

CHARACTERIZATION PLOTS W59_OB2

Botho

(scans executed with v0.9.2)

First powerup

- <https://elog.belle2.org/elog/PXD-Mass-Testing/22480>

VOLTAGE AND CURRENTS TURNINGON

DHE Settings \$(DEVNAME)

\$(TOP) \$(UP) \$(FB) \$(NEXT) \$(IO) \$(PREV)

Status Use Config-Server Commit ID: 4219 Config Busy: Status: Finished temp measurement on DHPs 1

DHP Channel Up
 DHP Alive
 DHP Voltage ON
 DHP PLL locked
 DHC PLL locked
 DHP monitoring: Int.: Disc s Crit.: Disc

DHP temps: Auto
 38 °C 27 °C 34 °C 33 °C
 Manual trigger
 Int.: 30 s Crit.: 85

Configure DHE
 Configure ASICS
 Reinitialize JTAG chain
 Program DHE clock
 Chain initialized

GTX RST
 UDP RST
 Short RST
 Long RST

DHP Co... 1 2 3 4
 DCD Co... 1 2 3 4
 SW. Config 1 2 3 4 5 6

Trigger disabled
 GatedMode disabled

DHPT
 MEM Dump
 Veto
 half rate

DHP Trigger Settings

Trigger width: Disconnected
 Trigger delay: Disconnected
 Trigger offset: Disconnected
 FCK Length: Disconnected
 Timeout: Disconnected
 FCK strobe width: Disconnected
 Invert trigger:

Automatic Startup

follow
 Request DHE State: STANDBY
 Actual DHE State: **TURNINGON**
 waiting for PS to turn on DHP/DCD digit
 Skip DHP link check
 Skip pedestal upload
 Skip GM Sw Seq
 Skip offset upload
 Skip ACMC

ASiC settings

DHP1 >	DCD1 >	HS: disable	SWITCHER1 >
DHP2 >	DCD2 >	HS: disable	SWITCHER2 >
DHP3 >	DCD3 >	HS: disable	SWITCHER3 >
DHP4 >	DCD4 >	HS: disable	SWITCHER4 >
			SWITCHER5 >
			SWITCHER6 >

Upload TRG
 Upload Switcher Sequence
 Upload Offset Data
 Upload Pedestal Data
 Upload GM Sequence

Highspeed: emp1s0
 RXEQMIX: Disconnected
 DHE ID: Disconnected
 DHP mask: Disconnected
 Remapping:

DHC > DHI >
 OnlineMonitor > Pedestal > Adv. > DHP/DCD >

Statistics

DHP data counter: 0 B
 DHP frame counter: 0
 DHP data rate: 0 Bps
 DHP occupancy: Disconnected
 Trigger counter: 0
 Trigger rate: 0
 UCF trigger length error: 0
 UCF CRC errors: 0
 DHC data counter: 0 B
 DHC frame counter: 0
 DHC data rate: 0 Bps
 Temperature: 38.98 C
 VCCINT: 0.98 V
 VCCAUX: 2.51 V

PS Channel Overview \$(DEVNAME)

\$(TOP) \$(UP) \$(FB) \$(NEXT) \$(IO) \$(PREV)

ENABLED
 CONNECTED
 OVP >
 THERMAL
 UPS
 ENABLE
 DISABLE
 EMERGENCY
 software reset

Current State: **TURNINGON**
 Unit ID: 63
 Temp: 21 degC

	min.	Set Current	max.	min.	Set Voltage	max.	Reg.	Voltage at Regulator	Voltage at Load	Current	
sw-sub	0 mA	50 mA	50 mA	-12000 mV	-7000 mV	0 mV		-6995 mV	-6994 mV	0 mA	sw-sub
sw-dvdd	0 mA	30 mA	250 mA	0 mV	0 mV	2000 mV		1083 mV	658 mV	-3 mA	sw-dvdd
sw-refin	0 mA	30 mA	30 mA	-12000 mV	-7000 mV	0 mV		-7002 mV	-6999 mV	0 mA	sw-refin
dcd-amplov	0 mA	340 mA	1400 mA	0 mV	0 mV	500 mV		15 mV	-1 mV	1 mA	dcd-amplov
dcd-avdd	0 mA	340 mA	3000 mA	0 mV	0 mV	2000 mV		4 mV	2 mV	3 mA	dcd-avdd
dcd-dvdd	0 mA	940 mA	1000 mA	0 mV	0 mV	2000 mV		931 mV	492 mV	-1 mA	dcd-dvdd
dcd-refin	0 mA	180 mA	1000 mA	0 mV	0 mV	1300 mV		4 mV	3 mV	0 mA	dcd-refin
dhp-core	0 mA	730 mA	1000 mA	0 mV	1200 mV	1640 mV		2276 mV	1199 mV	562 mA	dhp-core
dhp-io	0 mA	550 mA	550 mA	0 mV	1800 mV	2000 mV		2613 mV	1800 mV	197 mA	dhp-io
bulk	0 mA	10 mA	30 mA	0 mV	0 mV	10000 mV		11 mV	8 mV	0 mA	bulk
clear-on	0 mA	30 mA	170 mA	0 mV	0 mV	22000 mV		14 mV	17 mV	0 mA	clear-on
clear-off	0 mA	30 mA	170 mA	0 mV	0 mV	20000 mV		11 mV	14 mV	0 mA	clear-off
gate-on1	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV		0 mV	0 mV	0 mA	gate-on1
gate-on2	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV		5 mV	1 mV	0 mA	gate-on2
gate-on3	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV		1 mV	-2 mV	0 mA	gate-on3
gate-off	0 mA	30 mA	40 mA	-7000 mV	0 mV	6000 mV		2 mV	0 mV	0 mA	gate-off
source	0 mA	120 mA	150 mA	0 mV	0 mV	7000 mV		4 mV	6 mV	-4 mA	source
ccg1	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV		2 mV	-1 mV	0 mA	ccg1
ccg2	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV		-2 mV	-3 mV	0 mA	ccg2
ccg3	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV		-2 mV	-2 mV	0 mA	ccg3
hv	0 uA	1000 uA	10000 uA	-80000 mV	0 mV	0 mV		-251 mV	-236 mV	-22 uA	hv
drift	0 mA	10 mA	10 mA	-6000 mV	0 mV	0 mV		-6 mV	0 mV	0 mA	drift
guard	0 mA	10 mA	30 mA	-6000 mV	0 mV	0 mV		-5 mV	-5 mV	0 mA	guard

VOLTAGE AND CURRENTS STANDBY

DHE Settings
\$(DEVNAME)

\$(TOP) \$(UP) \$(FB) \$(NEXT) \$(IO) \$(PREV)

Commit ID: 4219 Config Busy: Status: Starting continuous temp measurement

Status Use Config-Server

DHP Channel Up DHP Alive DHP Voltage ON DHP PLL locked DHC PLL locked **Disconnected**

DHP temps: Auto 56 °C 45 °C 47 °C 41 °C

Manual trigger Int.: 30 s Crit.: 85

DHP monitoring: Int.: Discs **Disconnected**

Trigger disabled GatedMode disabled

Statistics

DHP data counter 0 B
DHP frame counter 0
DHP data rate 0 Bps
DHP occupancy **Disconnected**

Trigger counter 0
Trigger rate 0
UCF trigger length error 0
UCF CRC errors 0

DHC data counter 0 B
DHC frame counter 0
DHC data rate 0 Bps

Temperature 38.49 C
VCCINT 0.98 V
VCCAUX 2.51 V

DHE Trigger Settings

Trigger width **Disconnected**
Trigger delay **Disconnected**
Trigger offset **Disconnected**
FCK Length **Disconnected**
Timeout **Disconnected**
FCK strobe width **Disconnected**
Invert trigger

Automatic Startup

follow
Request DHE State: STANDBY
Actual DHE State: **STANDBY**
Entered State_STANDBY.
 Skip DHP link check Skip pedestal upload
 Skip GM Sw Seq Skip offset upload **Disconnected**
 Skip ACMC **Disconnected**

ASiC settings

DHP1 >	DCD1 >	HS: <input checked="" type="checkbox"/> disable	SWITCHER1 >
DHP2 >	DCD2 >	HS: <input checked="" type="checkbox"/> disable	SWITCHER2 >
DHP3 >	DCD3 >	HS: <input checked="" type="checkbox"/> disable	SWITCHER3 >
DHP4 >	DCD4 >	HS: <input checked="" type="checkbox"/> disable	SWITCHER4 >
			SWITCHER5 >
			SWITCHER6 >

Upload TRG

Upload Switcher Sequence
Upload Offset Data
Upload Pedestal Data
Upload GM Sequence

Settings

Highspeed: enp1s0
RXEQMIX **Disconnected**
DHE ID: **Disconnected**
DHP mask: **Disconnected**
Remapping

DHC > DHI > OnlineMonitor > Pedestal > Adv. > DHP/DCD >

PS Channel Overview
\$(DEVNAME)

\$(TOP) \$(UP) \$(FB) \$(NEXT) \$(IO) \$(PREV)

ENABLED CONNECTED THERMAL UPS **Disconnected**

ENABLE DISABLE EMERGENCY software reset

Current State: **STANDBY** **Disconnected**

Unit ID: 63
Temp: 19 degC

	min.	Set Current	max.	min.	Set Voltage	max.	Reg.	Voltage at Regulator	Voltage at Load	Current	
sw-sub	0 mA	50 mA	50 mA	-12000 mV	-7000 mV	0 mV	<input checked="" type="checkbox"/>	-7019 mV	-7004 mV	-8 mA	sw-sub
sw-dvdd	0 mA	30 mA	250 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	2980 mV	1799 mV	22 mA	sw-dvdd
sw-refin	0 mA	30 mA	30 mA	-12000 mV	-5200 mV	0 mV	<input checked="" type="checkbox"/>	-5193 mV	-5204 mV	0 mA	sw-refin
dcd-amplow	0 mA	1300 mA	1400 mA	0 mV	275 mV	500 mV	<input checked="" type="checkbox"/>	744 mV	276 mV	-593 mA	dcd-amplow
dcd-avdd	0 mA	3000 mA	3000 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	4207 mV	1800 mV	2105 mA	dcd-avdd
dcd-dvdd	0 mA	940 mA	1000 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	3542 mV	1801 mV	768 mA	dcd-dvdd
dcd-refin	0 mA	1000 mA	1000 mA	0 mV	725 mV	1300 mV	<input checked="" type="checkbox"/>	2052 mV	725 mV	170 mA	dcd-refin
dhp-core	0 mA	730 mA	1000 mA	0 mV	1200 mV	1640 mV	<input checked="" type="checkbox"/>	2965 mV	1199 mV	616 mA	dhp-core
dhp-io	0 mA	550 mA	550 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	3377 mV	1801 mV	277 mA	dhp-io
bulk	0 mA	10 mA	30 mA	0 mV	0 mV	10000 mV	<input checked="" type="checkbox"/>	4 mV	8 mV	0 mA	bulk
clear-on	0 mA	30 mA	170 mA	0 mV	0 mV	22000 mV	<input checked="" type="checkbox"/>	39 mV	17 mV	3 mA	clear-on
clear-off	0 mA	30 mA	170 mA	0 mV	0 mV	20000 mV	<input checked="" type="checkbox"/>	19 mV	14 mV	0 mA	clear-off
gate-on1	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV	<input checked="" type="checkbox"/>	5 mV	0 mV	0 mA	gate-on1
gate-on2	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV	<input checked="" type="checkbox"/>	5 mV	1 mV	0 mA	gate-on2
gate-on3	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV	<input checked="" type="checkbox"/>	5 mV	1 mV	0 mA	gate-on3
gate-off	0 mA	30 mA	40 mA	-7000 mV	0 mV	6000 mV	<input checked="" type="checkbox"/>	28 mV	4 mV	4 mA	gate-off
source	0 mA	120 mA	150 mA	0 mV	0 mV	7000 mV	<input checked="" type="checkbox"/>	1122 mV	155 mV	-9 mA	source
ccg1	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-2 mV	5 mV	0 mA	ccg1
ccg2	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-2 mV	-3 mV	0 mA	ccg2
ccg3	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-2 mV	-8 mV	0 mA	ccg3
hv	0 uA	1000 uA	10000 uA	-80000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-251 mV	-236 mV	-22 uA	hv
drift	0 mA	10 mA	10 mA	-6000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-2 mV	5 mV	0 mA	drift
guard	0 mA	10 mA	30 mA	-6000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-5 mV	-5 mV	0 mA	guard

VOLTAGE AND CURRENTS

PEAK gate-on = 0V

DHE Settings
\$(DEVNAME)

\$(TOP) \$(UP) \$(FB) \$(NEXT) \$(IO) \$(PREV)

Status Use Config-Server Commit ID: 4219 Config Busy: Status: Starting continuous temp measurement

DHP temps: Auto 56 °C 45 °C 48 °C 41 °C
Manual trigger Int.: 30 s Crit.: 85

DHP monitoring: Int.: Disconnected

Trigger disabled GatedMode disabled

Statistics

- DHP Channel Up
- DHP Alive
- DHP Voltage ON
- DHP PLL locked
- DHC PLL locked
- DHP data counter 0 B
- DHP frame counter 0
- DHP data rate 0 Bps
- DHP occupancy Disconnected
- Trigger counter 0
- Trigger rate 0
- UCF trigger length error 0
- UCF CRC errors 0
- DHC data counter 0 B
- DHC frame counter 0
- DHC data rate 0 Bps

Temperature 38.49 C
VCCINT 0.99 V
VCCAUX 2.51 V

DHP Trigger Settings

Trigger width Disconnected
Trigger delay Disconnected
Trigger offset Disconnected
FCK Length Disconnected
Timeout Disconnected
FCK strobe width Disconnected
Invert trigger

Automatic Startup

follow
Request DHE State: PEAK
Actual DHE State: RAMPINGUP
Entered State_RAMPINGUP.

Skip DHP link check
 Skip pedestal upload
 Skip GM Sw Seq
 Skip offset upload
 Skip ACMC

ASIC settings

DHP1 >	DCD1 >	HS: <input type="checkbox"/>	disable	SWITCHER1 >
DHP2 >	DCD2 >	HS: <input type="checkbox"/>	disable	SWITCHER2 >
DHP3 >	DCD3 >	HS: <input type="checkbox"/>	disable	SWITCHER3 >
DHP4 >	DCD4 >	HS: <input type="checkbox"/>	disable	SWITCHER4 >
				SWITCHER5 >
				SWITCHER6 >

Upload TRG

- Upload Switcher Sequence
- Upload Offset Data
- Upload Pedestal Data
- Upload GM Sequence

ENABLED CONNECTED THERMAL UPS

ENABLE DISABLE EMERGENCY software reset

Current State: RAMPINGUP

Unit ID: 63
Temp: 19 degC

	min.	Set Current	max.	min.	Set Voltage	max.	Reg.	Voltage at Regulator	Voltage at Load	Current	
sw-sub	0 mA	50 mA	50 mA	-12000 mV	-7000 mV	0 mV	<input type="checkbox"/>	-7024 mV	-6994 mV	-10 mA	sw-sub
sw-dvdd	0 mA	30 mA	250 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	2980 mV	1800 mV	22 mA	sw-dvdd
sw-refin	0 mA	30 mA	30 mA	-12000 mV	-5200 mV	0 mV	<input type="checkbox"/>	-5207 mV	-5199 mV	0 mA	sw-refin
dcd-amplow	0 mA	1300 mA	1400 mA	0 mV	275 mV	500 mV	<input type="checkbox"/>	754 mV	273 mV	-594 mA	dcd-amplow
dcd-avdd	0 mA	3000 mA	3000 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	4226 mV	1801 mV	2103 mA	dcd-avdd
dcd-dvdd	0 mA	940 mA	1000 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	3544 mV	1801 mV	769 mA	dcd-dvdd
dcd-refin	0 mA	1000 mA	1000 mA	0 mV	725 mV	1300 mV	<input type="checkbox"/>	2062 mV	724 mV	170 mA	dcd-refin
dhp-core	0 mA	730 mA	1000 mA	0 mV	1200 mV	1640 mV	<input type="checkbox"/>	2968 mV	1199 mV	613 mA	dhp-core
dhp-io	0 mA	550 mA	550 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	3382 mV	1800 mV	275 mA	dhp-io
bulk	0 mA	10 mA	30 mA	0 mV	10000 mV	10000 mV	<input type="checkbox"/>	10003 mV	9994 mV	0 mA	bulk
clear-on	0 mA	40 mA	170 mA	0 mV	19000 mV	22000 mV	<input type="checkbox"/>	19167 mV	18989 mV	33 mA	clear-on
clear-off	0 mA	40 mA	170 mA	0 mV	3000 mV	20000 mV	<input type="checkbox"/>	2872 mV	3006 mV	-27 mA	clear-off
gate-on1	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV	<input type="checkbox"/>	-25 mV	-4 mV	-5 mA	gate-on1
gate-on2	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV	<input type="checkbox"/>	-38 mV	-2 mV	-5 mA	gate-on2
gate-on3	0 mA	15 mA	30 mA	-12000 mV	0 mV	5000 mV	<input type="checkbox"/>	-42 mV	1 mV	-5 mA	gate-on3
gate-off	0 mA	30 mA	40 mA	-7000 mV	5000 mV	6000 mV	<input type="checkbox"/>	5128 mV	5004 mV	22 mA	gate-off
source	0 mA	120 mA	150 mA	0 mV	6000 mV	7000 mV	<input type="checkbox"/>	7002 mV	6003 mV	11 mA	source
ccg1	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input type="checkbox"/>	-2 mV	5 mV	0 mA	ccg1
ccg2	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input type="checkbox"/>	-2 mV	-3 mV	0 mA	ccg2
ccg3	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input type="checkbox"/>	1 mV	-2 mV	0 mA	ccg3
hv	0 uA	1000 uA	10000 uA	-80000 mV	-60000 mV	0 mV	<input type="checkbox"/>	-59990 mV	-60056 mV	-13 uA	hv
drift	0 mA	10 mA	10 mA	-6000 mV	-5000 mV	0 mV	<input type="checkbox"/>	-5005 mV	-4998 mV	0 mA	drift
guard	0 mA	10 mA	30 mA	-6000 mV	-5000 mV	0 mV	<input type="checkbox"/>	-5003 mV	-5004 mV	0 mA	guard

