

Italian lot: Status of HPK shipments and testing.

DUNE Photosensor WG Meeting (DUNE-SP-PDS)
September 17, 2024

- Testing of HPK SiPM "Italian lot" started in June 2024.
- In the following link you will find the sheet with the status of shipments and tests of the Italian lot, and the folder with the Hamamatsu datasheets:

https://drive.google.com/drive/folders/1kLJI_99lHqBiG4ExbyT1V7RlVjJWjniK?usp=sharing

Boards from HPK to INFN-Bicocca						Boards from Bicocca to testing sites				Boxes from sites to INFN-Bicocca	Status of Testing			Comments
Rx at Bicocca	#Boards	Delivery	Box#	Trays	Boards/Box	TX Date	To	Rx Site	Tracking #		#Boards tested	#Qualified boards	#Failed boards	
06/21/23		1	1	1-24	400	18/06/24	Prague	20/06/24	Fedex 776914202301		400	395	5	Tray1, board 10078 anomalous IV ext, high DCR, board 10128 high DC board 11344 anomalous ext. IV, high DCR, board 11345 high DCR; Tra; 6976 high DCR
		1	2	25-48	400	18/06/24	Prague	20/06/24	Fedex 776914202301		400	395	3+(2)	Tray 30, board 12440 - anomalous IV ext, high DCR; Tray 28, board 11: anomalous IV ext, high DCR; Tray 34, board 11422 anomalous IV ext; 1 12422 - high DCR - noisy Cactus channel; Tray 33, board 12459 - high Cactus channel
		1	3	49-72	400	12/06/24	Milano	--	--		400	398	2	Tray65 board 11656 SIPM 2:anomalous extended IV and High DCR
07/19/23		2	4	1-24	400	16/07/24	Milano	--	--		360	360		
		2	5	25-48	400	27/06/24	Ferrara	28/06/24	BRT 89001453798					
		2	6	49-72	400	27/06/24	Ferrara	28/06/24	BRT 89001453798					

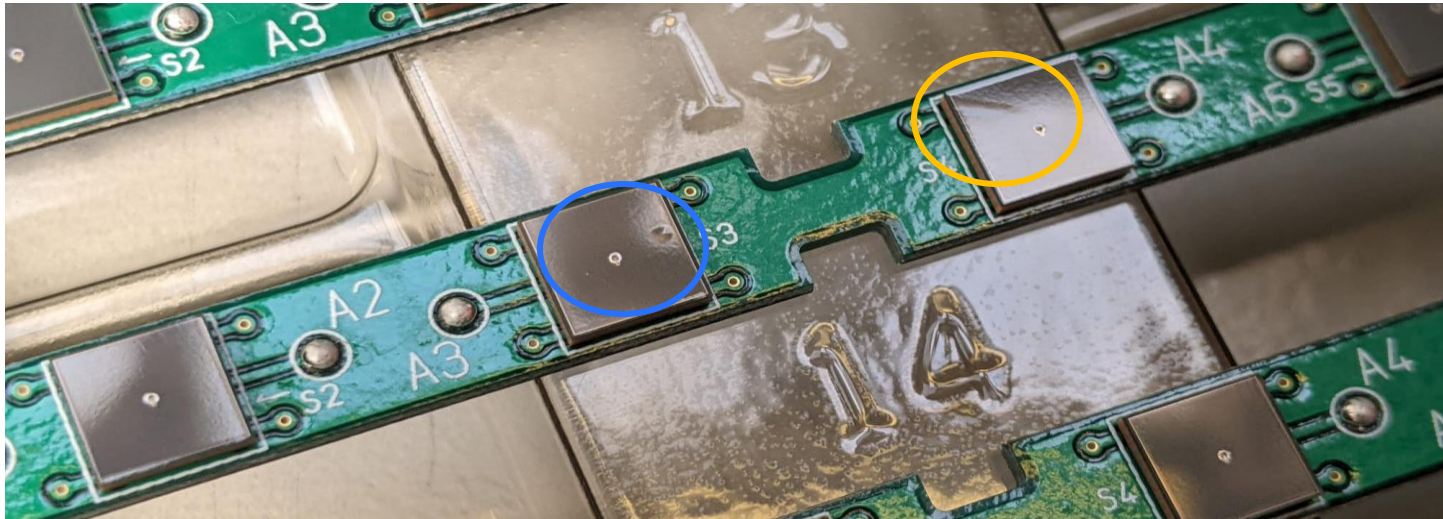
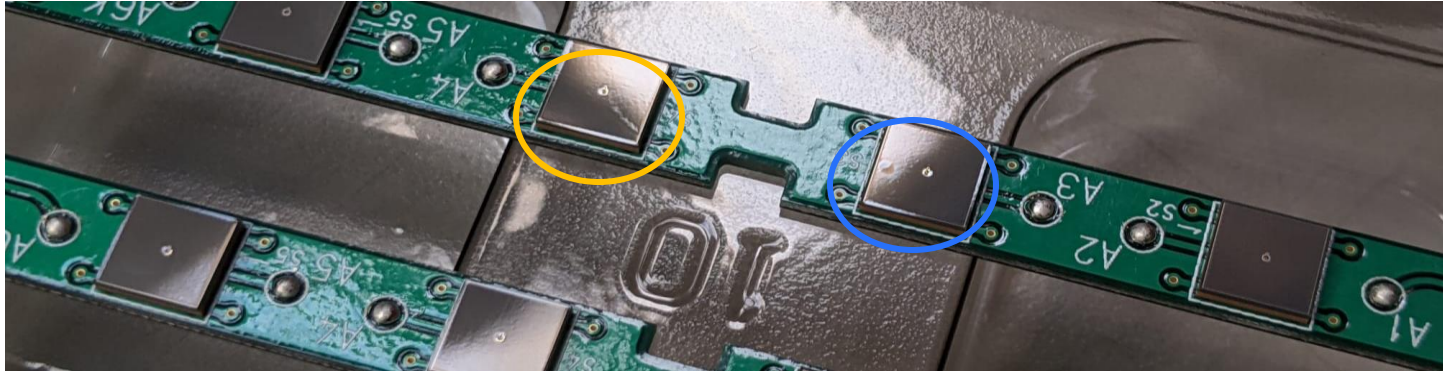
•So far, 6 boxes has been shipped:

