

# INTT weekly meeting

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**2021/07/20**

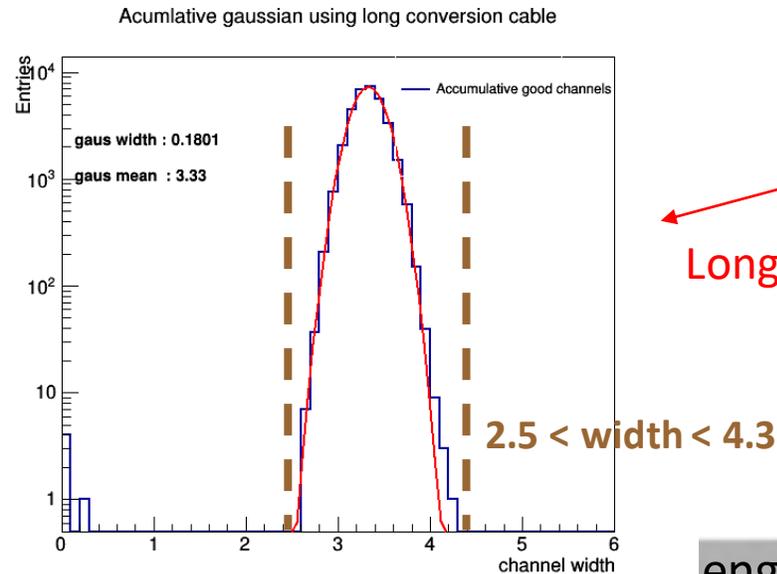
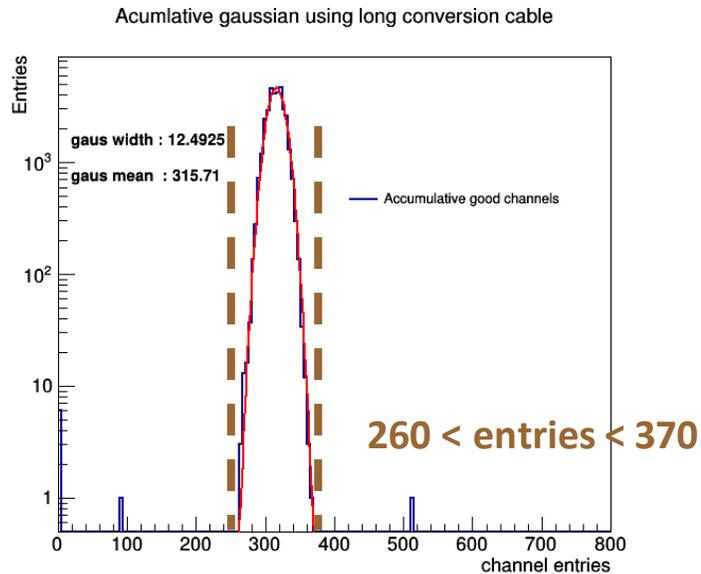
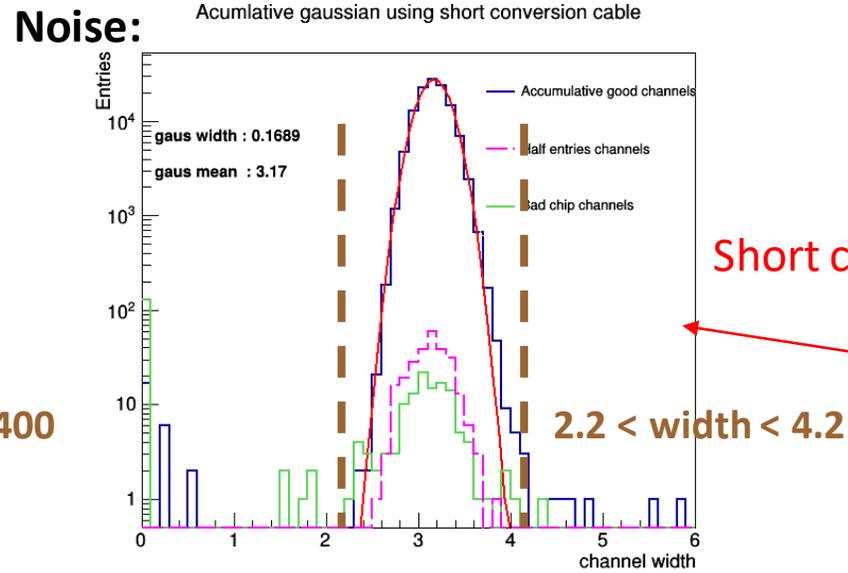
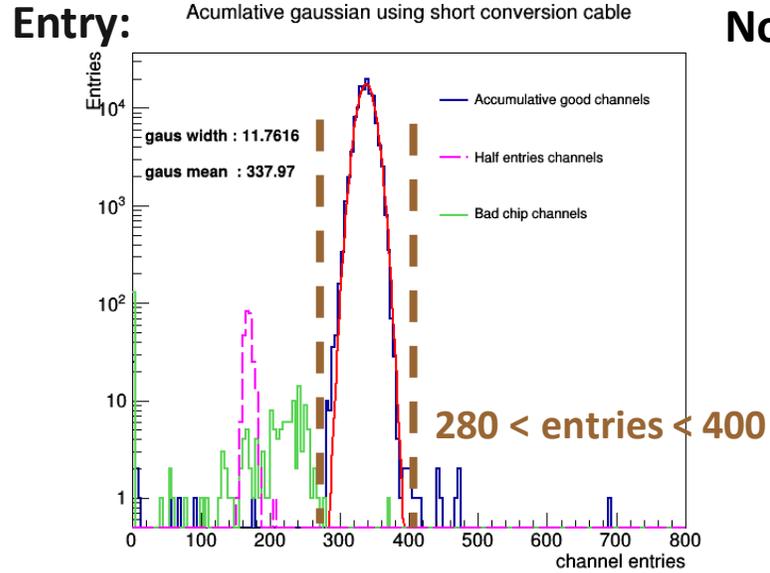
**Purdue University**

