

# CROSS-TALK STUDIES

# Overview

December meeting – Version 3.0:

- Digital feedback solved
- No need to further optimize the digital swing
- No need to further tune the CTEST impedance

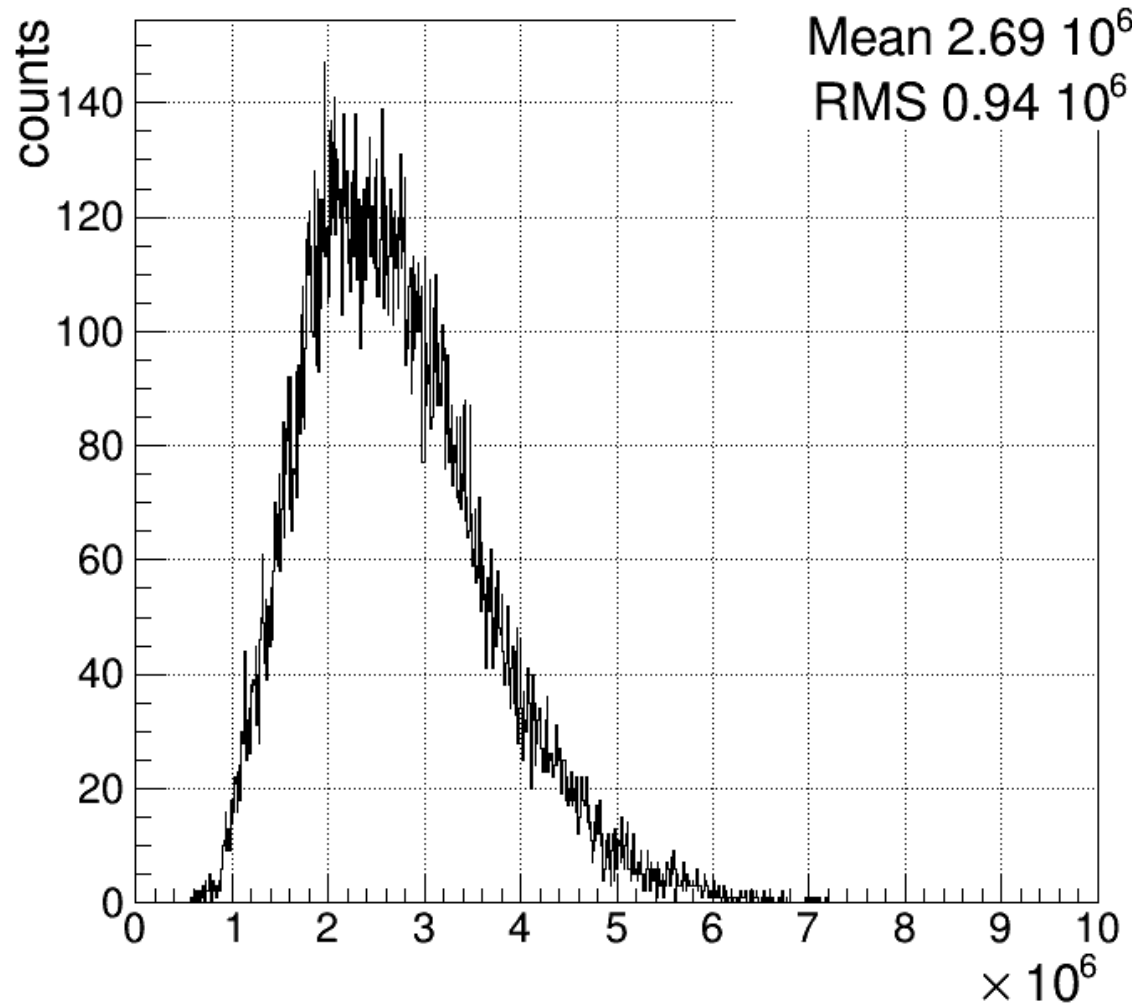
To be done:

- ADC glitches → wrote to Omega producer
- Systematic study of cross-talk of input lines
- Response to laser
- Characterization
  - gain vs threshold
  - hit time vs duration
  - TDC vs ADC