VOLTAGE AND CURRENTS

PEAK gate-on = -1650 V

DHE Settings
\$(DEVNAME)

Commit ID: 4219 Config Busy: Status: Starting continuous temp measurement

Status Use Config-Server

DHP temps: Auto 57 °C 46 °C 48 °C 41 °C
Manual trigger Int.: 30 s Crit.: 85

DHP monitoring: Int.: Disc s Disconnect

Trigger disabled GatedMode disabled

Statistics

- DHP data counter: 0 B
- DHP frame counter: 0
- DHP data rate: 0 Bps
- DHP occupancy: **Disconnected**
- Trigger counter: 0
- Trigger rate: 0
- UCF trigger length error: 0
- UCF CRC errors: 0
- DHC data counter: 0 B
- DHC frame counter: 0
- DHC data rate: 0 Bps

Temperature: 39.47 C
VCCINT: 0.98 V
VCCAUX: 2.51 V

DHP Trigger Settings

Trigger width: **Disconnected**
Trigger delay: **Disconnected**
Trigger offset: **Disconnected**
FCK Length: **Disconnected**
Timeout: **Disconnected**
FCK strobe width: **Disconnected**
Invert trigger:

Automatic Startup

Request DHE State: PEAK
Actual DHE State: **PEAK**

Entered State PEAK

- Skip DHP link check
- Skip GM Sw Seq
- Skip offset upload
- Skip ACMC

ASIC settings

DHP1 >	DCD1 >	HS: <input type="checkbox"/> disable	SWITCHER1 >
DHP2 >	DCD2 >	HS: <input type="checkbox"/> disable	SWITCHER2 >
DHP3 >	DCD3 >	HS: <input type="checkbox"/> disable	SWITCHER3 >
DHP4 >	DCD4 >	HS: <input type="checkbox"/> disable	SWITCHER4 >
			SWITCHER5 >
			SWITCHER6 >

Upload TRG

- Upload Switcher Sequence
- Upload Offset Data
- Upload Pedestal Data
- Upload GM Sequence

ENABLED CONNECTED OVP > THERMAL UPS

Current State: **PEAK**

Unit ID: 63
Temp: 21 degC

	min.	Set Current	max.	min.	Set Voltage	max.	Reg.	Voltage at Regulator	Voltage at Load	Current	
sw-sub	0 mA	50 mA	50 mA	-12000 mV	-7000 mV	0 mV	<input type="checkbox"/>	-7062 mV	-6989 mV	-10 mA	sw-sub
sw-dvdd	0 mA	30 mA	250 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	2988 mV	1800 mV	22 mA	sw-dvdd
sw-refin	0 mA	30 mA	30 mA	-12000 mV	-5200 mV	0 mV	<input type="checkbox"/>	-5245 mV	-5199 mV	0 mA	sw-refin
dcd-amplow	0 mA	1300 mA	1400 mA	0 mV	275 mV	500 mV	<input type="checkbox"/>	783 mV	276 mV	-597 mA	dcd-amplow
dcd-avdd	0 mA	3000 mA	3000 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	4257 mV	1799 mV	2103 mA	dcd-avdd
dcd-dvdd	0 mA	940 mA	1000 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	3547 mV	1800 mV	769 mA	dcd-dvdd
dcd-refin	0 mA	1000 mA	1000 mA	0 mV	725 mV	1300 mV	<input type="checkbox"/>	2094 mV	725 mV	170 mA	dcd-refin
dhp-core	0 mA	730 mA	1000 mA	0 mV	1200 mV	1640 mV	<input type="checkbox"/>	2970 mV	1199 mV	616 mA	dhp-core
dhp-io	0 mA	550 mA	550 mA	0 mV	1800 mV	2000 mV	<input type="checkbox"/>	3388 mV	1800 mV	277 mA	dhp-io
bulk	0 mA	10 mA	30 mA	0 mV	10000 mV	10000 mV	<input type="checkbox"/>	10003 mV	10008 mV	0 mA	bulk
clear-on	0 mA	40 mA	170 mA	0 mV	19000 mV	22000 mV	<input type="checkbox"/>	19118 mV	18981 mV	34 mA	clear-on
clear-off	0 mA	40 mA	170 mA	0 mV	3000 mV	20000 mV	<input type="checkbox"/>	2839 mV	3006 mV	-27 mA	clear-off
gate-on1	0 mA	15 mA	30 mA	-12000 mV	-1650 mV	5000 mV	<input type="checkbox"/>	-1728 mV	-1652 mV	-6 mA	gate-on1
gate-on2	0 mA	15 mA	30 mA	-12000 mV	-1650 mV	5000 mV	<input type="checkbox"/>	-1727 mV	-1650 mV	-6 mA	gate-on2
gate-on3	0 mA	15 mA	30 mA	-12000 mV	-1650 mV	5000 mV	<input type="checkbox"/>	-1732 mV	-1653 mV	-6 mA	gate-on3
gate-off	0 mA	30 mA	40 mA	-7000 mV	5000 mV	6000 mV	<input type="checkbox"/>	5106 mV	4996 mV	24 mA	gate-off
source	0 mA	150 mA	150 mA	0 mV	6000 mV	7000 mV	<input type="checkbox"/>	7099 mV	6000 mV	64 mA	source
ccg1	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input type="checkbox"/>	-2 mV	-1 mV	0 mA	ccg1
ccg2	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input type="checkbox"/>	1 mV	-3 mV	0 mA	ccg2
ccg3	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input type="checkbox"/>	-2 mV	4 mV	0 mA	ccg3
hv	0 uA	1000 uA	10000 uA	-80000 mV	-60000 mV	0 mV	<input type="checkbox"/>	-59990 mV	-60028 mV	-13 uA	hv
drift	0 mA	10 mA	10 mA	-6000 mV	-5000 mV	0 mV	<input type="checkbox"/>	-5005 mV	-5005 mV	0 mA	drift
guard	0 mA	10 mA	30 mA	-6000 mV	-5000 mV	0 mV	<input type="checkbox"/>	-4999 mV	-5004 mV	0 mA	guard

VOLTAGE AND CURRENTS

PEAK gate-on = -2780 V

DHE Settings \$(DEVNAME)

Commit ID: 4219

Status: Use Config-Server

DHP temps: Auto 57 °C 46 °C 48 °C 41 °C

DHP Channel Up DHP Alive DHP Voltage ON DHP PLL locked DHC PLL locked DHC disconnected

DHP monitoring: Int.: 30 s Crit.: 85

Trigger disabled GatedMode disabled

Statistics: DHP data counter 0 B, DHP frame counter 0, DHP data rate 0 Bps, DHP occupancy Disconnected, Trigger counter 0, Trigger rate 0, UCF trigger length error 0, UCF CRC errors 0, DHC data counter 0 B, DHC frame counter 0, DHC data rate 0 Bps

Temperature: 39.96 C, VCCINT: 0.98 V, VCCAUX: 2.51 V

DHE Settings: Manual trigger, Int.: 30 s, Crit.: 85

DHP Trigger Settings: Trigger width Disconnected, Trigger delay Disconnected, Trigger offset Disconnected, FCK Length Disconnected, Timeout Disconnected, FCK strobe width Disconnected, Invert trigger

Automatic Startup: Request DHE State: PEAK, Actual DHE State: PEAK

ASICS settings: DHP1 > DCD1 > HS: disable SWITCHER1 >, DHP2 > DCD2 > HS: disable SWITCHER2 >, DHP3 > DCD3 > HS: disable SWITCHER3 >, DHP4 > DCD4 > HS: disable SWITCHER4 >, SWITCHER5 >, SWITCHER6 >

Current State: **PEAK**

Unit ID: 63, Temp: 21 degC

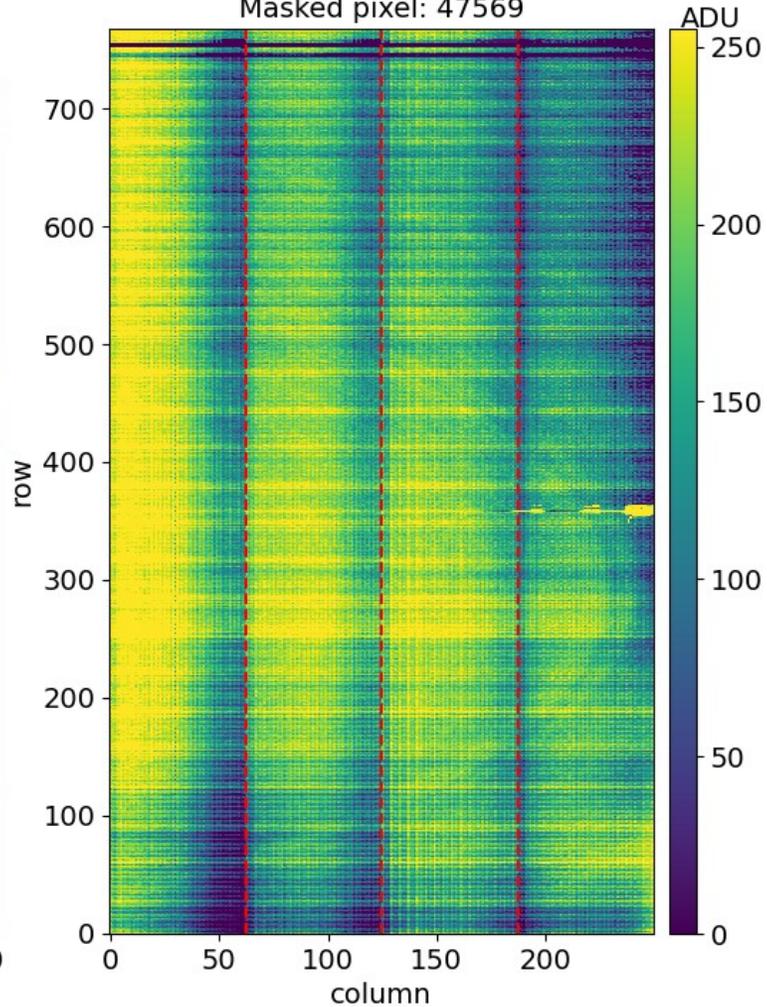
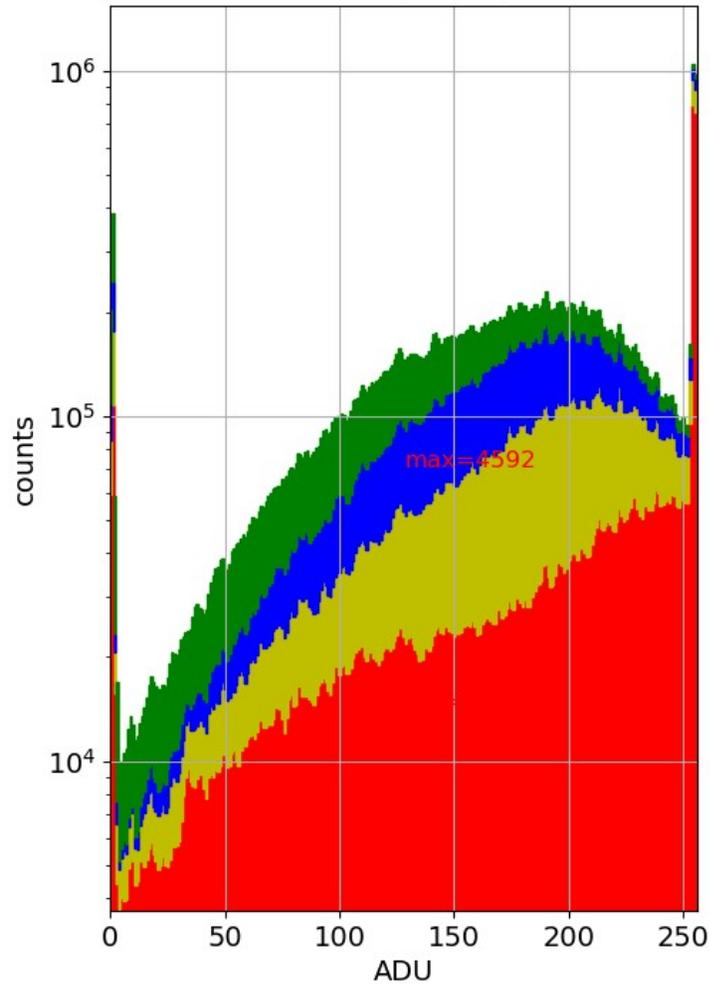
	min.	Set Current	max.	min.	Set Voltage	max.	Reg.	Voltage at Regulator	Voltage at Load	Current	
sw-sub	0 mA	50 mA	50 mA	-12000 mV	-7000 mV	0 mV	<input checked="" type="checkbox"/>	-7100 mV	-6999 mV	-9 mA	sw-sub
sw-dvdd	0 mA	30 mA	250 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	3074 mV	1800 mV	22 mA	sw-dvdd
sw-refin	0 mA	30 mA	30 mA	-12000 mV	-5200 mV	0 mV	<input checked="" type="checkbox"/>	-5278 mV	-5199 mV	0 mA	sw-refin
dcd-amplow	0 mA	1300 mA	1400 mA	0 mV	275 mV	500 mV	<input checked="" type="checkbox"/>	260 mV	276 mV	-1244 mA	dcd-amplow
dcd-avdd	0 mA	3000 mA	3000 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	4762 mV	1800 mV	2724 mA	dcd-avdd
dcd-dvdd	0 mA	940 mA	1000 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	3697 mV	1801 mV	829 mA	dcd-dvdd
dcd-refin	0 mA	1000 mA	1000 mA	0 mV	725 mV	1300 mV	<input checked="" type="checkbox"/>	2272 mV	724 mV	225 mA	dcd-refin
dhp-core	0 mA	730 mA	1000 mA	0 mV	1200 mV	1640 mV	<input checked="" type="checkbox"/>	3126 mV	1200 mV	673 mA	dhp-core
dhp-io	0 mA	550 mA	550 mA	0 mV	1800 mV	2000 mV	<input checked="" type="checkbox"/>	3482 mV	1800 mV	278 mA	dhp-io
bulk	0 mA	10 mA	30 mA	0 mV	10000 mV	10000 mV	<input checked="" type="checkbox"/>	9996 mV	10001 mV	0 mA	bulk
clear-on	0 mA	40 mA	170 mA	0 mV	19000 mV	22000 mV	<input checked="" type="checkbox"/>	19085 mV	18998 mV	34 mA	clear-on
clear-off	0 mA	40 mA	170 mA	0 mV	3000 mV	20000 mV	<input checked="" type="checkbox"/>	2806 mV	3006 mV	-27 mA	clear-off
gate-on1	0 mA	15 mA	30 mA	-12000 mV	-2670 mV	5000 mV	<input checked="" type="checkbox"/>	-2780 mV	-2668 mV	-6 mA	gate-on1
gate-on2	0 mA	15 mA	30 mA	-12000 mV	-2670 mV	5000 mV	<input checked="" type="checkbox"/>	-2788 mV	-2666 mV	-6 mA	gate-on2
gate-on3	0 mA	15 mA	30 mA	-12000 mV	-2670 mV	5000 mV	<input checked="" type="checkbox"/>	-2793 mV	-2664 mV	-6 mA	gate-on3
gate-off	0 mA	30 mA	40 mA	-7000 mV	5000 mV	6000 mV	<input checked="" type="checkbox"/>	5075 mV	5004 mV	26 mA	gate-off
source	0 mA	150 mA	150 mA	0 mV	6000 mV	7000 mV	<input checked="" type="checkbox"/>	7238 mV	5997 mV	120 mA	source
cpg1	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	-6 mV	-1 mV	0 mA	cpg1
cpg2	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	1 mV	-3 mV	0 mA	cpg2
cpg3	0 mA	10 mA	10 mA	-7000 mV	0 mV	0 mV	<input checked="" type="checkbox"/>	1 mV	4 mV	0 mA	cpg3
hv	0 uA	1000 uA	10000 uA	-80000 mV	-60000 mV	0 mV	<input checked="" type="checkbox"/>	-59990 mV	-60028 mV	-13 uA	hv
drift	0 mA	10 mA	10 mA	-6000 mV	-5000 mV	0 mV	<input checked="" type="checkbox"/>	-5001 mV	-5005 mV	0 mA	drift
guard	0 mA	10 mA	30 mA	-6000 mV	-5000 mV	0 mV	<input checked="" type="checkbox"/>	-5003 mV	-5004 mV	0 mA	guard

