



# US Module Production

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## STATUS

- *Classification*
- *Metrology*
- *Electrical*
- *Shipments*
- *Next*

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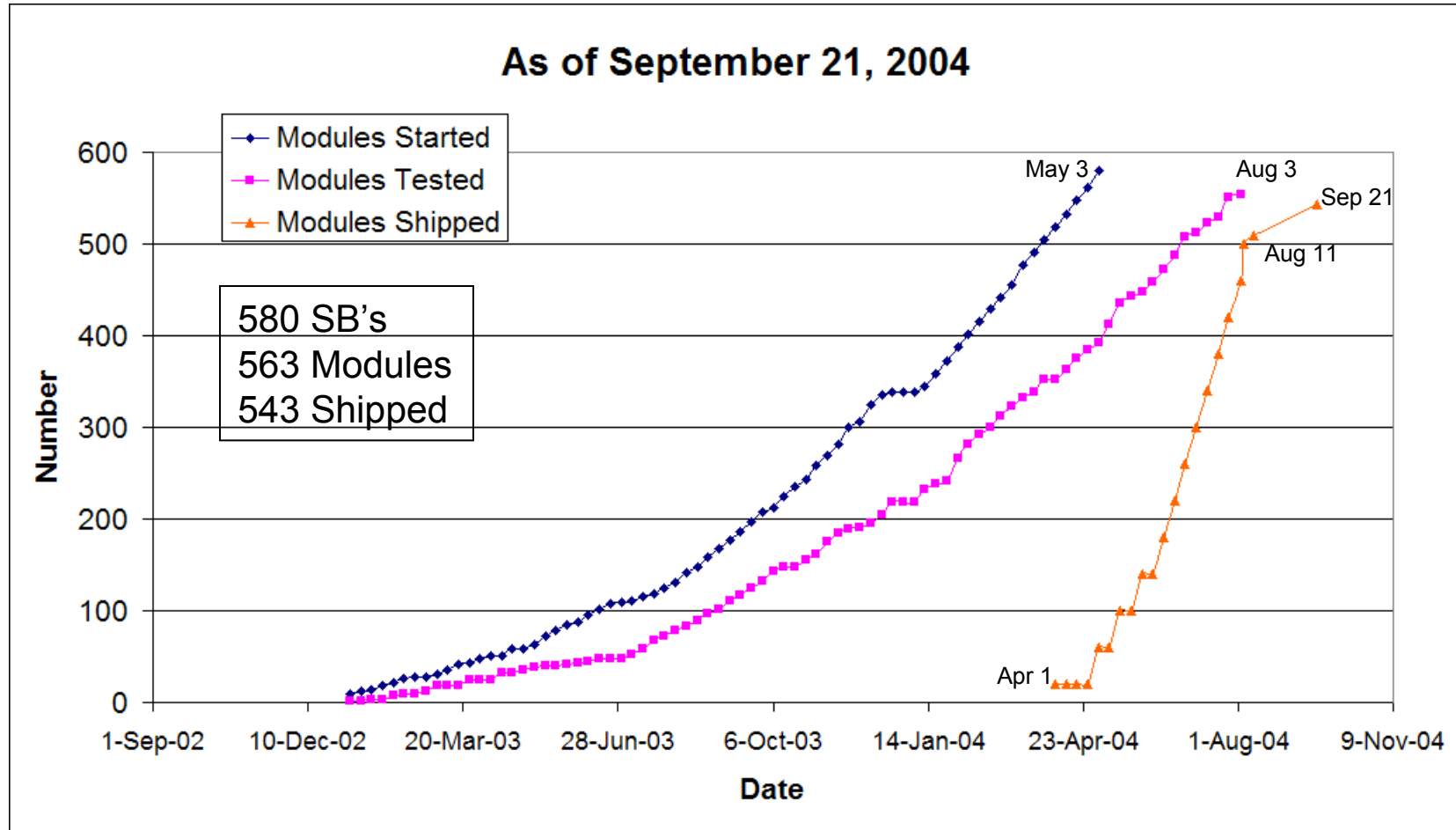
STATUS

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DONE !