**Han-Sheng Li**

**PURDUE**  
UNIVERSITY

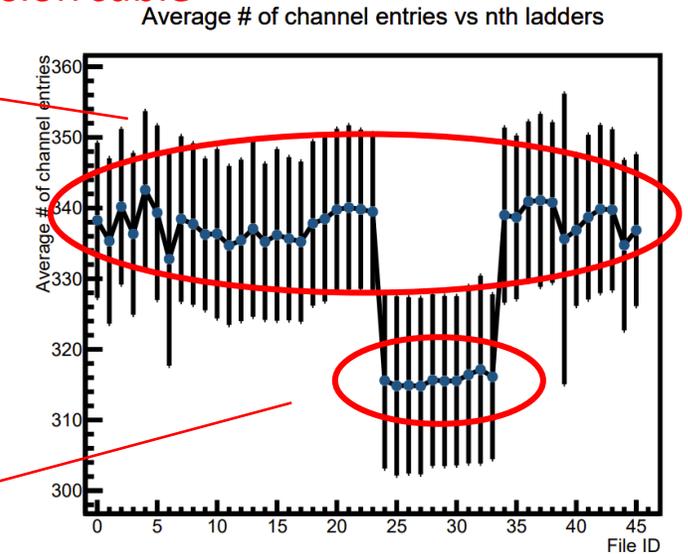
# Classification for ladders

## STEP 1. Criteria for classifying ladders



The framework of classification done by Cheng-Wei

