



Current status



- **110 modules received from Gantry center (Perugia)**
 - **66 L34 and 48 L12 Phi**
 - **see <http://sirad.pd.infn.it/CMS/modprod>**
 - **+18modules just arrived**

2 ARC setups

- **ARC+DEPP+LED for module qualification**
- **ARC+DEP for arrival test**

LT setup

- **CAEN 1527crate, 12chn HV board with 2na current resolution**
- **UPS, Torino interlock board, dry air**
- **Independent HV and Temperature/Humidity monitoring, online data are at <http://sirad.pd.infn.it/CMS/modtest/logs>**



Website



CMS-SI Padova Production page - Mozilla {Build ID: 2002122708}

File Edit View Go Bookmarks Tools Window Help Debug QA

Back Forward Reload Stop http://sirad.pd.infn.it/CMS/modprod/cms_prod.php Search Print

Home Bookmarks The Mozilla Organization Latest Builds Google

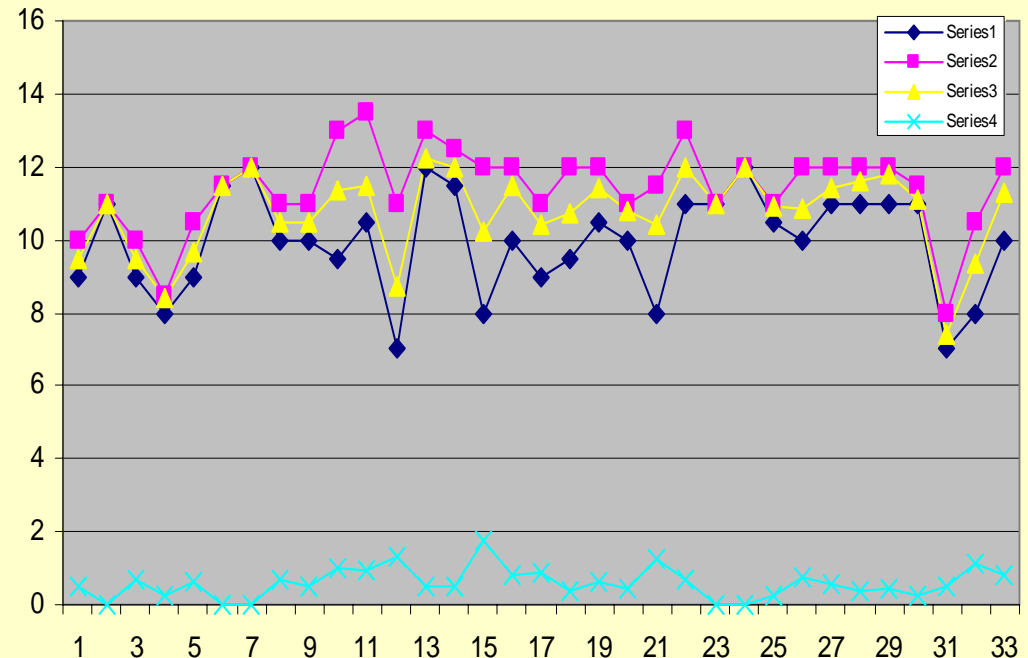
ModID	arrival	bonding	HV_bonded	bonded	frozen	lt	retest	status
30200020033125	done 29/01/04	0 [up] 04/03/04	done 03/02/04	0 26/02/04	?	?	?	? missing
30200020033126	done 29/01/04	0 [up] 04/03/04	done 03/02/04	0 12/02/04	0 13/02/04	0 01/03/04	?	? missing
30200020033128	done 29/01/04	0 [up] 04/03/04	done 03/02/04	0 11/02/04	?	?	?	? missing
30200020033129	done 29/01/04	0 [up] 27/02/04	done 03/02/04	0 04/02/04	0 06/02/04	0 15/03/04	?	? missing
30200020033130	done 29/01/04	0 [up] 27/02/04	done 03/02/04	1 04/02/04	1 05/02/04	1 15/03/04	1 08/03/04	? missing
30200020033162	done 12/02/04	0 [edt] 04/03/04	?	8 14/04/04	?	?	8 14/04/04	? missing
30200020033169	done 12/02/04	0 [up] 02/03/04	?	0 18/02/04	?	0 26/03/04	?	? missing
30200020033170	done 12/02/04	0 [up] 02/03/04	?	0 17/02/04	?	?	?	? missing
30200020033173	done 12/02/04	1 [up] 02/03/04	?	1 18/02/04	?	?	?	? missing
30200020033176	done 12/02/04	0 [up] 02/03/04	?	0 17/02/04	?	?	?	? missing
30200020033178	done 12/02/04	0 [up] 02/03/04	?	0 17/02/04	?	0 26/03/04	?	? missing
30200020033181	done 19/02/04	0 [edt] 02/03/04	?	6 20/02/04	?	?	2 14/04/04	? missing