# Production Timeline





## Hybrid Production

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USA Hybrid Production completed by July 1, 2004

USA Hybrids	510
KEK (USA S/N) repair	63
KEK (KEK S/N) repair	4

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Total 577

USH Good	355
USH Repaired	149
Not used	14 (5 w/o chips, 9 with chips)
Used in Modules	563



# Hybrid Production Report

## Hybrid Production Count

	USA	Scandinavian	KEK	Total
Blank Hybrids Received	510	138	39	687
Scrapped before IC loading	5	13	0	18
Started	505	125	39	669
Scrapped after IC loading	7	0	0	7
<b>Total Completed</b>	<b>498</b>	<b>125</b>	<b>39</b>	<b>662</b>
Loaded Hybrids Received for Repair	87	8	0	73
Scrapped	2	1	0	3
<b>Total Repaired</b>	<b>85</b>	<b>5</b>	<b>0</b>	<b>70</b>
<b>Final Total</b>	<b>563</b>	<b>130</b>	<b>39</b>	<b>732</b>

## Finished Hybrids Categories

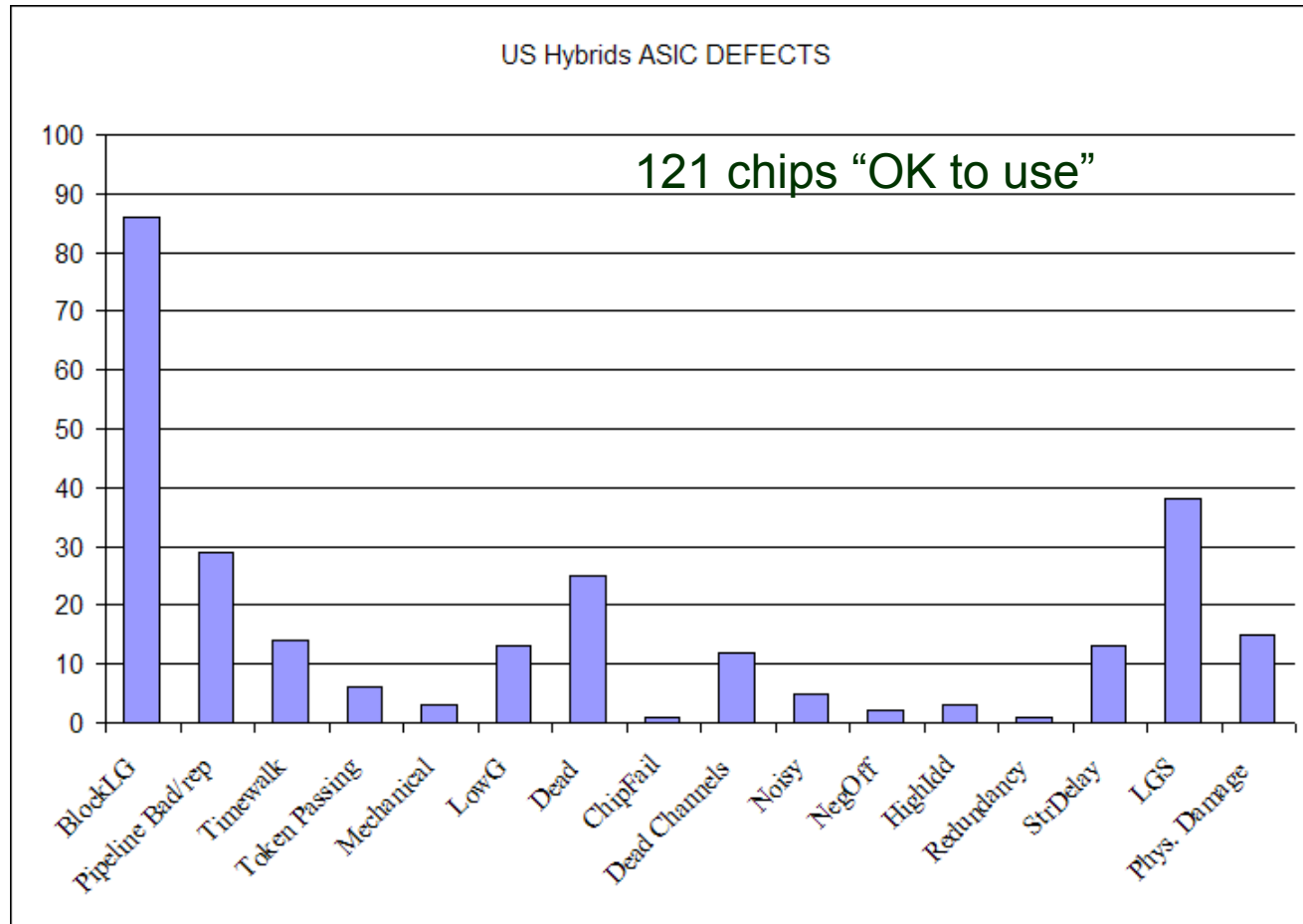
Perfect ICs	361	63	0	424
1 Analog Bad Channel ICs	73	38	39	150
Nobu Returned ICs	53	9	0	62
ATMEL Sawed ICs	11	15	0	26
KEK Repair Hybrids	65	5	0	70
<b>Total</b>	<b>563</b>	<b>130</b>	<b>39</b>	<b>732</b>

