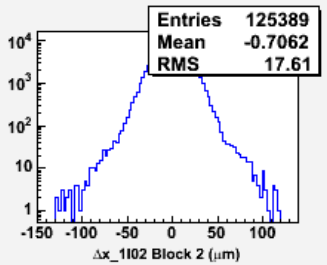


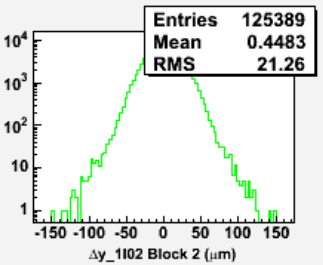


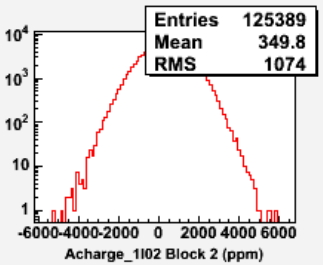


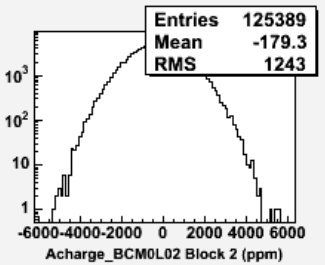


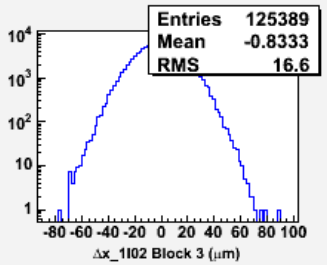


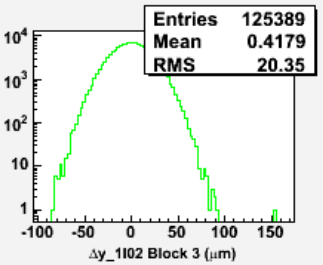


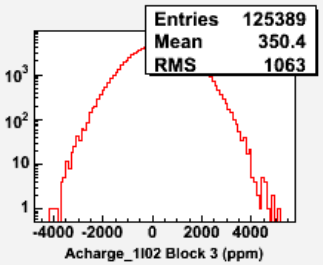


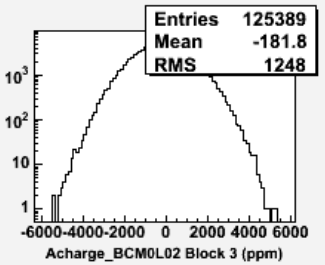


