

Tile Calorimeterを使い、
Muon Triggerを改良出来るか
否か

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v 1.01

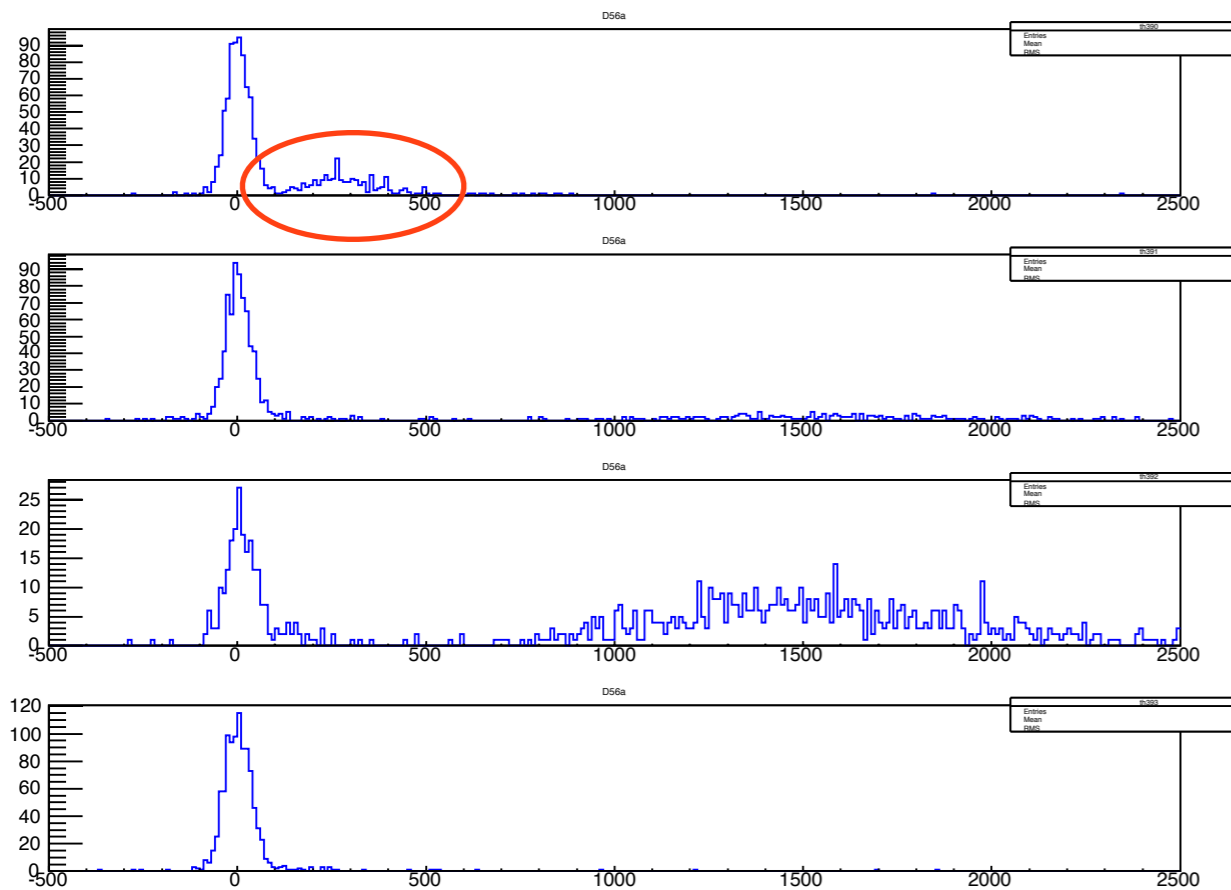
前回からの宿題

- pedestalが汚いTileのModuleを洗い出す
- A-sideよりC-sideの方がefficiencyが低いことを説明せよ。(いくつかのModuleが悪いなどであればそれらを洗い出せ)