## SCIPP Chip Failure Rates for All Hybrids (USA,KEK, Scandinavian)

	Total Passing Hybrids	Total IC Failures	Repair Rate Per Hybrid	Total IC Loss
Perfect ICs	302	98	0.32	2.70%
1-Bad Channel ICs	150	55	0.37	3.06%
Nobu Return ICs	61	55	0.90	7.51%
ATMEL Sawed ICs	31	84	2.71	22.58%
KEK Repair Hybrids	60	76	1.27	10.56%
<b>Total</b>	<b>604</b>	<b>368</b>	<b>0.609271523</b>	<b>5.08%</b>
Total Count of Usable LGS Chips	35			
Total Count of Usable BLG Chips	119			

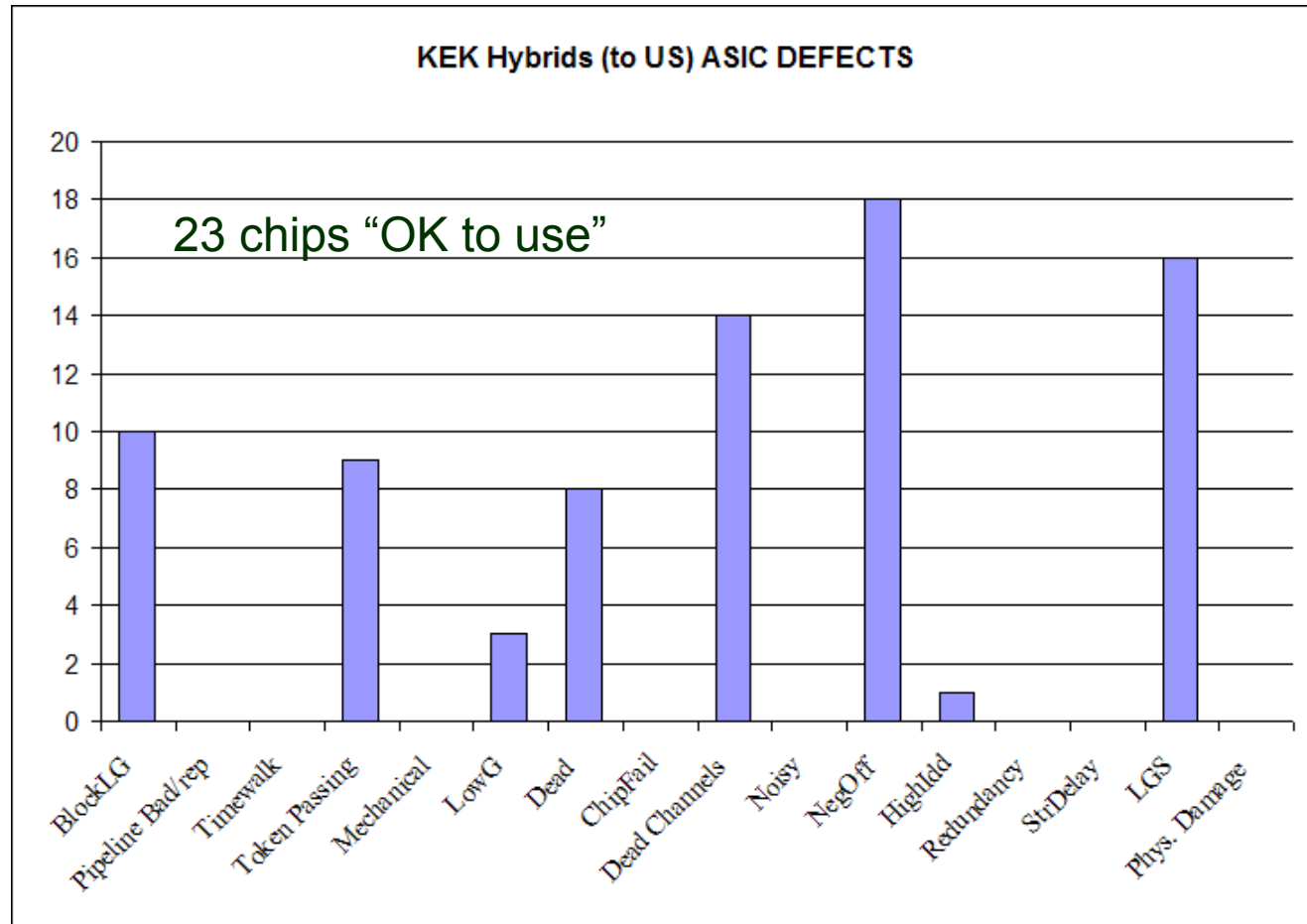


## Defective ASICs – US Hybrids





## Defective ASICs - KEK hybrids





## Module Classification

- 580 SB's
- 563 Modules

	ANY	B5B6	B6		
GOOD	266	149	18	433	74.7%
PASS	30	15	2	47	8.1%
PASS2	6	2	21	29	5.0%
SPARE	7	19	8	34	5.9%
	309	185	49	543	
				307 (2 used in TB, Irr)	541
FAIL	37	(20 modules, 17 SB's)			
Rework	0				
Shipped	543	(541 G/P/P2/S + 2 fail)			

- 478 (Good + Pass) Modules to ATLAS
- *Barrel Assignment subject to change after Oxford tests*





## Electrical Summary

### IV measurements

388	GOOD	
91	MD>350V	B5B6
48	Bad current behav	B5B6
8	300<MD<350	Pass2/B6
6	I(500V)>4uA W/O MD<350V	Spare
6	Abn decay >1hr	Spare
3	MD<350	Spare
9	Abnormal LC	FAIL

5 modules repaired (1 chip replaced)  
but 1 failed IV after replacement

### For B5B6 and B6

15	Token Problem	Pass2/B6
24	Tdiff >=2	B6
3	Negative Offset	Spare/B6
2	10<cons ch<14	Spare/B6
50	Preseries sensors	B5B6
8	Bad visual features	