http://sirad.pd.infn.it/CMS/modprod/commen...uction/30200020033126/HV_bonded//comments

A. Kaminskiy, CMS Tracker week , Apr 2004

- **Bonding Machine – K&S8090**
- **In very beginning we suffered from the bad module carriers, then the carrier quality was improved.**
- **No problems bonding L34 modules**
- **First 10 modules L12 have loop higher then specified, but still acceptable**
- **We are still optimizing bonding parameters for L12 modules**
- **We can bond easily microbond 10 mods/week as well as 20 mods/week if all the modules if the modules are similar one to another.**

Padova - pull test results



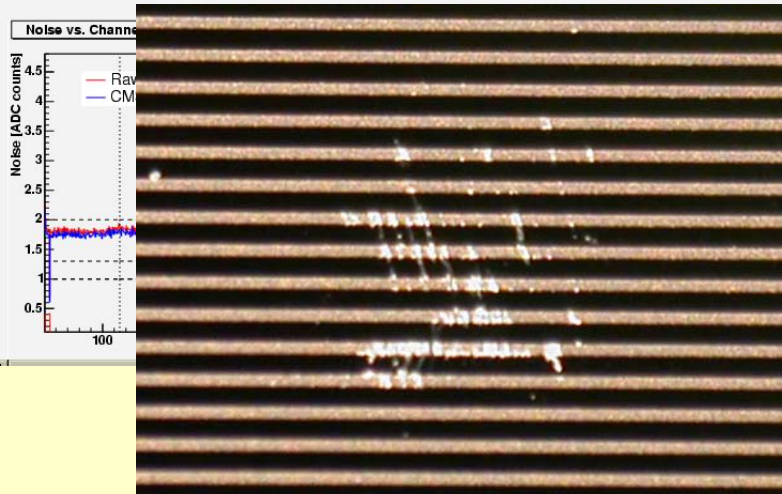
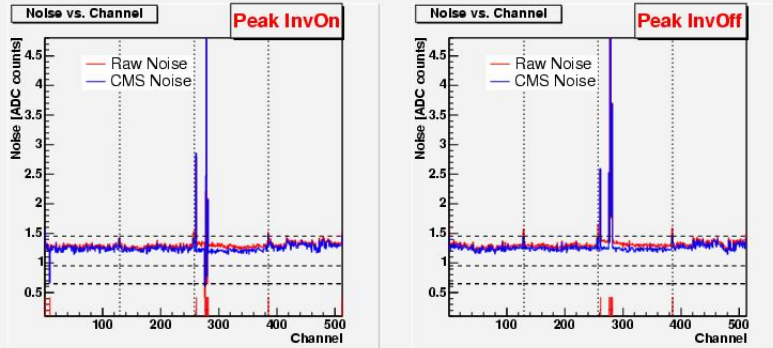


L34 modules (4 chips)