# MAPMT Gain

Average MAPMT gain  $\sim 2.7 \cdot 10^6$

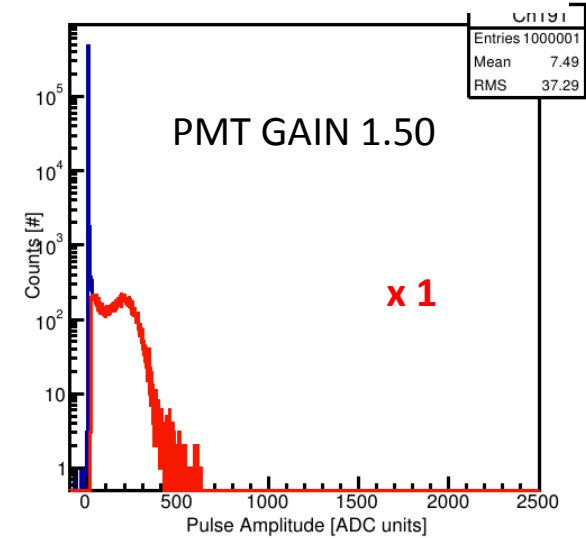
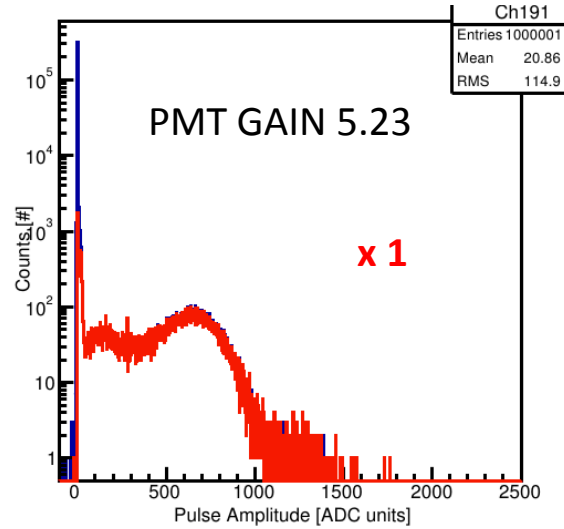
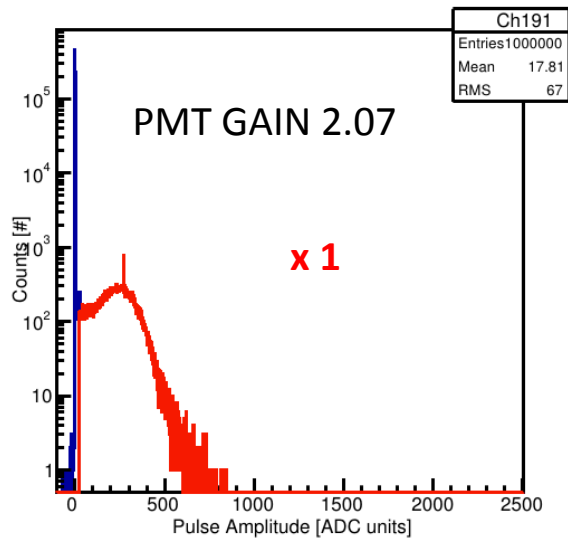
corresponds to SPE  $\sim 400$  fC



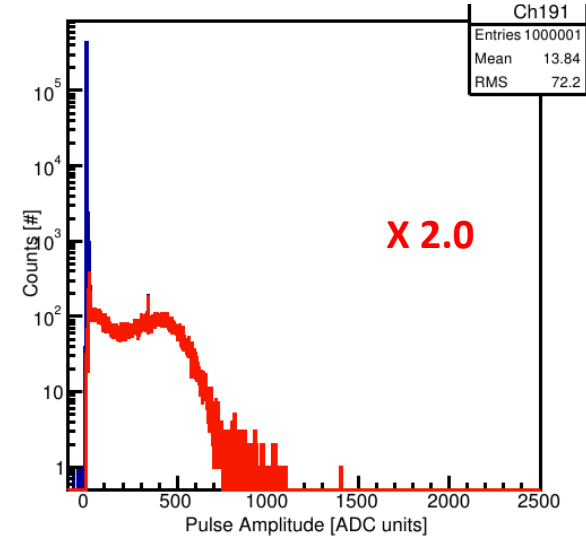
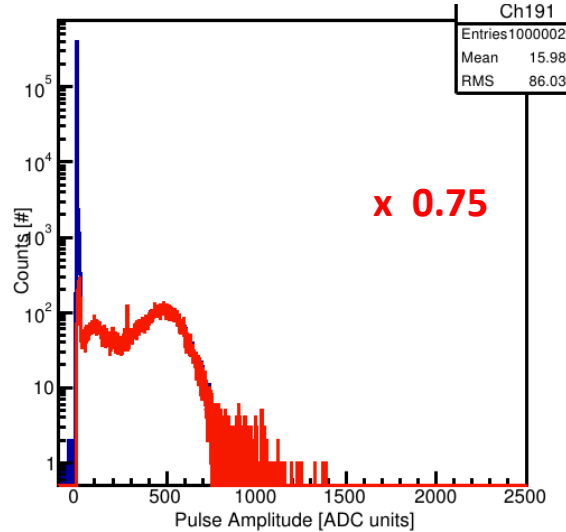
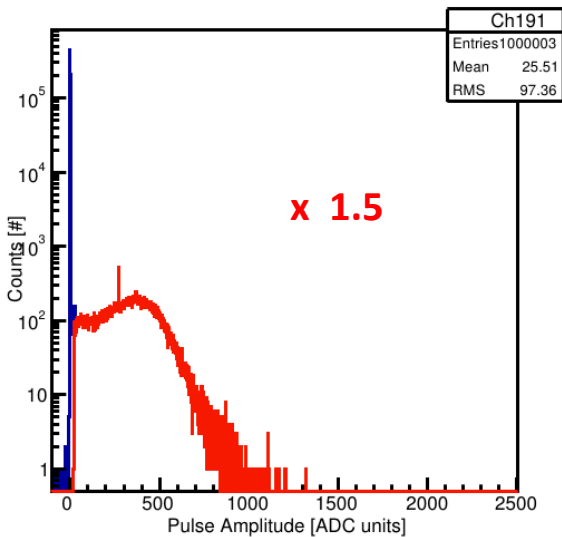
# MAPMT Gain