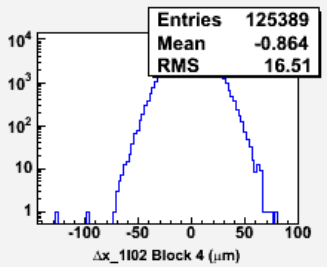


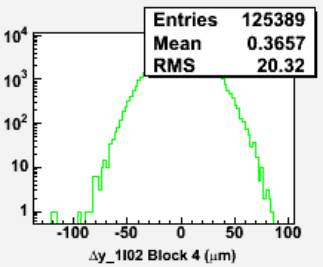


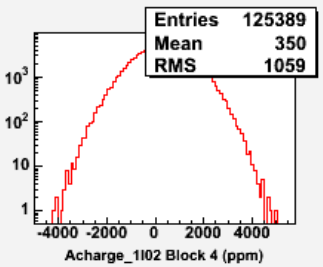


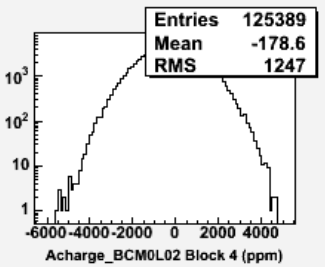












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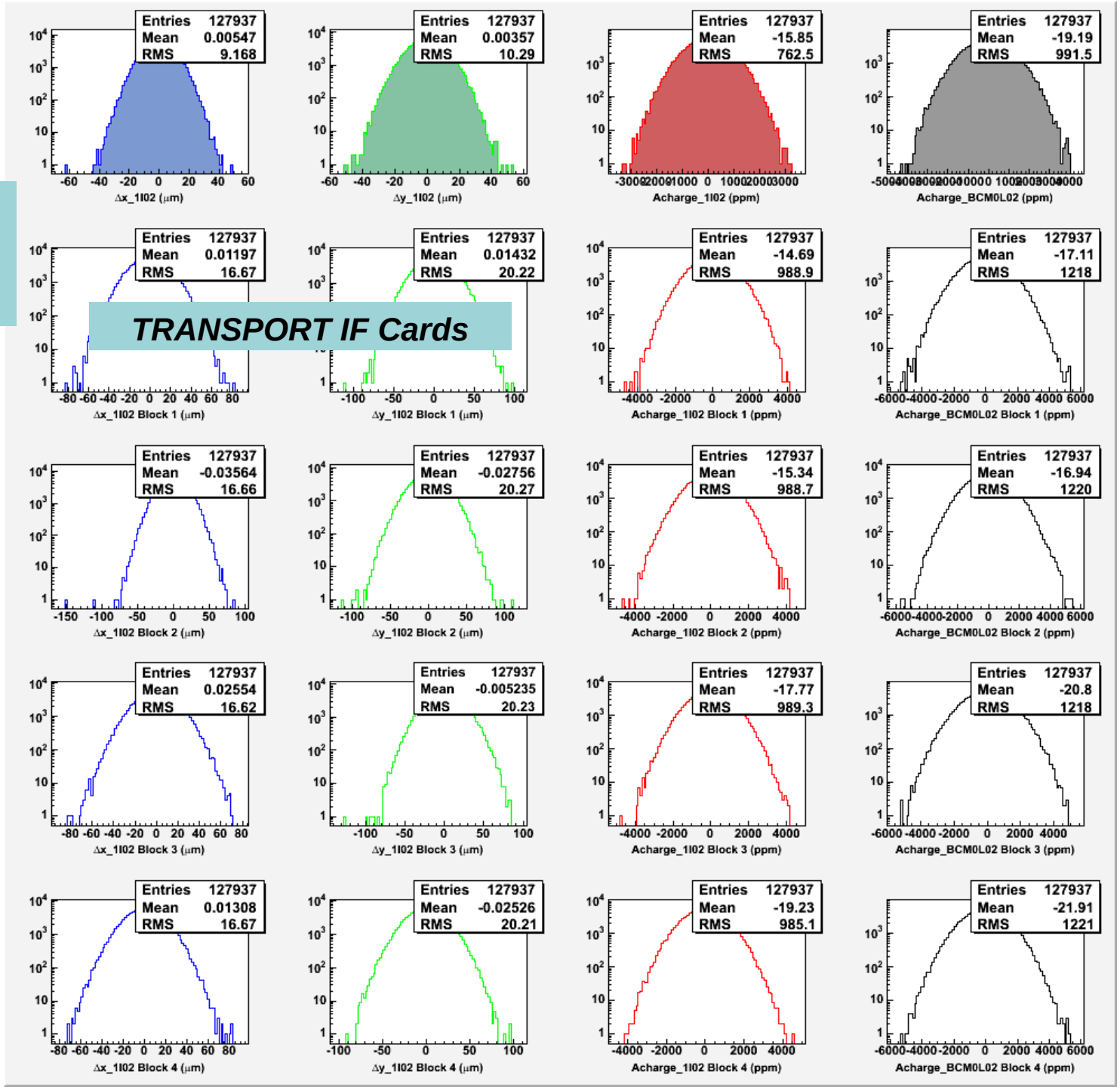
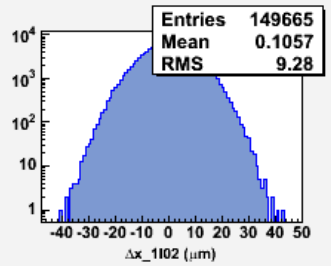
1 kHz
100 µs