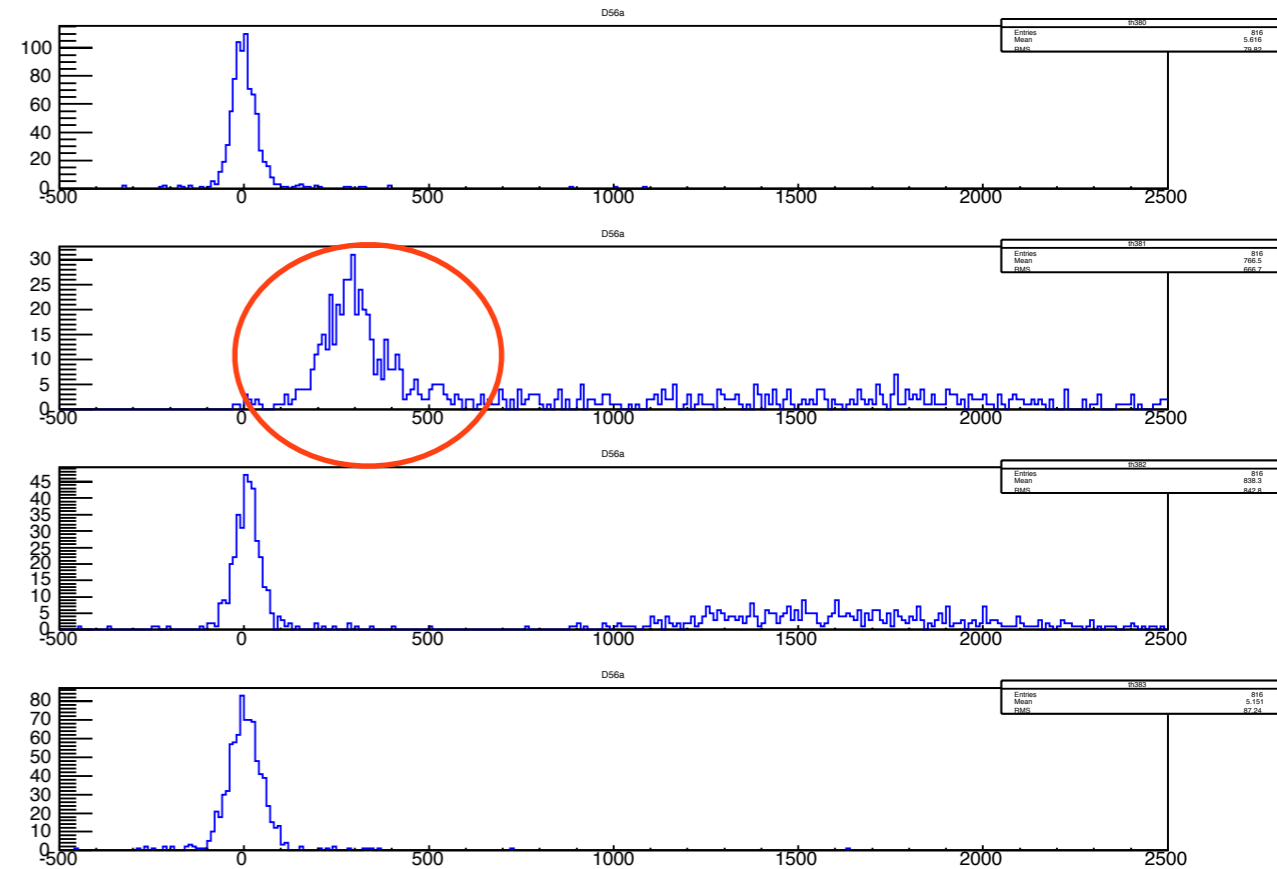
pedestalが汚いModuleの洗い出し

- A-side

sector 19

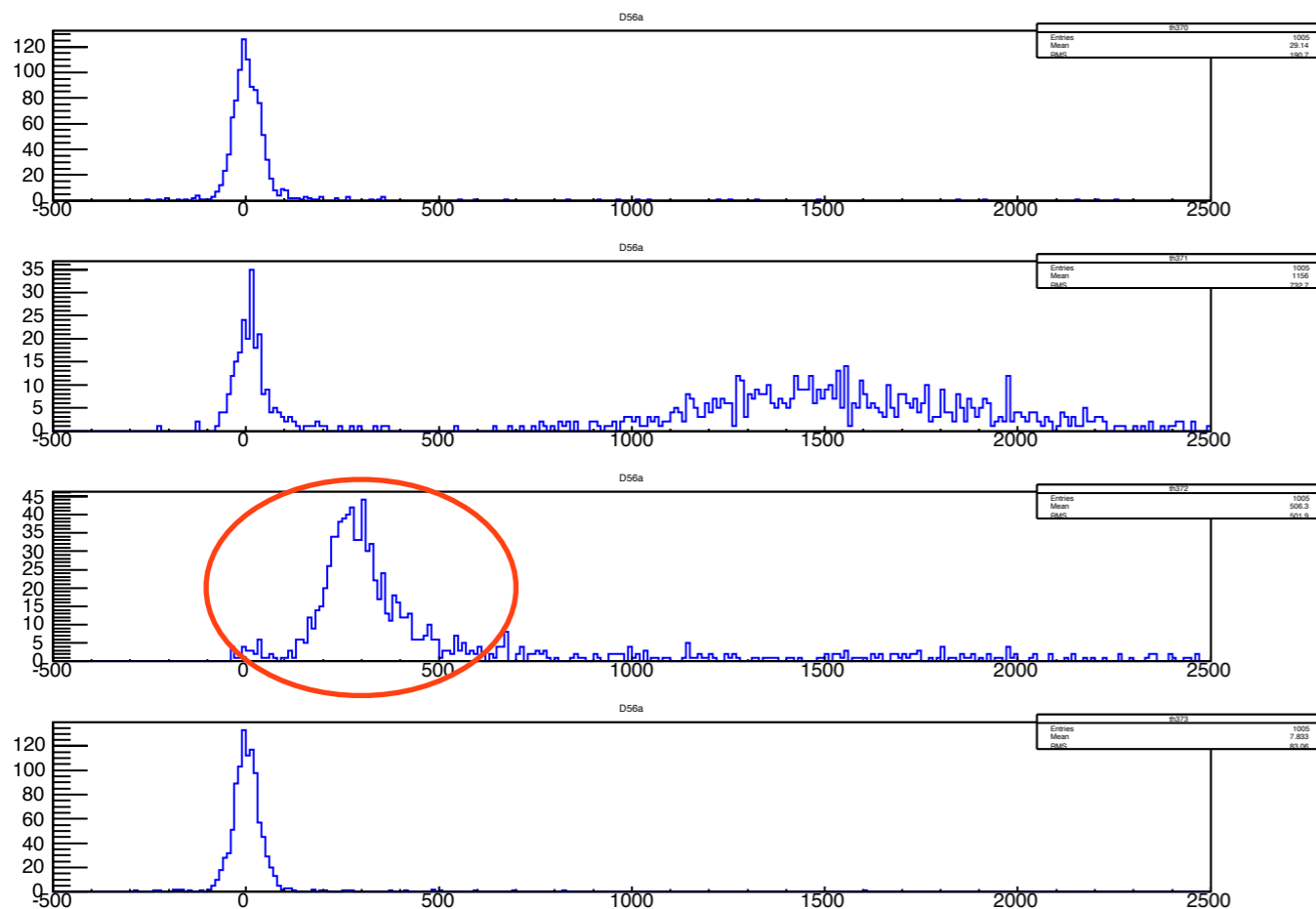


sector 18



pedestalが汚いModuleの洗い出し

sector 17



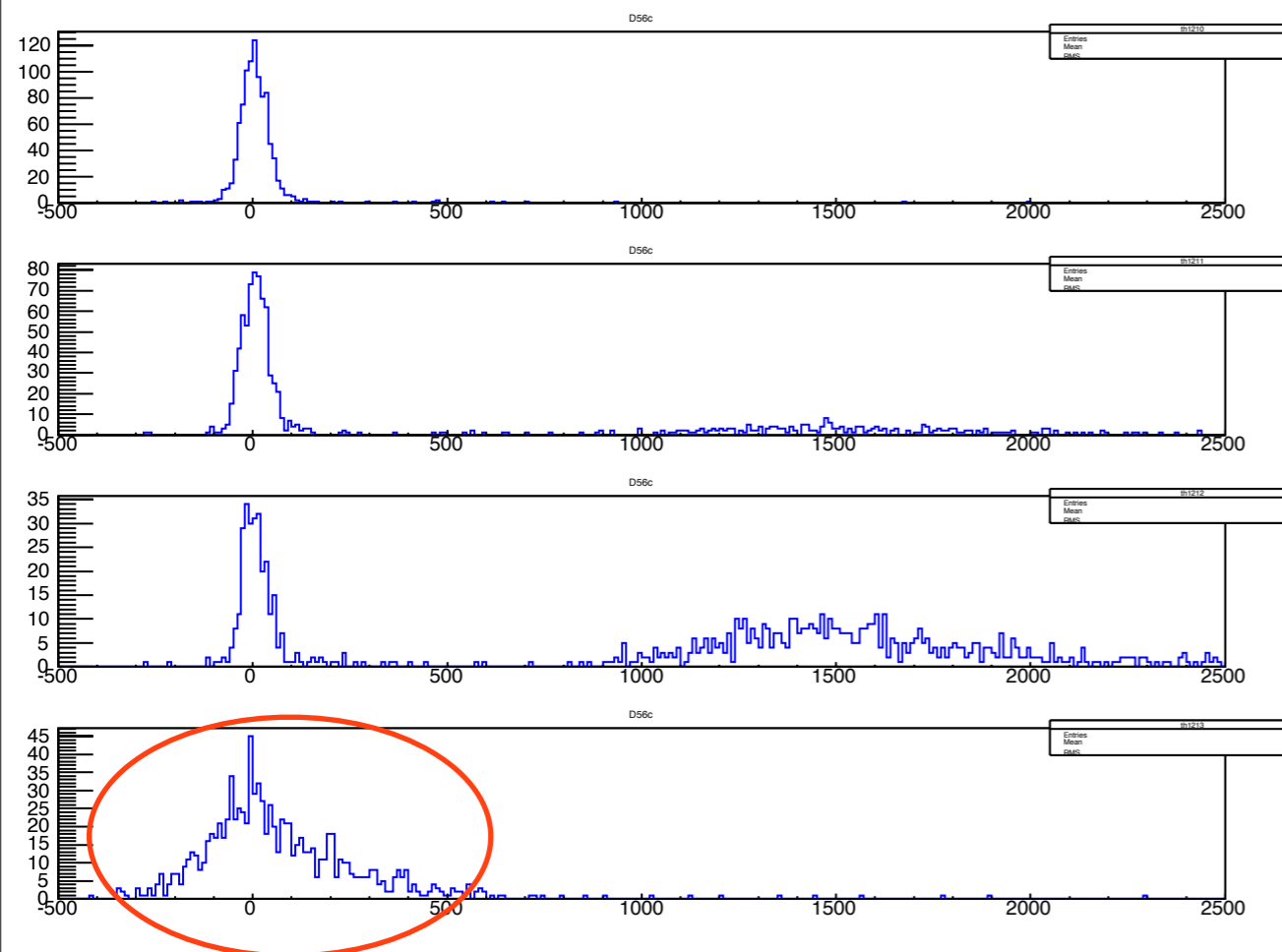
- A-sideでは sector 17, 18, 19 に対応する Tile の Module が汚い。
- Module 21 に対応