Short conversion cable

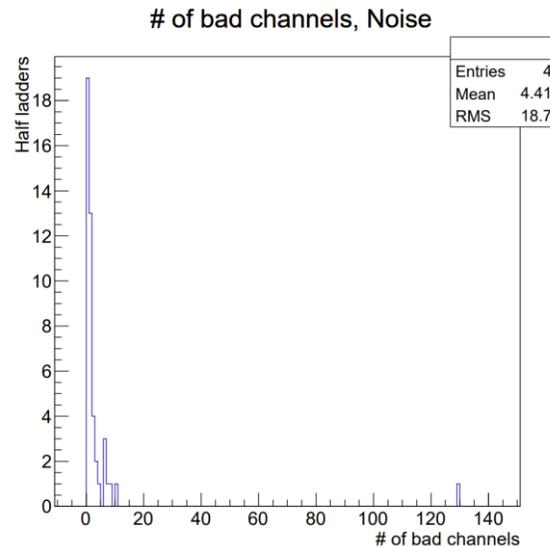
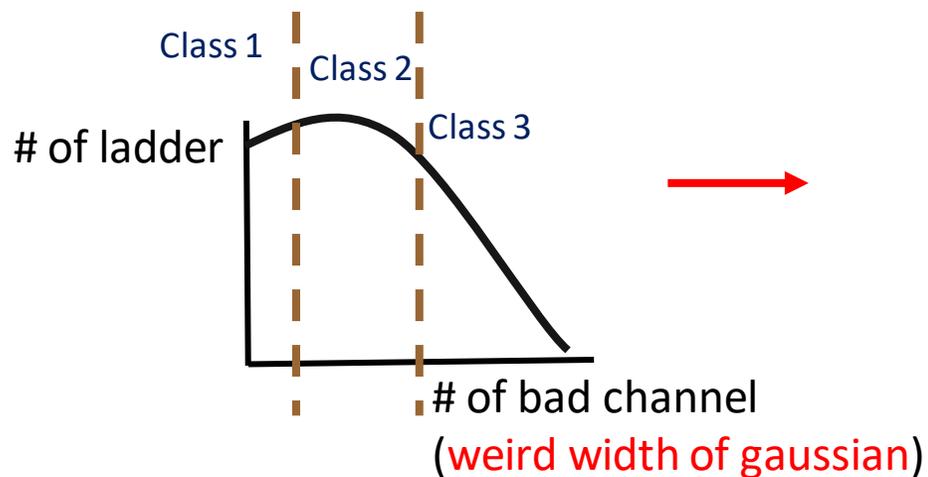
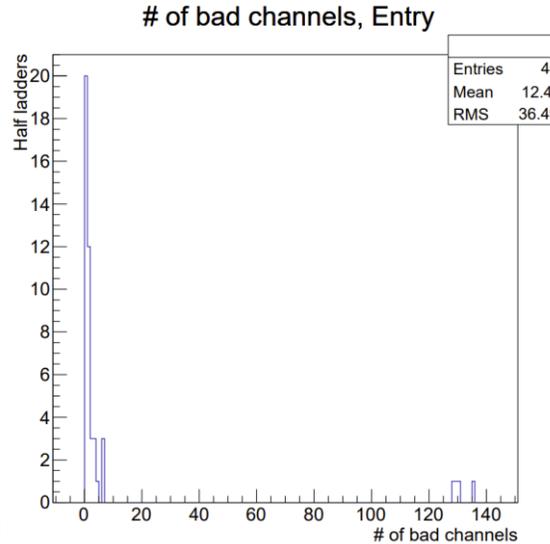
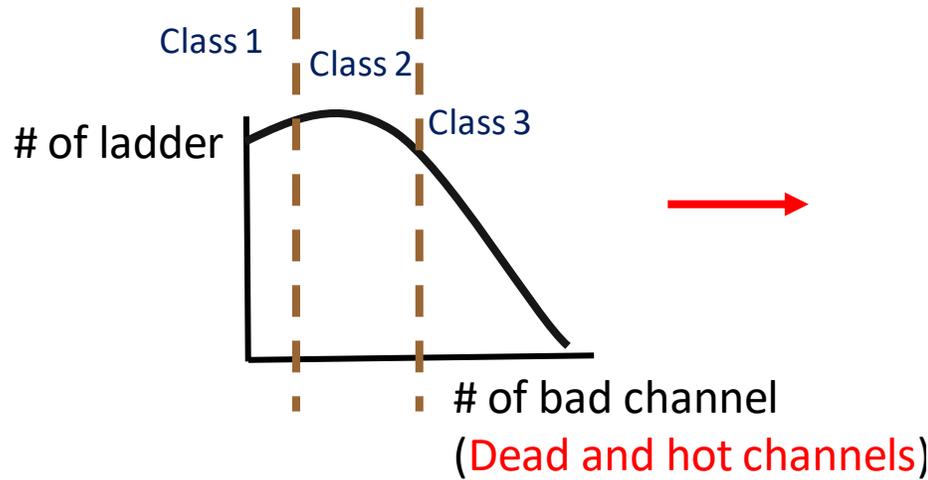