First pedestals

<https://eloq.belle2.org/eloq/PXD-Mass-Testing/22482>

Pedestal Distribution - DCD0
ACMC: Off/Off/Off/Off
Offset: Off/Off/Off/Off

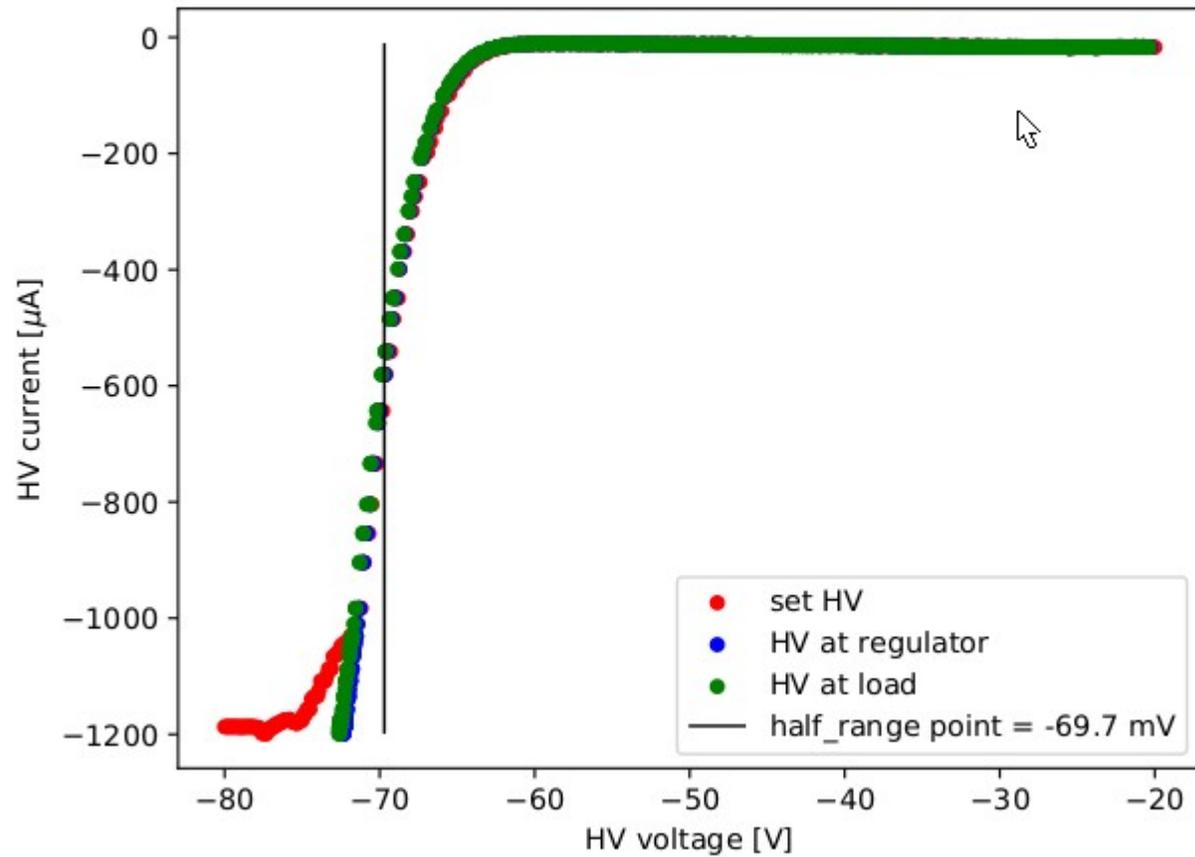
pxd9 Mapping - W53_OB2
Gate-On 1/2/3 [mV]: -2670 / -2670 / -2670
VnSubIn: 45 / 45 / 45 / 45
Masked pixel: 47569



- bad looking gates on top
- suspicious behavior at the right edge in the middle
- other than that nice

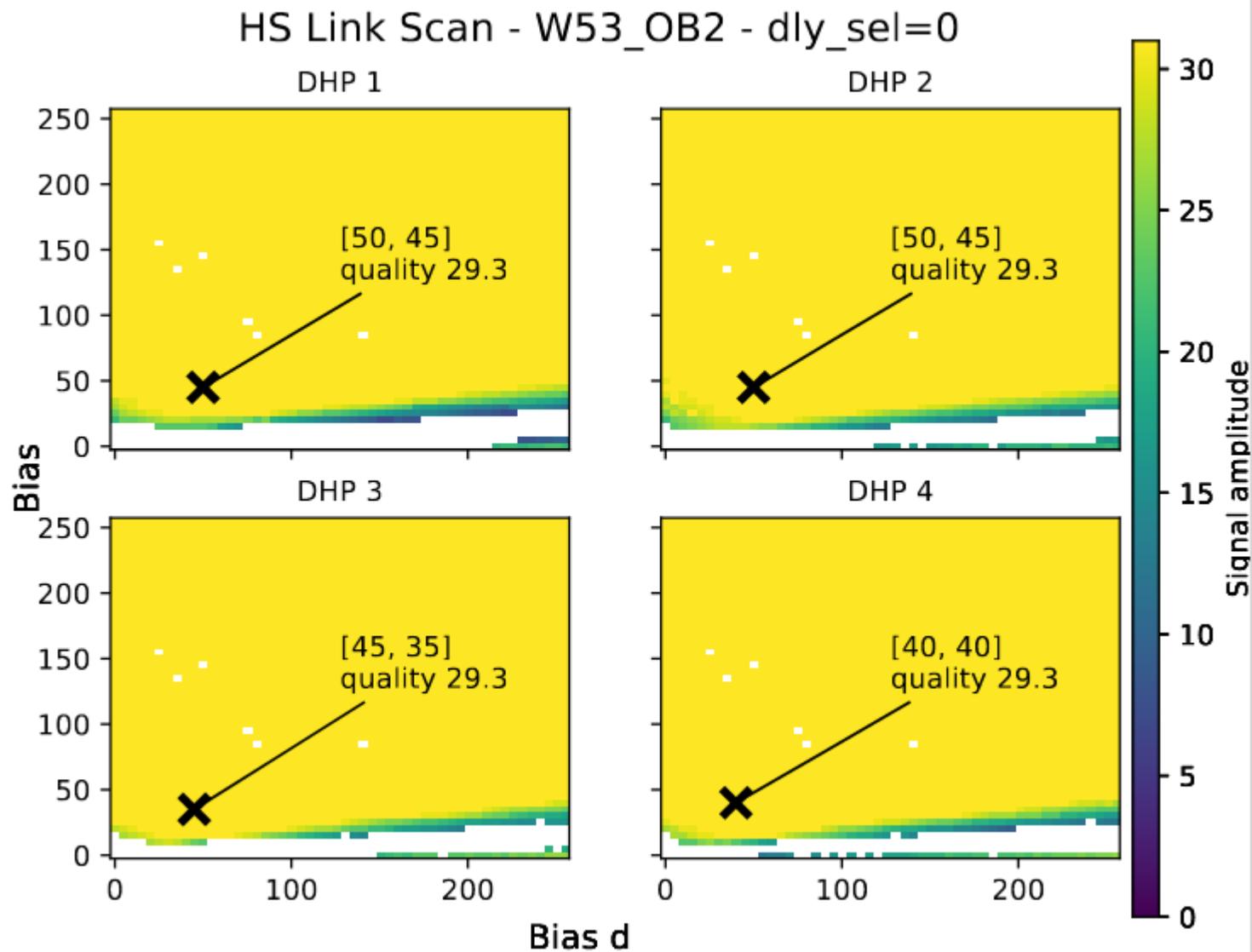
HV IV

<https://elog.belle2.org/elog/PXD-Mass-Testing/22486>

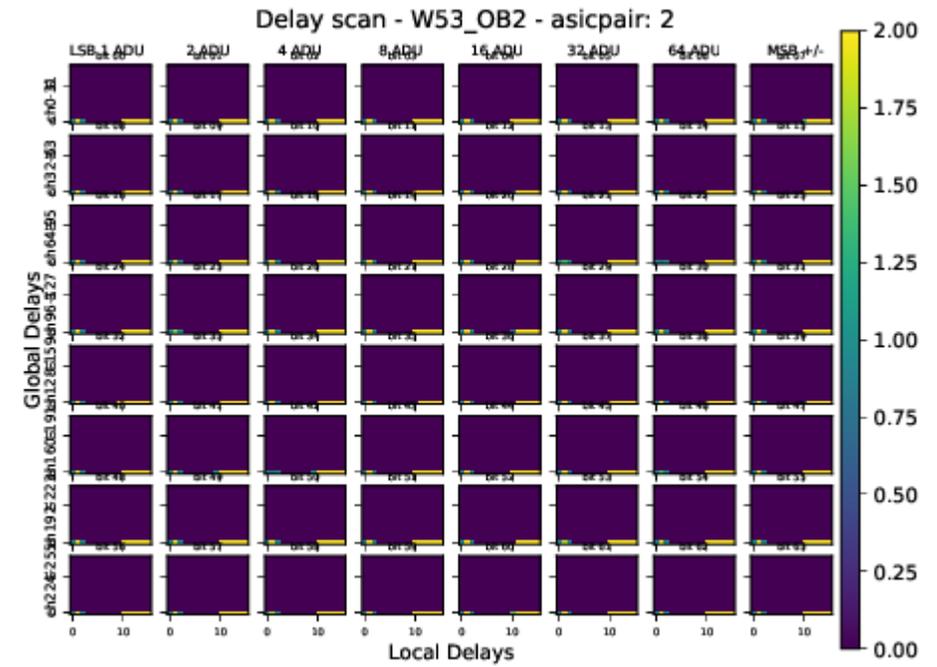
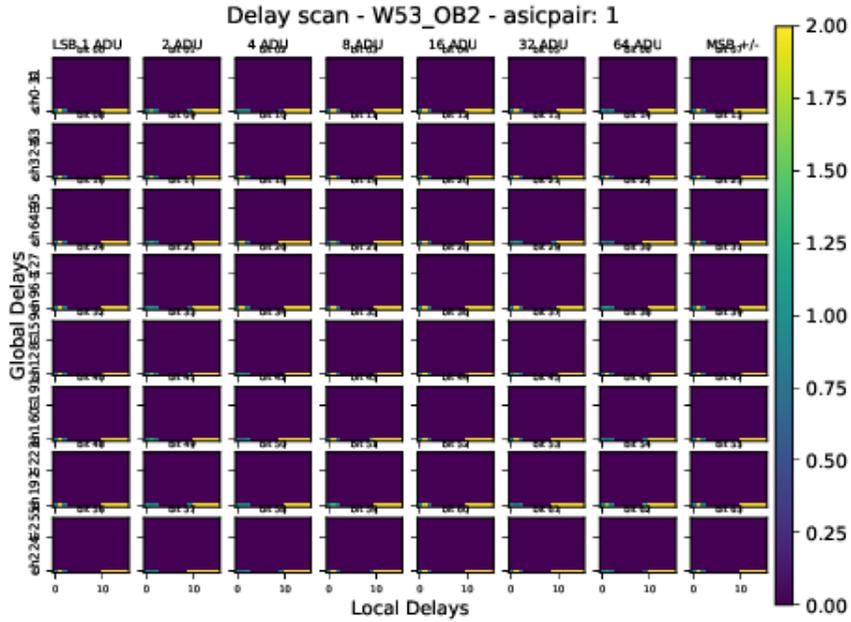


Highspeed link scan

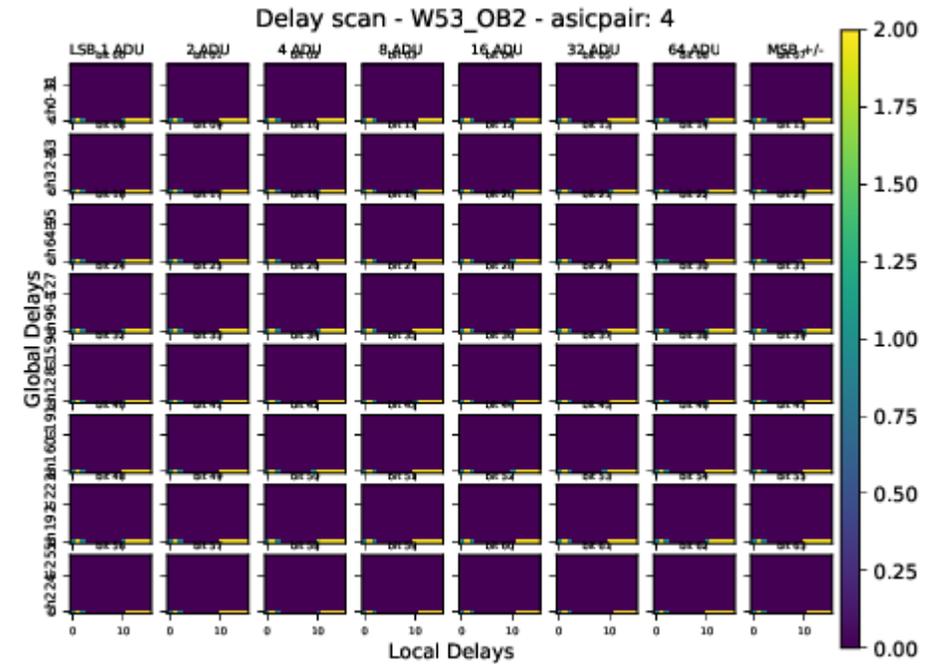
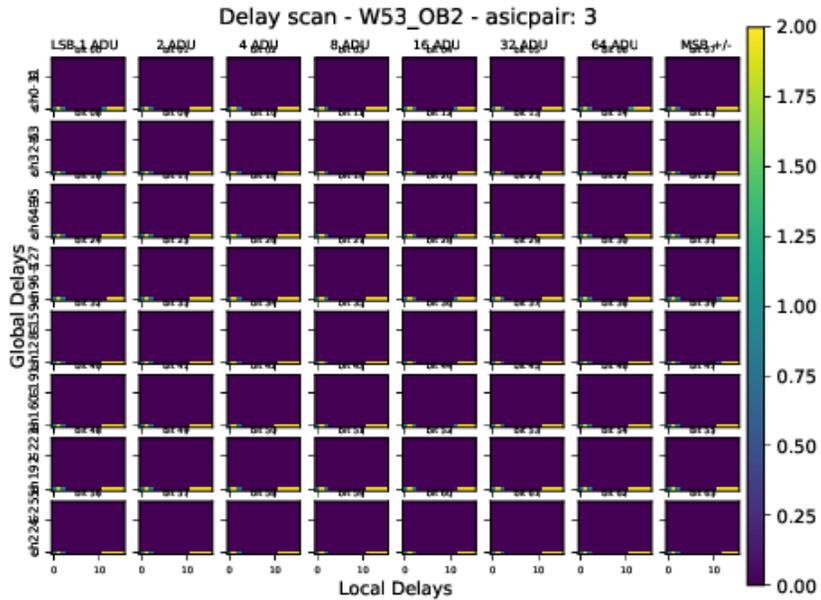
<https://elog.belle2.org/elog/PXD-Mass-Testing/22488>



Delay scan

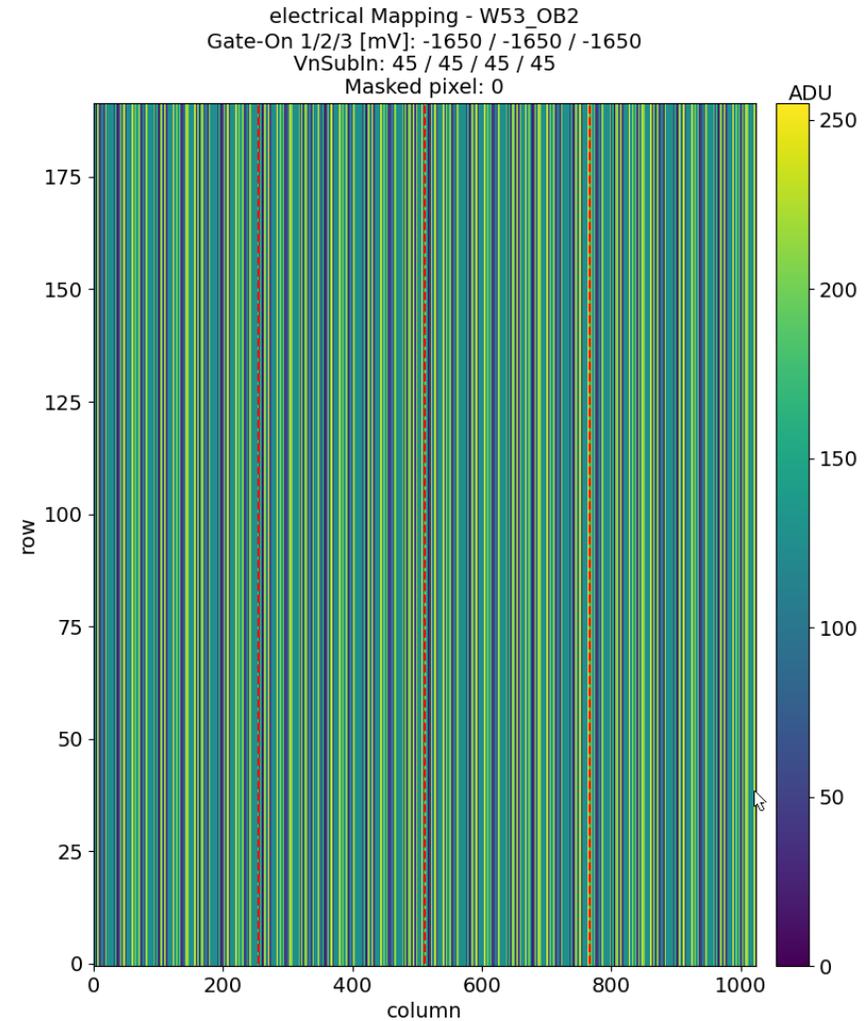
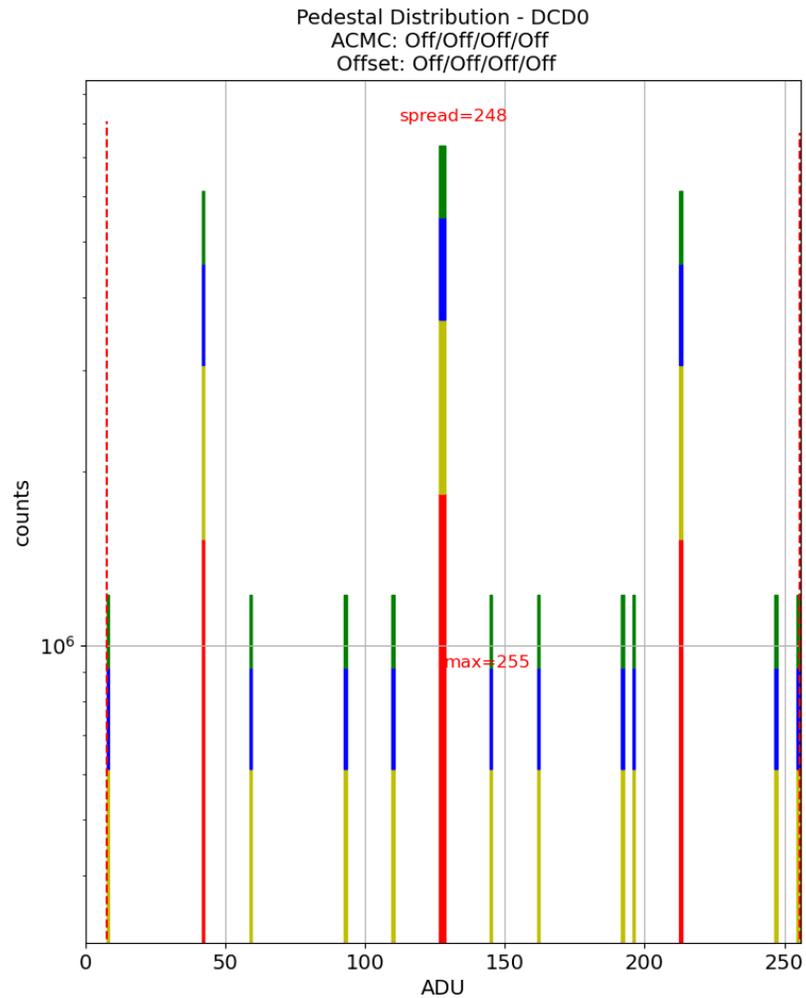