注意

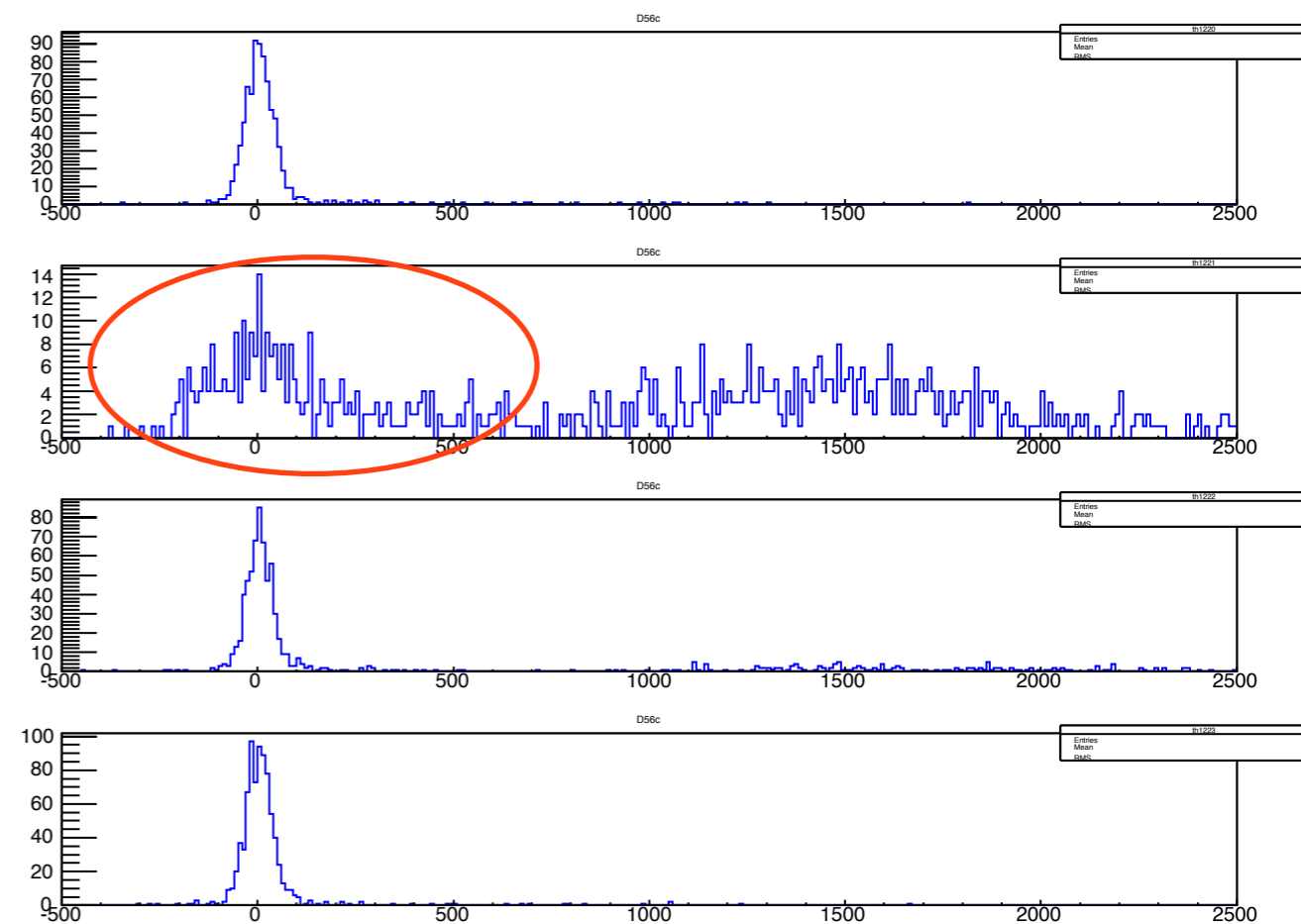
pedestalが汚いModuleの洗い出し

- C-side

sector 01

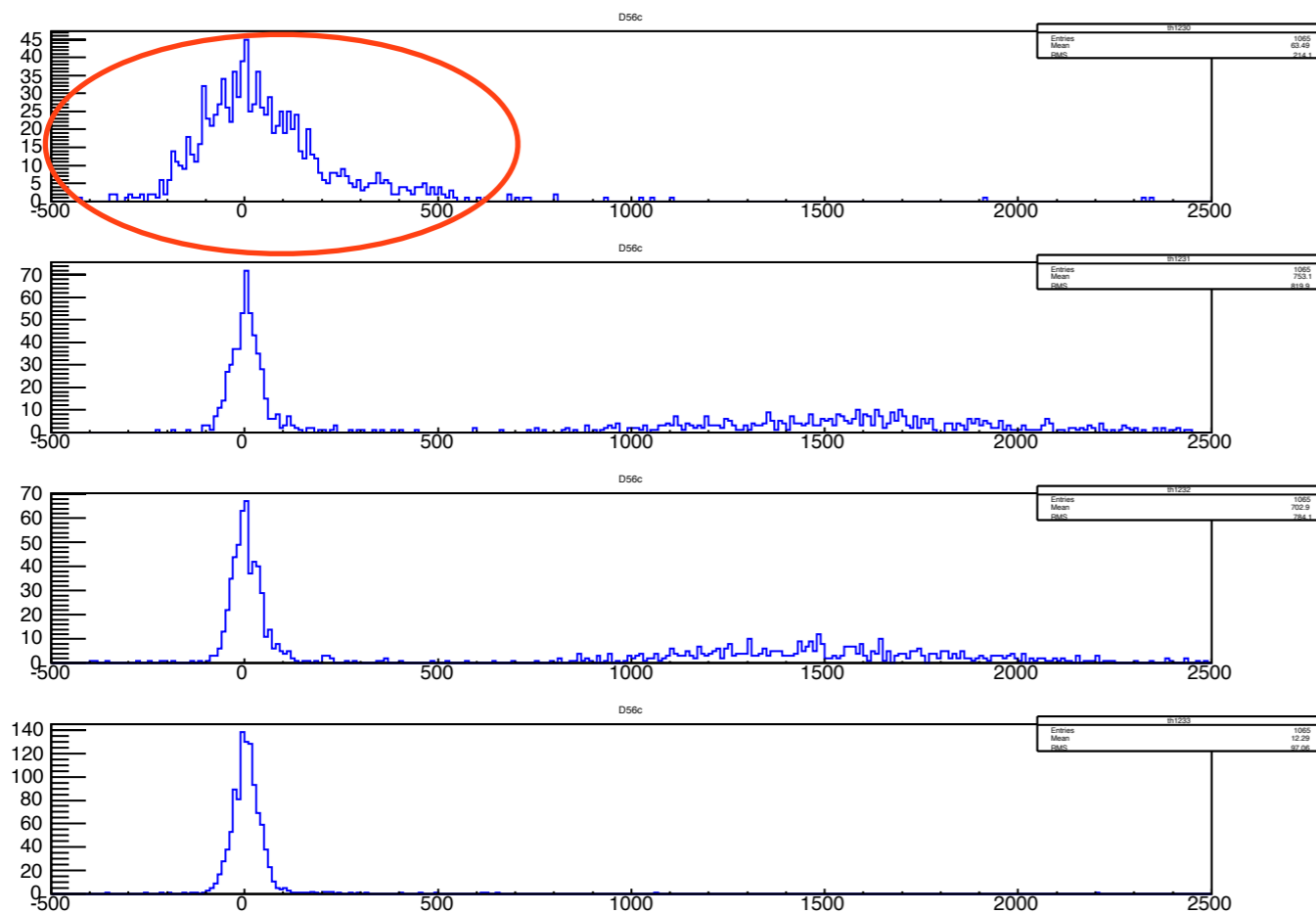


sector 02



pedestalが汚いModuleの洗い出し

Sector 03



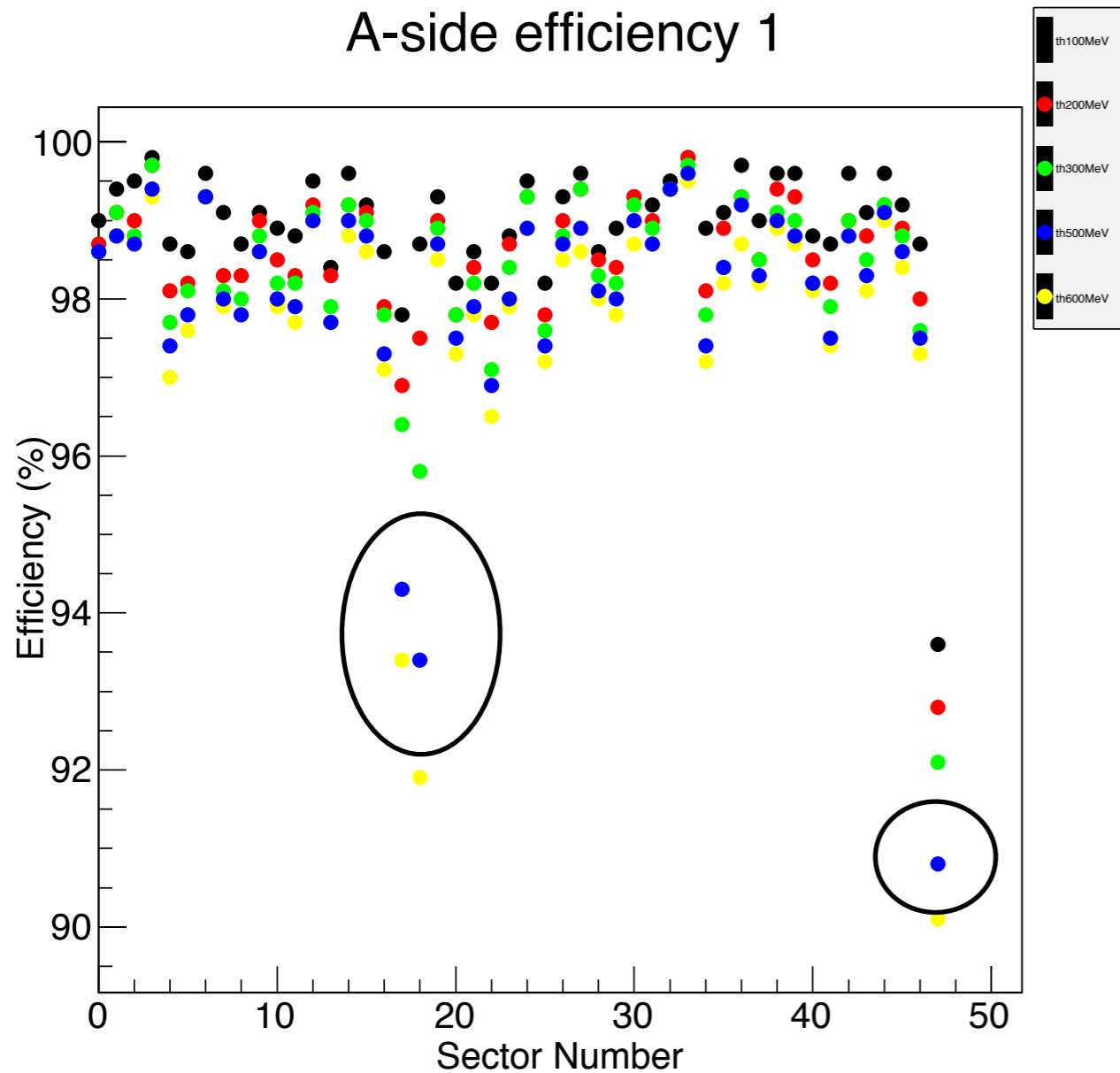
- C-sideでは Sector 01, 02, 03 に対応するTileの Moduleが汚い
- Module 0に対応

