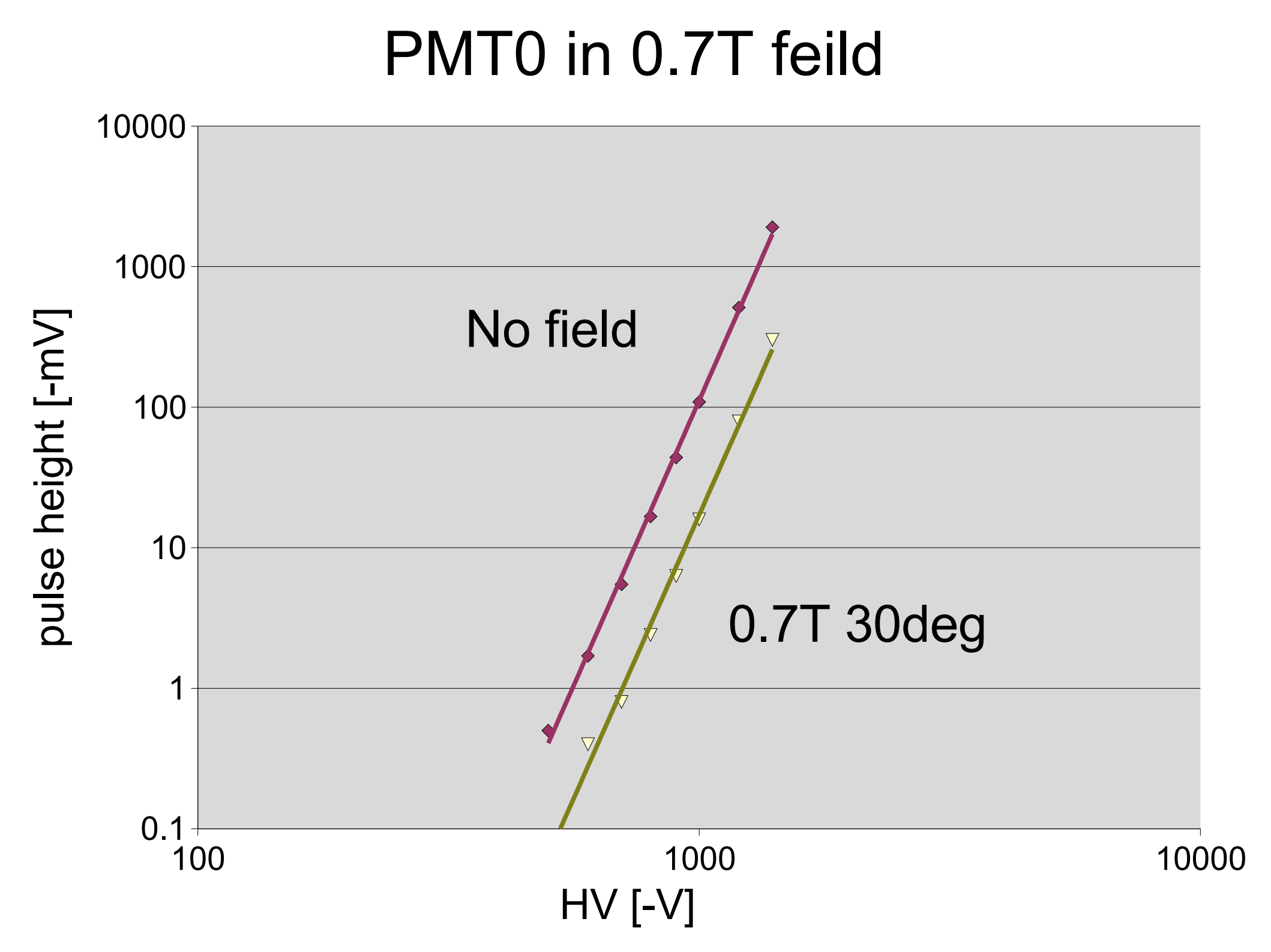