<https://elog.belle2.org/elog/PXD-Mass-Testing/22490>



Delay check

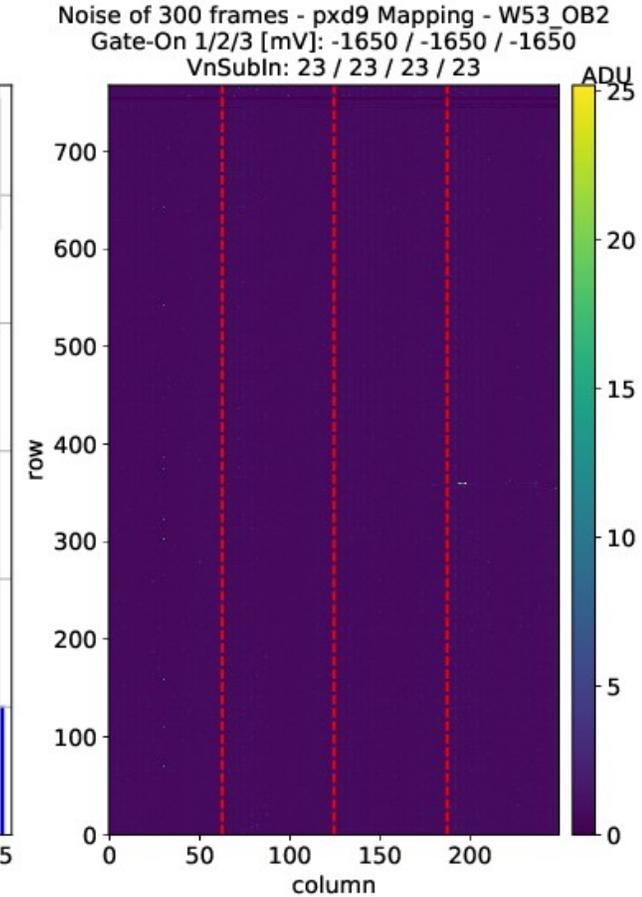
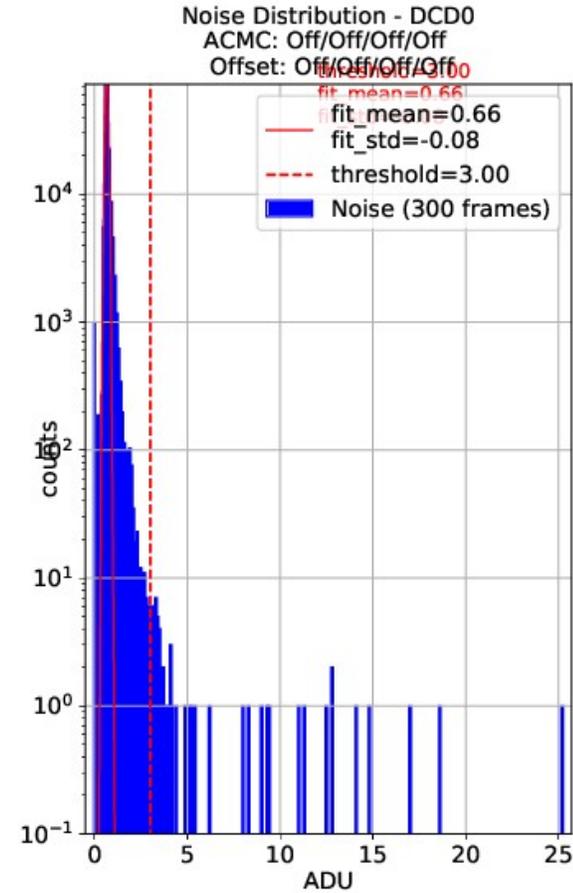
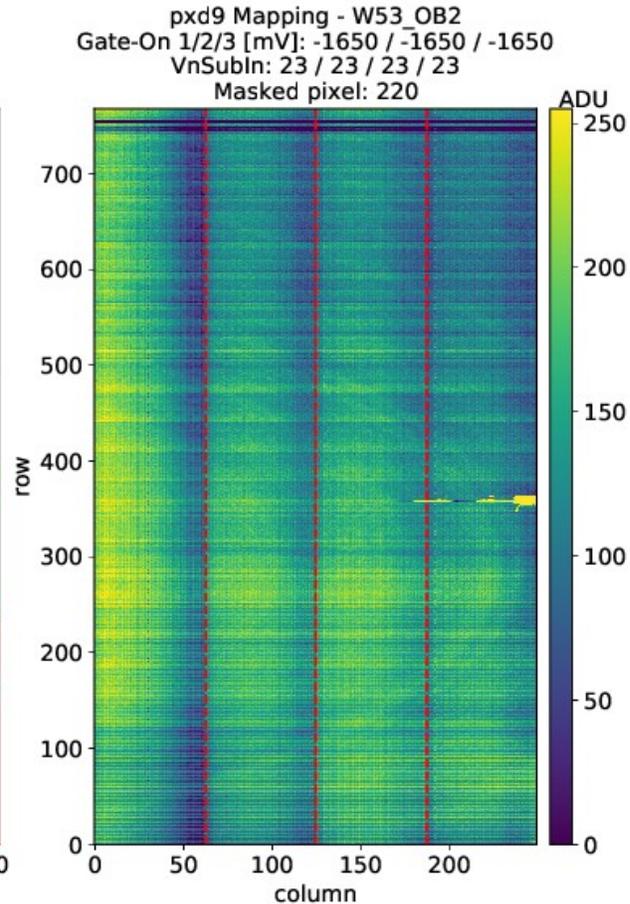
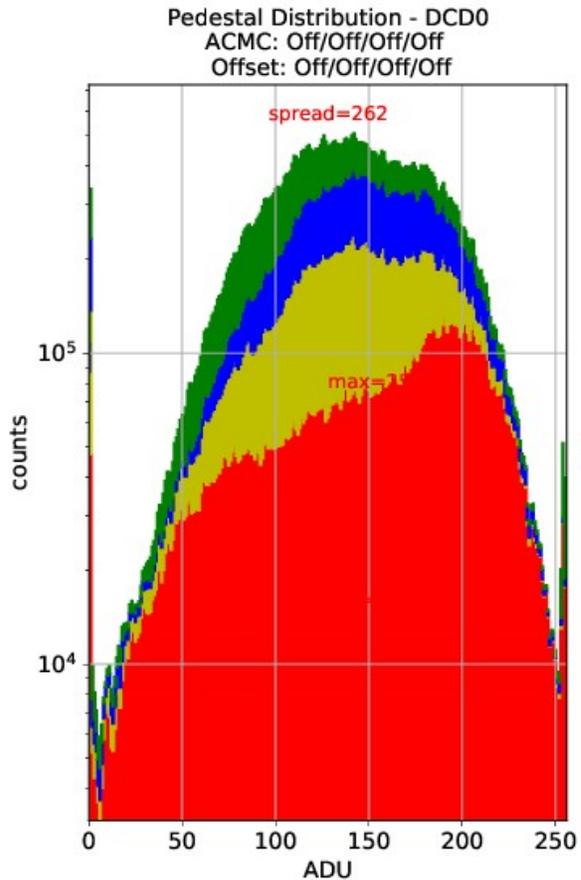
<https://elog.belle2.org/elog/PXD-Mass-Testing/22494>



1000 frame centered pedestals

<https://elog.belle2.org/elog/PXD-Mass-Testing/22496>

new commit with vnsubin=23: commitid 4225



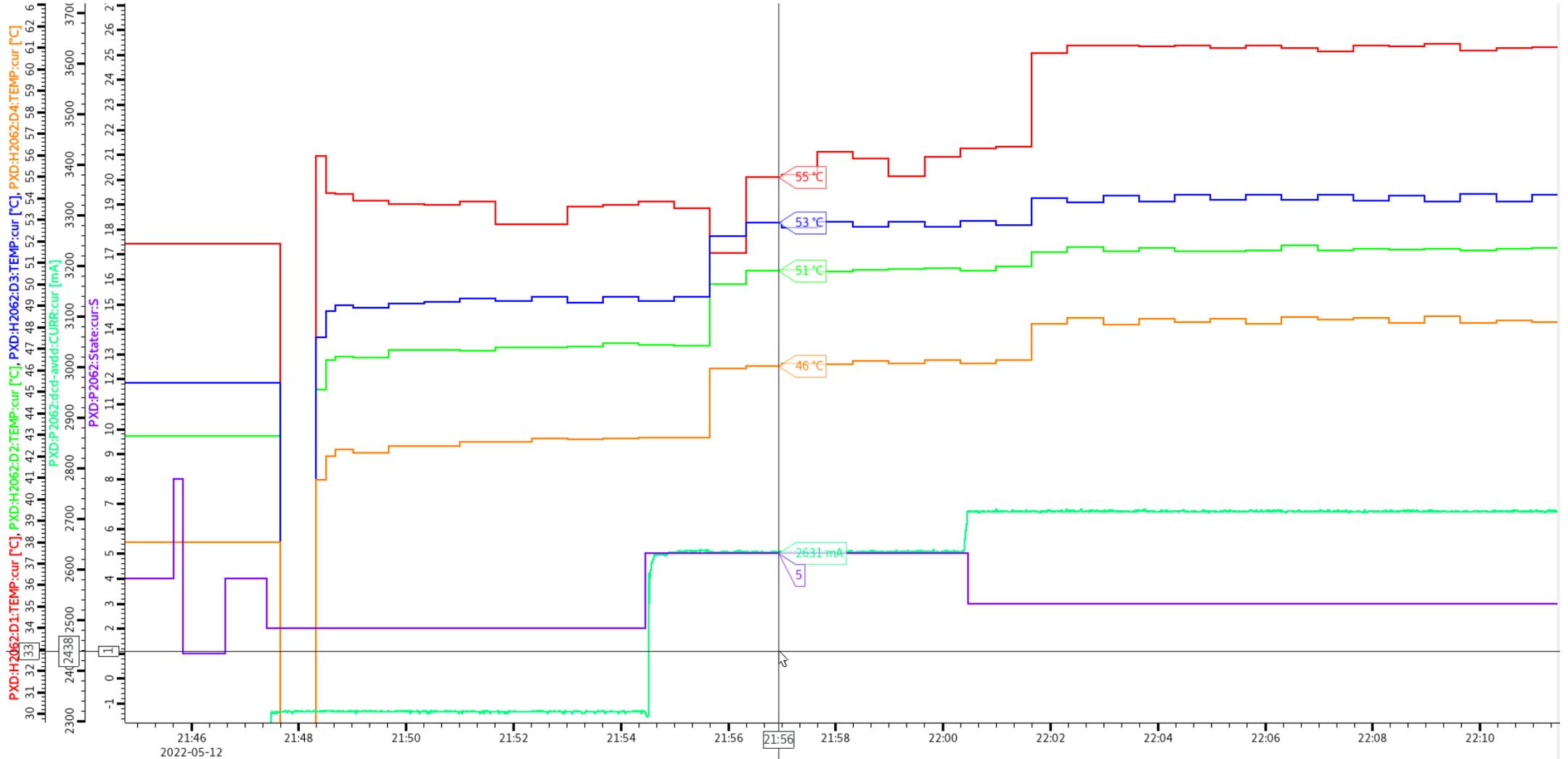
Power Cycle Scan

<https://elog.belle2.org/elog/PXD-Mass-Testing/22498>

- looks like ACMC was activated in the third cycle or DCDs not correctly switched on?
 - only half dcd-amplow (600 mA)
 - only half dcd-avdd (1400 mA)
- also large pedestal differences between loops 2-3 and 3-4 correspondingly

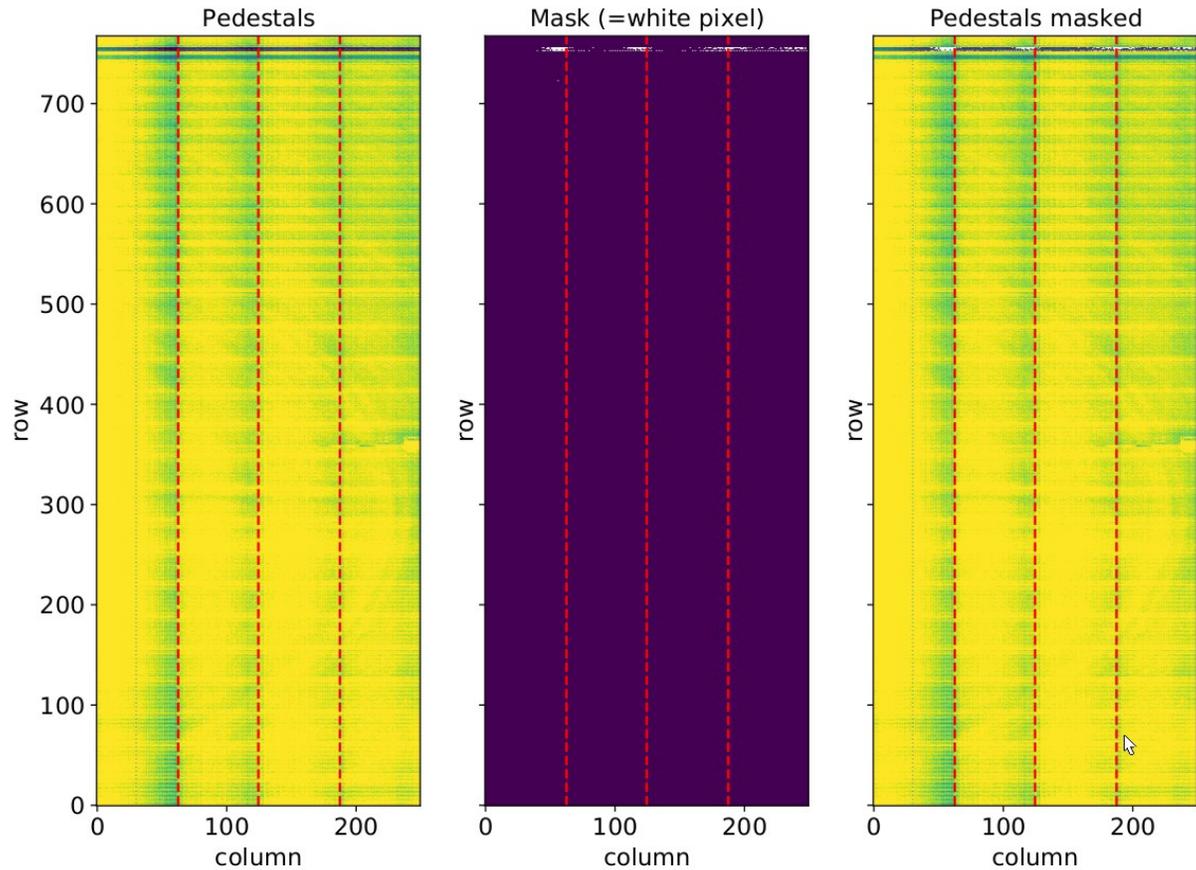
Temperature scan

<https://elog.belle2.org/elog/PXD-Mass-Testing/22499>



Dead pixel map

H2062 - W53_OB2



used pedestals with vnsubin 18 (no ACMC)