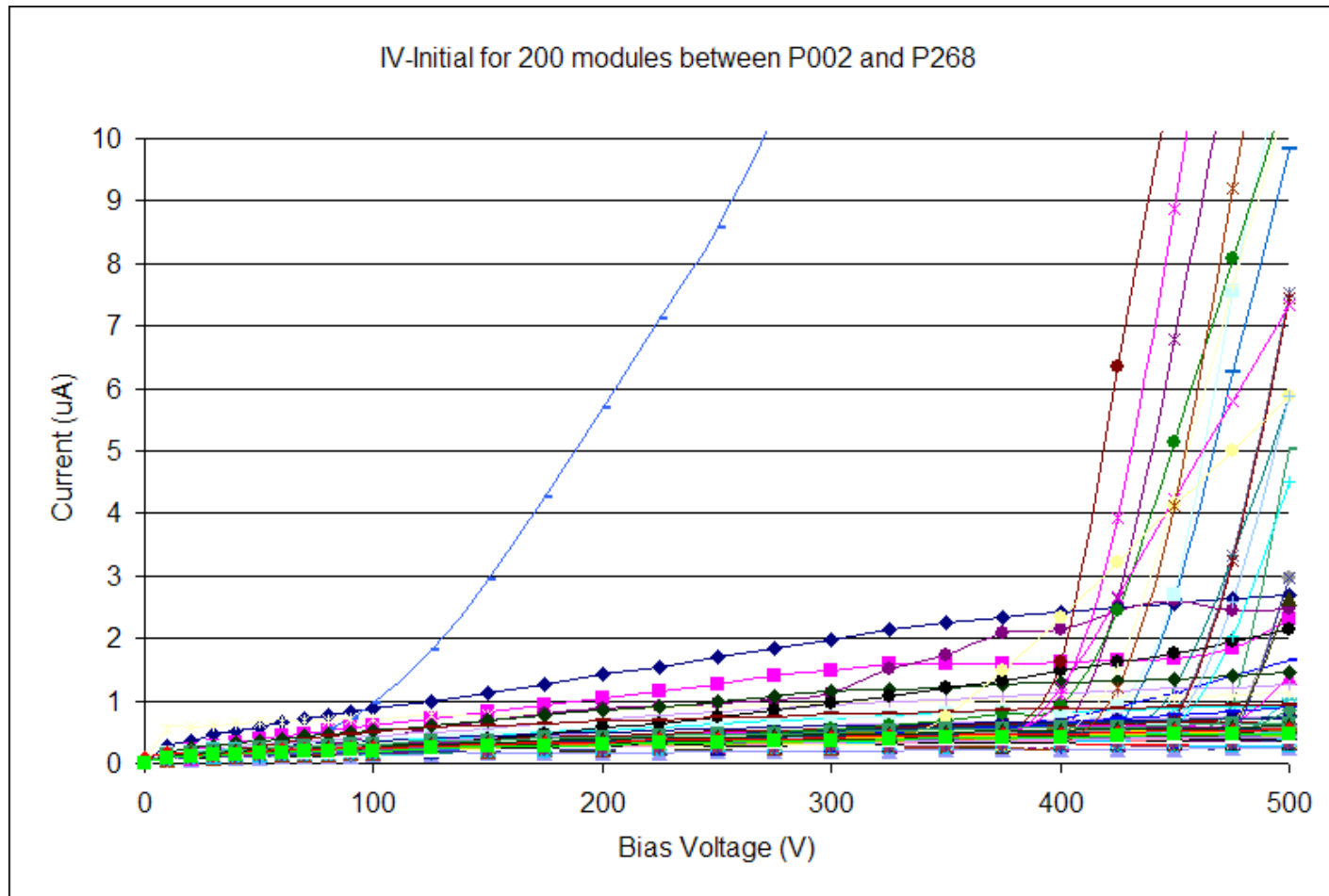
### Wiggles for Good/Pass

Negative Thr	66	13.75%
Neg/Positive Thr	96	20%