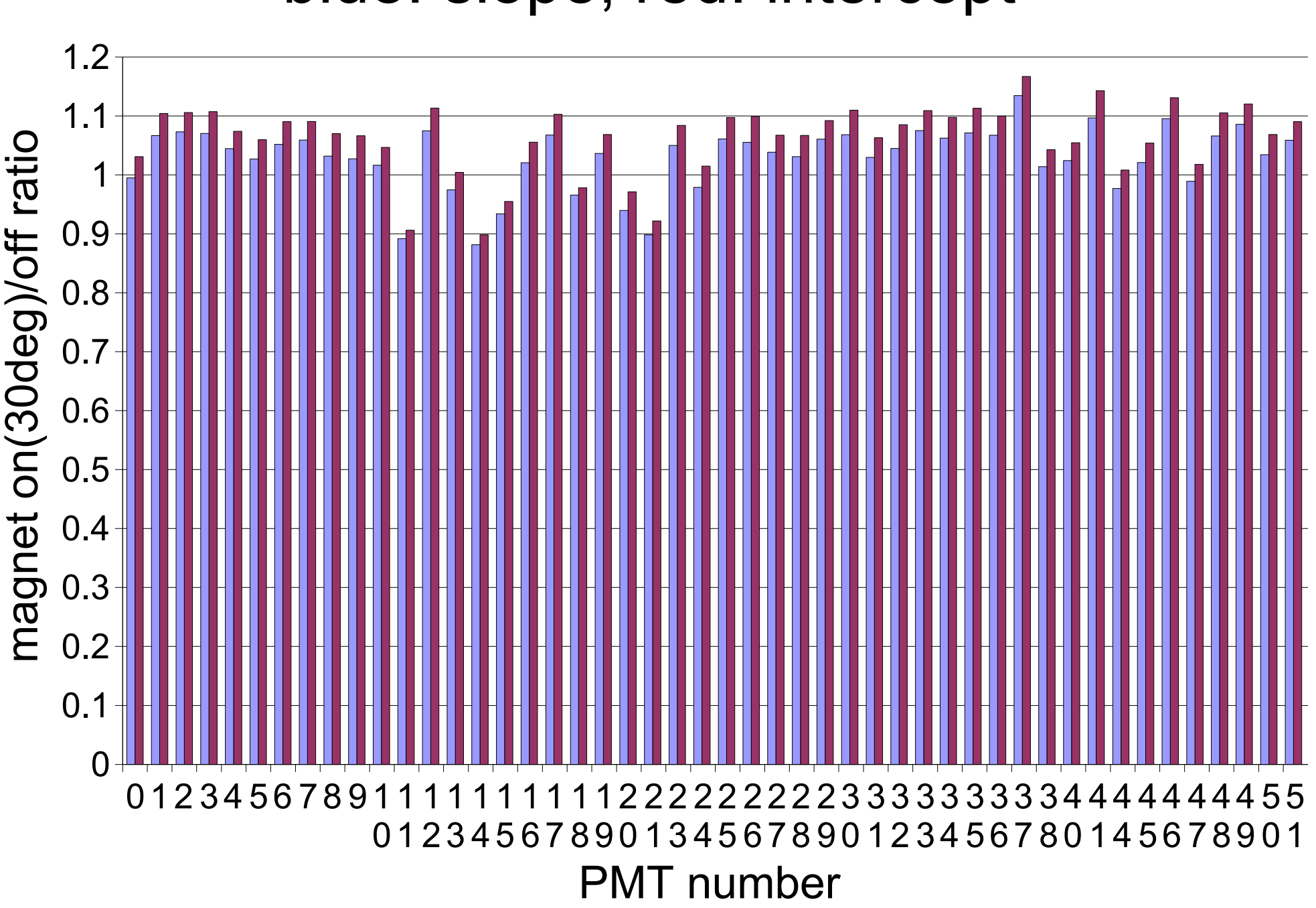