<https://elog.belle2.org/elog/PXD-Mass-Testing/22501>

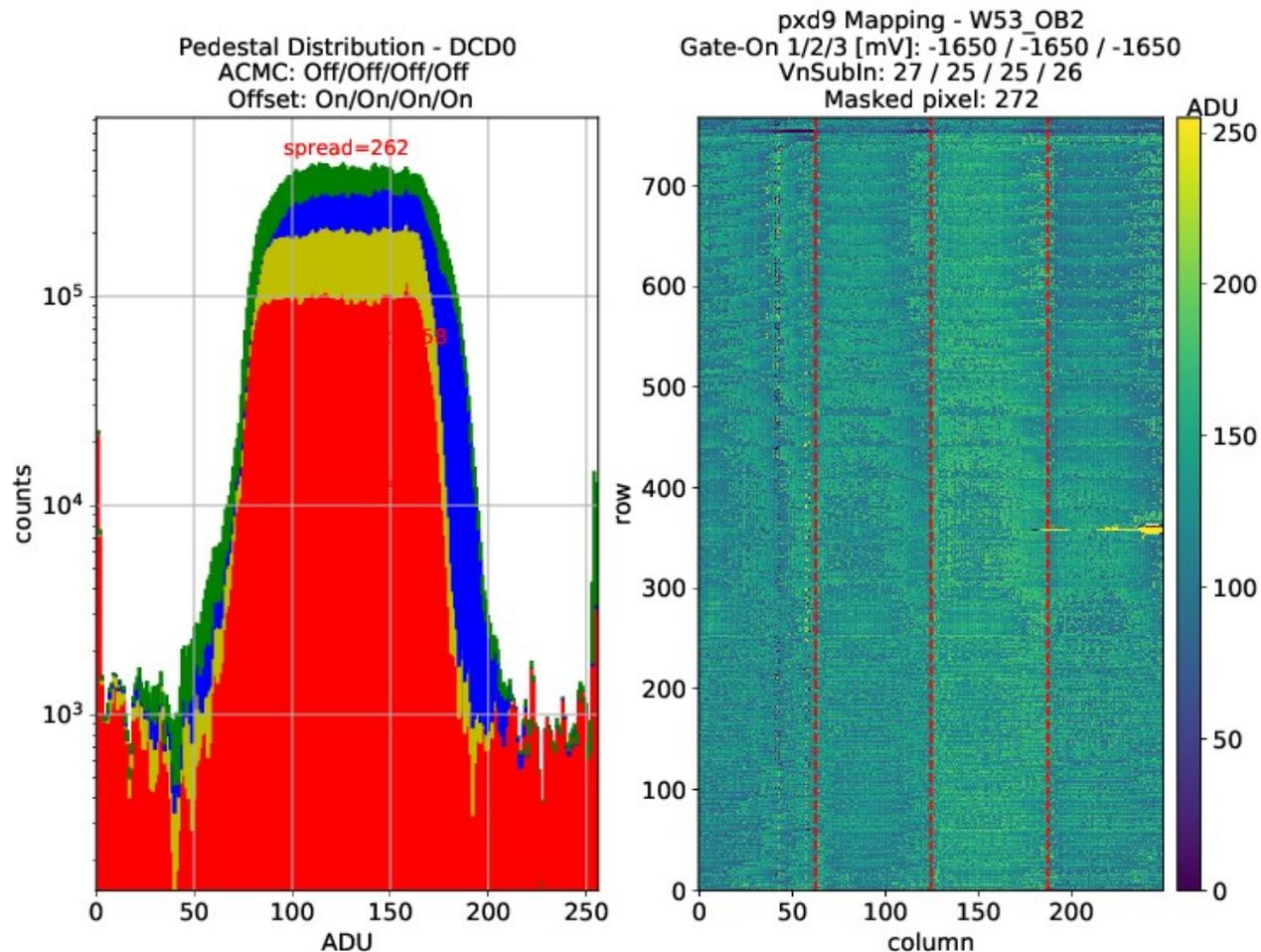
- eelog upload fails with following error

```
(py36) [pxd9@silab24 pedestal]$ ./analysis_broken_drains.py -t 20
2022-05-12 22:24:13,714 analysis_broken_drains::<module> [INFO ]: Start of Pedestal analysis
2022-05-12 22:24:14,324 analysis_broken_drains::<module> [INFO ]: Save mask to /Data5/W53_OB2/pedestal_scan/2022_05_12_014/H2062/pedestal_mask/broken_drains.npy
2022-05-12 22:24:14,696 analysis_broken_drains::<module> [WARNING]: eelog.submitEntry:AttributeError("'eelog' object has no attribute 'path'",)
(py36) [pxd9@silab24 pedestal]$ git status -uno
# HEAD detached at v0.9.2
nothing to commit (use -u to show untracked files)
(py36) [pxd9@silab24 pedestal]$
```

Offset scan

start with vnsubin [26, 25, 25, 25]

<https://elog.belle2.org/elog/PXD-Mass-Testing/22503>

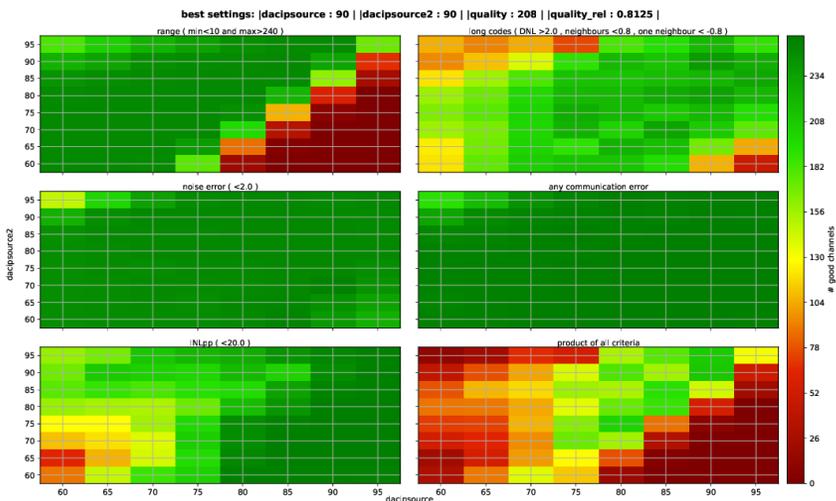


- changed vnsubin to [27, 25, 25, 26]
- commitid 4227
- <- resulting pedestals
<https://elog.belle2.org/elog/PXD-Mass-Testing/22505>
- nice, but some fishy offset lines in right part of leftmost DCD..

ADC scan ipsource-ipsource2

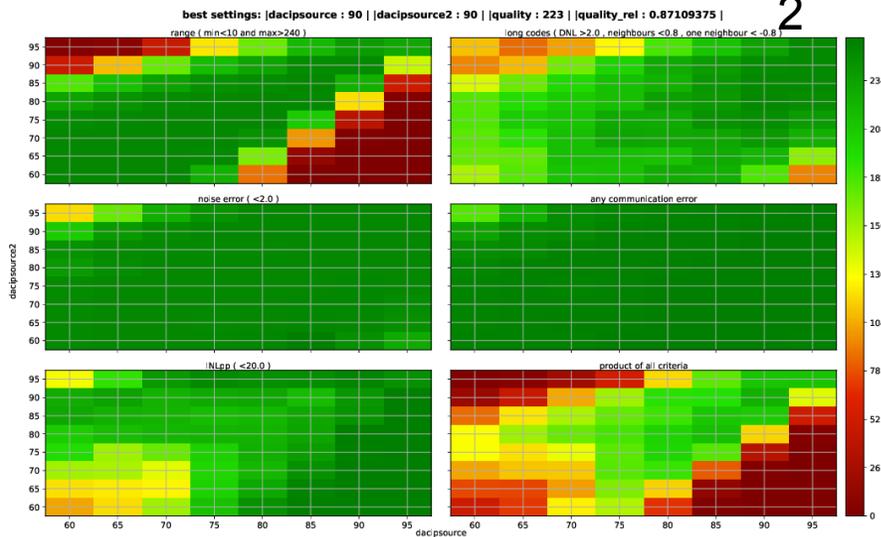
<https://elog.belle2.org/elog/PXD-Mass-Testing/22507>

1

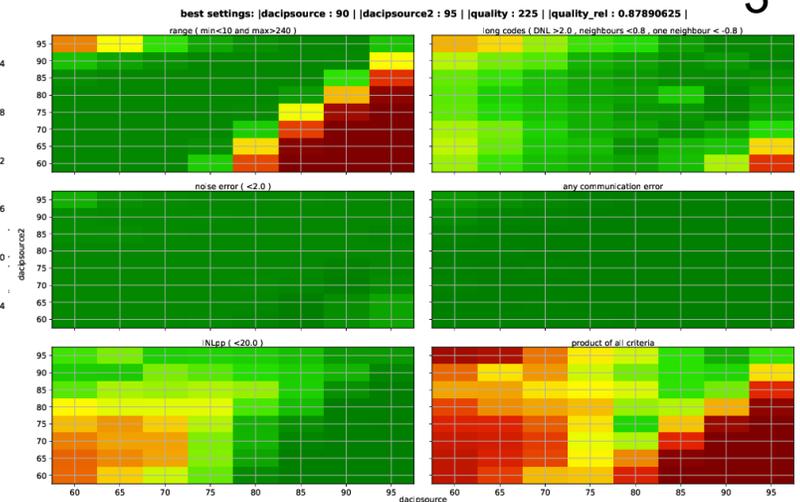


- active_gate = 123
- ips/ips2: [90/90, 90/90, 90/95, 90/80]
- INL: [13, 14, 14, 17]
- grade A channels: [208, 223, 225, 176]
- grade B channels: [40, 27, 25, 74]
- dead channels: [2, 0, 0, 0]
- good 998, dead 2
- it looks like low INL and range criteria are mutually excluding each other

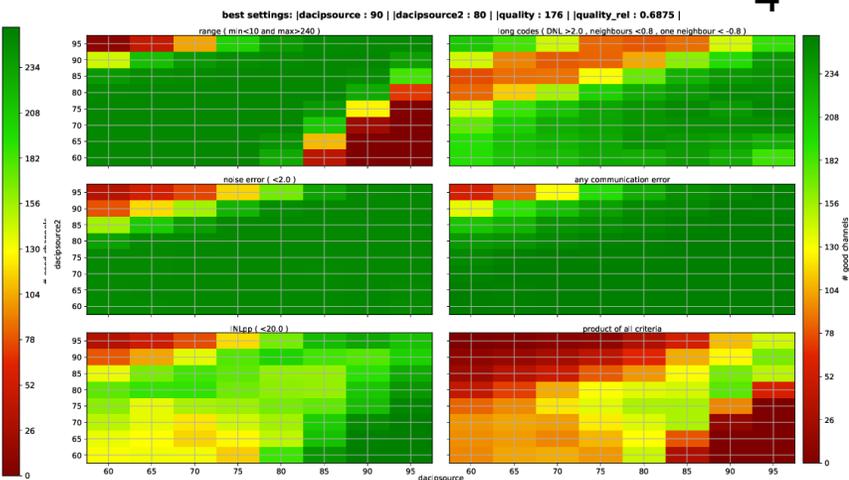
2



3



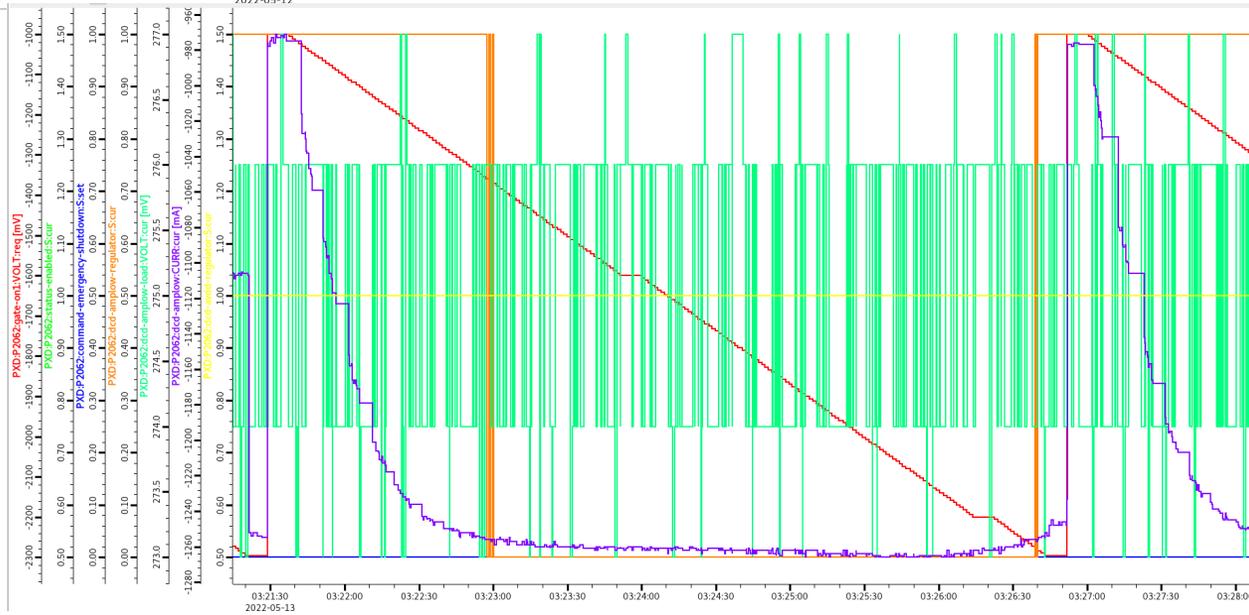
4



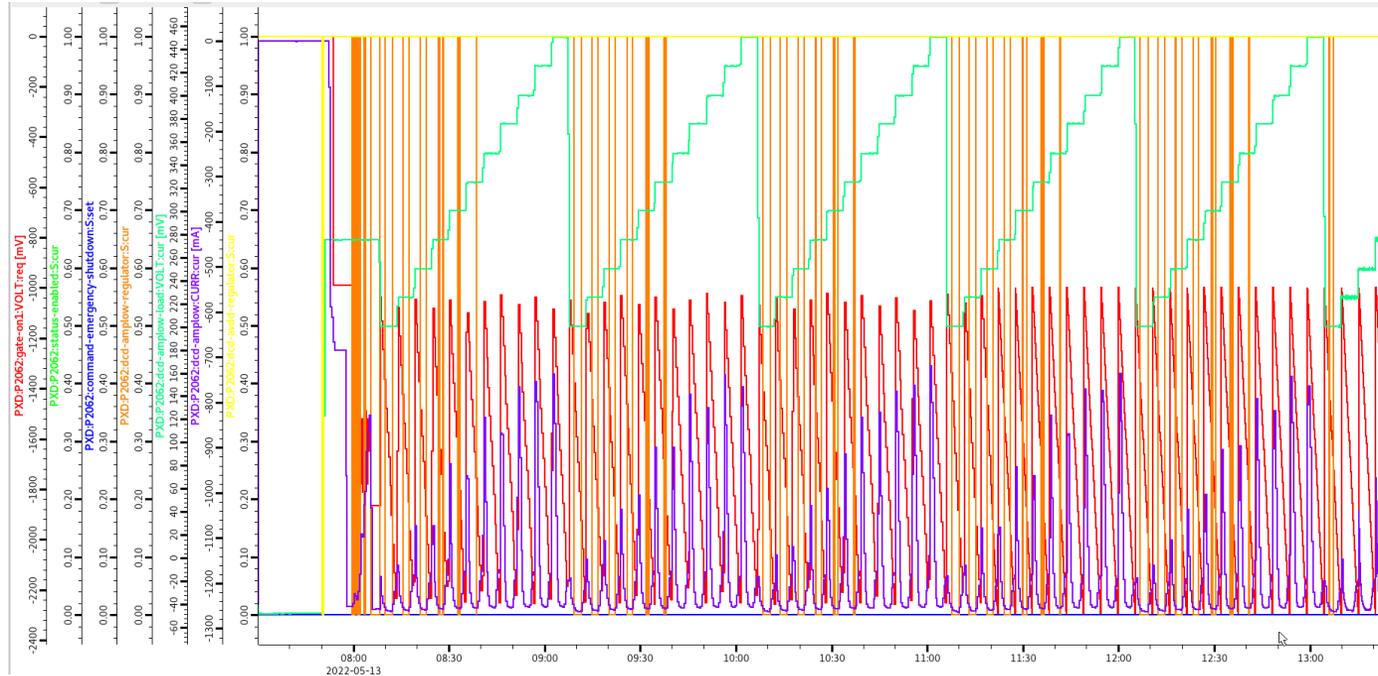
ADC scan ipsource-ipsource2



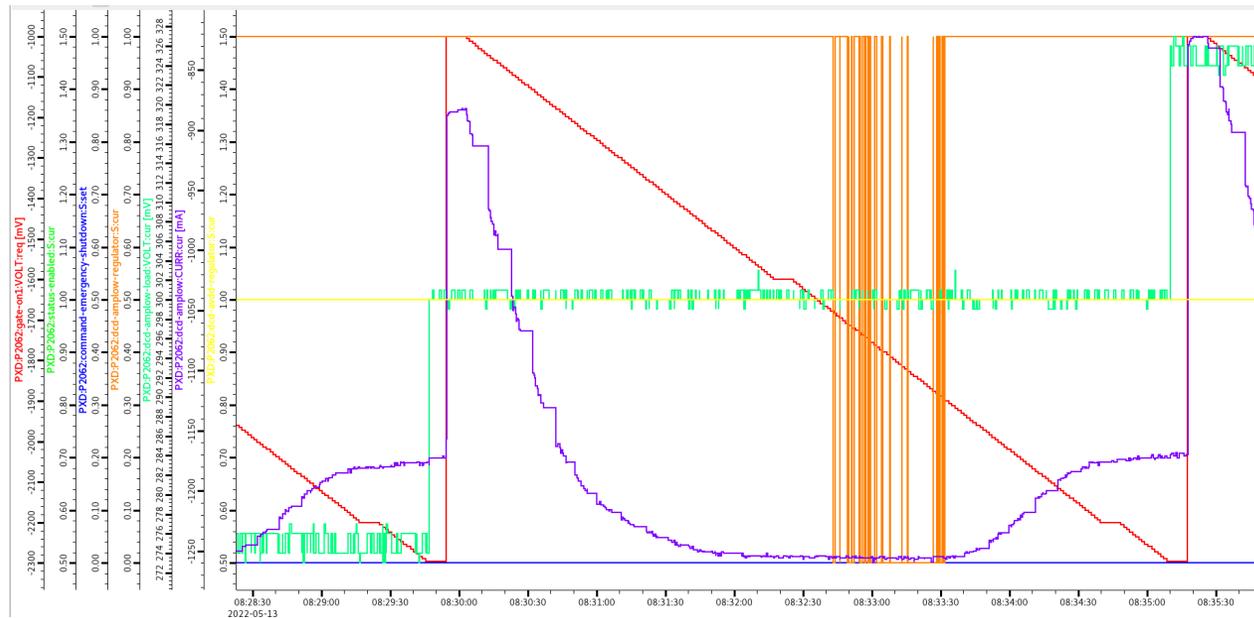
- after the measurement it was seen that the amplow regulator went into cc mode during several curves (orange spikes)
- but the amplow sensed voltage did not seem to be affected