Average MAPMT gain  $\sim 2.7 \cdot 10^6$

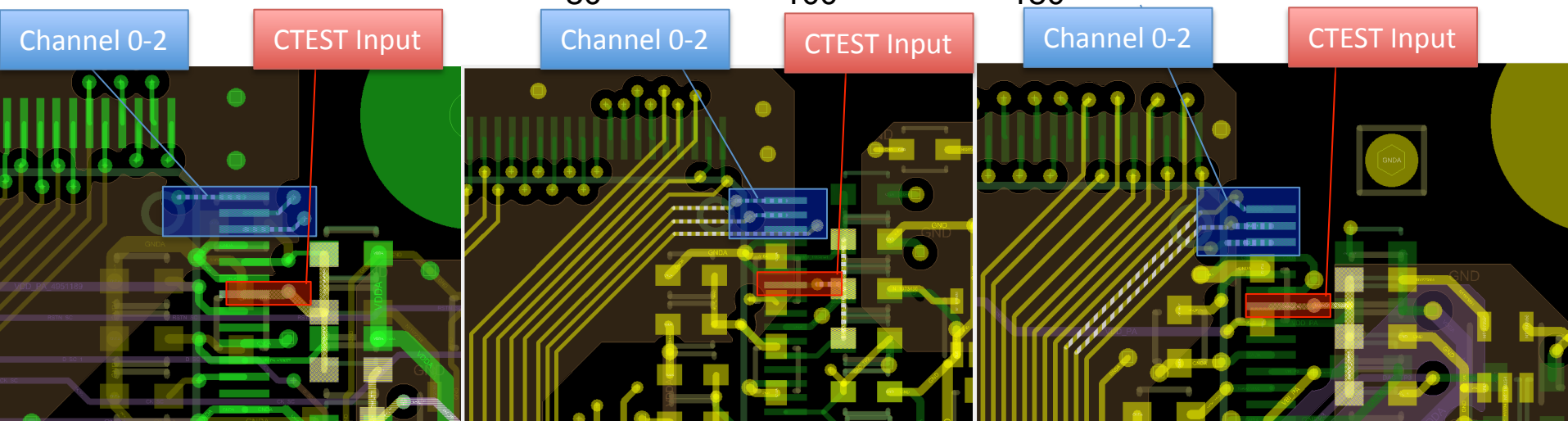
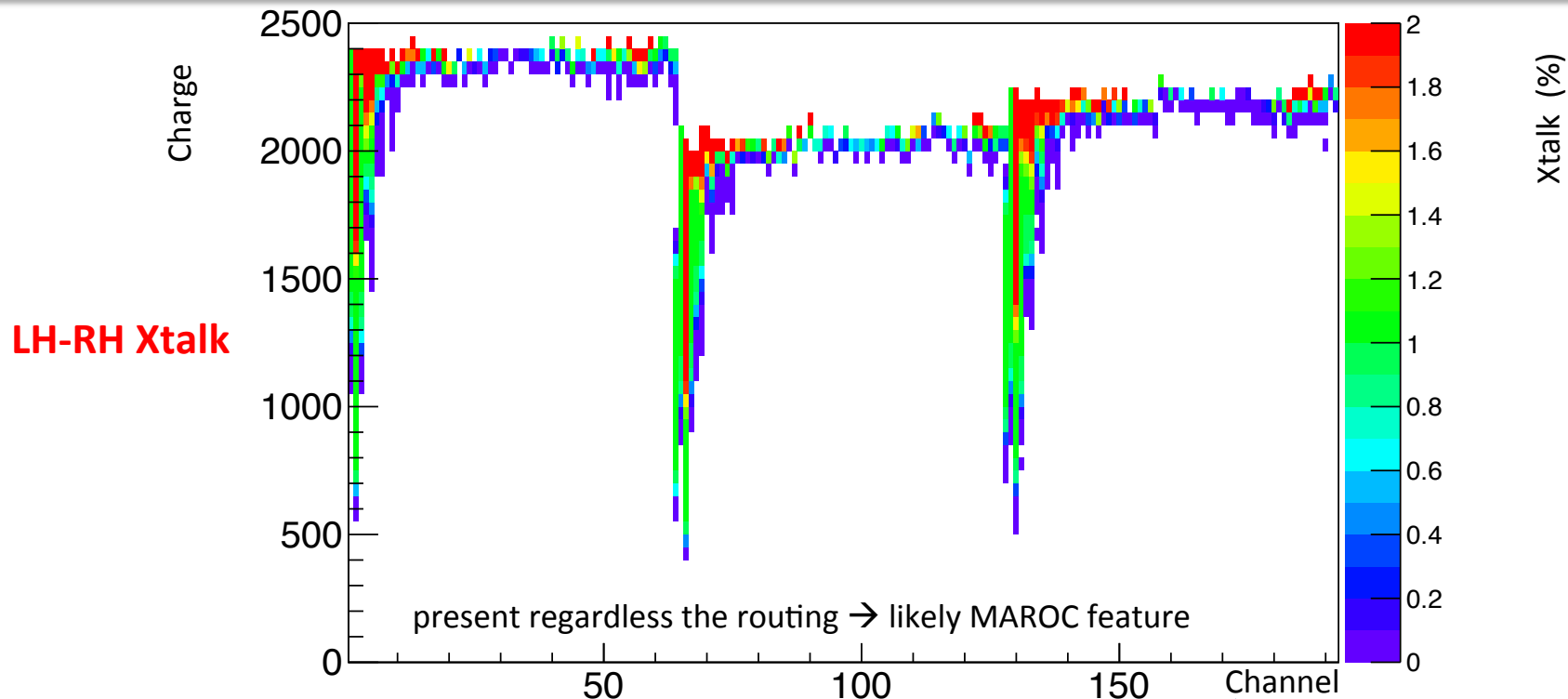
corresponds to SPE  $\sim 400$  fc