注意

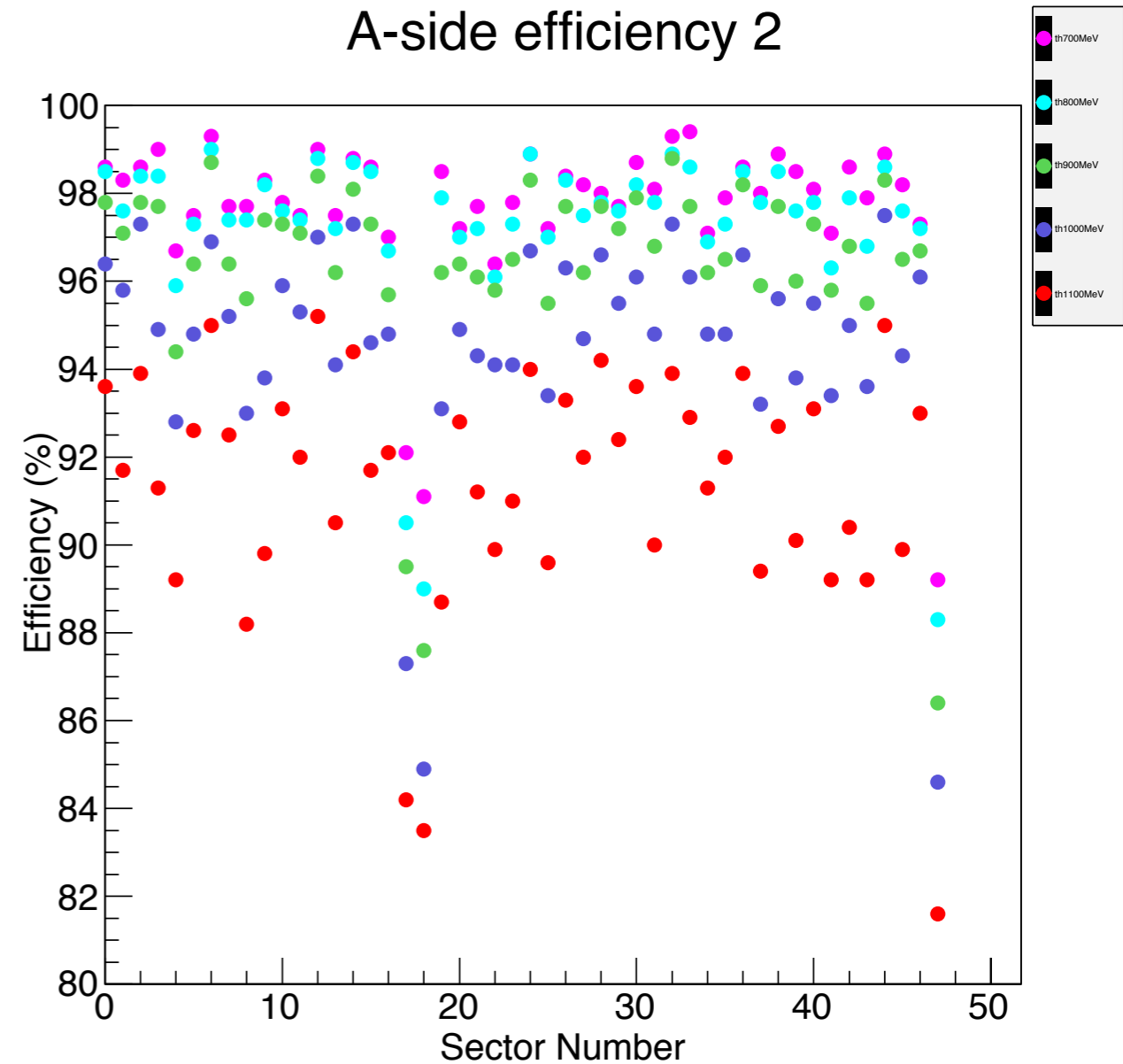
efficiencyの違い

- A-side

A-side efficiency 1



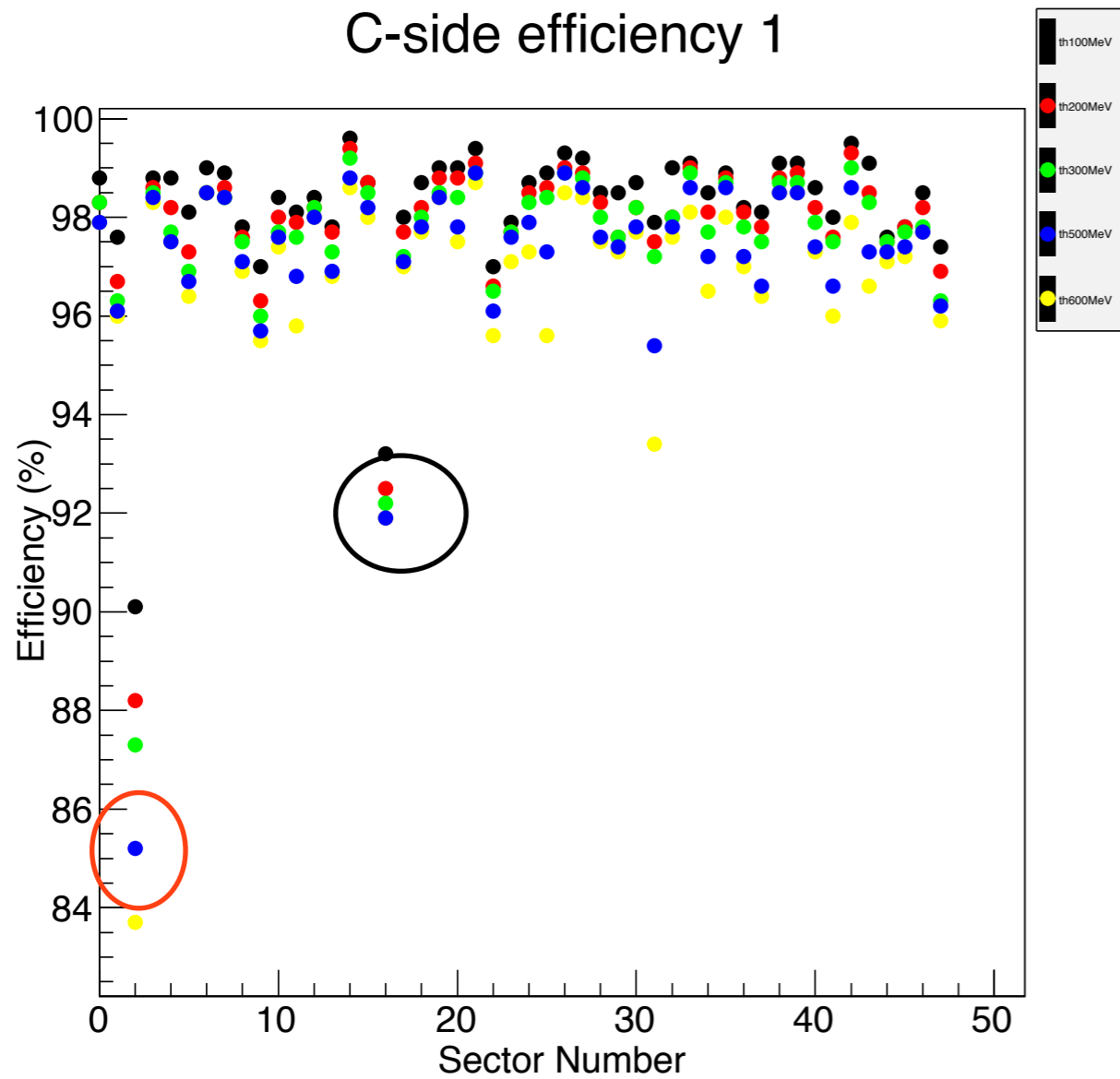
A-side efficiency 2



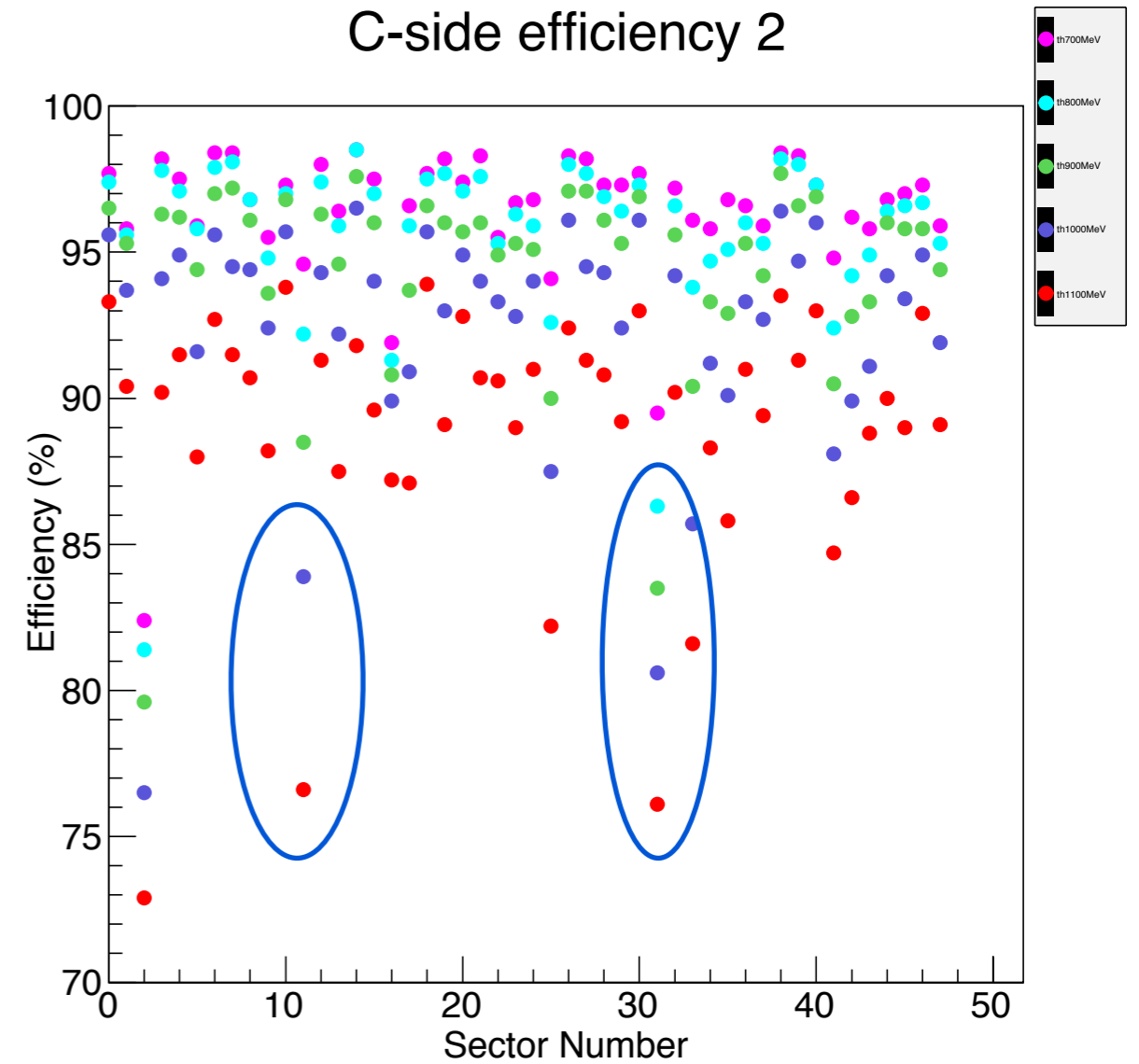
Sector 17,18,47 注意

● C-side

C-side efficiency 1



C-side efficiency 2



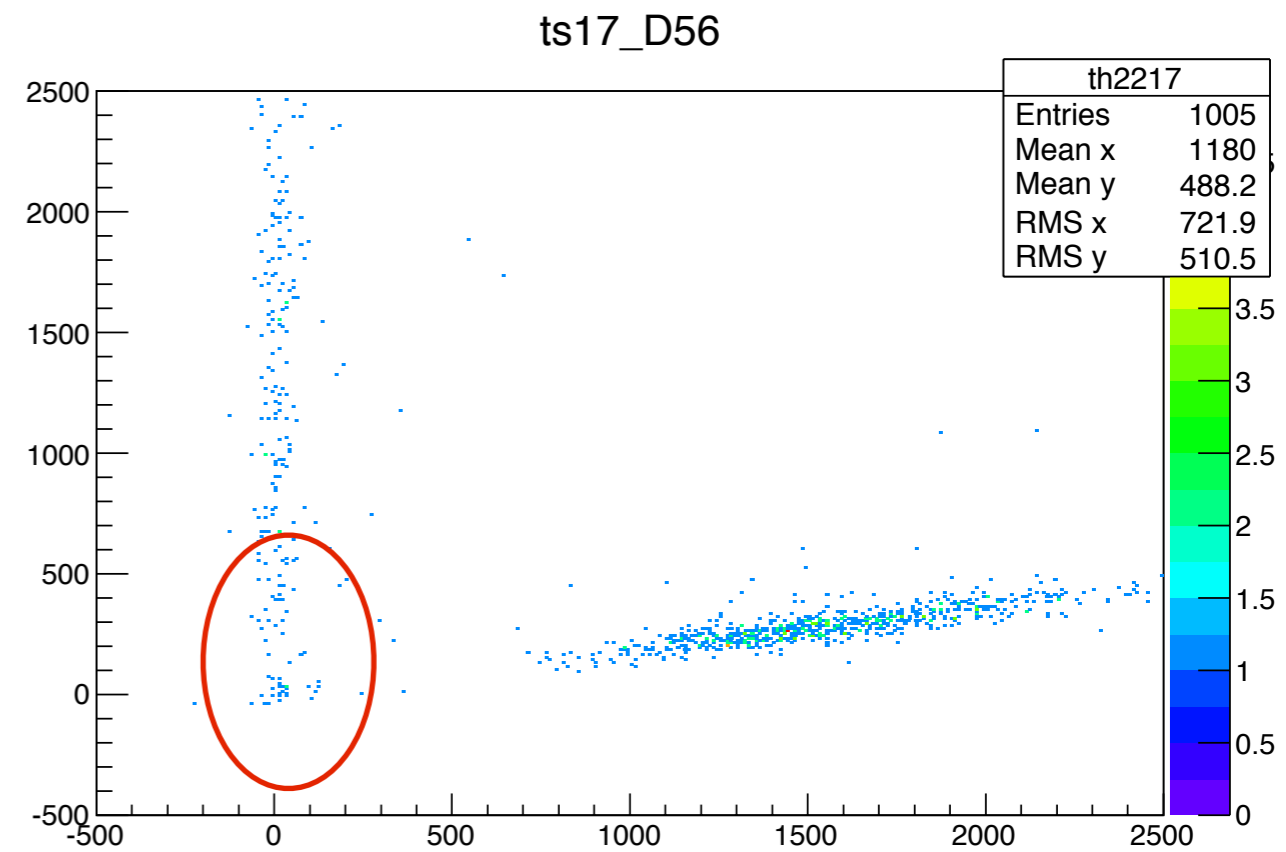
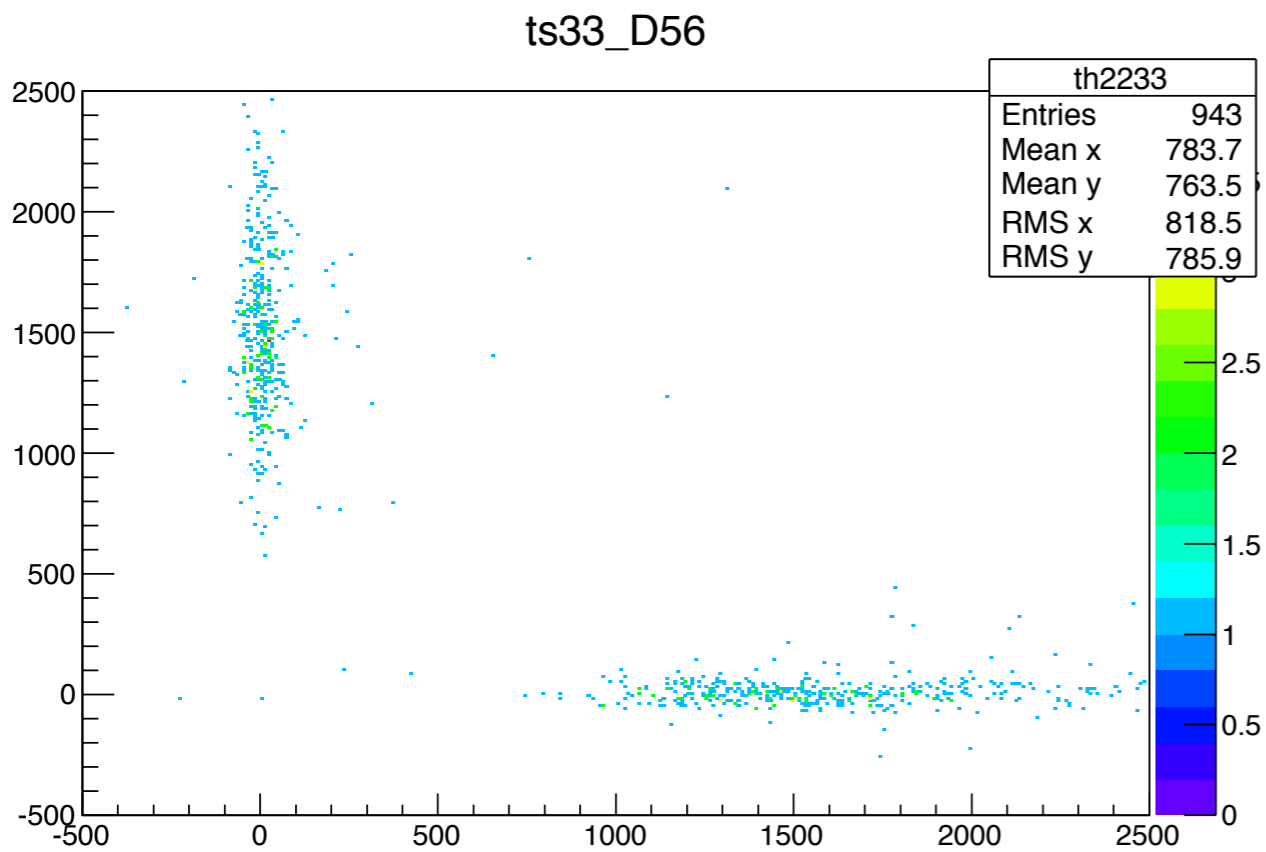
Sector 2, 11, 16, 31 注意