PMT0 in 0.7T feild
10000
1000
100
10
1
0.1
pulse height [-mV]
No field
0.7T 30deg
100
1000
10000
HV [-V]

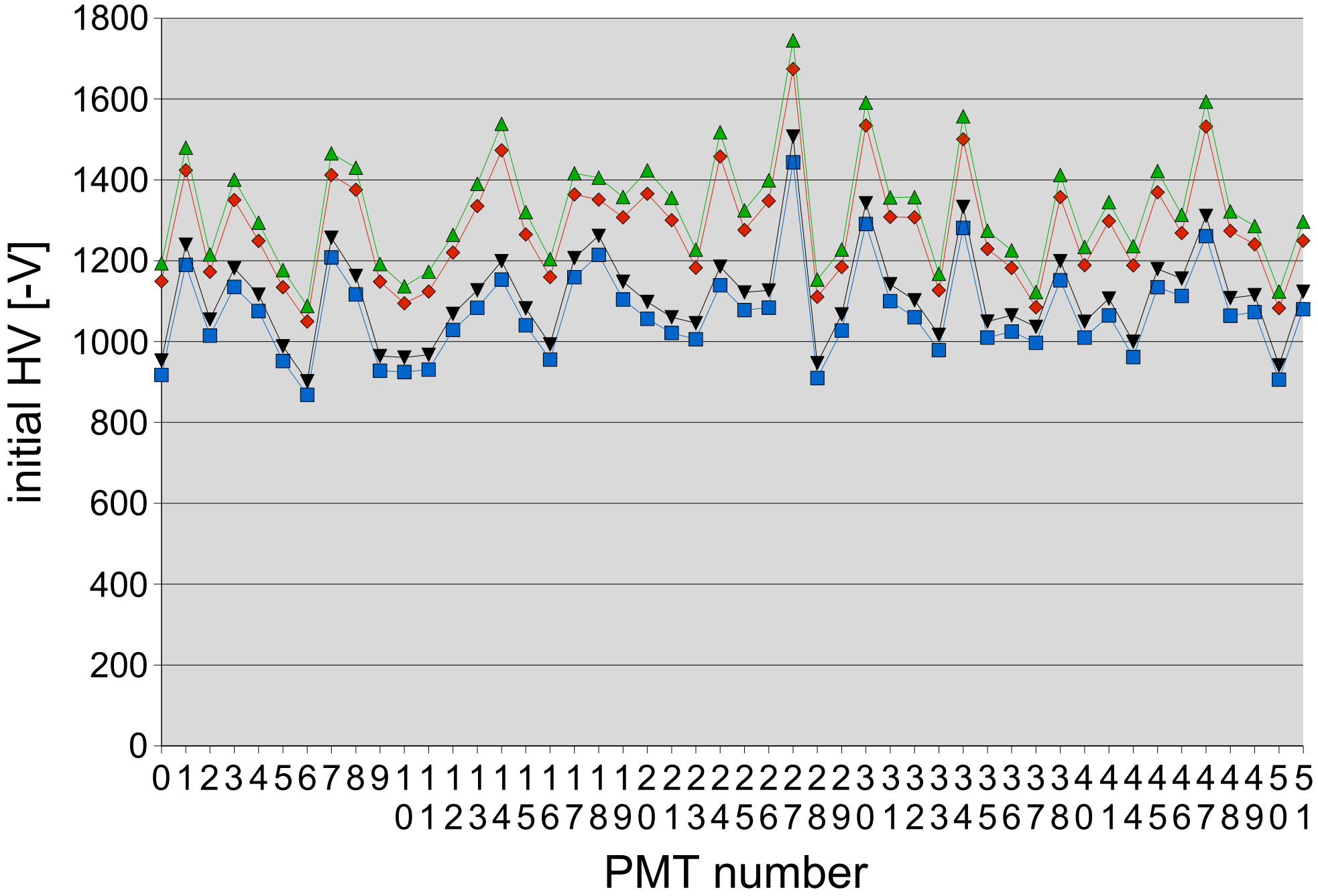
0.7T 30deg

PMT gain in the magnetic field
of 0.7T 30deg is measured for all PMT.
The actual magnetic field is 0.3T 30deg.
Therefore at first I calculated a influence
for gain slope and intercept on 0.7T
and estimated influence them on 0.3T from that.


blue: slope, red: intercept
magnet on(30deg)/off ratio
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5 6 7 8 9 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 5 5
0 1 2 3 4 5 6 7 8 9 0 1 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 0 1 4 5 6 7 8 9 0 1
PMT number