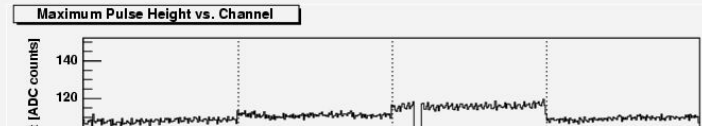
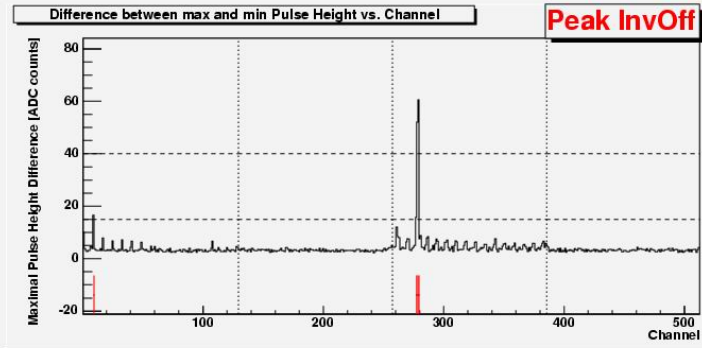


- Received **66**
- Bonded and ARC tested **65**
 - 64** good modules
 - 1** module goes to **breakdown** (some lithographic defect which **almost shorts** BiasBing with GuardRing).
- 1** module is **unbondable** (PA pads are contaminated)
- 2** Modules draw **~2uA**, but without CM noise
- LT tested modules: **40**
 - All LT tests before **~1st** of March are cancelled
 - No module related “surprises” from LT test
- Few modules **has some defects** on the surface caused by the peak-up tool.

30200020033162; Record1; 2036-04-07 11:57:08



30200020033162; Record1; 2036-04-07 11:57:08



Chan#	Peak Off	Peak On	Dec Off	Dec On
9	????	?????		
61	NOIS	NOIS		
276	SHT+	SHT+	SHT+	SHT+
277	SHT+	SHT+	SHT+	SHT+
278	????	????	????	PHL-
279	????	????	????	????
280	SHT+	SHT+	SHT+	SHT+
281	SHT+	SHT+	SHT+	SHT+
385	NOIS	NOIS		



L12 modules (6chips)



•L12 Modules

- Received **48**
- Completely bonded and ARC tested **28**
- LT tested **6**
- IV problems: **2** modules
 - 1** module have **avalanche breakdown at 380V-420V**
 - 1** module drew **10uA at 30V**, but it improved after conditioning, now it draws **4uA @400V**
 - Several modules with “Resistive” IV
- Several modules with “unexpected” pinholes

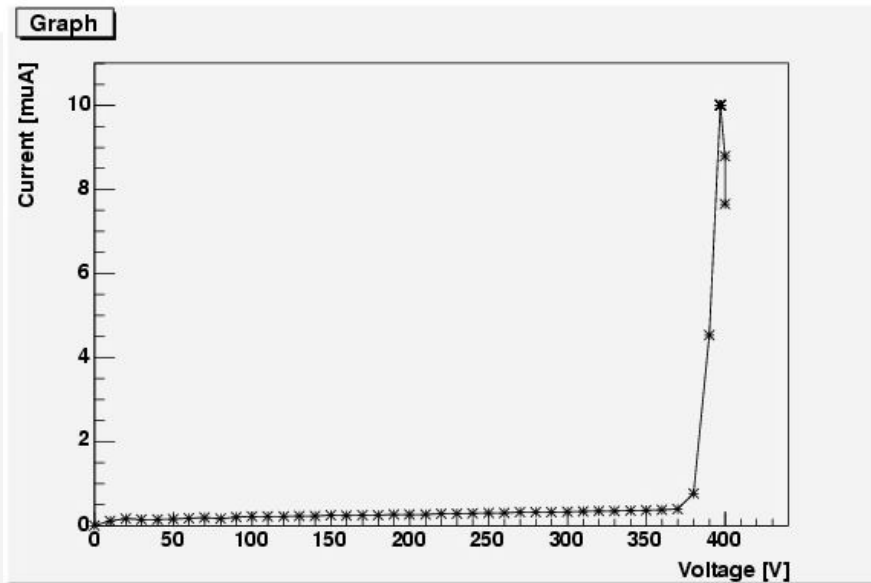
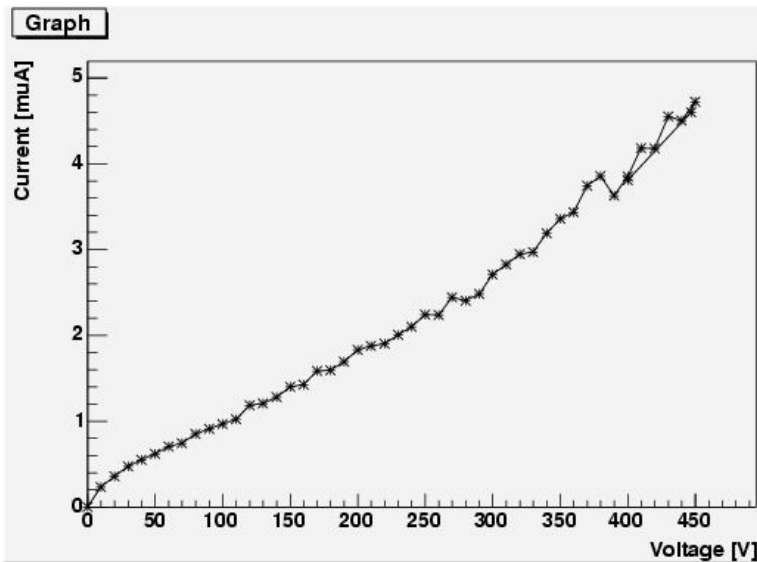
This page was generated in 0.017 sec (Apr 21 2004 - 23:26:07) from:

`production/30200020033261/bonded//30200020033261.root`

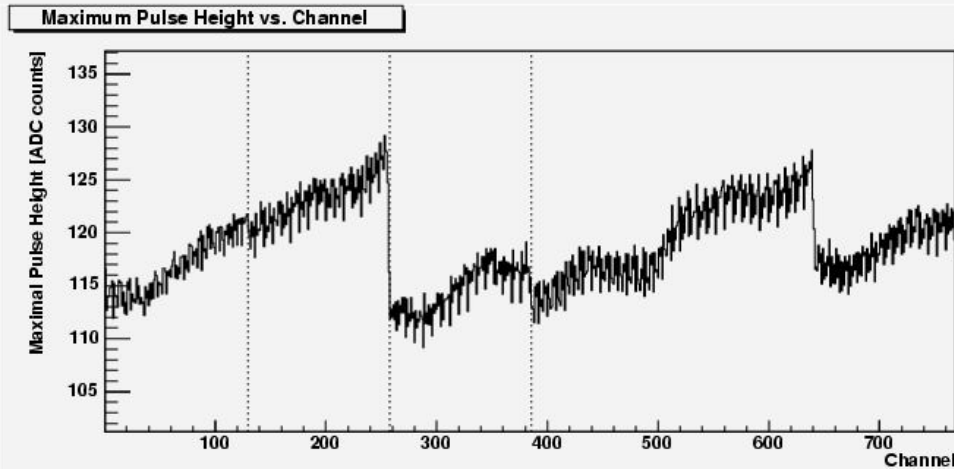
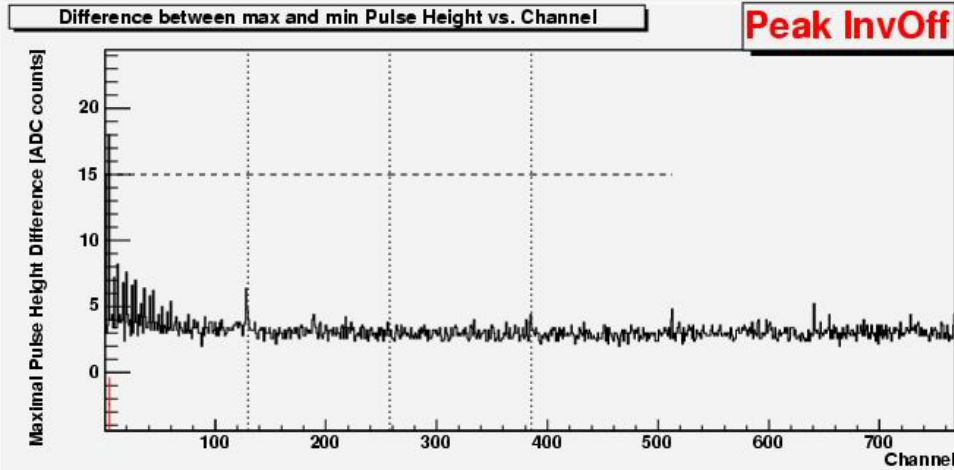
`//Record1/IV/IV Curve Measured`