Energy 分布

- A-side

good

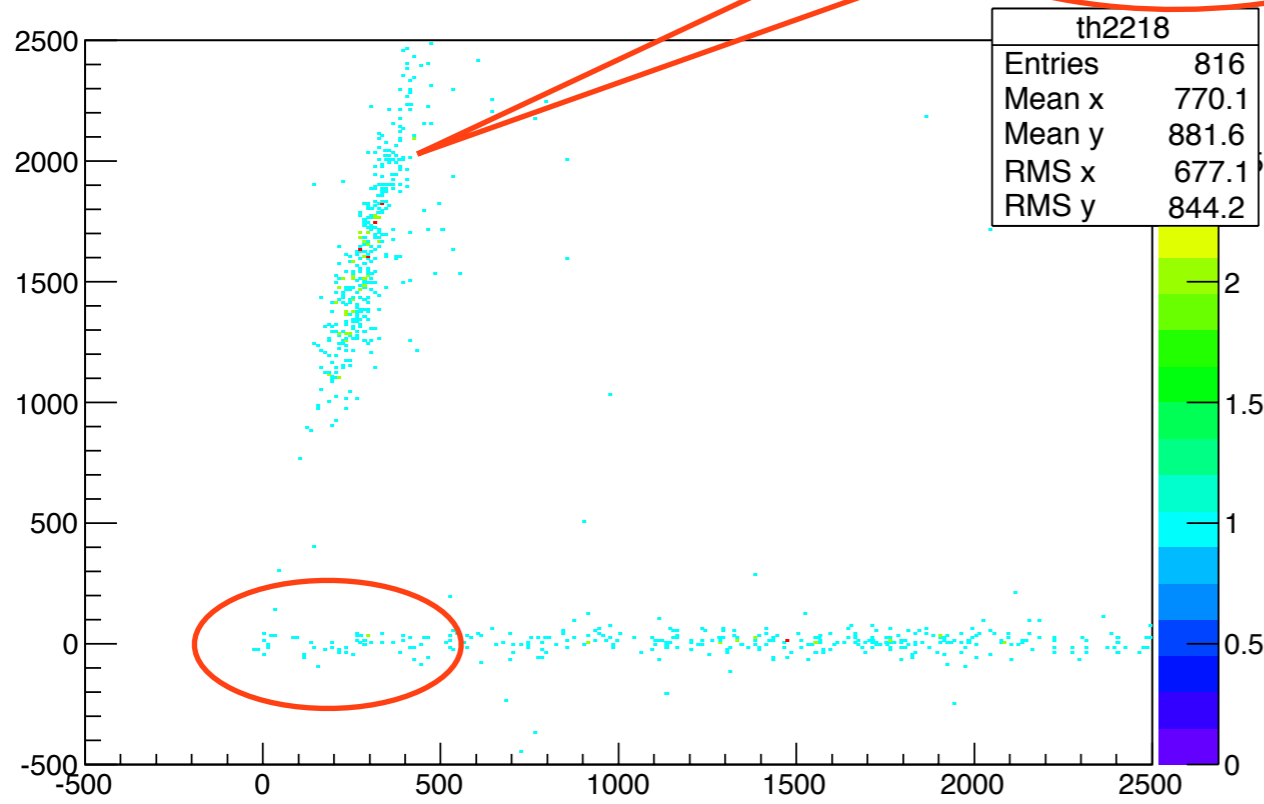
A-17



Energy分布

A-18

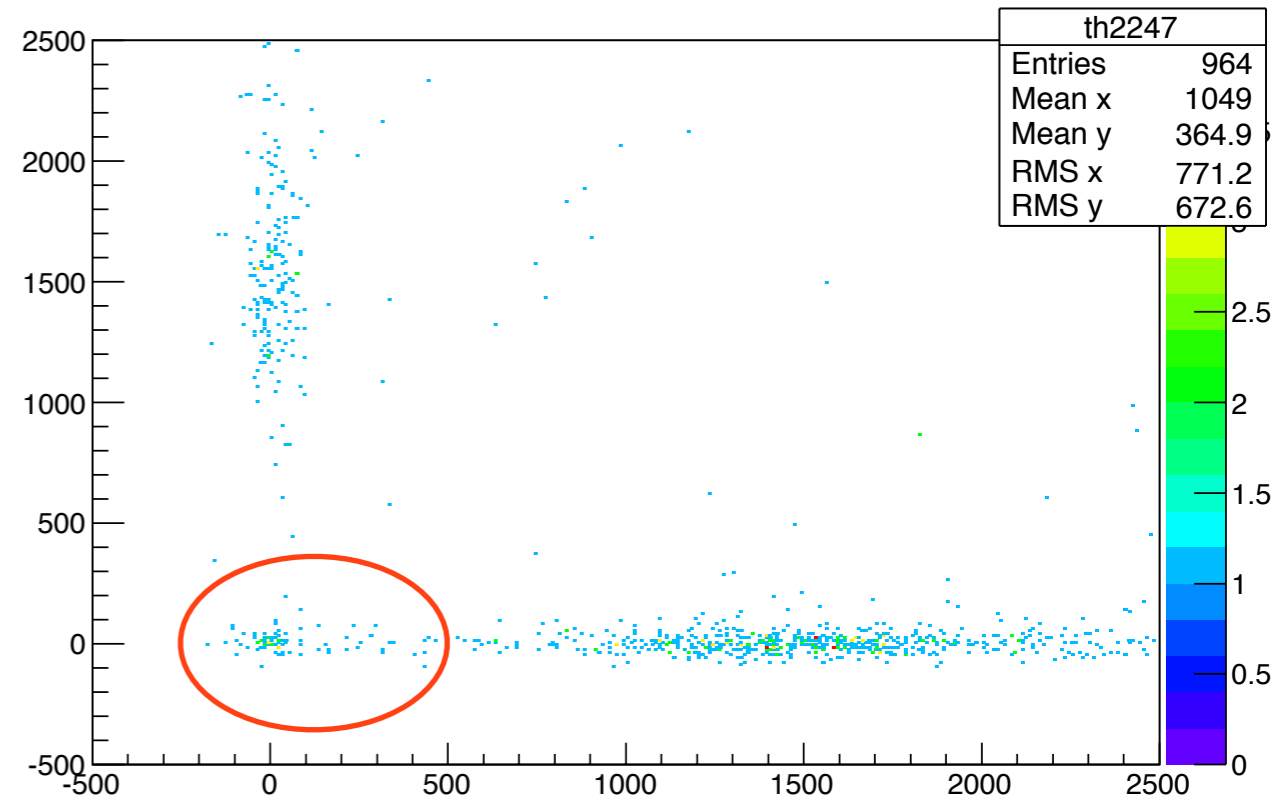
ts18_D56



bad separation

A-47

ts47_D56

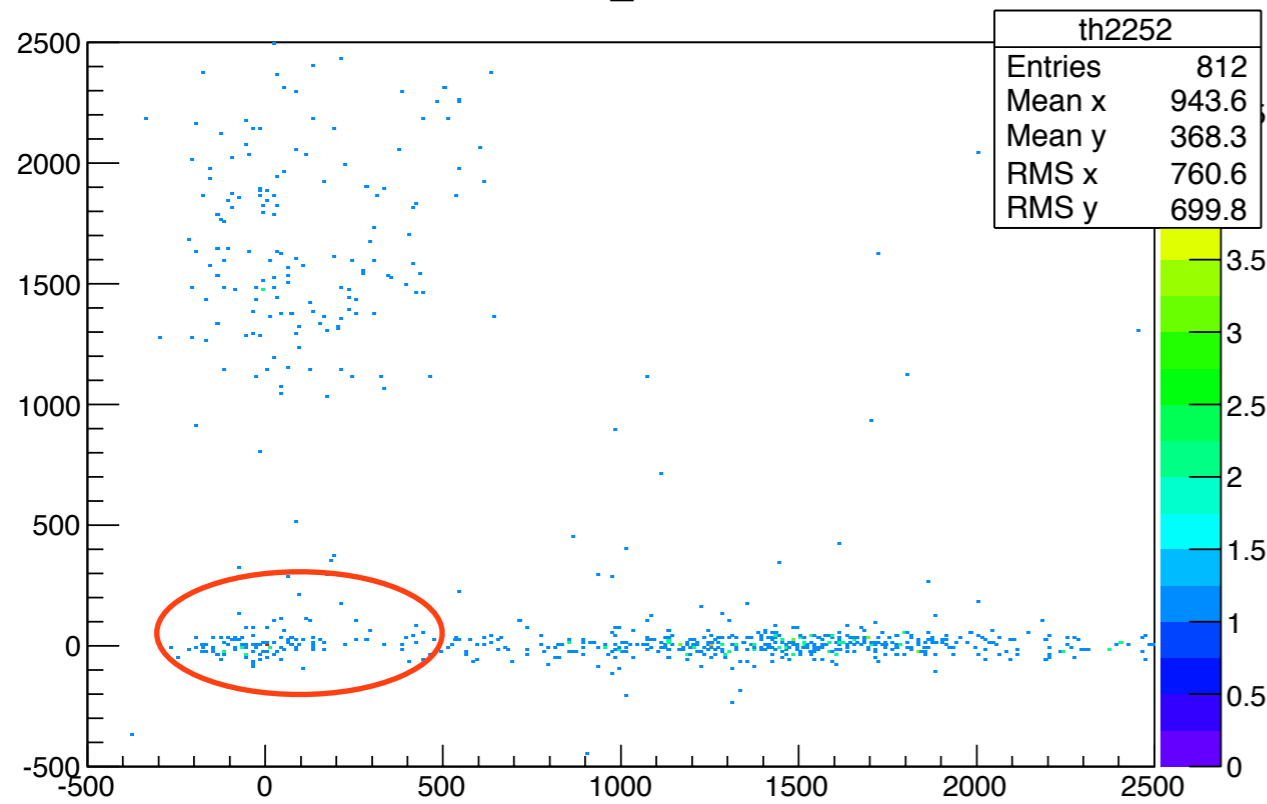


Energy 分布

- C-side

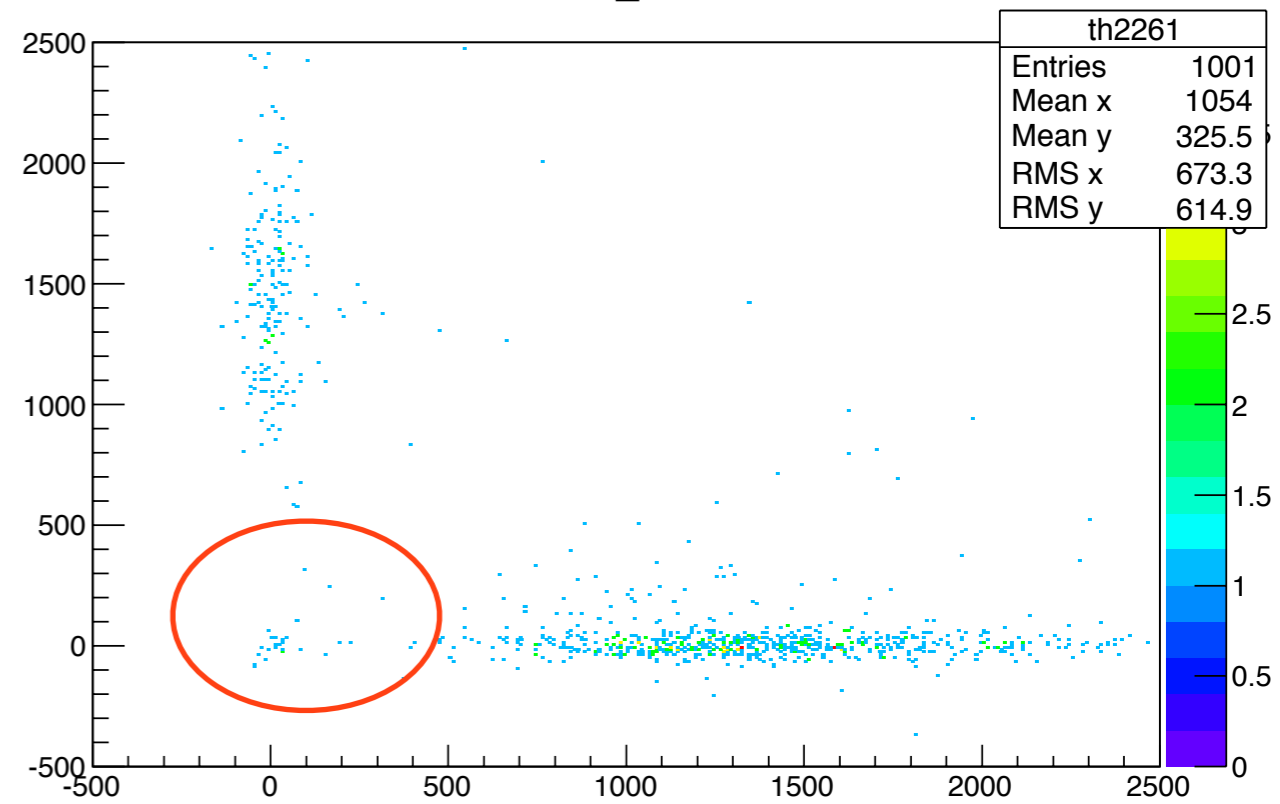