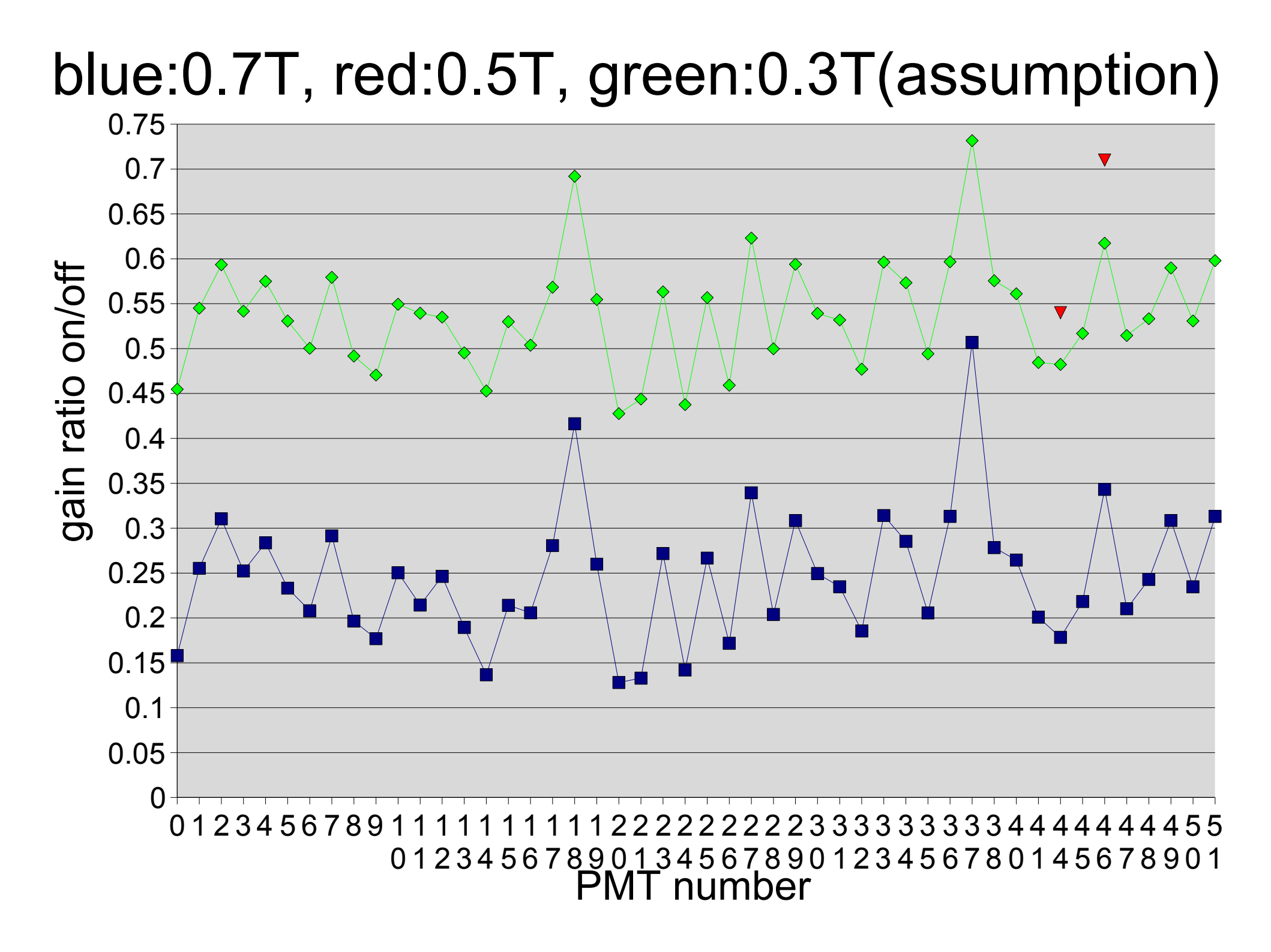
Slope, intercept

B field (30deg,0.7T)/no field
for slope or intercept on log-log.
most them more than 1.
Because intercepts are minus value,
they decrease if more than 1.
We can confirm that
intercepts decrease and slopes increase
from page1.


blue:0T(m1), black:0T(m3), red:0.7T(m1), green:0.7T(m3)
initial HV [-V]
1800
1600
1400
1200
1000
800
600
400
200
0
0 1 2 3 4 5 6 7 8 9 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 5 5
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 0 1 4 5 6 7 8 9 0 1
PMT number

Method1,3 on B field (0.7T)