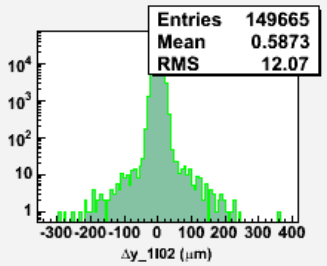


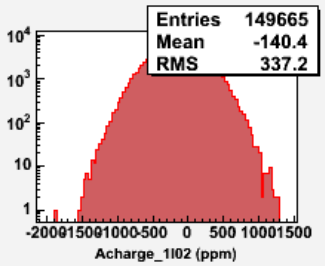
LINAC IF Cards

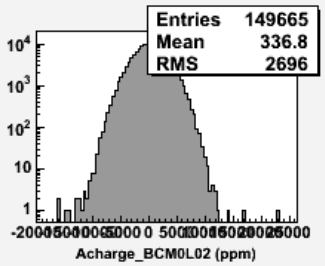
PC ON
1 kHz
500 µs

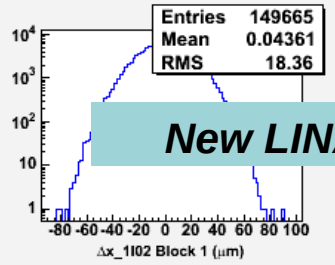
New LINAC IF Cards

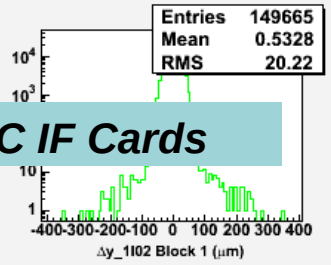


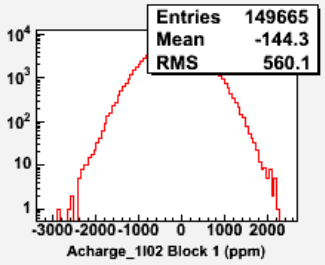


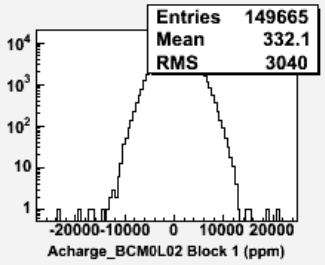