- *4 boxes to Prague
- *2 boxes to Ferrara
- *2 Boxes tested in Milan

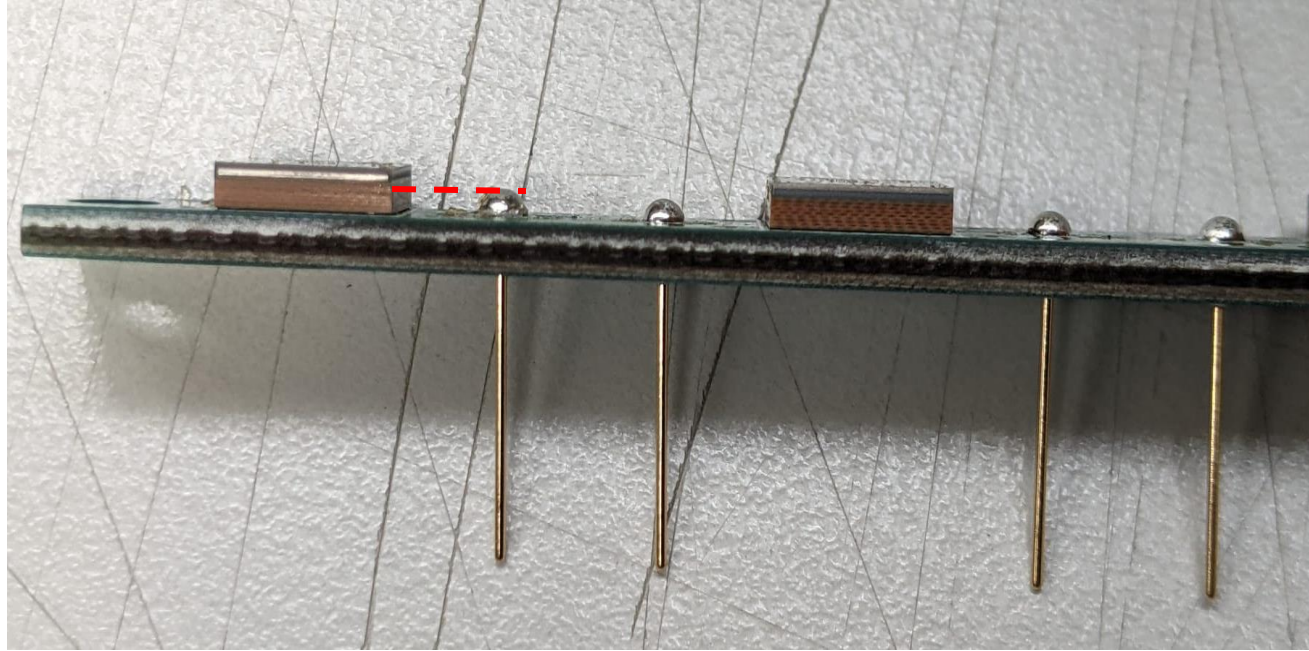
The Italian lot: 16% of the boards have been tested.