`production/30200020033230/retest//30200020033230.root`

`//Record1/IV/IV Curve Measured`

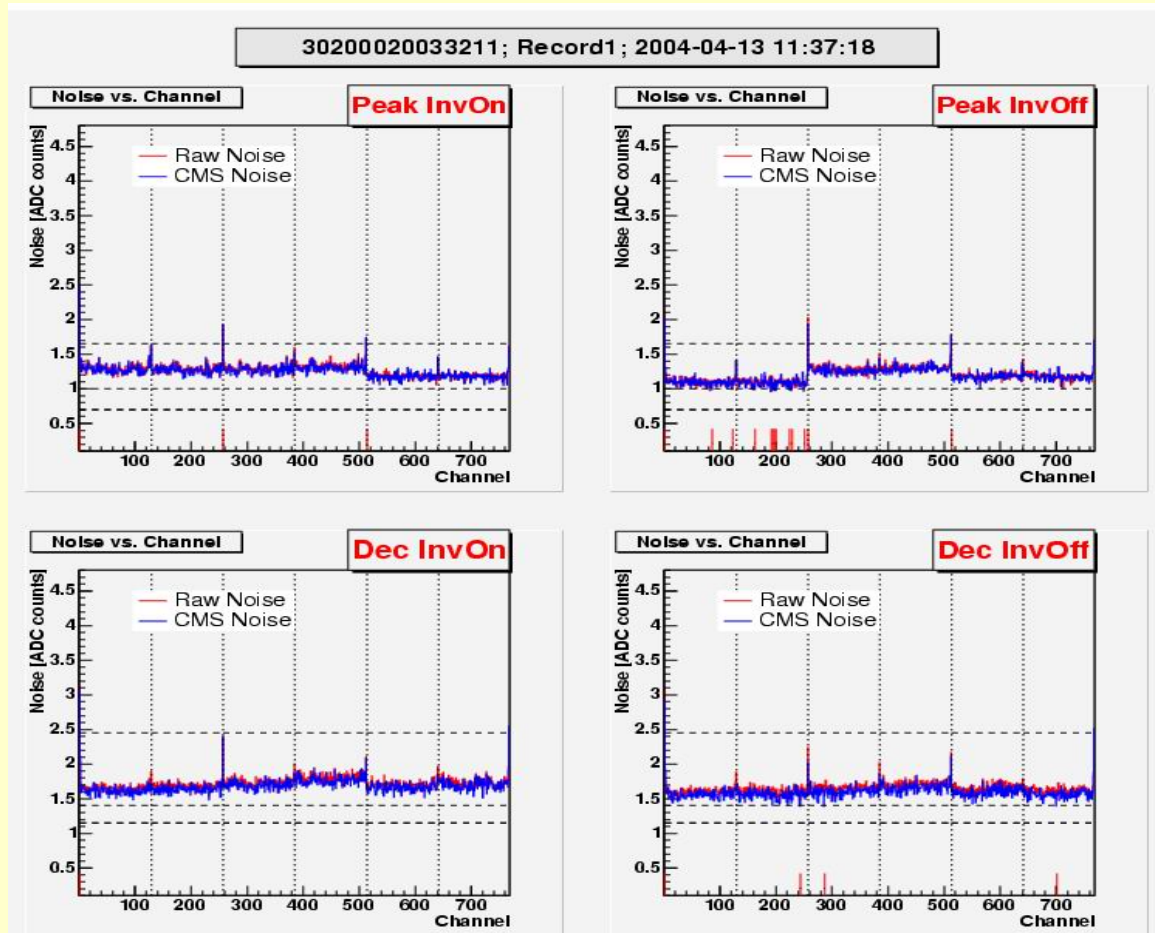