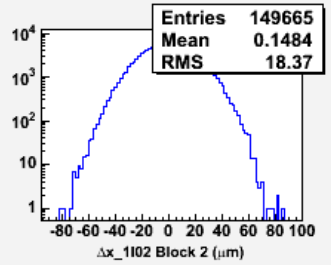


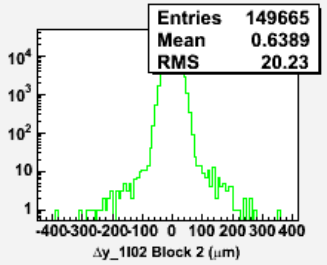


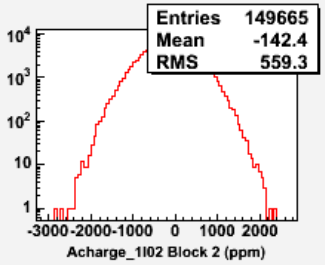


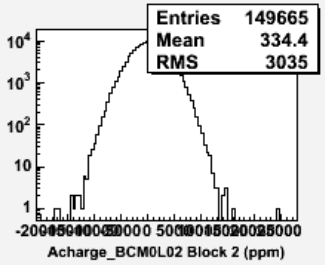


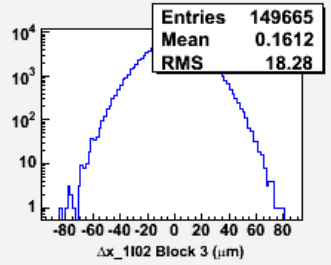


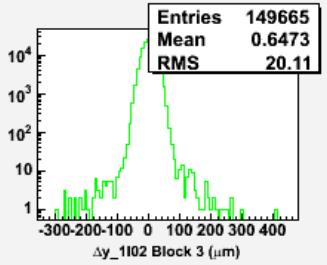


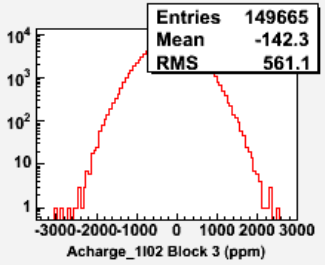


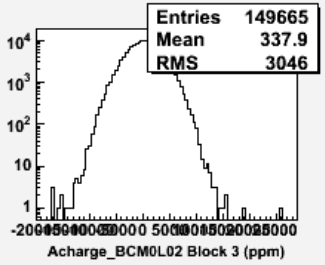