Physical characteristics of the Board

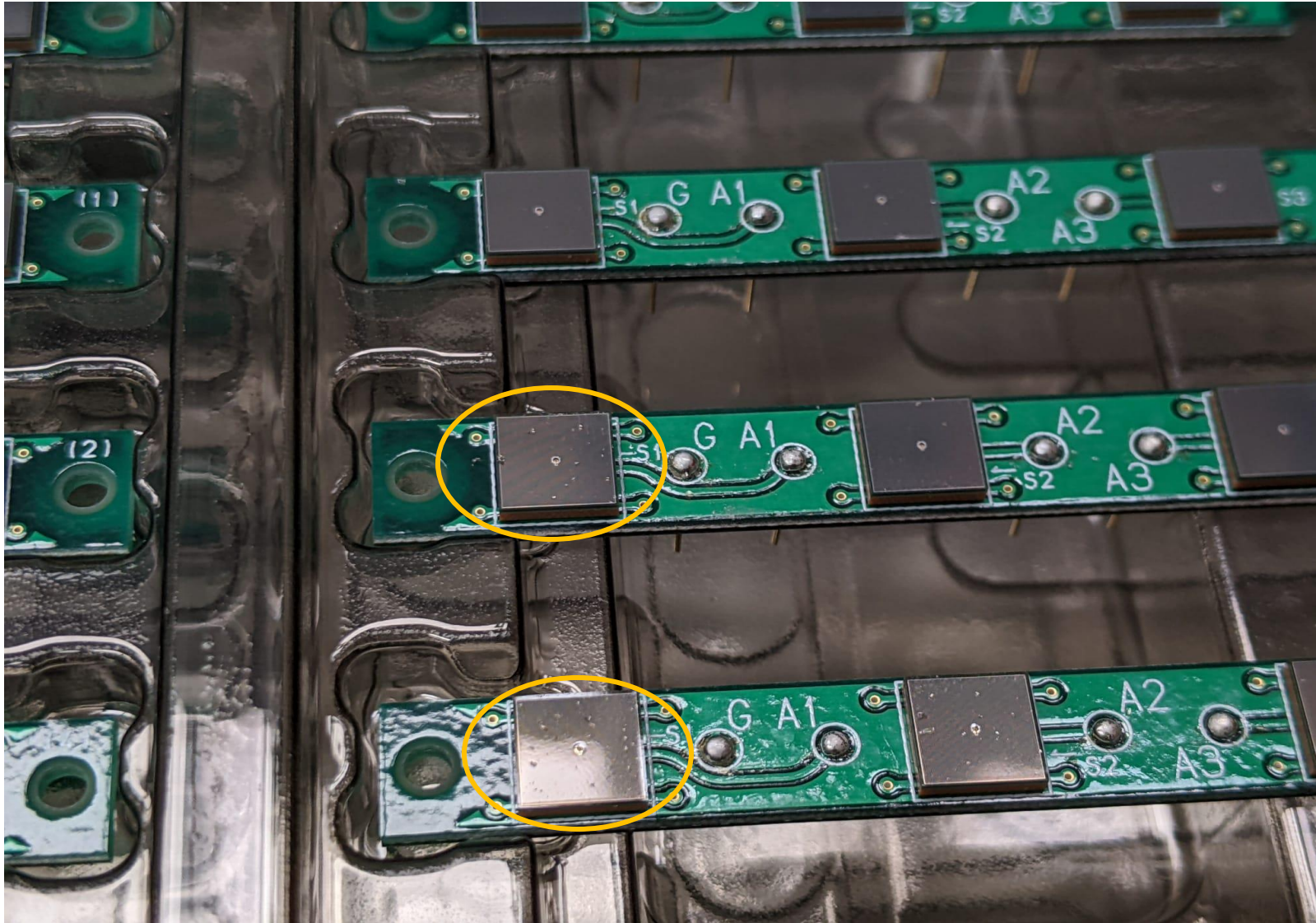
- Minor defects:



In the Italian lot, some boards have been found with some marks in the resin, but they are not raised or deep, they are flat and uniform on the surface.



It has been observed that the soldering of the pins on some boards appears to be higher than others but does not cause any issues when installing them on the cold boards. At first glance we cannot see if they are within the permitted height range.



Finally, we have found that after thermal cycling, some SiPMs look a bit dirty. When cleaning them, it appears to be soldering flux.