Manual and tricks with DT5780 digitizer for HPGe

29. ledna 2016

1 Ta 15 measurement 25.1.2016

Lead chateau - CLOSE.
From root files : countrate 95 cps, measurement time 18:20 minutes.
Table in mc2:
Time 66038.605 seconds, live time 64926.224, spectrum counts 6225879, total counts 6332547.

.	List	N42
Total	6332547	6225879
PileUP	34078	106668?is_difference
dt	0.54%+0.62%	1.68%
ElessZero	34600	Unknown
Ehigher16370	3517	3522
Saturation	39498	Unknown
Area1460	63025	62837.7

What is the correct formula for the dead time in LISTMODE?
NOT - because contradition to high rate $2 \times PileUP + Saturation/Total$
$PileUP + Saturation + ElessZero/Total$
Both give approx. 108 000 which is simmilar to what is expected

OR $2 \times PileUP + Saturation + ElessZero/Total$ gives 142 000, which is 2.2% - NOT due to high rate contradiction
Saturations than 0.6 cps

2 Test 26.1.2016

2.1 60Co - Co60p8

: rate 9.9e+3 cps, deadtime in mc2 = 14.5%.
Run - Cobalt - pos8 - start 14:34 - actual 13500 cps, 19% DT. Pb-chateau open.
Realtime 4646 sec.
RESULTS:
K-40 line:

.	List	N42
Total	61553k	50633k
PileUP	10914k	10920k?is.difference
dt	17.73%	19.2%
ElessZero	2761	Unknown
Ehigher16370	445	489
Saturation	3224	Unknown
Area1460	13449.4	13557.5

... in Tantal 15: 0.95 cps - CLOSE ... no DT correction
... in 60Co : 2.91 cps - OPEN ... no DT correction
Rates - that are connected to saturations:
High energy TAIL - is connected to saturation.
Less than zero - is connected to saturation.
Lead around ORTEC - is it activated? Low saturation 10x less than with Lead close..
Saturations in average 0.7 cps for all cases.

2.2 152Eu - Eu152p10.n42

rate 6.57e+3 cps, OCR=5.923 cps deadtime in mc2 = 9.88%.
Run - Eu - position 10 - start 16:08 - lead chateau OPEN
Realtime 2618 sec. Count-total 17 209 810 Counts-spectral 15 509 444
RESULTS:

.	List	N42
Total	17059k	15509k
PileUP	1546k	1550k?is.difference
dt	9.07%	9.89%
ElessZero	1755	Unknown
Ehigher16370	872	887
Saturation	1837	Unknown

Saturations - again the same 0.7cps. **Saturations can make problems during low activities - long term measurements ?**