Measured at the laser bench in TED building



# CTEST Onboard Pulser



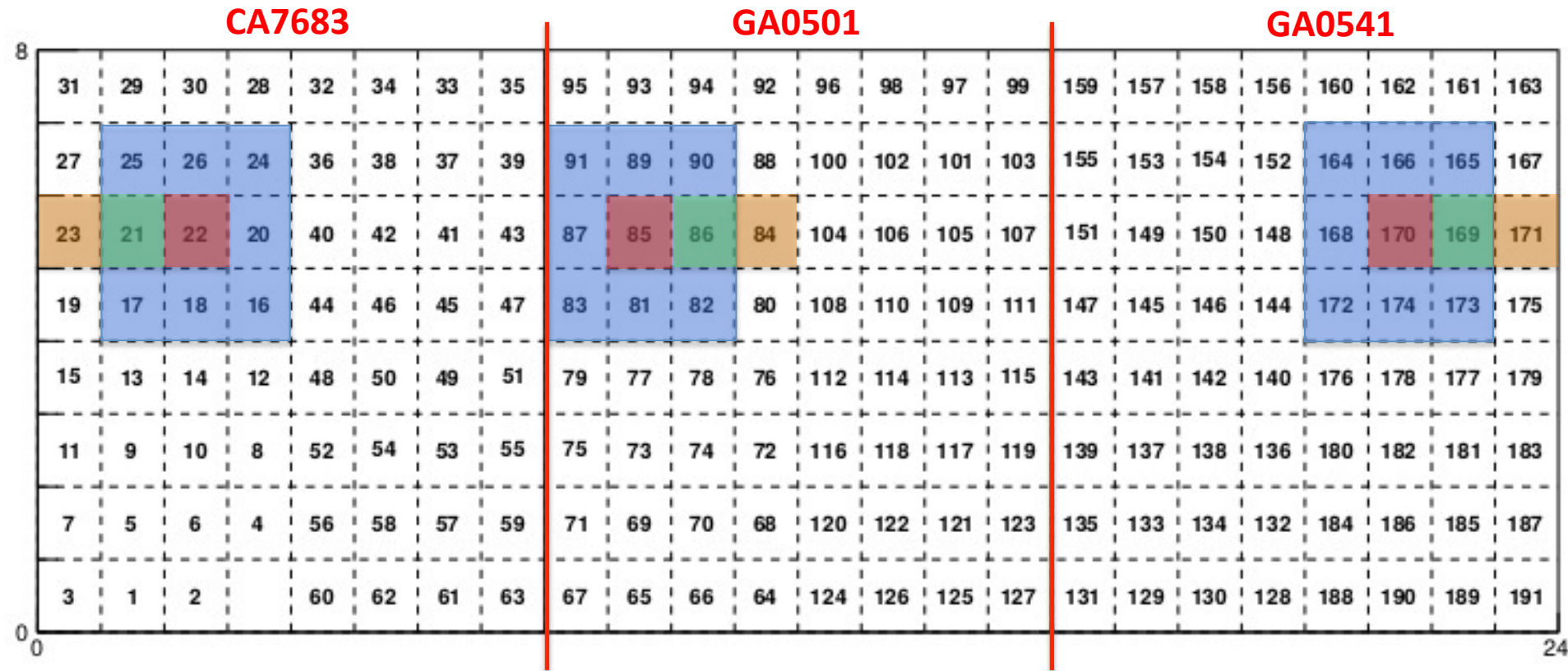
# CLAS12 RICH Project Midterm Status

8	31	29	30	28	32	34	33	35	95	93	94	92	96	98	97	99	159	157	158	156	160	162	161	163
	27	25	26	24	36	38	37	39	91	89	90	88	100	102	101	103	155	153	154	152	164	166	165	167
	23	21	22	20	40	42	41	43	87	85	86	84	104	106	105	107	151	149	150	148	168	170	169	171
	19	17	18	16	44	46	45	47	83	81	82	80	108	110	109	111	147	145	146	144	172	174	173	175
	15	13	14	12	48	50	49	51	79	77	78	76	112	114	113	115	143	141	142	140	176	178	177	179
	11	9	10	8	52	54	53	55	75	73	74	72	116	118	117	119	139	137	138	136	180	182	181	183
	7	5	6	4	56	58	57	59	71	69	70	68	120	122	121	123	135	133	134	132	184	186	185	187
0	3	1	2		60	62	61	63	67	65	66	64	124	126	125	127	131	129	130	128	188	190	189	191
																								24