Long conversion cable

The channel width distribution comes from amplitude gaussian fit using all the channels.

# Classification for ladders

## STEP 2. Classify ladders with number of bad channels



## Using 23 ladders (46 half ladders)

### Bad channels for Entry:

PB1-L001S: 1	PB1-L010S: 1	PB2-L001N: 1
PB1-L002N: 1	PB1-L011N: 1	PB2-L002S: 6
<b>PB1-L002S: 135</b>	PB1-L013N: 1	<b>PB2-L003S: 130</b>
<b>PB1-L003N: 128</b>	PB1-L015N: 1	PB2-L004N: 4
PB1-L003S: 1	PB1-L015S: 3	PB2-L004S: 6
PB1-L004N: 2	PB1-L016N: 3	<b>PB2-L005N: 129</b>
PB1-L004S: 6	PB1-L017N: 1	PB2-L005S: 3
PB1-L007N: 2	PB1-L018N: 1	PB2-L006S: 1
PB1-L008N: 1		
PB1-L008S: 2		

Half entries

Bad chips

Total bad channels: 571

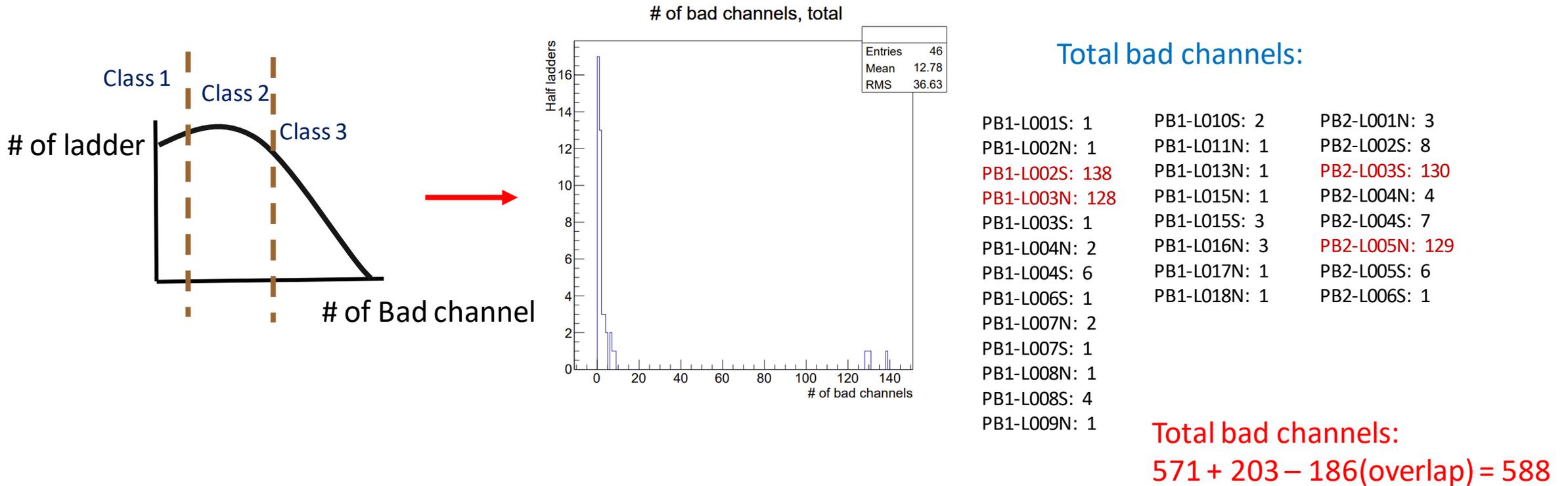
### Bad channels for Noise:

PB1-L001S: 1	PB1-L009N: 1	PB2-L001N: 3
PB1-L002N: 1	PB1-L010S: 2	PB2-L002S: 7
PB1-L002S: 8	PB1-L011N: 1	PB2-L003S: 10
PB1-L003S: 1	PB1-L015N: 1	PB2-L004N: 2
PB1-L004N: 2	PB1-L015S: 1	PB2-L004S: 6
PB1-L004S: 6	PB1-L016N: 3	<b>PB2-L005N: 129</b>
PB1-L006S: 1	PB1-L017N: 1	PB2-L005S: 6
PB1-L007N: 2	PB1-L018N: 1	PB2-L006S: 1
PB1-L007S: 1		
PB1-L008N: 1		
PB1-L008S: 4		

Total bad channels: 203

# Classification for ladders

**STEP 3. Plot the distribution with either dead, hot or noise channels, and Store the details**



# Classification for ladders

## STEP 4. Final classification for ladders

Classification	Bad channels	%
1	Few channels < 1 chip	Class 1 < 0.5%
2	~ 1 chip	0.5% < class 2 ≤ 2%
3	~ 2 chips	2% < class 3 ≤ 4%
4	~ 3 chips	4% < class 4 ≤ 6%

### ■ Classification for each ladder:

- **Class 1**

PB1-L001, PB1-L004, PB1-L005, PB1-L006, PB1-L007, PB1-L008, PB1-L009, PB1-L010, PB1-L011, PB1-L013, PB1-L014, PB1-L015, PB1-L016, PB1-L017, PB1-L018  
PB2-L001, PB2-L002, PB2-L004, PB2-L006