ADC scan refin-amplow



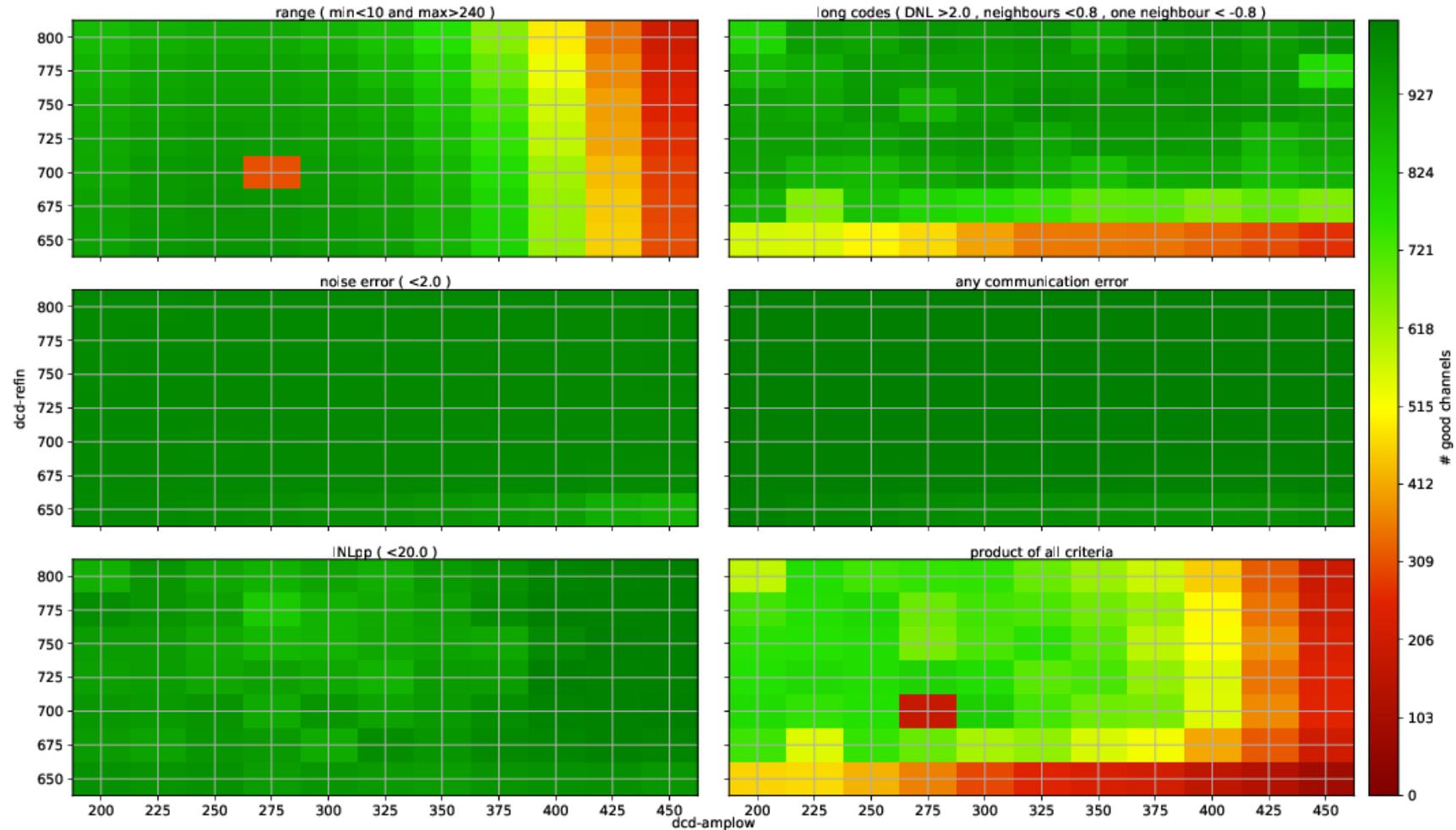
- also during amplow-refin scan the amplow limit was reached
- limit increased to 1400 mA at ~13:10



ADC scan refin-amplow

<https://elog.belle2.org/elog/PXD-Mass-Testing/22509>

best settings: |dcd-amplow : 300 | |dcd-refin : 700 | |quality : 815 | |quality_rel : 0.7958984375 |

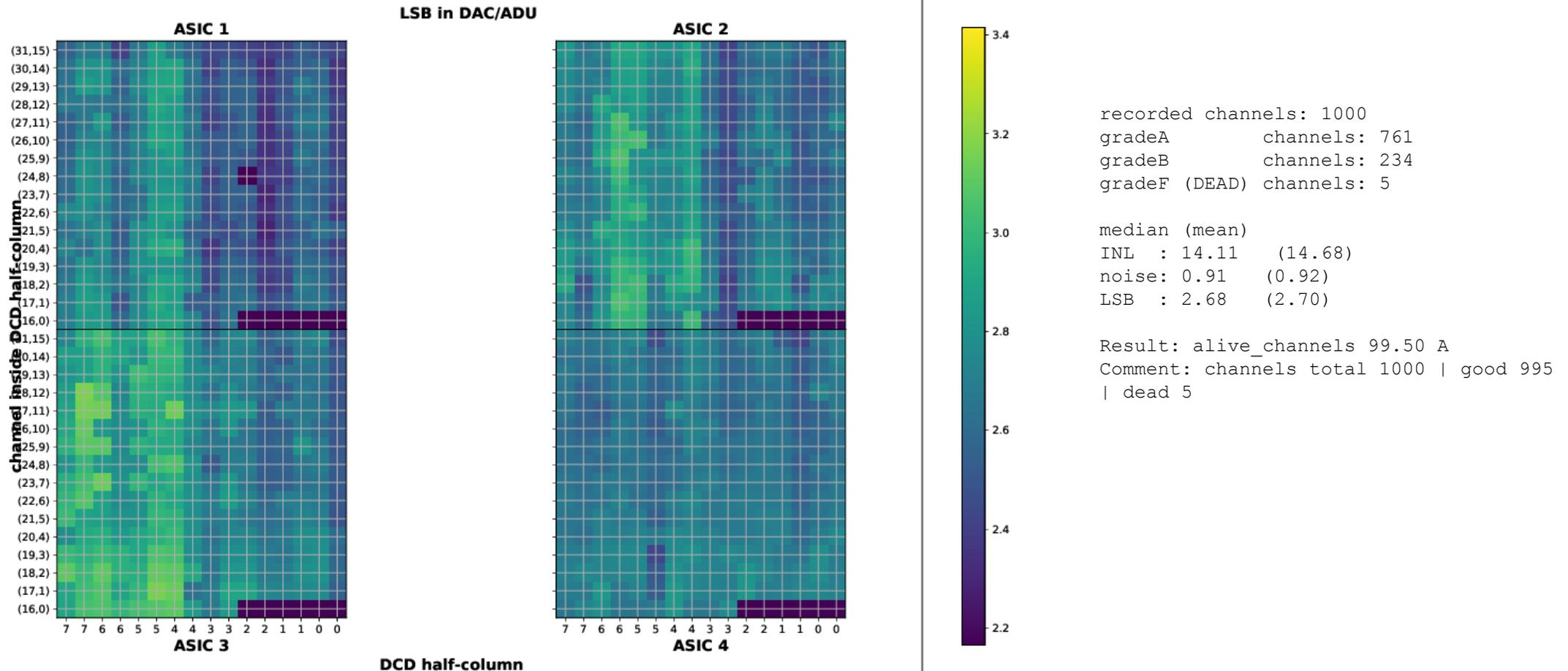


ADC scan

ifbpbias <https://elog.belle2.org/elog/PXD-Mass-Testing/22511>

ipsourcemiddle: <https://elog.belle2.org/elog/PXD-Mass-Testing/22513>

allchannels working point: <https://elog.belle2.org/elog/PXD-Mass-Testing/22515>



Commit update 4231

```
(py36) [pxd9@silab24 adc_curve]$ ./update.py --db -id 4227 -f /Data5/W53_OB2/adc_curve/gate/ipsource-ipsource2/2022_05_12_001/analysis.npy
2022-05-13 20:34:10,394 update::<module> [INFO ]: updating configDB commitID 4227 with data from /Data5/W53_OB2/adc_curve/gate/ipsource-ipsource2/2022_05_12_001/analysis.npy
Created new commit #4228
Commit successful
```

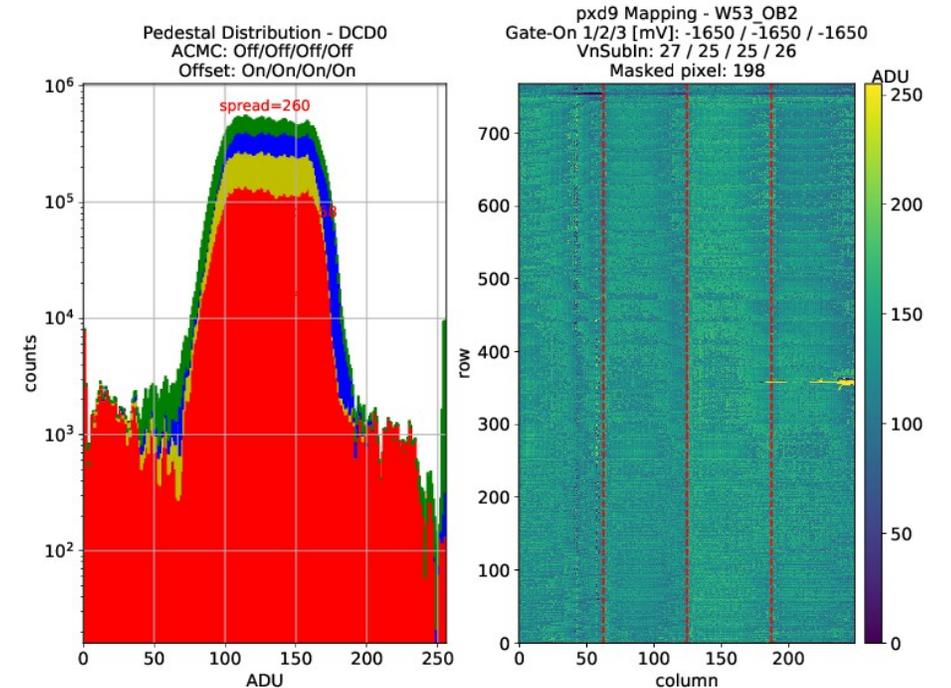
```
(py36) [pxd9@silab24 adc_curve]$ ./update.py --db -id 4228 -f /Data5/W53_OB2/adc_curve/gate/dcd-refin-dcd-amplow/2022_05_13_002/analysis.npy
2022-05-13 20:35:09,638 update::<module> [INFO ]: updating configDB commitID 4228 with data from /Data5/W53_OB2/adc_curve/gate/dcd-refin-dcd-amplow/2022_05_13_002/analysis.npy
Created new commit #4229
Commit successful
```

```
(py36) [pxd9@silab24 adc_curve]$ ./update.py --db -id 4229 -f /Data5/W53_OB2/adc_curve/gate/ifbpbias/2022_05_13_001/analysis.npy
2022-05-13 20:35:34,664 update::<module> [INFO ]: updating configDB commitID 4229 with data from /Data5/W53_OB2/adc_curve/gate/ifbpbias/2022_05_13_001/analysis.npy
Created new commit #4230
Commit successful
```

```
(py36) [pxd9@silab24 adc_curve]$ ./update.py --db -id 4230 -f /Data5/W53_OB2/adc_curve/gate/ipsource_middle/2022_05_13_001/analysis.npy
2022-05-13 20:36:02,128 update::<module> [INFO ]: updating configDB commitID 4230 with data from /Data5/W53_OB2/adc_curve/gate/ipsource_middle/2022_05_13_001/analysis.npy
Created new commit #4231
Commit successful
```

Pedestals after power cycle

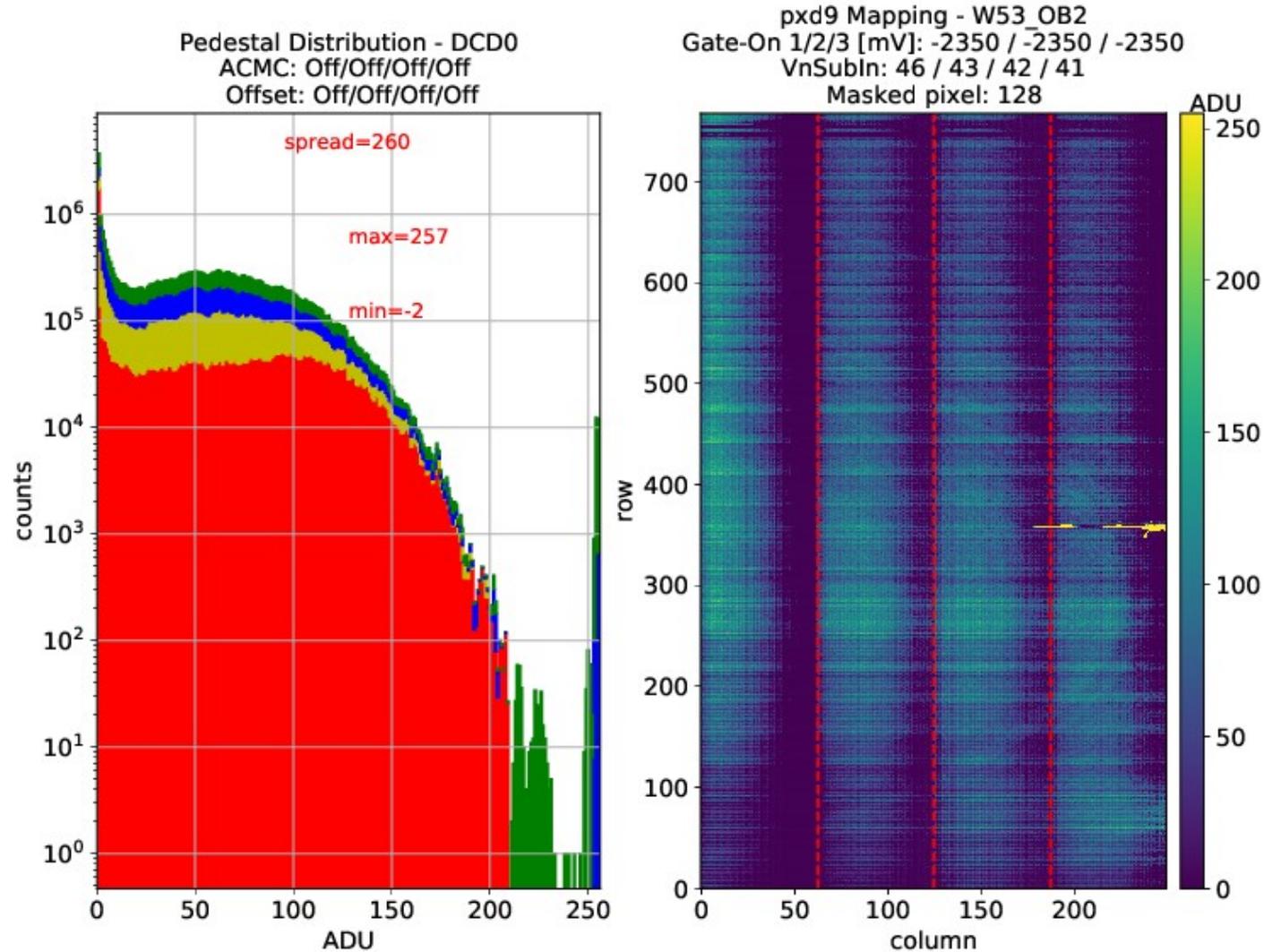
<https://elog.belle2.org/elog/PXD-Mass-Testing/22517>



Pedestals commit 4232 before offset 2

<https://elog.belle2.org/elog/PXD-Mass-Testing/22519>

vnsubin = [46, 43, 42, 41]