30200020033232; Record1; 2004-03-25 10:13:26

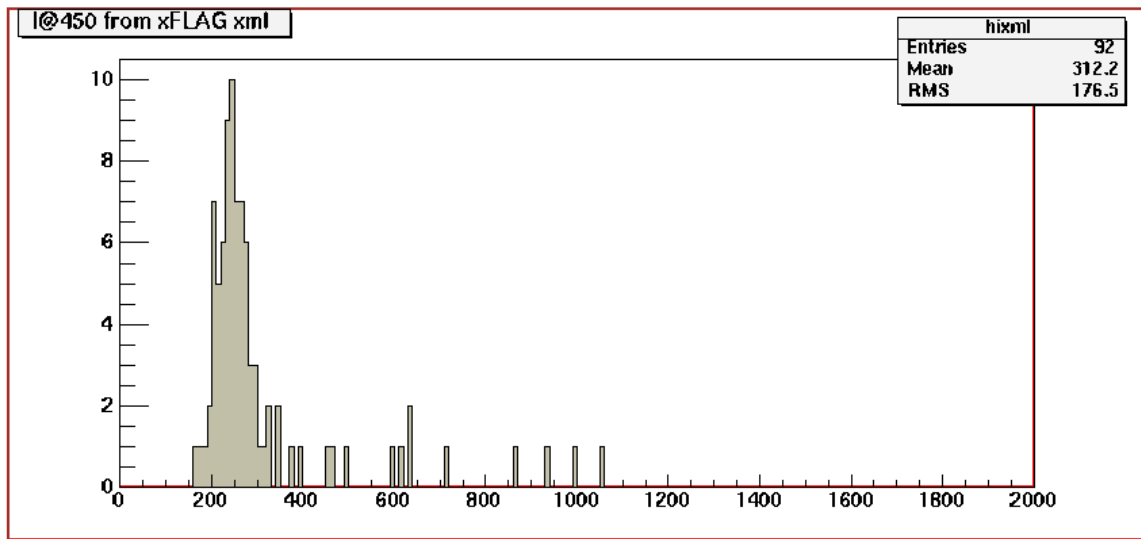
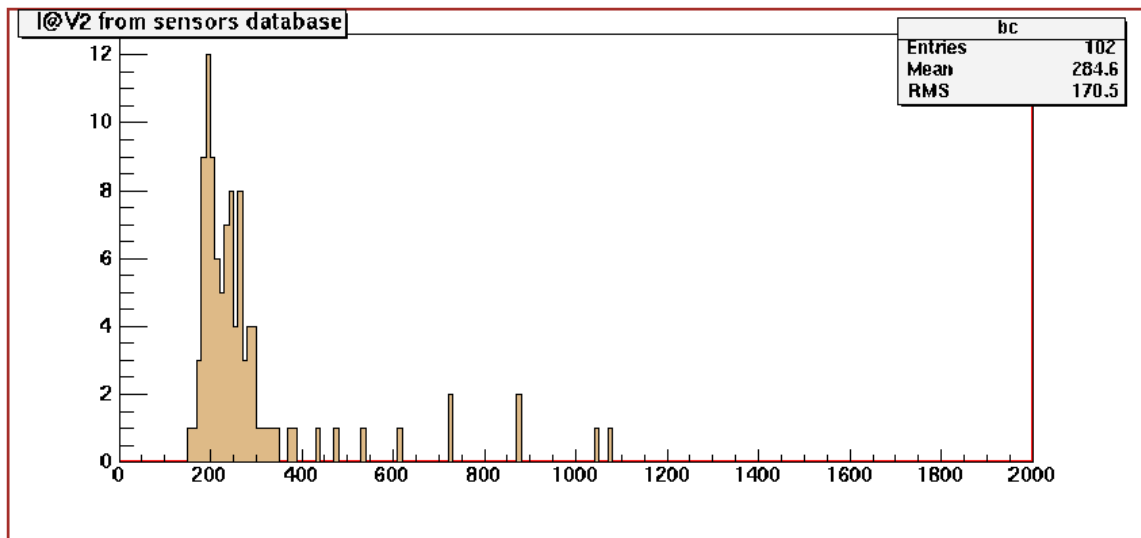