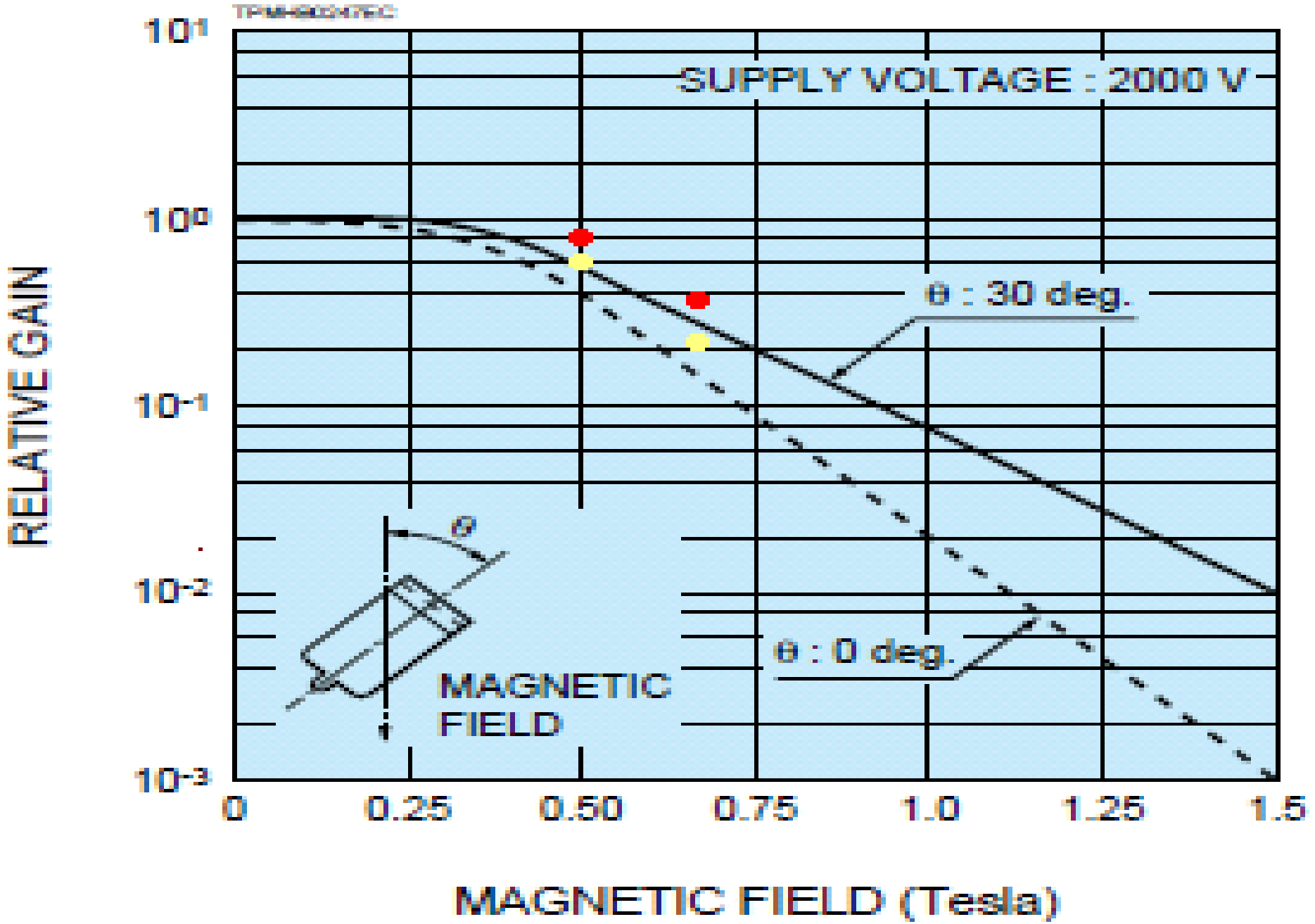
I applied slope or intercept ratio to gain
which I used for no field initial HV
and get gain on 0.7T field.
Max charge (400MIP) comes
on ADC maximum capacity in Method3.
Mean charge (200MIP) comes
on ADC1000ch in Method1.


blue:0.7T, red:0.5T, green:0.3T(assumption)
gain ratio on/off
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51
PMT number

30deg 0.7T on/off

This blue line shows gain ratio
between 0.7T on and off
on the initial HV for “B field”.
These values are about one-fifth.
Red is that of 0.5T for two PMTs.
The green line is estimated for 0.3T by blue line.
It was supposed that
the effect is in proportion to the magnetic field.
But it seems that the supposition is wrong
by comparing green with red.

Fig.7: R5924 & R6504 Typical Gain in Magnetic Fields



specification

The value of gain in 30deg 0.7T or 0.5T field
is same as the specification on HV-2000V.
If same as the specification
on initial HV (-900~1500V),
There is not so influence
from 0.3T 30deg magnetic field.
We can use the same HV
on B field and no field.