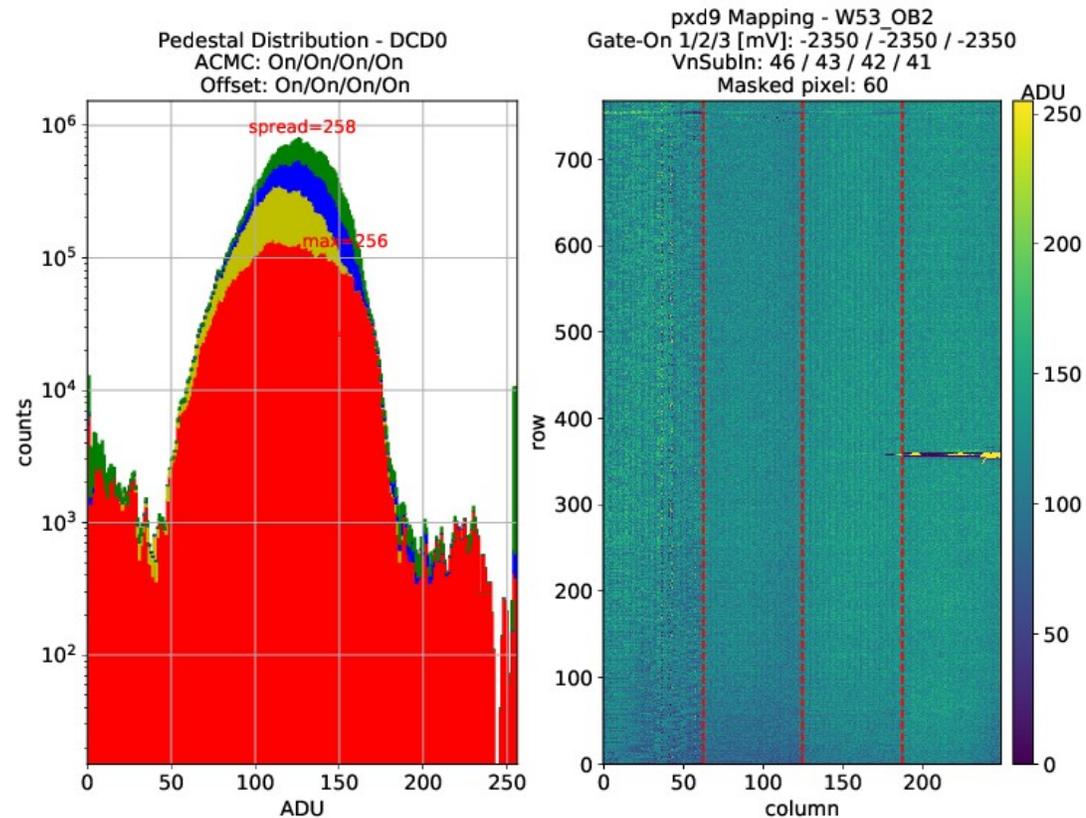
Offsets 2

<https://elog.belle2.org/elog/PXD-Commissioning-KEK/20683>

adjust vnsubout with ACMC =60,50,50,50 -> commitid 4234

Pedestals with ACMC

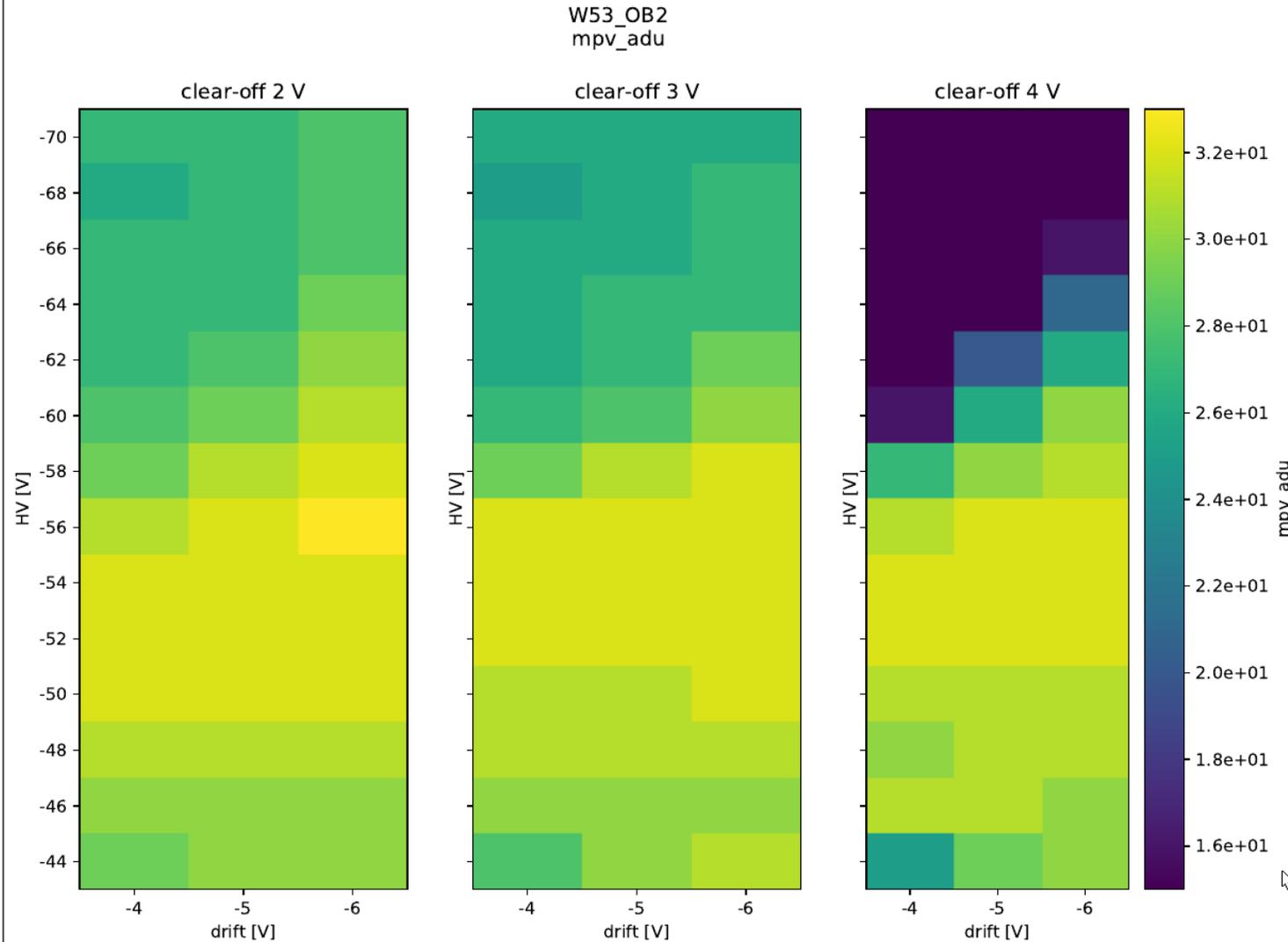
<https://elog.belle2.org/elog/PXD-Mass-Testing/22525>



- dcd 2,3,4 have ipdac ~11
- dcd 1 has ipdac = 21
- dcd 1 also has suspicious offset lines... coincidence?

Source scan

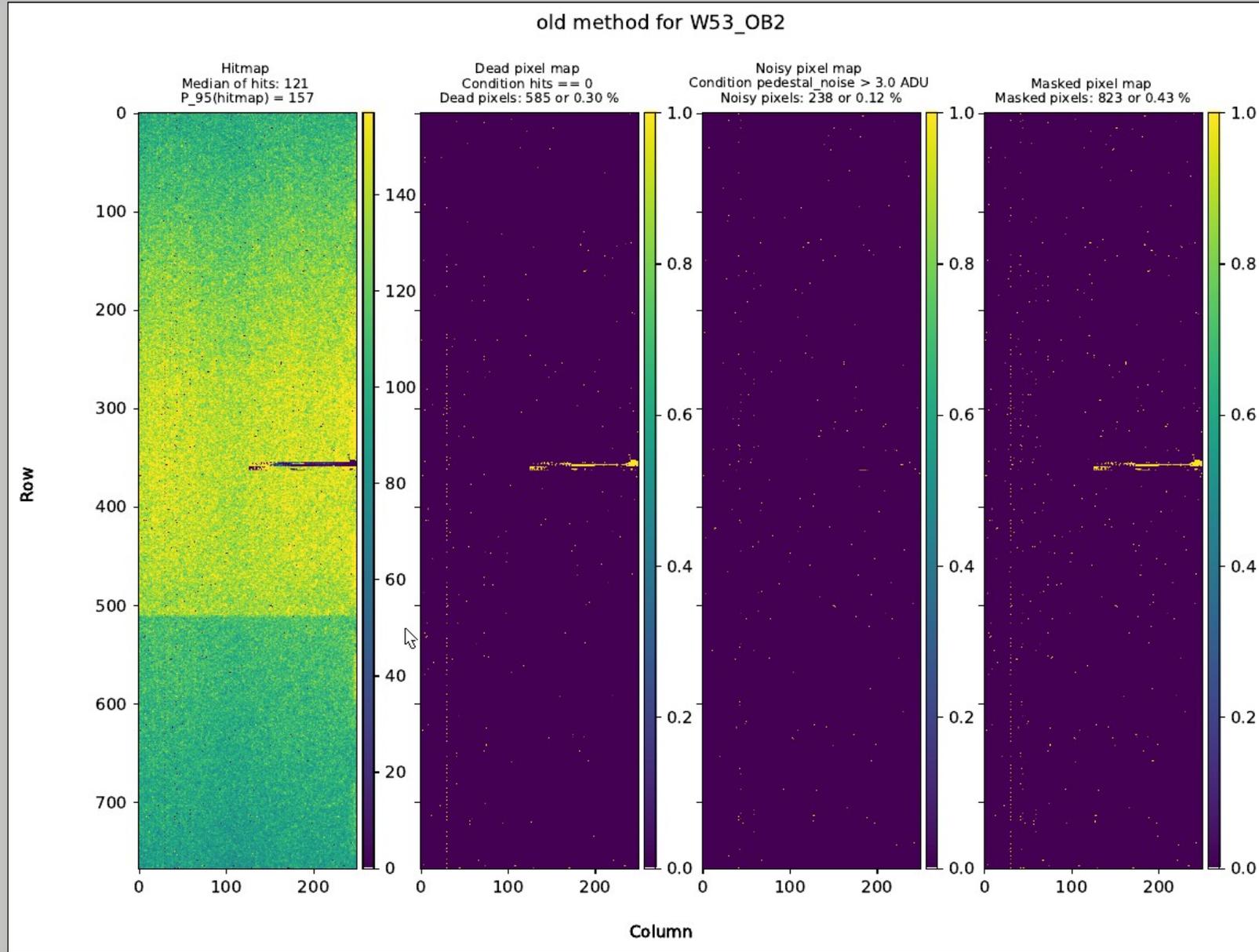
<https://elog.belle2.org/elog/PXD-Mass-Testing/22529>