C-2

ts52_D56



C-11

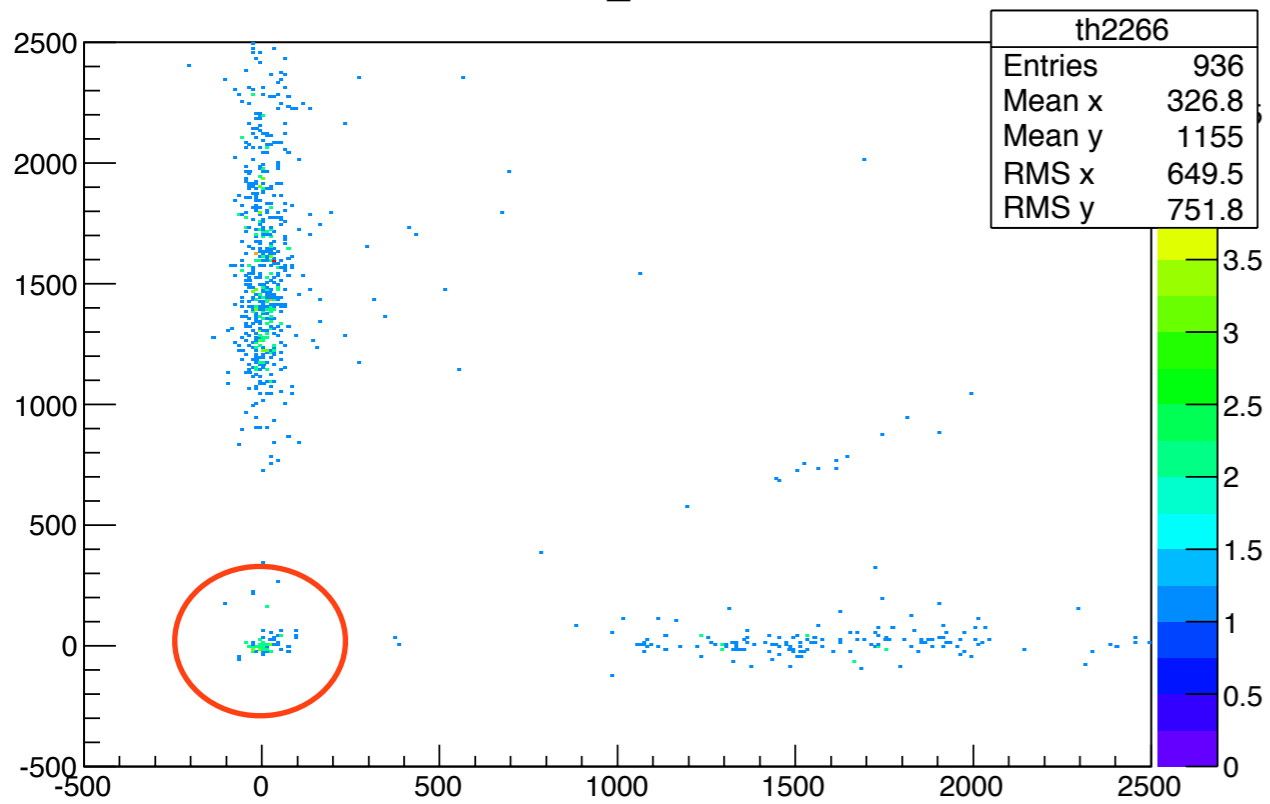
ts61_D56



Energy分布

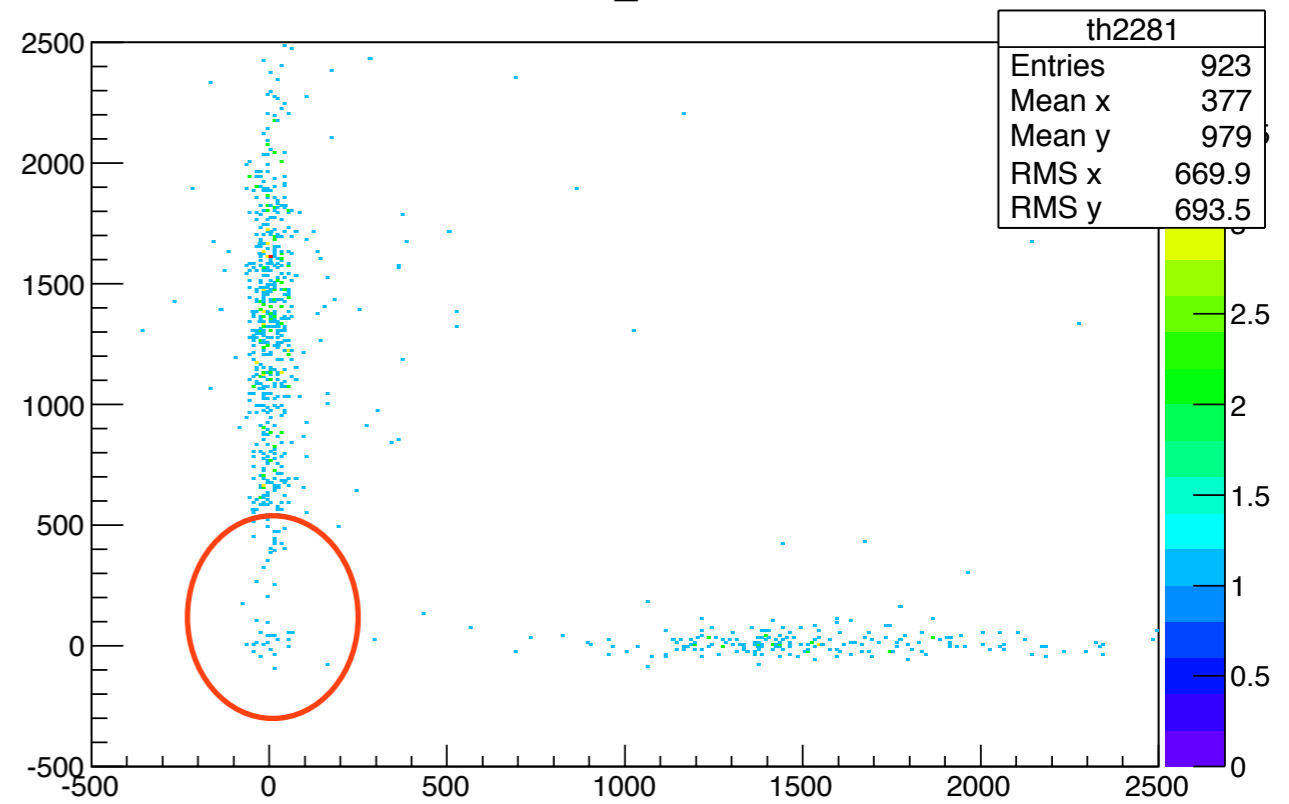
C-16

ts66_D56



C-31

ts81_D56



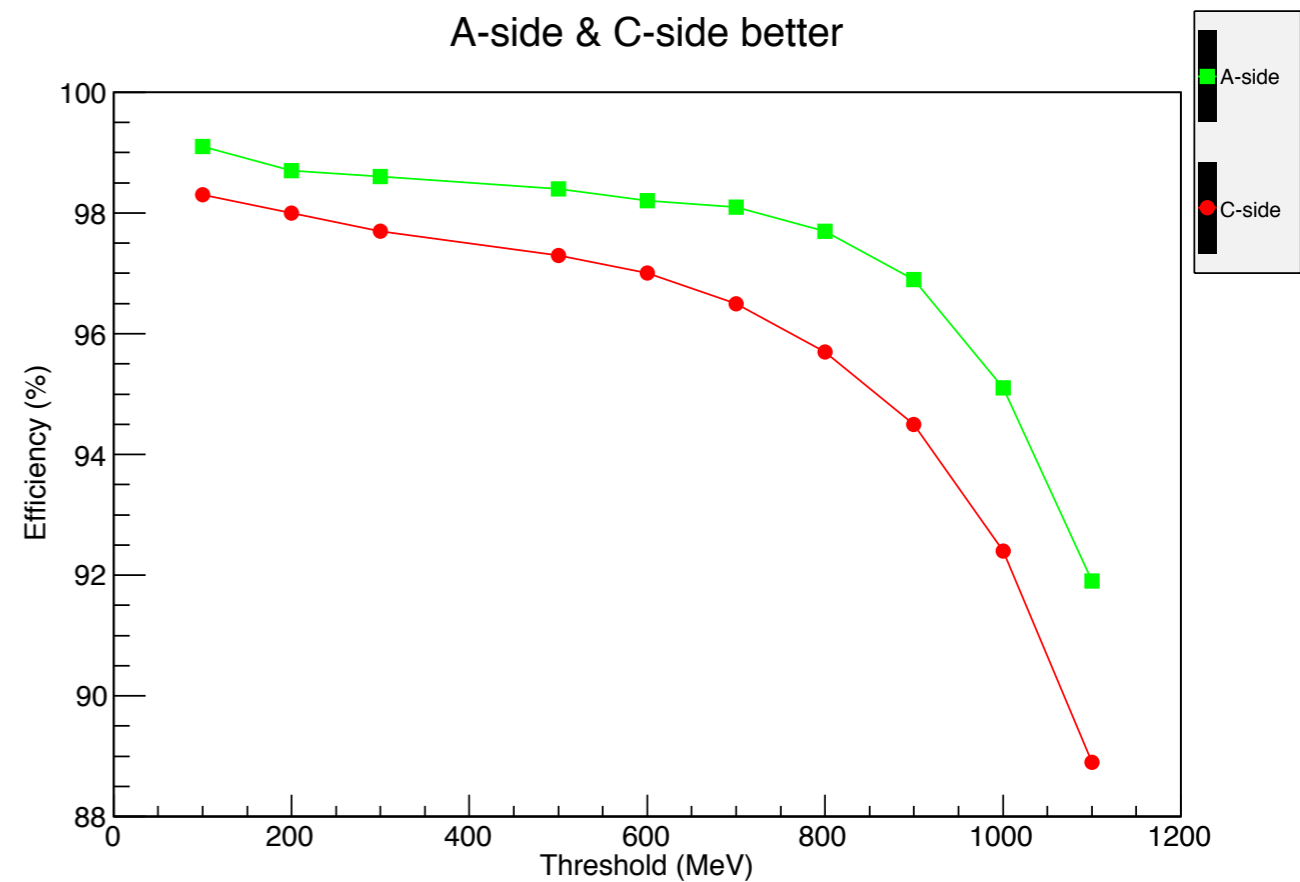
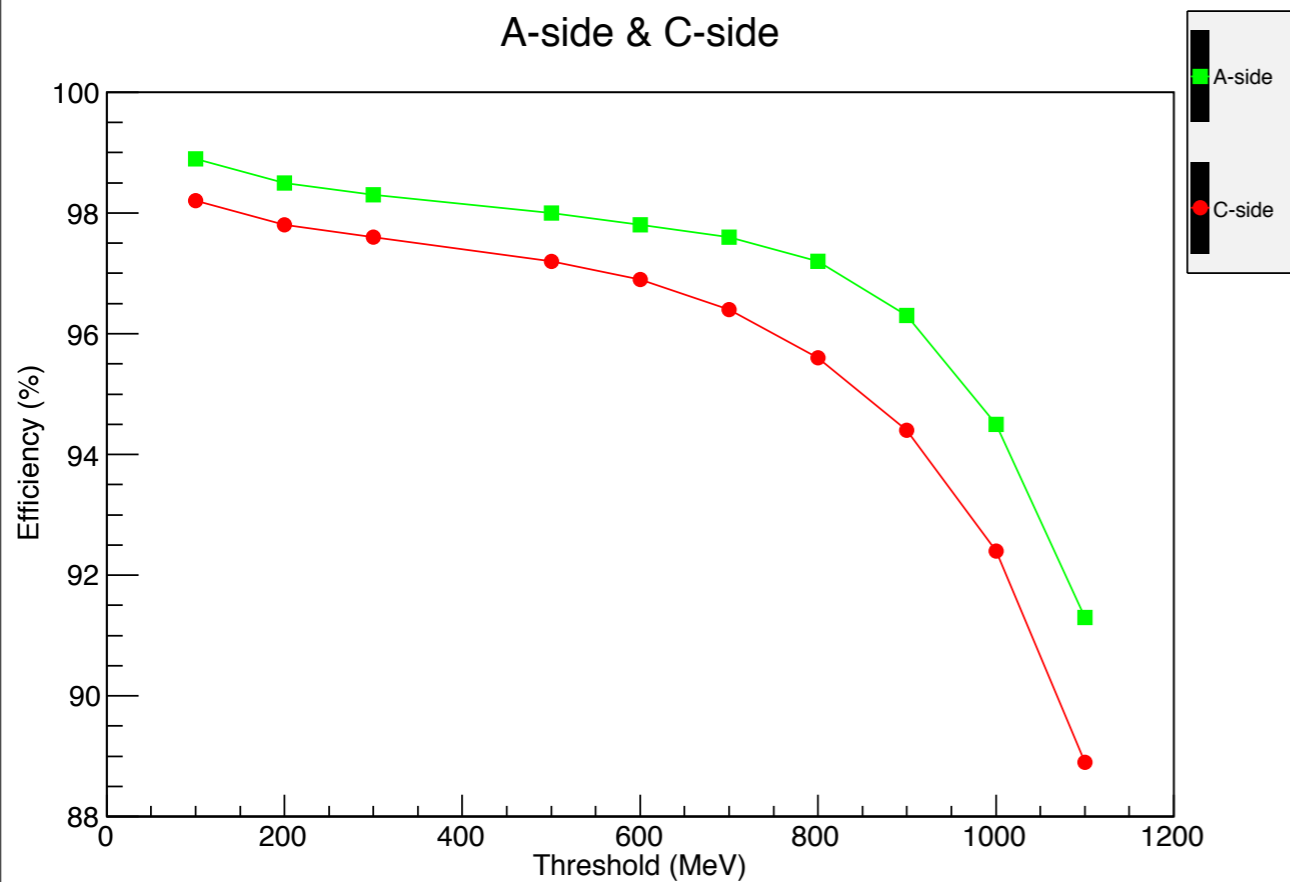
efficiency