LT test : noise jumping

In consecutive measurements the noise of coupled chips jumps up and down

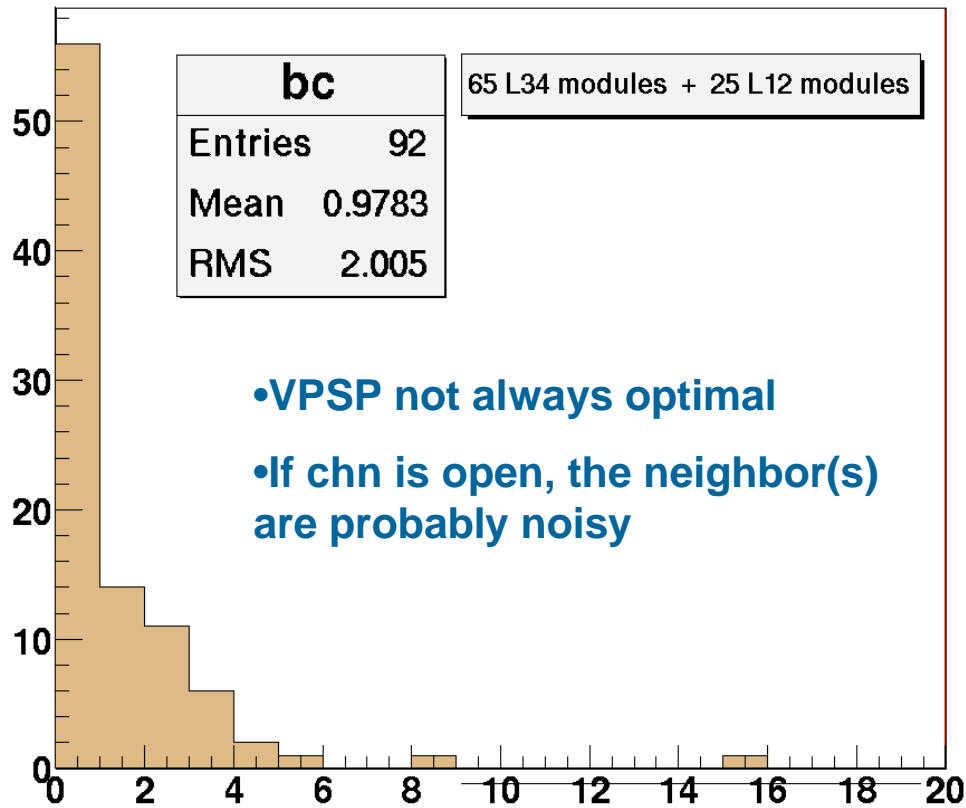


Leakage current at 450V



Bad channels per module

Bad channels



Overall statistics for 92 modules

OPEN+ 12

OPEN- 15

NOIS 43

SHORTS 6

PHs- 4

???? 10

Total 90



Conclusions



About 100 modules are bonded/tested.