- **Class 2**

PB1-L003, PB2-L003

- **Class 3**

PB1-L002, PB2-L005

# Classification for ladders

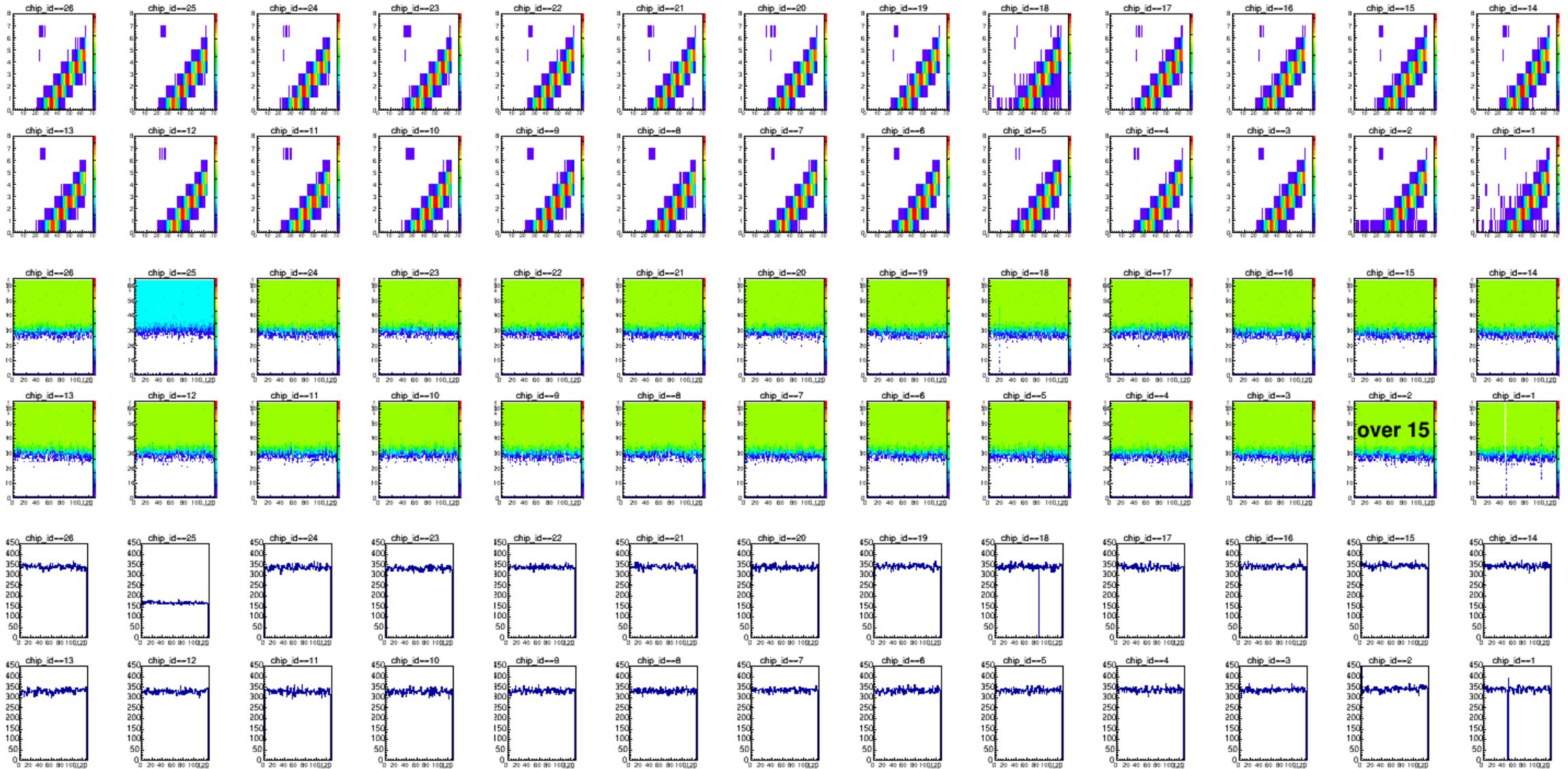
## Conclusion:

Ladder	Bad channels	classification			
PB1-L001	1	1	PB1-L015	4	1
<b>PB1-L002</b>	<b>139</b>	<b>3</b>	PB1-L016	3	1
<b>PB1-L003</b>	<b>129</b>	<b>2</b>	PB1-L017	1	1
PB1-L004	8	1	PB1-L018	1	1
PB1-L005	0	1			
PB1-L006	1	1			
PB1-L007	3	1	PB2-L001	3	1
PB1-L008	5	1	PB2-L002	8	1
PB1-L009	1	1	<b>PB2-L003</b>	<b>130</b>	<b>2</b>
PB1-L010	2	1	PB2-L004	11	1
PB1-L011	1	1	<b>PB2-L005</b>	<b>135</b>	<b>3</b>
PB1-L013	1	1	PB2-L006	1	1
PB1-L014	0	1			