- efficiencyの異常なSectorが分かった
 - ◆ A-side : 17, 18, 47
 - ◆ C-side : 2, 11, 16, 31
 - * pedestalが汚いSectorを含む(そうではないSectorも含む)
- 仮にこれらを除いたefficiencyを調べる

efficiency

before

after



差はわずかであり、依然として
efficiencyに差が見られる

efficiencyの違いの理由

C-sideの方が全体にA-sideよりも
efficiencyが低い

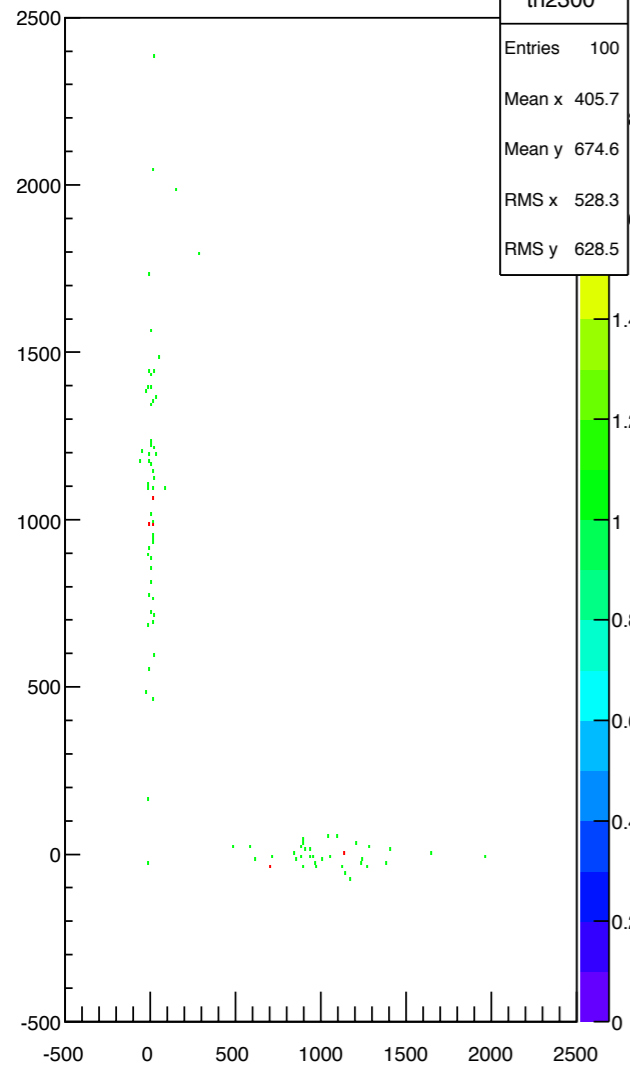
- 特定のSectorの不調ではない。
- 調べられること
- D5とD6の違いを調べる
- μ^+ と μ^- の違いを調べる