All Datasheets + Results + Qual/Sign-off uploaded into the SCT Database

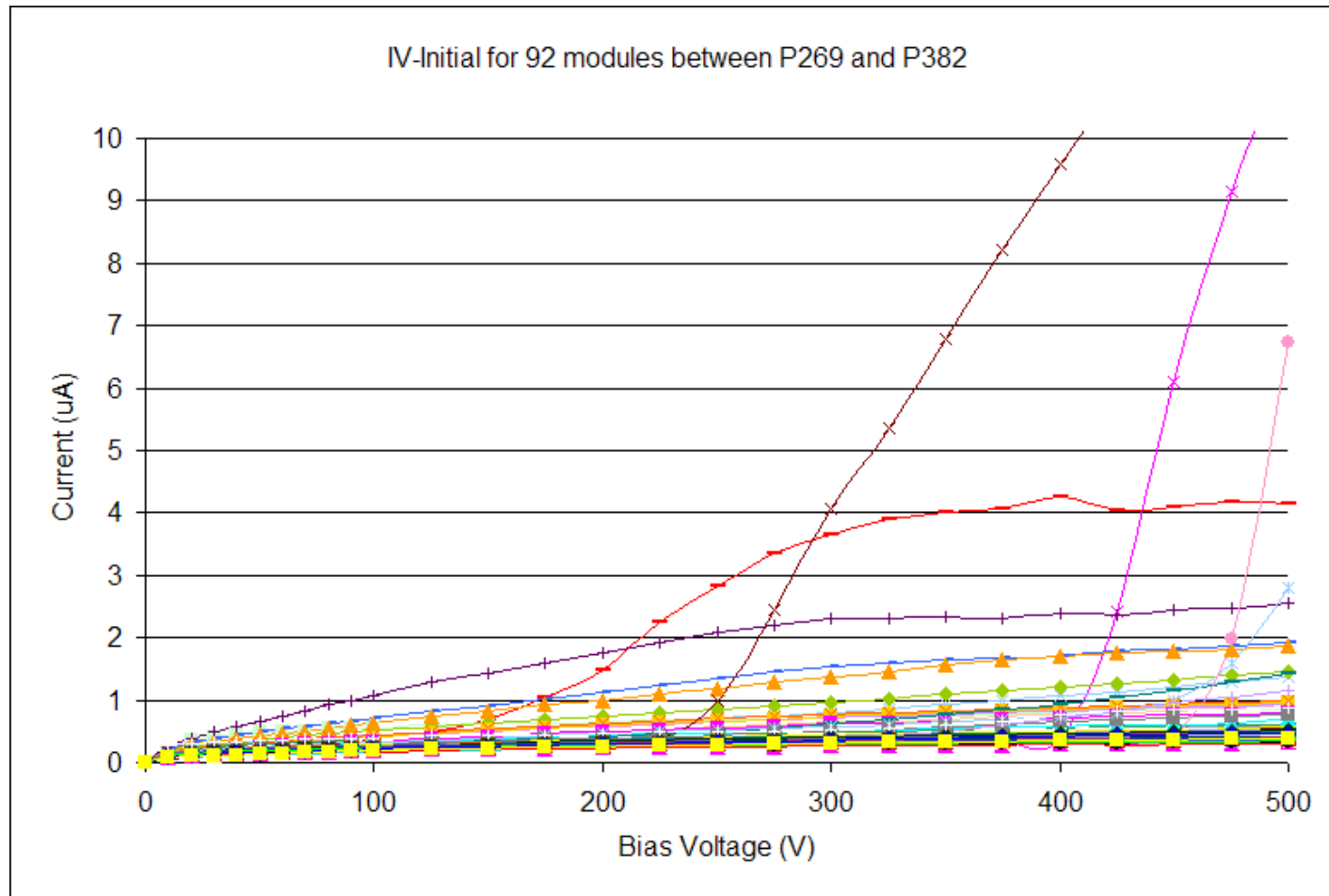