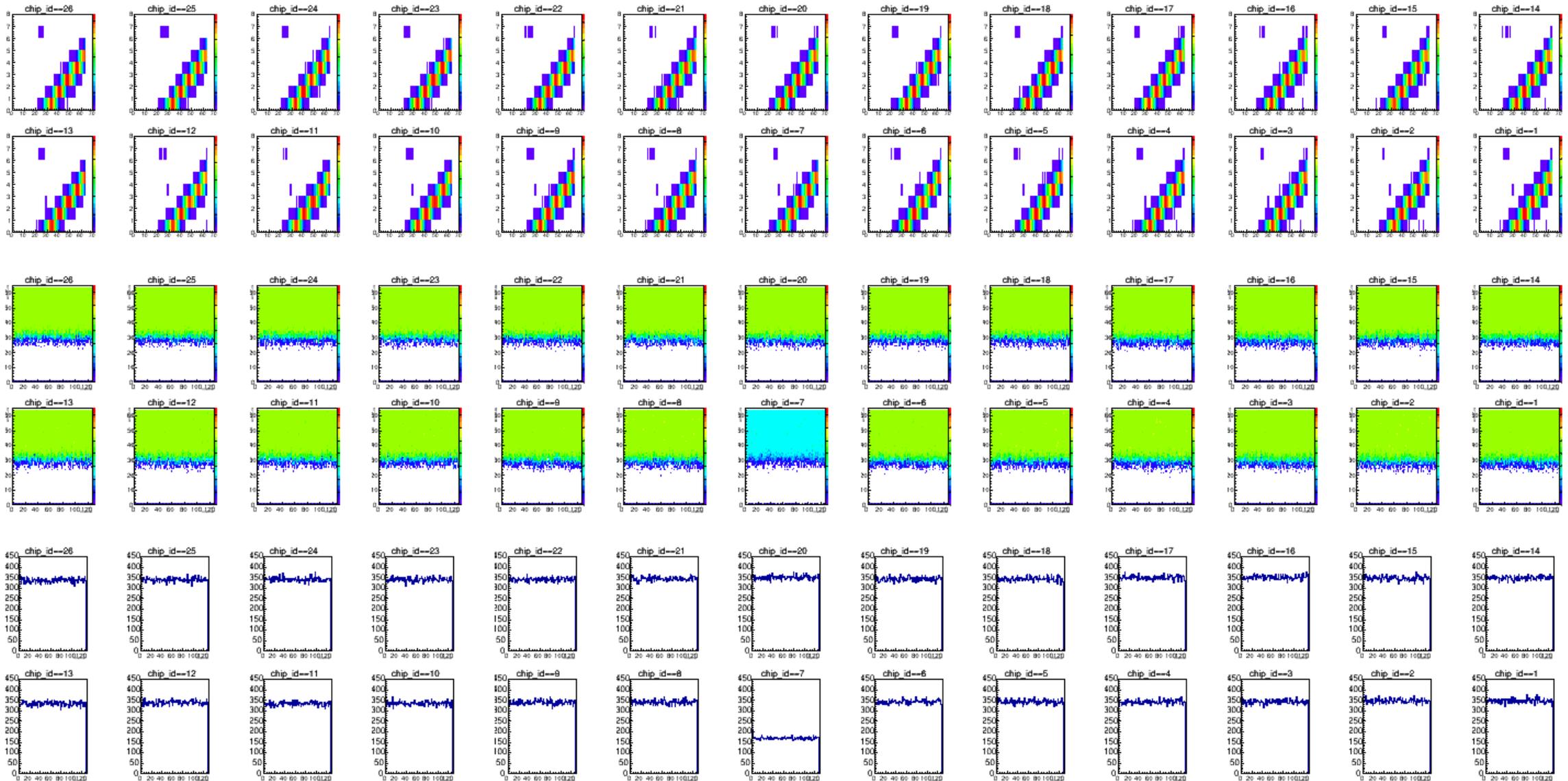
# Backup

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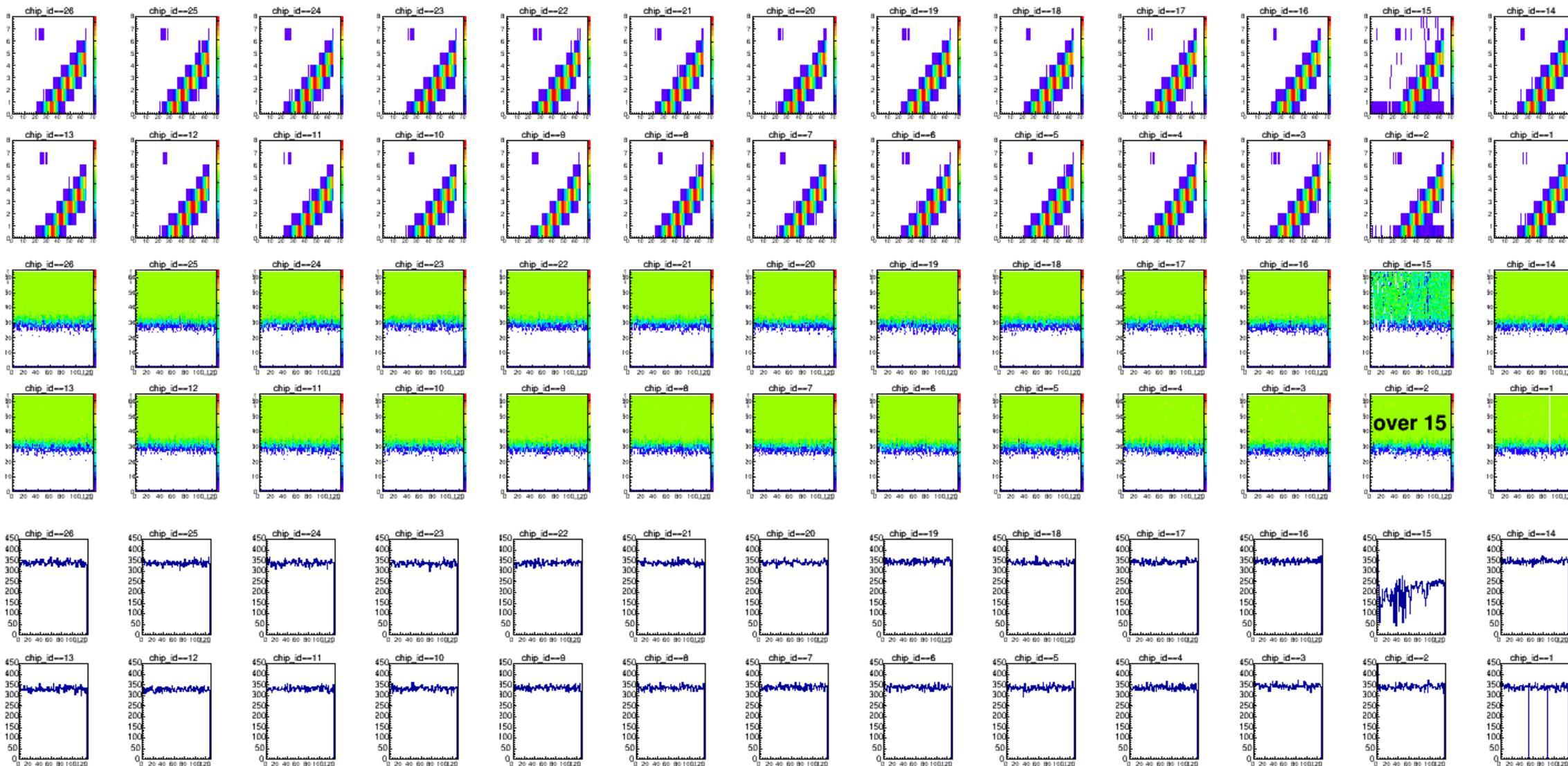
# Ladder Testing: PB1-L002 South (after encapsulated)



# Ladder Testing: PB1-L003 North (after encapsulated)



# Ladder Testing: PB2-L003 South (after encapsulated)



# Ladder Testing: PB2-L005 North (after encapsulated)