D5とD6の分離

はっきりとした違いは分からなかった
A-side C-side

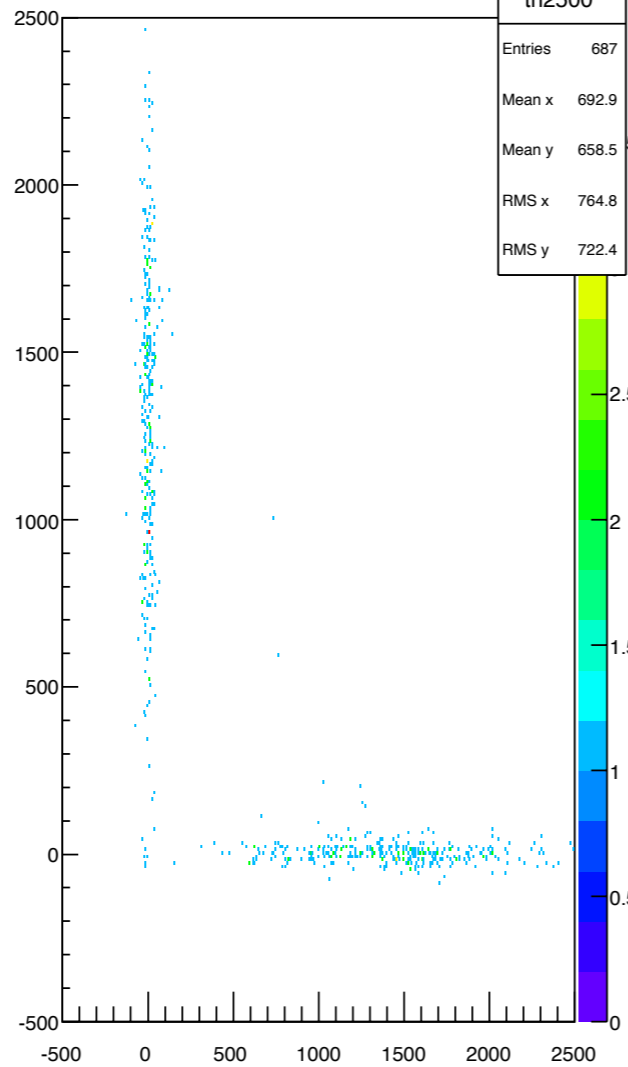
ts00_D5

th2300	
Entries	100
Mean x	405.7
Mean y	674.6
RMS x	528.3
RMS y	628.5



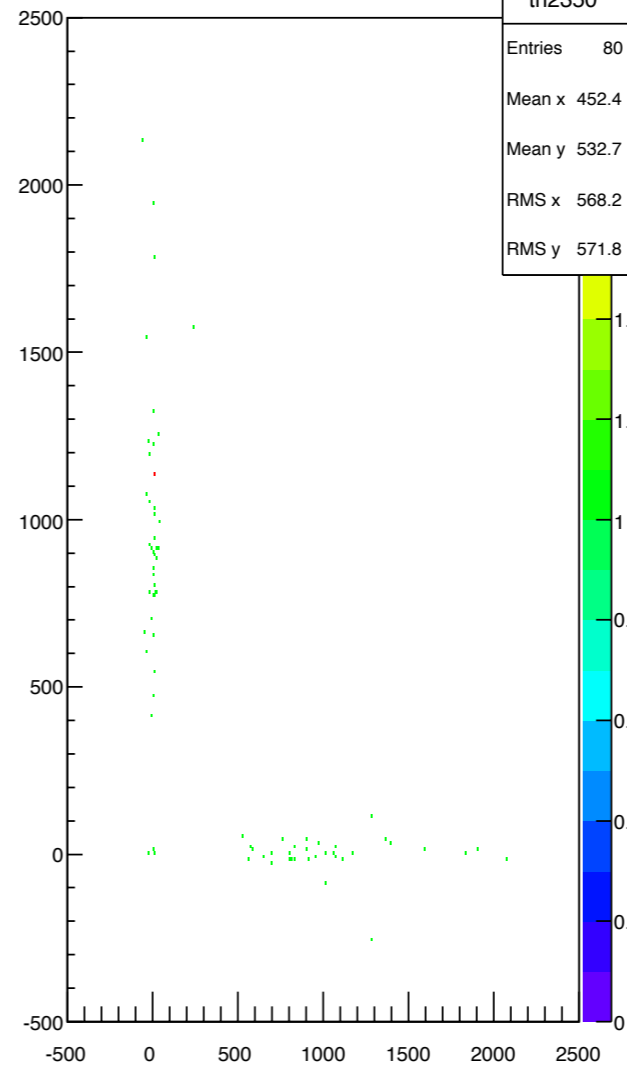
ts00_D6

th2500	
Entries	687
Mean x	692.9
Mean y	658.5
RMS x	764.8
RMS y	722.4



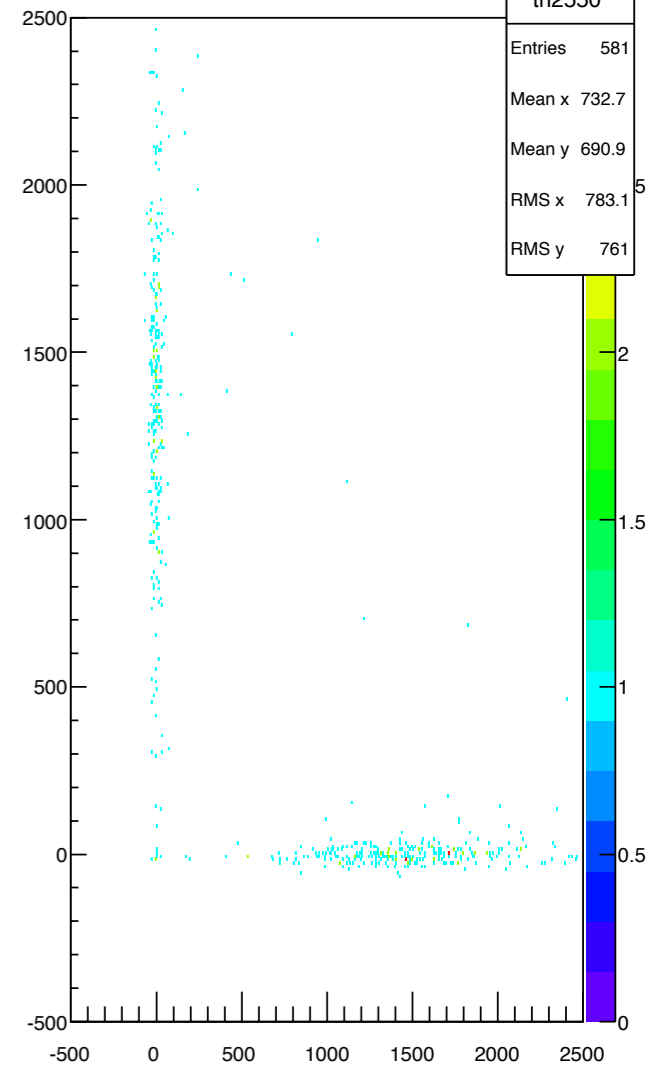
ts50_D5

th2350	
Entries	80
Mean x	452.4
Mean y	532.7
RMS x	568.2
RMS y	571.8



ts50_D6

th2550	
Entries	581
Mean x	732.7
Mean y	690.9
RMS x	783.1
RMS y	761



μ^+ と μ^- の分離

- 今、やっている途中
- stacoの各Moduleのptの符号で場合分け

To Do

- μ^+ と μ^- を分離する

backup

SectorごとのEfficiency

A-side

sector	100	200	300	500	600	700	800	900	1000	1100
0	99.0	98.7	98.6	98.6	98.6	98.6	98.5	97.8	96.4	93.6
1	99.4	99.1	99.1	98.8	98.8	98.3	97.6	97.1	95.8	91.7
2	99.5	99.0	98.8	98.7	98.7	98.6	98.4	97.8	97.3	93.9
3	99.8	99.7	99.7	99.4	99.3	99.0	98.4	97.7	94.9	91.3
4	98.7	98.1	97.7	97.4	97.0	96.7	95.9	94.4	92.8	89.2
5	98.6	98.2	98.1	97.8	97.6	97.5	97.3	96.4	94.8	92.6
6	99.6	99.3	99.3	99.3	99.3	99.3	99.0	98.7	96.9	95.0
7	99.1	98.3	98.1	98.0	97.9	97.7	97.4	96.4	95.2	92.5
8	98.7	98.3	98.0	97.8	97.8	97.7	97.4	95.6	93.0	88.2
9	99.1	99.0	98.8	98.6	98.6	98.3	98.2	97.4	93.8	89.8
10	98.9	98.5	98.2	98.0	97.9	97.8	97.6	97.3	95.9	93.1
11	98.8	98.3	98.2	97.9	97.7	97.5	97.4	97.1	95.3	92.0
12	99.5	99.2	99.1	99.0	99.0	99.0	98.8	98.4	97.0	95.2
13	98.4	98.3	97.9	97.7	97.7	97.5	97.2	96.2	94.1	90.5
14	99.6	99.2	99.2	99.0	98.8	98.8	98.7	98.1	97.3	94.4
15	99.2	99.1	99.0	98.8	98.6	98.6	98.5	97.3	94.6	91.7
16	98.6	97.9	97.8	97.3	97.1	97.0	96.7	95.7	94.8	92.1
17	97.8	96.9	96.4	94.3	93.4	92.1	90.5	89.5	87.3	84.2
18	98.7	97.5	95.8	93.4	91.9	91.1	89.0	87.6	84.9	83.5
19	99.3	99.0	98.9	98.7	98.5	98.5	97.9	96.2	93.1	88.7
20	98.2	97.8	97.8	97.5	97.3	97.2	97.0	96.4	94.9	92.8
21	98.6	98.4	98.2	97.9	97.8	97.7	97.2	96.1	94.3	91.2
22	98.2	97.7	97.1	96.9	96.5	96.4	96.1	95.8	94.1	89.9
23	98.8	98.7	98.4	98.0	97.9	97.8	97.3	96.5	94.1	91.0
24	99.5	99.3	99.3	98.9	98.9	98.9	98.9	98.3	96.7	94.0
25	98.2	97.8	97.6	97.4	97.2	97.2	97.0	95.5	93.4	89.6
26	99.3	99.0	98.8	98.7	98.5	98.4	98.3	97.7	96.3	93.3
27	99.6	99.4	99.4	98.9	98.6	98.2	97.5	96.2	94.7	92.0
28	98.6	98.5	98.3	98.1	98.0	98.0	97.8	97.7	96.6	94.2
29	98.9	98.4	98.2	98.0	97.8	97.7	97.6	97.2	95.5	92.4
30	99.3	99.3	99.2	99.0	98.7	98.7	98.2	97.9	96.1	93.6
31	99.2	99.0	98.9	98.7	98.7	98.1	97.8	96.8	94.8	90.0
32	99.5	99.4	99.4	99.4	99.4	99.3	98.9	98.8	97.3	93.9
33	99.8	99.8	99.7	99.6	99.5	99.4	98.6	97.7	96.1	92.9
34	98.9	98.1	97.8	97.4	97.2	97.1	96.9	96.2	94.8	91.3
35	99.1	98.9	98.4	98.4	98.2	97.9	97.3	96.5	94.8	92.0
36	99.7	99.3	99.3	99.2	98.7	98.6	98.5	98.2	96.6	93.9
37	99.0	98.5	98.5	98.3	98.2	98.0	97.8	95.9	93.2	89.4
38	99.6	99.4	99.1	99.0	98.9	98.9	98.5	97.7	95.6	92.7
39	99.6	99.3	99.0	98.8	98.7	98.5	97.6	96.0	93.8	90.1
40	98.8	98.5	98.2	98.2	98.1	98.1	97.8	97.3	95.5	93.1
41	98.7	98.2	97.9	97.5	97.4	97.1	96.3	95.8	93.4	89.2
42	99.6	99.0	99.0	98.8	98.8	98.6	97.9	96.8	95.0	90.4
43	99.1	98.8	98.5	98.3	98.1	97.9	96.8	95.5	93.6	89.2
44	99.6	99.2	99.2	99.1	99.0	98.9	98.6	98.3	97.5	95.0
45	99.2	98.9	98.8	98.6	98.4	98.2	97.6	96.5	94.3	89.9
46	98.7	98.0	97.6	97.5	97.3	97.3	97.2	96.7	96.1	93.0
47	93.6	92.8	92.1	90.8	90.1	89.2	88.3	86.4	84.6	81.6

C-side

sector	100	200	300	500	600	700	800	900	1000	1100
0	98.8	98.3	98.3	97.9	97.9	97.7	97.4	96.5	95.6	93.3
1	97.6	96.7	96.3	96.1	96.0	95.8	95.6	95.3	93.7	90.4
2	90.1	88.2	87.3	85.2	83.7	82.4	81.4	79.6	76.5	72.9
3	98.8	98.6	98.5	98.4	98.3	98.2	97.8	96.3	94.1	90.2
4	98.8	98.2	97.7	97.5	97.5	97.5	97.1	96.2	94.9	91.5
5	98.1	97.3	96.9	96.7	96.4	95.9	95.8	94.4	91.6	88.0
6	99.0	98.5	98.5	98.5	98.5	98.4	97.9	97.0	95.6	92.7
7	98.9	98.6	98.4	98.4	98.4	98.4	98.1	97.2	94.5	91.5
8	97.8	97.6	97.5	97.1	96.9	96.8	96.8	96.1	94.4	90.7
9	97.0	96.3	96.0	95.7	95.5	95.5	94.8	93.6	92.4	88.2
10	98.4	98.0	97.7	97.6	97.4	97.3	97.0	96.8	95.7	93.8
11	98.1	97.9	97.6	96.8	95.8	94.6	92.2	88.5	83.9	76.6
12	98.4	98.2	98.2	98.0	98.0	98.0	97.4	96.3	94.3	91.3
13	97.8	97.7	97.3	96.9	96.8	96.4	95.9	94.6	92.2	87.5
14	99.6	99.4	99.2	98.8	98.6	98.5	98.5	97.6	96.5	91.8
15	98.7	98.7	98.5	98.2	98.0	97.5	97.0	96.0	94.0	89.6
16	93.2	92.5	92.2	91.9	91.9	91.9	91.3	90.8	89.9	87.2
17	98.0	97.7	97.2	97.1	97.0	96.6	95.9	93.7	90.9	87.1
18	98.7	98.2	98.0	97.8	97.7	97.7	97.5	96.6	95.7	93.9
19	99.0	98.8	98.5	98.4	98.4	98.2	97.7	96.0	93.0	89.1
20	99.0	98.8	98.4	97.8	97.5	97.4	97.1	95.7	94.9	92.8
21	99.4	99.1	98.9	98.9	98.7	98.3	97.6	96.0	94.0	90.7
22	97.0	96.6	96.5	96.1	95.6	95.5	95.3	94.9	93.3	90.6
23	97.9	97.7	97.7	97.6	97.1	96.7	96.3	95.3	92.8	89.0
24	98.7	98.5	98.3	97.9	97.3	96.8	95.9	95.1	94.0	91.0
25	98.9	98.6	98.4	97.3	95.6	94.1	92.6	90.0	87.5	82.2
26	99.3	99.0	98.9	98.9	98.5	98.3	98.0	97.1	96.1	92.4
27	99.2	98.9	98.8	98.6	98.4	98.2	97.7	97.1	94.5	91.3
28	98.5	98.3	98.0	97.6	97.5	97.3	96.9	96.1	94.3	90.8
29	98.5	97.6	97.6	97.4	97.3	97.3	96.4	95.3	92.4	89.2
30	98.7	98.2	98.2	97.8	97.7	97.7	97.3	96.9	96.1	93.0
31	97.9	97.5	97.2	95.4	93.4	89.5	86.3	83.5	80.6	76.1
32	99.0	98.0	98.0	97.8	97.6	97.2	96.6	95.6	94.2	90.2
33	99.1	99.0	98.9	98.6	98.1	96.1	93.8	90.4	85.7	81.6
34	98.5	98.1	97.7	97.2	96.5	95.8	94.7	93.3	91.2	88.3
35	98.9	98.8	98.7	98.6	98.0	96.8	95.1	92.9	90.1	85.8
36	98.2	98.1	97.8	97.2	97.0	96.6	96.0	95.3	93.3	91.0
37	98.1	97.8	97.5	96.6	96.4	95.9	95.3	94.2	92.7	89.4
38	99.1	98.8	98.7	98.5	98.5	98.4	98.2	97.7	96.4	93.5
39	99.1	98.9	98.7	98.5	98.5	98.3	98.0	96.6	94.7	91.3
40	98.6	98.2	97.9	97.4	97.3	97.3	97.3	96.9	96.0	93.0
41	98.0	97.6	97.5	96.6	96.0	94.8	92.4	90.5	88.1	84.7
42	99.5	99.3	99.0	98.6	97.9	96.2	94.2	92.8	89.9	86.6
43	99.1	98.5	98.3	97.3	96.6	95.8	94.9	93.3	91.1	88.8
44	97.6	97.5	97.5	97.3	97.1	96.8	96.4	96.0	94.2	90.0
45	97.8	97.8	97.7	97.4	97.2	97.0	96.6	95.8	93.4	89.0
46	98.5	98.2	97.8	97.7	97.7	97.3	96.7	95.8	94.9	92.9
47	97.4	96.9	96.3	96.2	95.9	95.9	95.3	94.4	91.9	89.1

異常なsectorをのぞいたefficiency

Thre	A-side		C-side	
	before	after	before	after
100	98.9	99.1	98.2	98.3
200	98.5	98.7	97.8	98.0
300	98.3	98.6	97.6	97.7
500	98.0	98.4	97.2	97.3
600	97.8	98.2	96.9	97.0
700	97.6	98.1	96.4	96.5
800	97.2	97.7	95.6	95.7
900	96.3	96.9	94.4	94.5
1000	94.5	95.1	92.4	92.4
1100	91.3	91.9	88.9	88.9