Left **OR** right channels readout on contiguous circuits

# JLab Laser Test

3x MAROC tile, PMT covered by masks with small holes



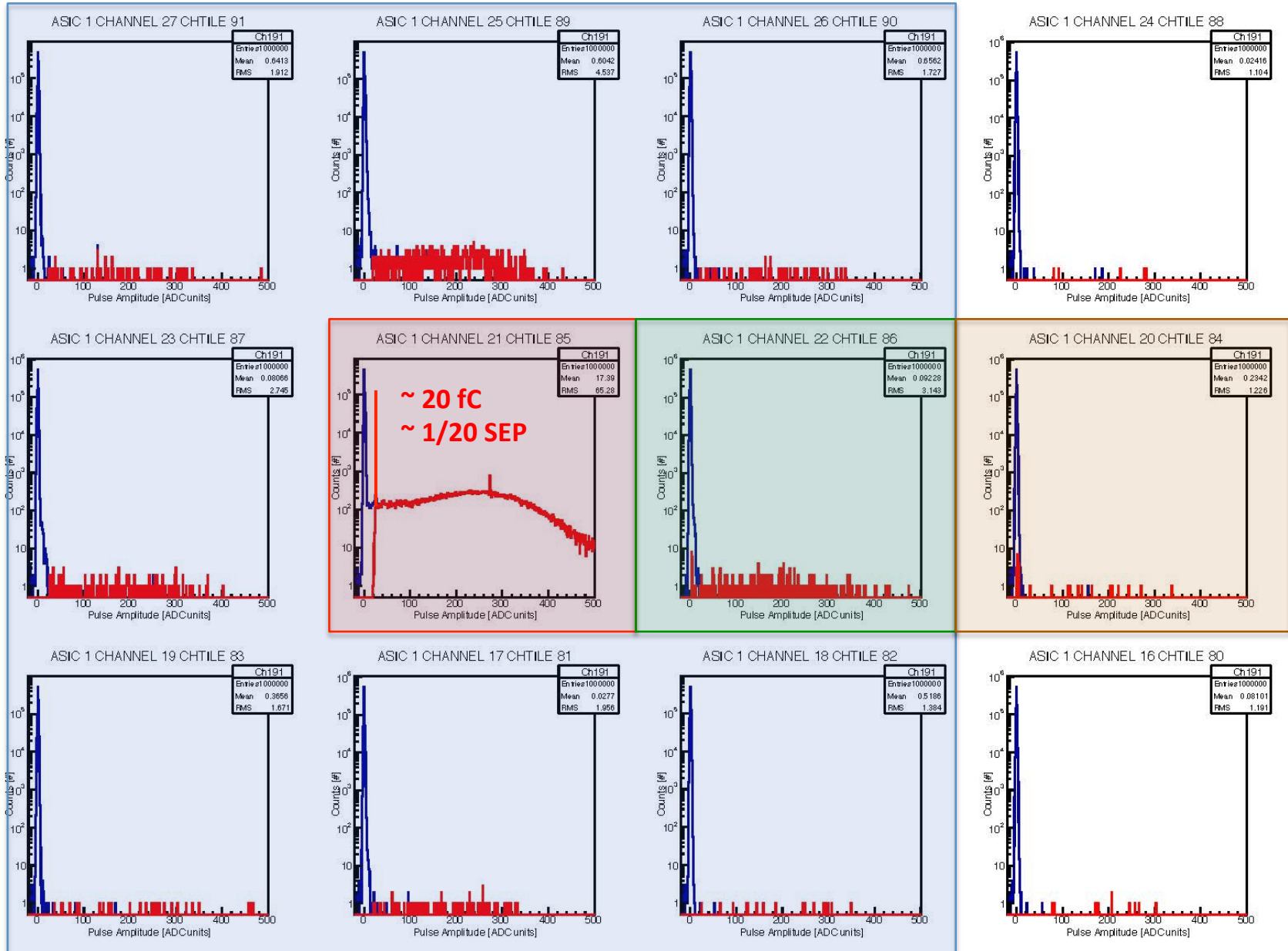
**Fired** Pixel

**Electronic - Xtalk:** contiguous circuits

**Sensor - Xtalk:** contiguous pixels

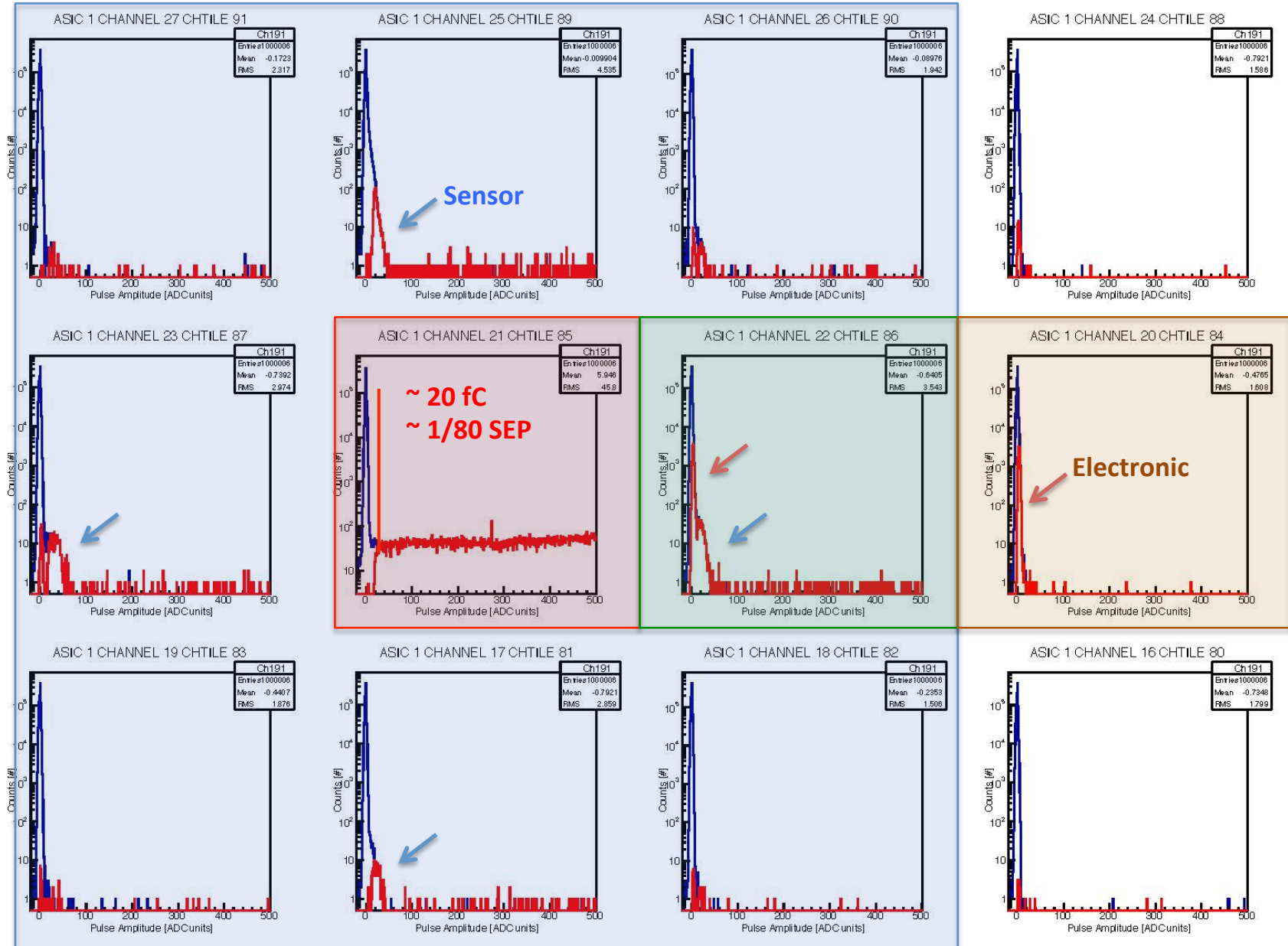