# IV-curve



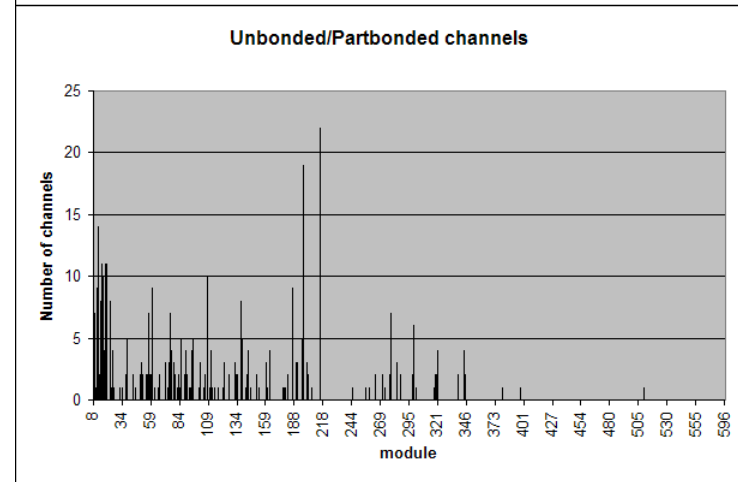
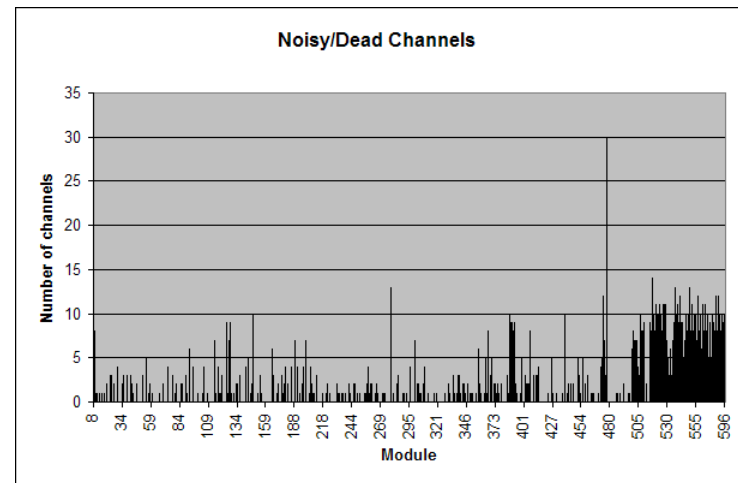
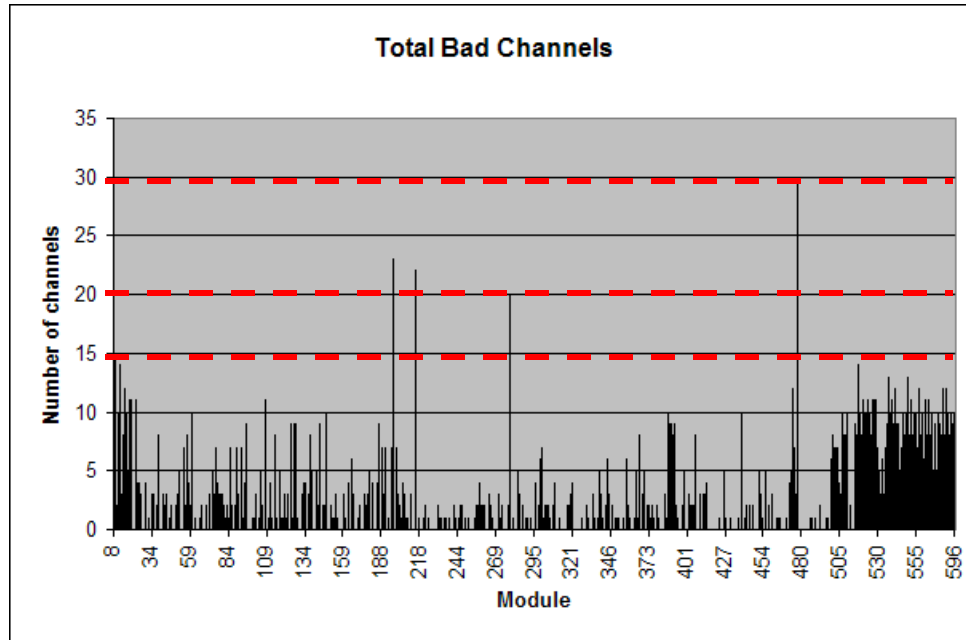