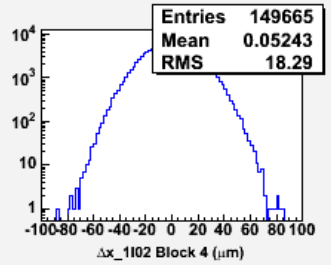


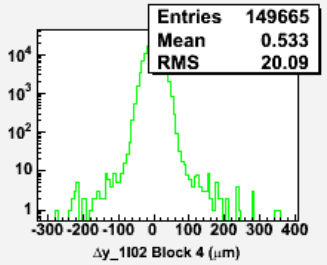


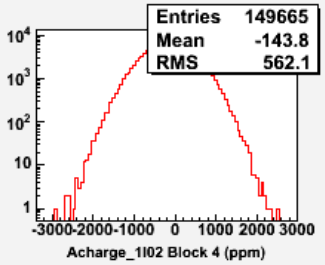


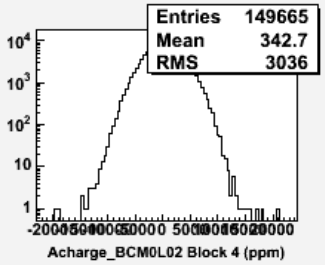




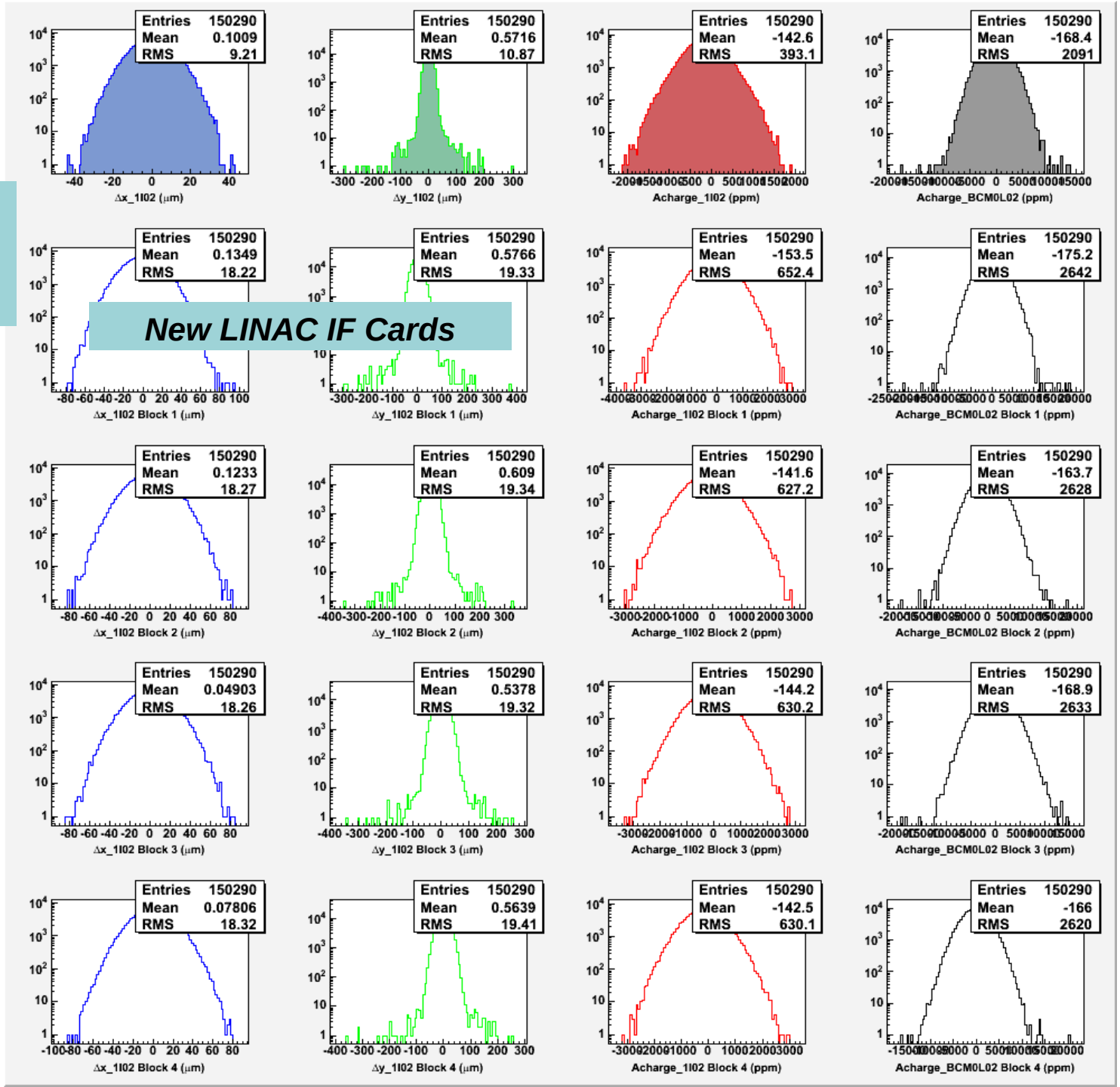




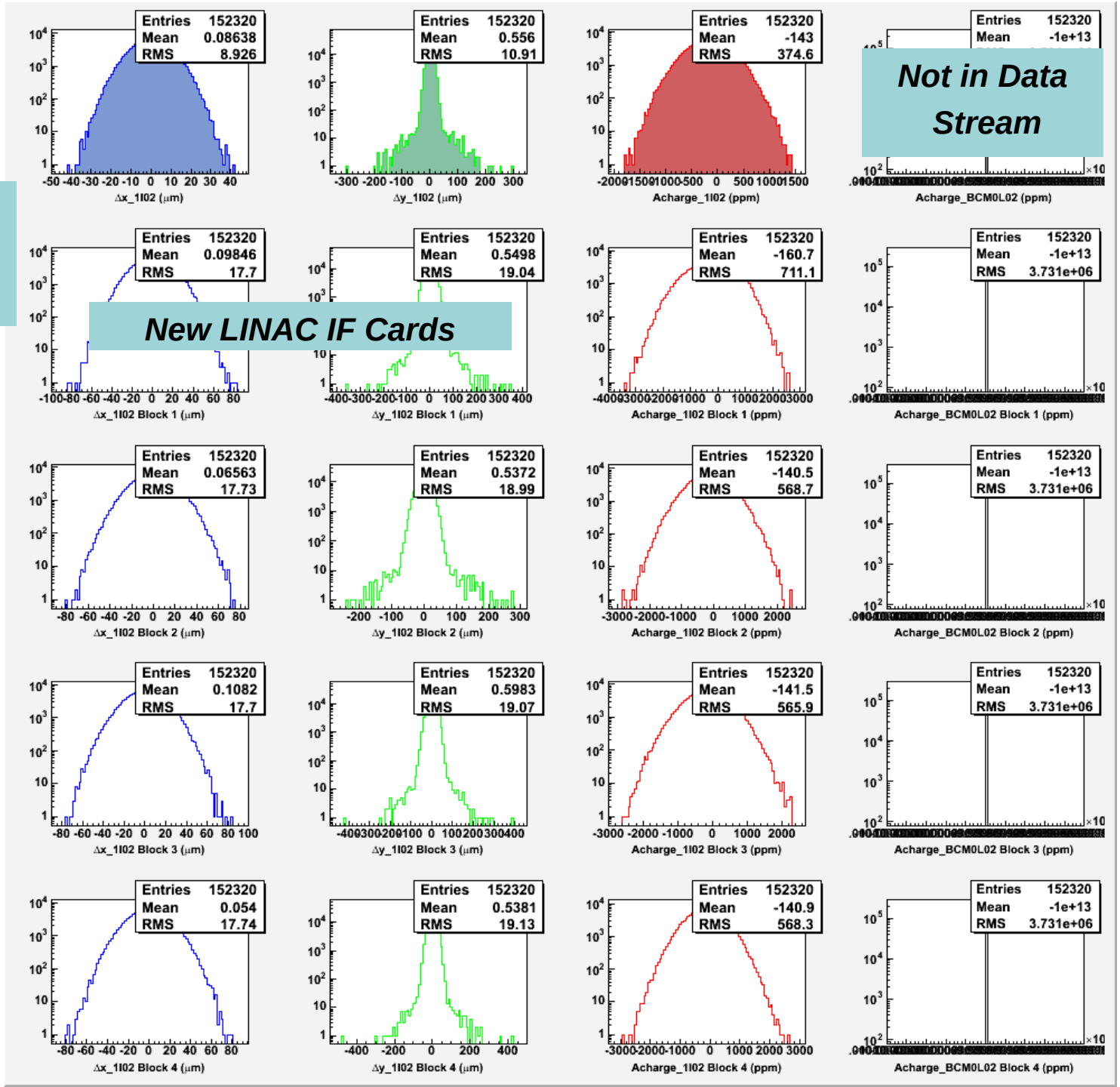




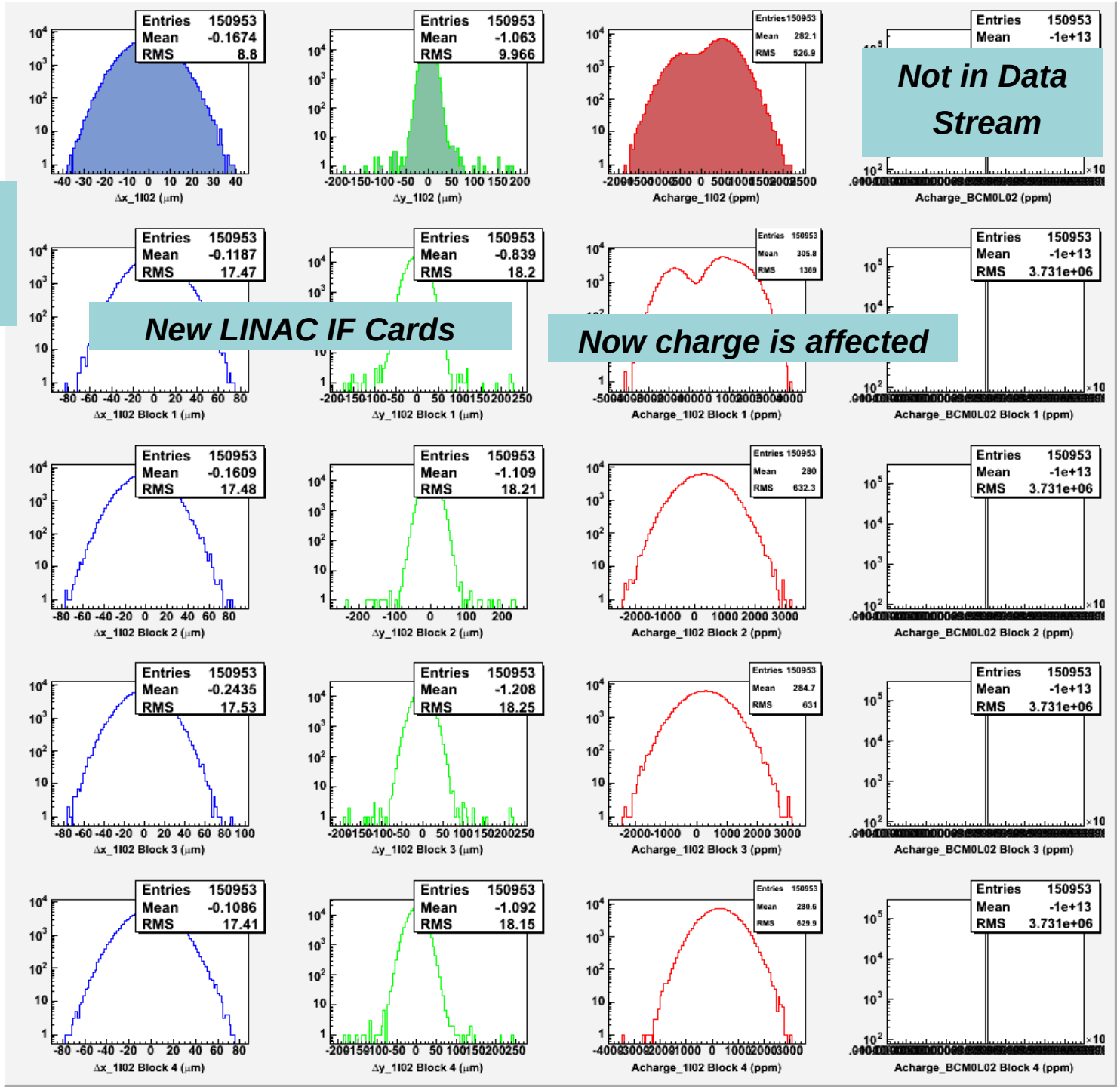
PC ON
1 kHz
100 µs



PC ON
1 kHz
60 µs



PC ON
1 kHz
10 µs



IF & S/H Cards Summary

Notes:

1. All BPMs have SEE TRANSPORT RF electronics, we are only changing the IF cards:

	TRANSPORT IF Card	LINAC IF Card
Sample Time	140 µs	8.6 µs
Fixed Delay	70 µs	4.3 µs

2. SEE TRANSPORT RF has a dynamic range of 70 nA – 200 µA

3. y-position differences very often have outliers, observed since last October, why?