**Electronic + Sensor Xtalk**

# GA0501 @ Gain 1

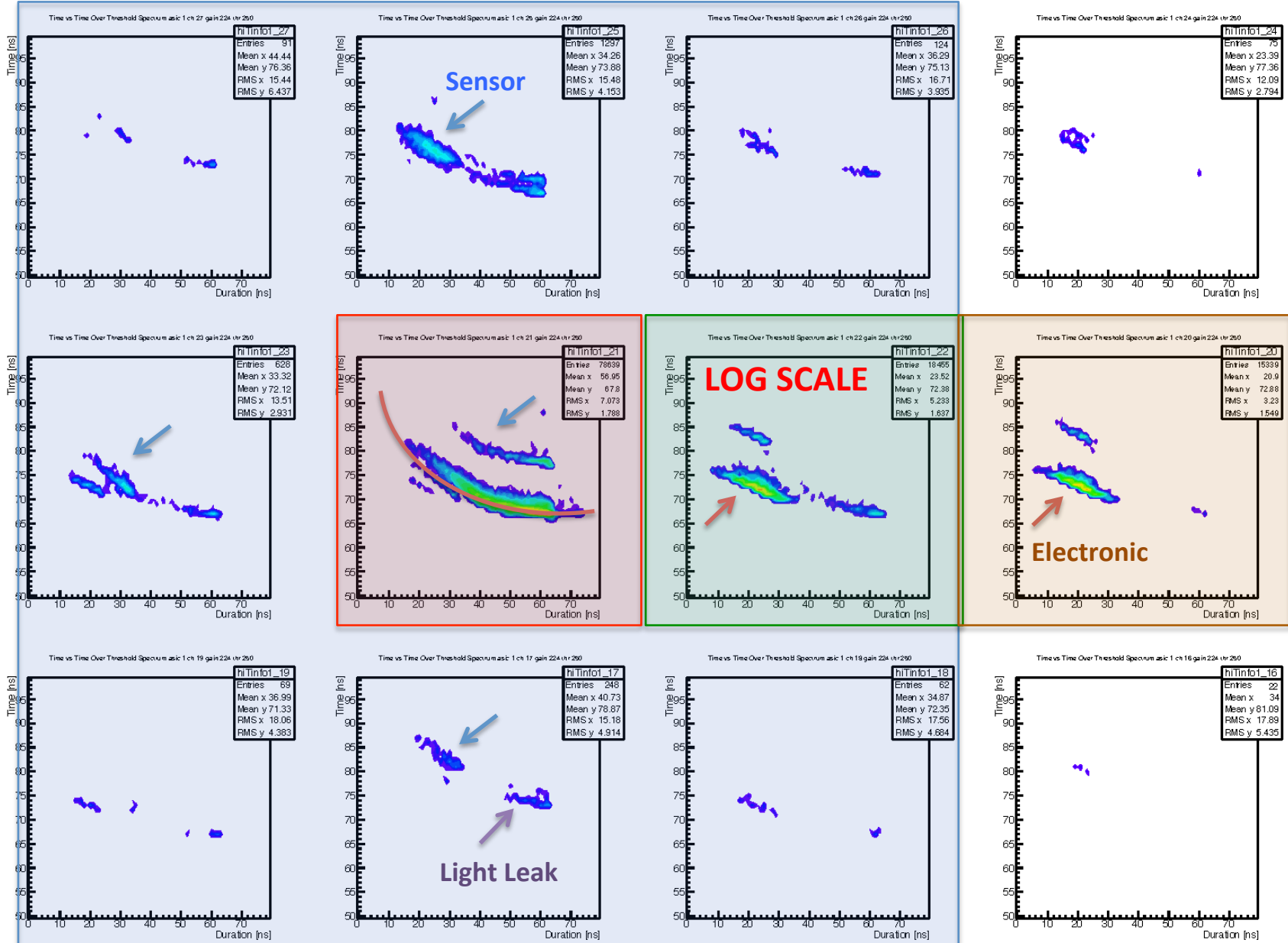




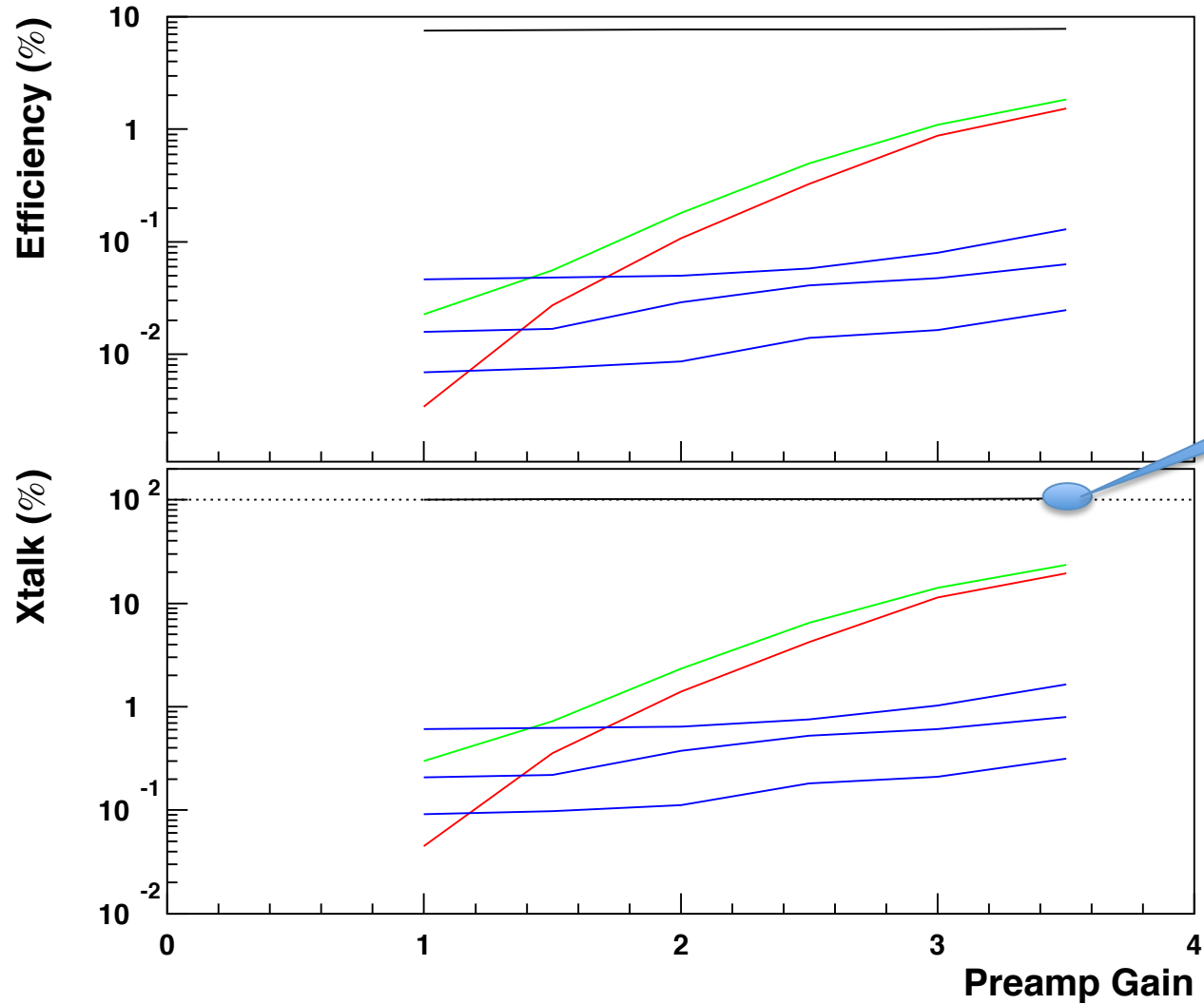