- optimum
 - HV -56 V
 - drift -6 V
 - clear-off 2 V

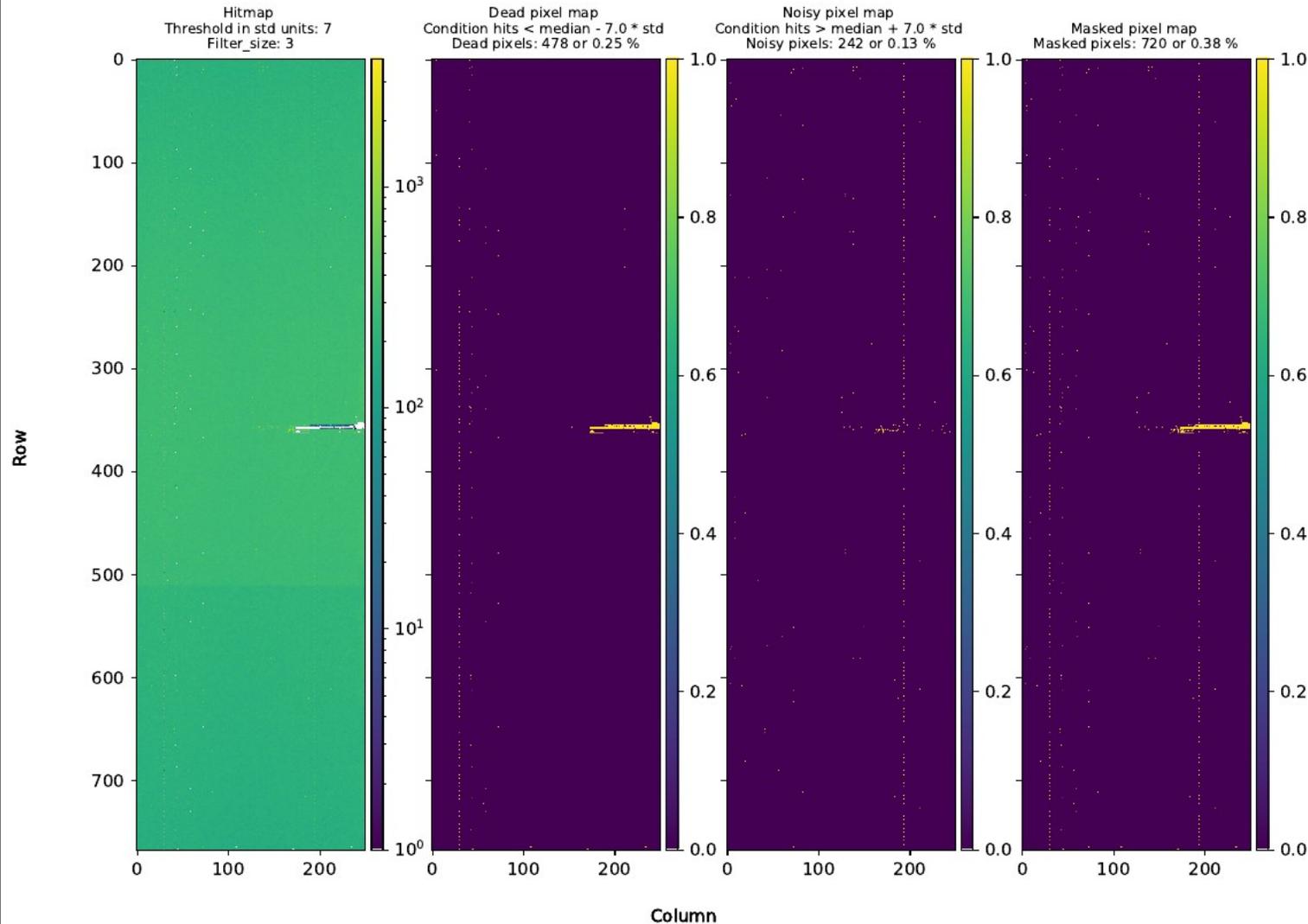
Source scan best setting

<https://elog.belle2.org/elog/PXD-Mass-Testing/22531>



Source scan best setting

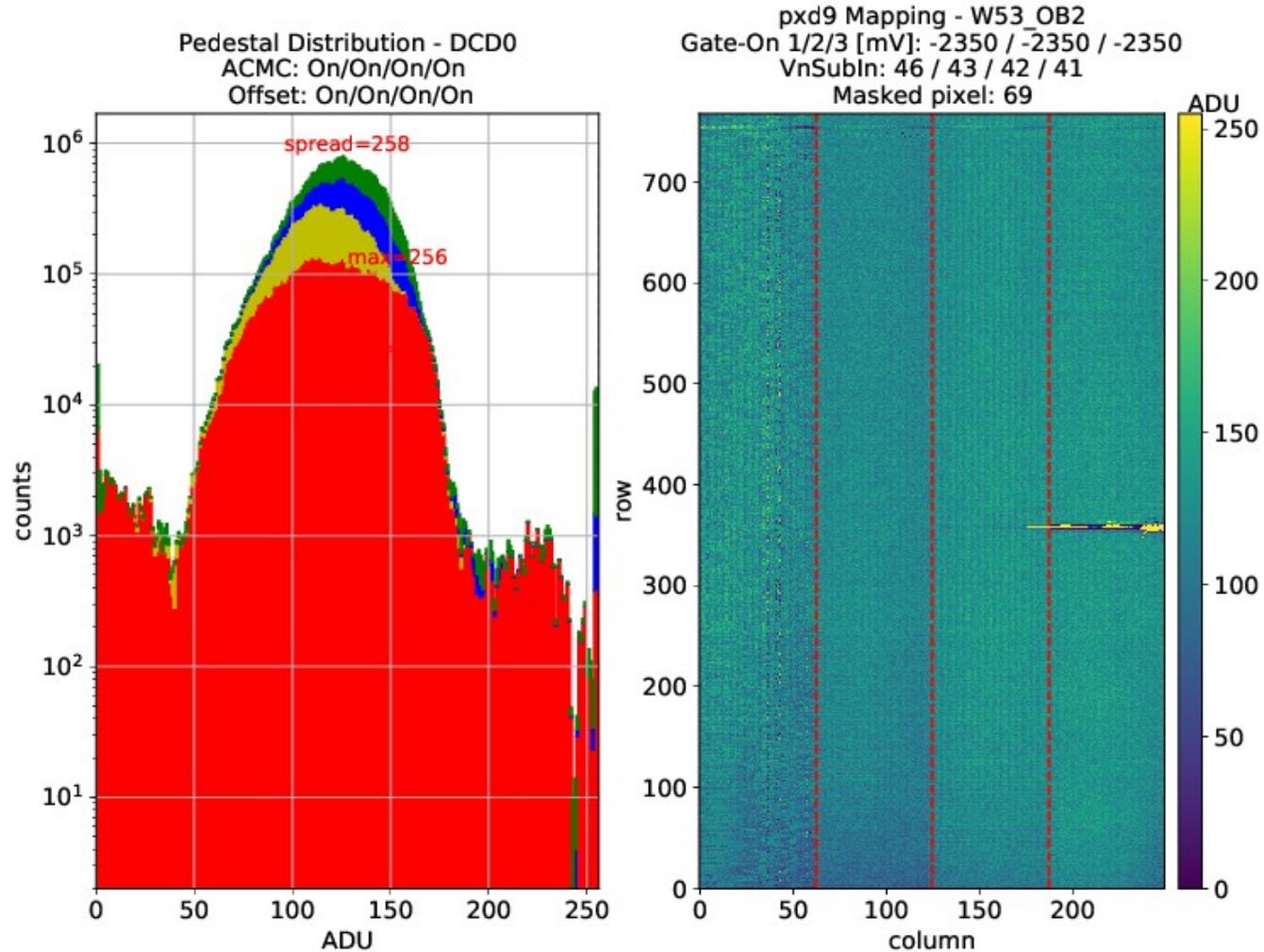
new method for W53_OB2



- < 0.5 % dead pixels
-> grade A

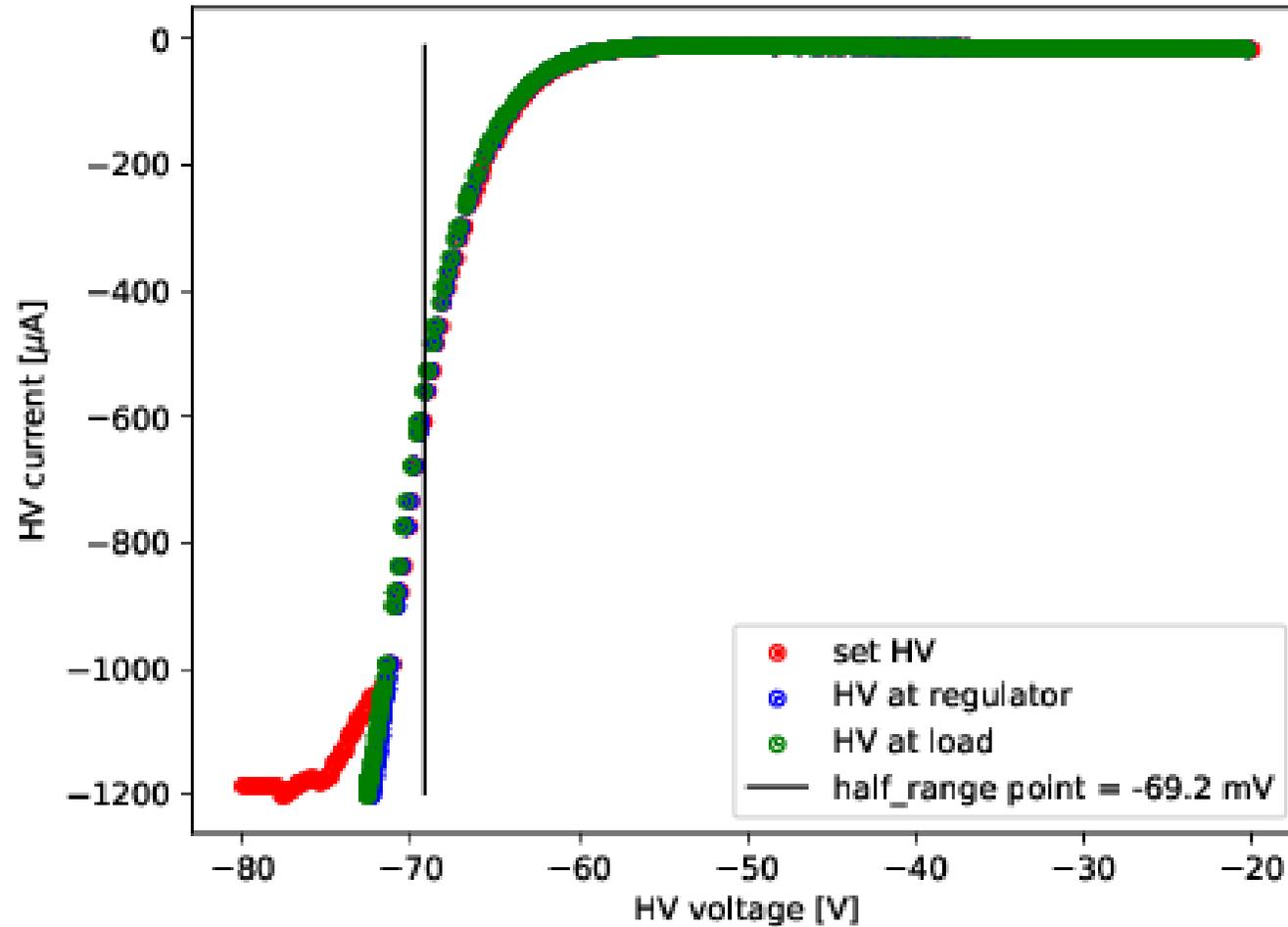
pedestals commit 4235

<https://elog.belle2.org/elog/PXD-Mass-Testing/22533>



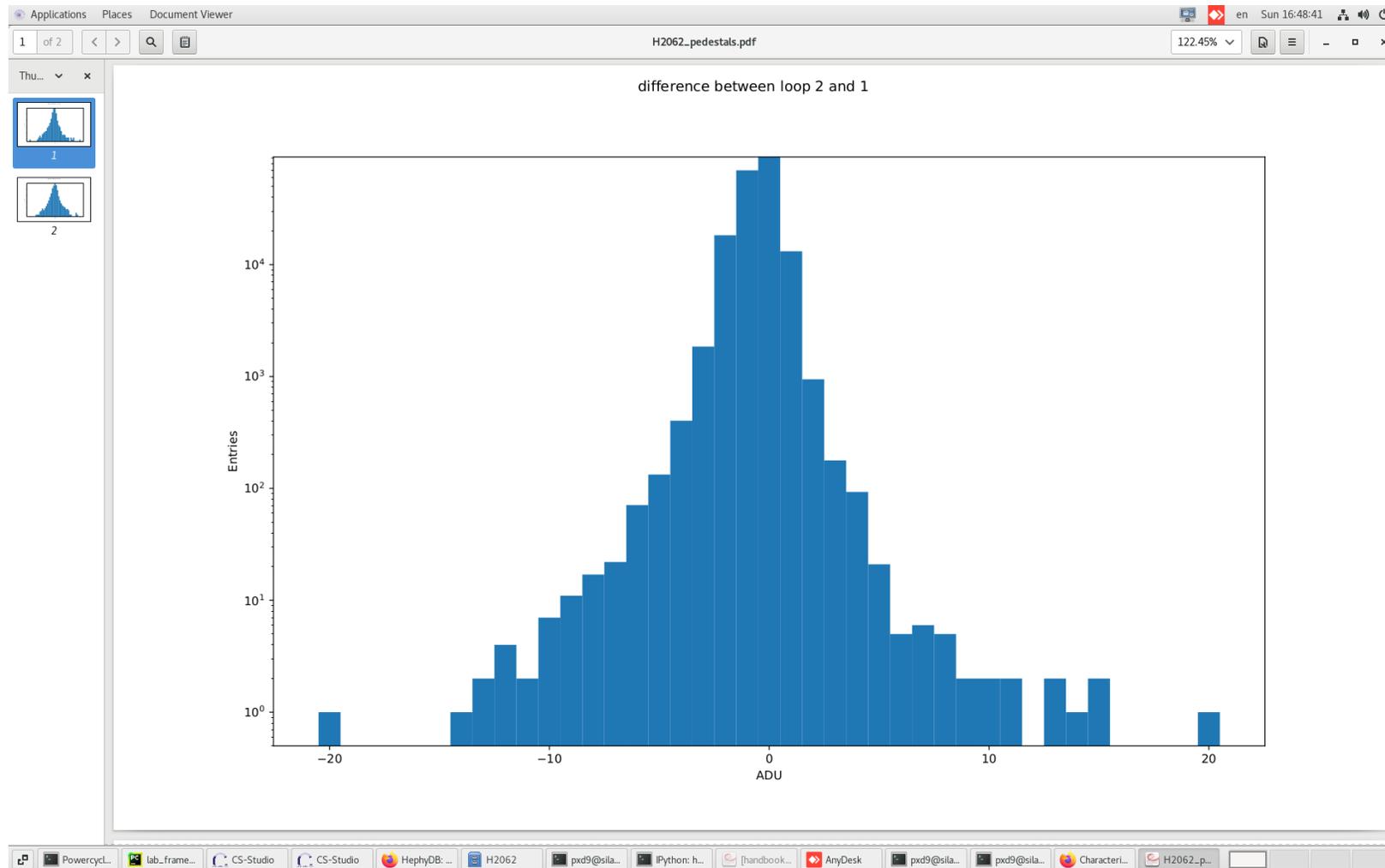
HV IV scan 2

<https://elog.belle2.org/elog/PXD-Mass-Testing/22535>



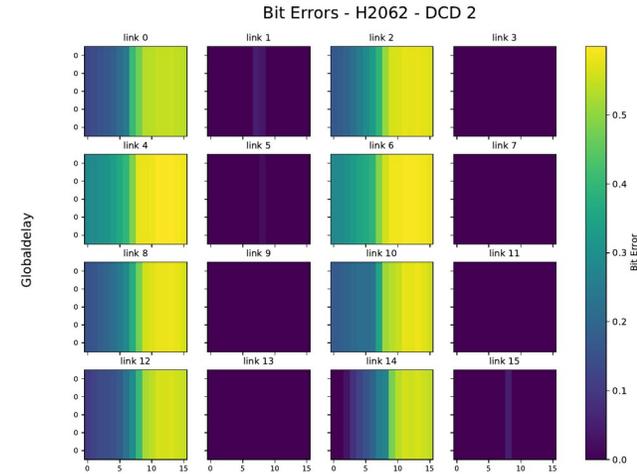
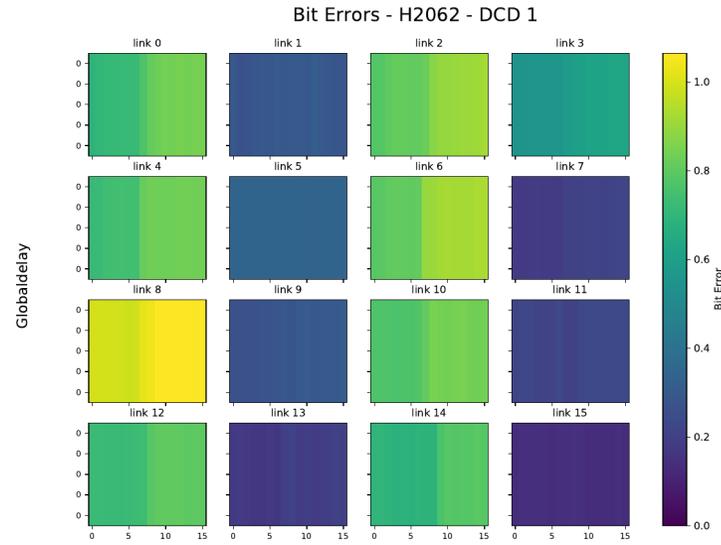
power cycle scan 2

<https://elog.belle2.org/elog/PXD-Mass-Testing/22539>

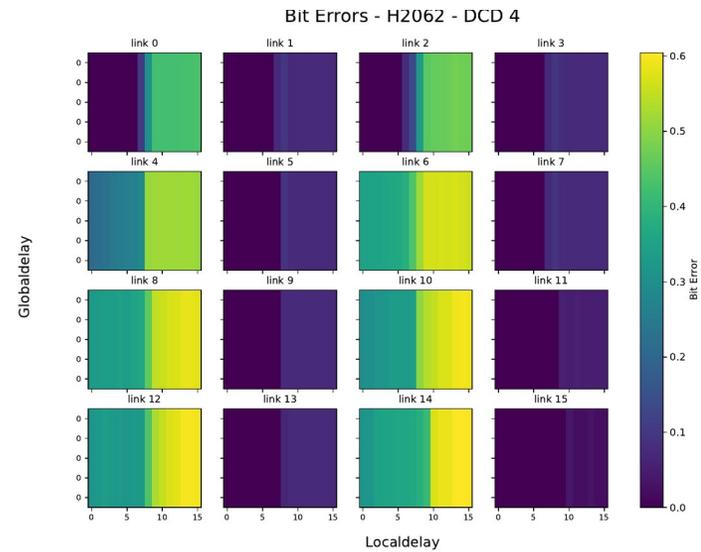
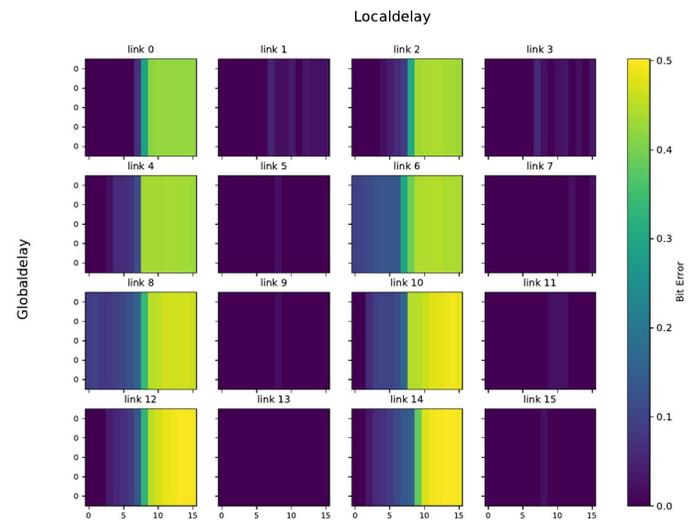


offset delays

stripes1 pattern <https://elog.belle2.org/elog/PXD-Mass-Testing/22541>

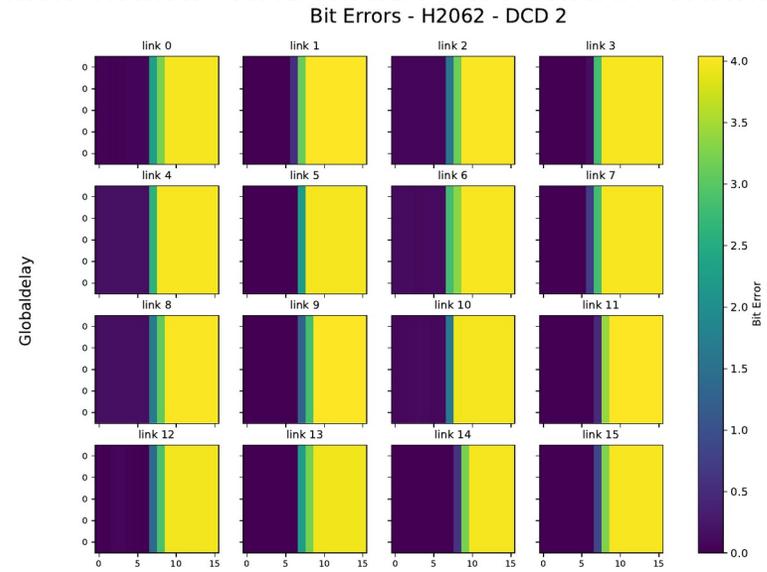
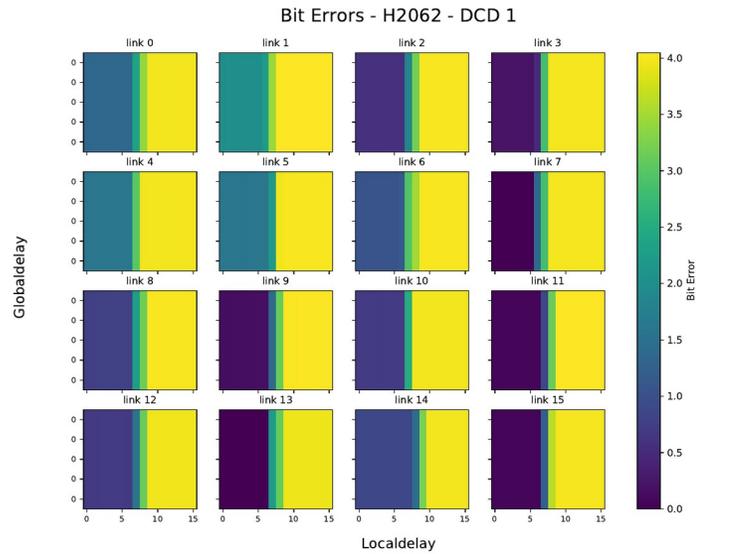


- dcd 1 link 8 looks irregular

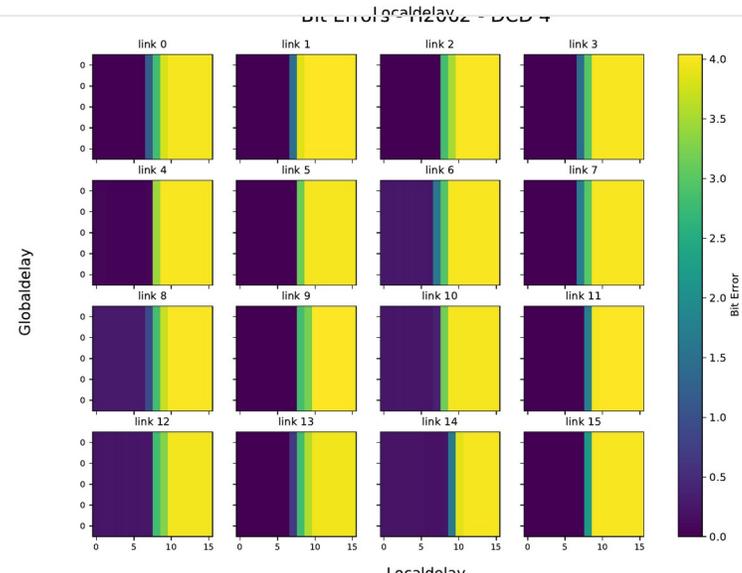
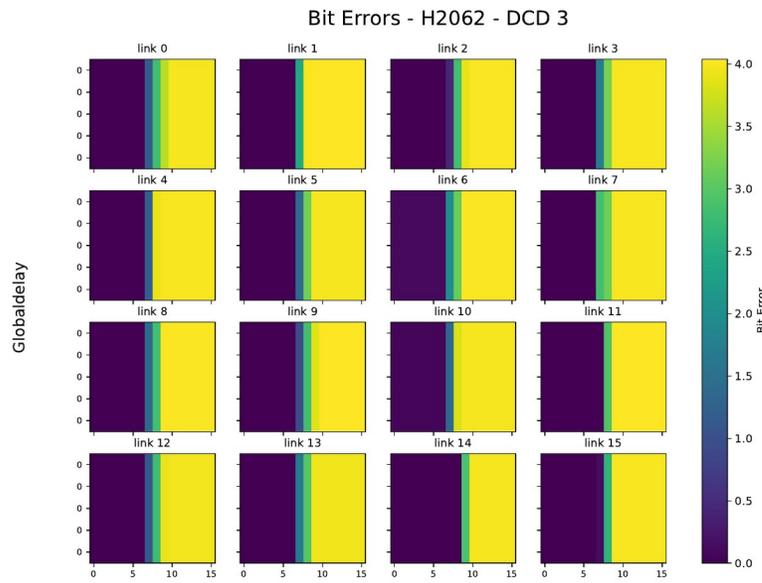


Offset delays

random pattern <https://elna.belle2.org/elna/PXD-Mass-Testing/22543>



- no strong irregularity in dcd1 link 8?



offset delays

stripes3 pattern: <https://elog.belle2.org/elog/PXD-Mass-Testing/22545>