Injector BPMs:

1. iocse11:
    I. 1I02, 1I04, 1I06, 0I02, 0I02A, 0I05, 0I07
    II. LINAC (changed from TRANSPORT in Jan 09)

2. iocse19:
    I. 0L01, 0L02, 0L03, 0L04, 0L05, 0L06, 0R05, 0R06
    II. TRANSPORT
    III. 0R06 needs S/H card

3. iocse12:
    I. 0L07, 0L08, 0L09, 0L10, 0R01, 0R02, 0R03, 0R04
    II. TRANSPORT
    III. No space for S/H cards for 0R03 and 0R04

Modifications:

I. Need one S/H card for 0R06 and cables to Parity DAQ (1 S/H card)
II. iocse11 IF cards were changed (7 IF cards)
III. Need to change iocse19 and iocse12 IF cards to LINAC (16 IF cards)
IV. For iocse12, need to drop 0R01 and 0R02 instead of 0R03 and 0R04

Hall A BPMs:

1. iocse8:
    I. 1C01, 1C02, 1C03, 1C04, 1C05, 1C06, 1C10, 1C00
    II. TRANSPORT
    III. Only 1C10 has S/H card
    IV. Crate has 7 empty slots

1. iocse9:
    I. 1C07, 1C08, 1C11, 1C12, 1C14, 1C16, 1C18, 1C20
    II. LINAC
    III. Only 1C08 and 1C12 have S/H cards
    IV. Crate has 1 empty slot

2. iocse10:
    I. 1P02A, 1P02B, 1P03A, 1H01, 1H04A, 1H04B
    II. LINAC
    III. All have S/H cards
    IV. Crate has an extra S/H card

Modifications:

I. Move the S/H card from iocse8 to iocse9 to be used with 1C14
II. Remove the extra S/H from iocse10
III. Does PREx have any other needs?

Hall C BPMs:

1. iocse18:
    I. 4C00, 3C01, 3C02, 3C03, 3C04, 3C05, 3C06, 3C07A, 3C10, 3C17, 3C00, 3C19
    II. TRANSPORT
    III. Only 3C07A and 3C17 have S/H cards
    IV. Crate full, no space for S/H cards

2. iocse14:
    I. 3C07, 3C08, 3C11, 3C12, 3C14, 3C16, 3C18, 3C20
    II. TRANSPORT
    III. Only 3C08, 3C12, and 3C16 have S/H cards
    IV. Crate has 1 empty slot

Modifications:

I. No changes to iocse18
II. iocse14 IF cards to LINAC (8 IF cards)
III. Move One S/H card from iocse14 to a VME next by. Use S/H Communication Extender card and add 5 S/H cards to this crate. Hall C to pull cables from BSY to Parity DAQ (5 S/H cards)

3. iocse17:
    I. 3C17A, 3C20A, 3H00, 3H00A, 3H00B, 3H00C
    II. LINAC
    III. 3C17A has no S/H card
    IV. Crate has 4 empty slots

Modifications:

a. 3P01A, 3P02A, 3P02B, 3P03A, 3C21, 3C21A, 3H00, 3H00A
b. Need 3 S/H cards
c. Need 2 LINAC IF cards

4. iocse20 (New Crate):
    I. 3H00B, 3H00C, 3H00D, 3H00E, QWEAK, QWEAKA, QWEAKB
    II. New BPMs and Old G0 BPMs
    III. Old G0 BPMs have TRANSPORT IF cards
    IV. Old G0 BPMs have S/H cards

Modifications:

I. Need 7 LINAC IF cards
II. Need 5 S/H cards

Modifications Summary

I. New VME Crate
II. Need 13 S/H cards
III. Need 40 LINAC IF cards
IV. Hall C is responsible for Cables from new S/H cards in BSY and Hall C to Parity DAQ

Cost Summary

I. FY09:
    I. Filters for LINAC IF cards, 2 Filters per card, plus 20 spare Filters. Total of 100 Filters, each $240: $24k

II. FY10:
    I. 13 S/H cards (each $1k): $13k
    II. BPM electronics, Crate and ioc, 6 new BPMs in Hall C line: $25K