# GA0501 @ Gain 4



# GA0501 @ Gain 4

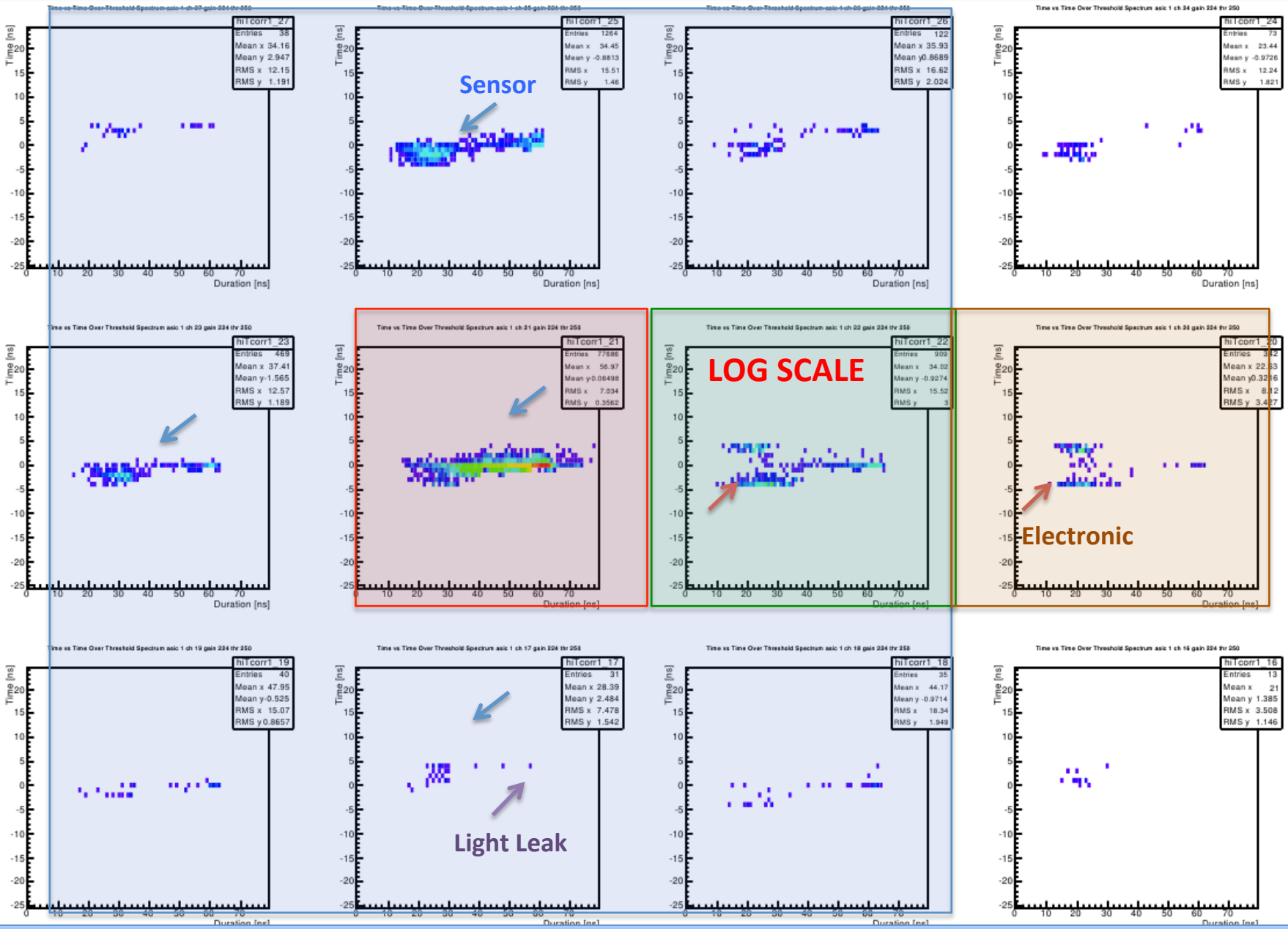


## Yield vs Gain



+3.6 %

# GA0501 @ Gain 4



# GA0303 – Laser SPE – No mask