- Module assembling quality **have been improving**
- Planned production rate (20 modules/week) has never been achieved.
- Since 15 Jan we produce **8-10 modules per week**
- Microbonding is not very time consuming
 - **Only if modules are perfect**
 - But it was at very beginning, while we did many intermediate tests
- 2 ARC systems are enough
 - 1 ARC frontend board was broken. It took **3 days** to substitute it, **thanks to Aachen people.**
- LT test seems to be a **bottleneck**, if we continue to test **72h/6modules** .
- We have now **all necessary software tools.**




P.S. Online root browser



Open

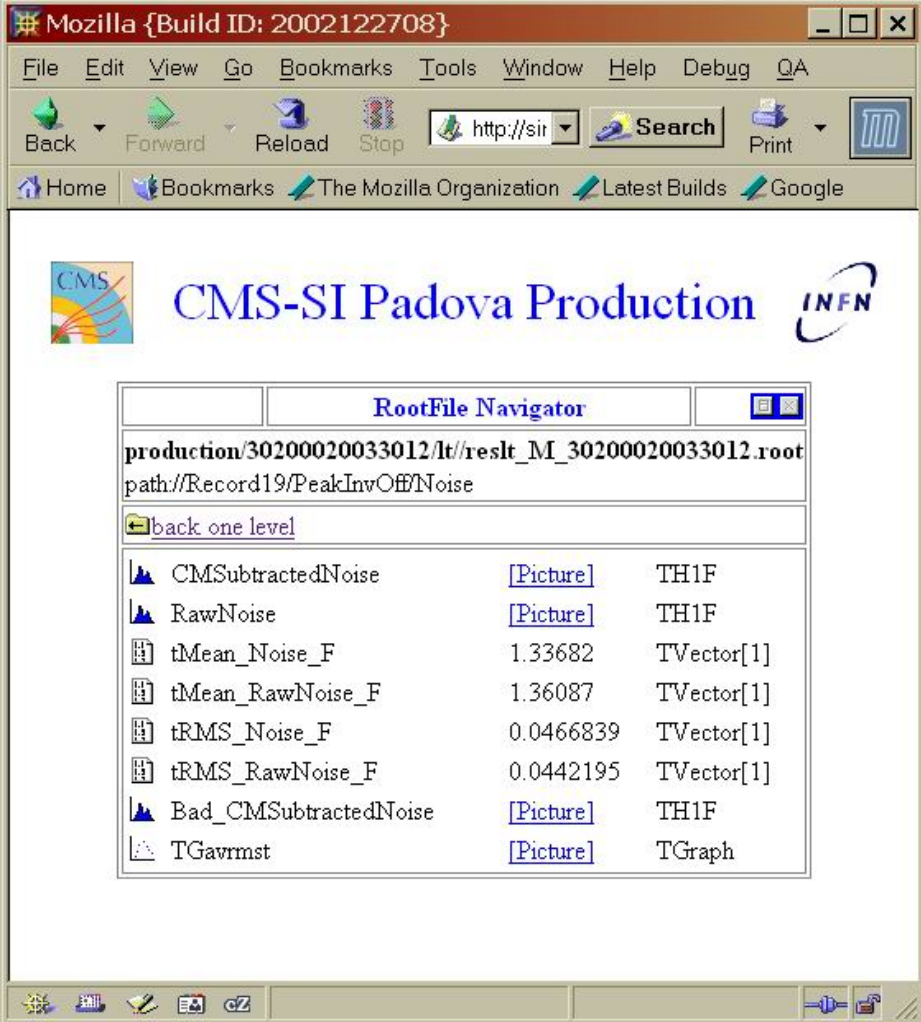
http://sirad.pd.infn.it/CMS/modprod/cms_prod.php

Click on module ID









Click on  **Explore!**

button on the right of the root file

Follow the links



The screenshot shows a Mozilla browser window displaying the CMS-SI Padova Production website. The main content area features a 'RootFile Navigator' window with the following table:

RootFile Navigator		
production/30200020033012/lt//reslt_M_30200020033012.root		
path://Record19/PeakInvOff/Noise		
back one level		
 CMSSubtractedNoise	[Picture]	TH1F
 RawNoise	[Picture]	TH1F
 tMean_Noise_F	1.33682	TVector[1]
 tMean_RawNoise_F	1.36087	TVector[1]
 tRMS_Noise_F	0.0466839	TVector[1]
 tRMS_RawNoise_F	0.0442195	TVector[1]
 Bad_CMSSubtractedNoise	[Picture]	TH1F
 TGavrmst	[Picture]	TGraph