# IV-curve





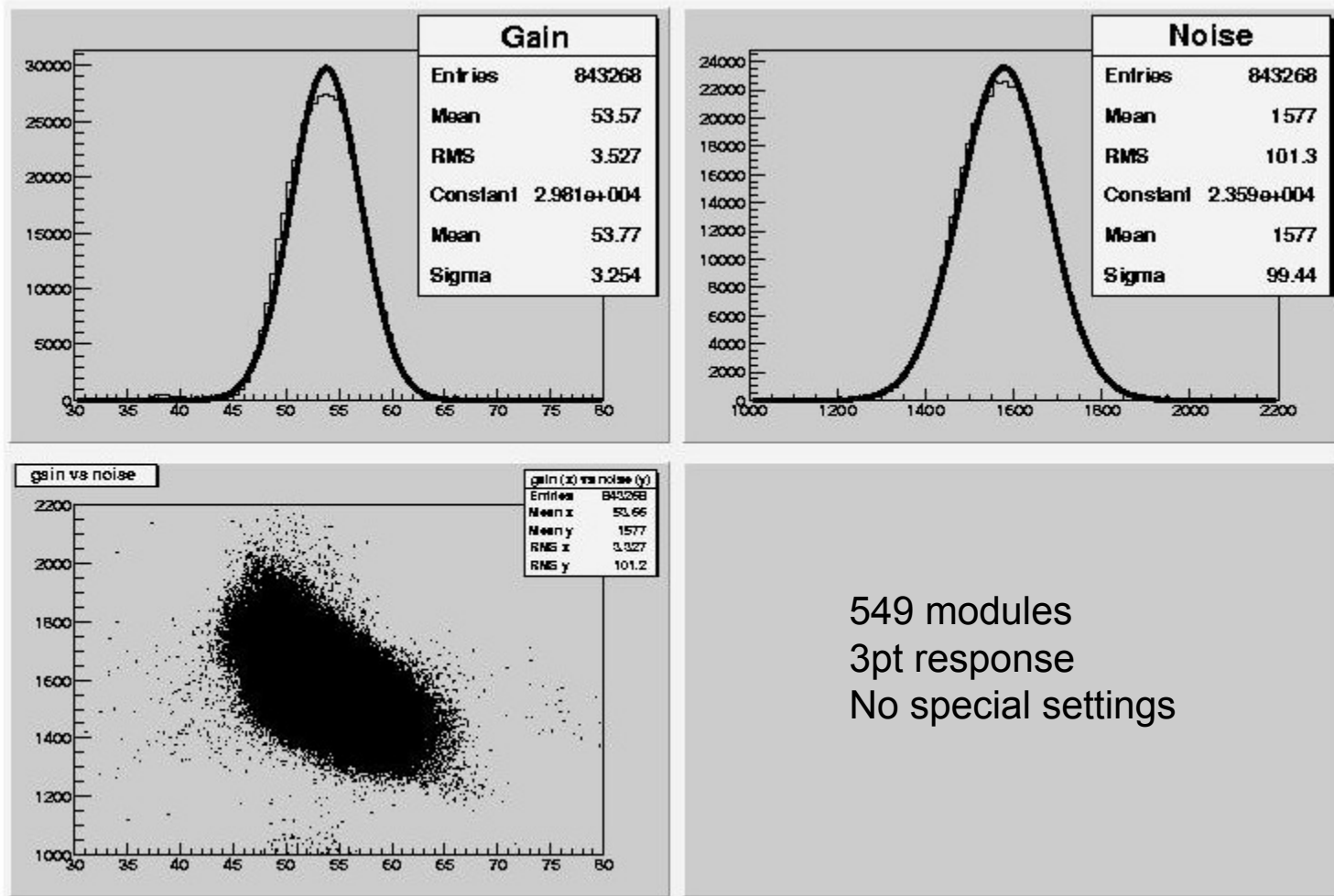
# Bad Channels



	GOOD	PASS2	SPARE	FAIL
Total	$\leq 15$	$\leq 20$	$\leq 30$	$> 30$
Cons	$\leq 7$	$\leq 10$	$\leq 14$	$> 14$

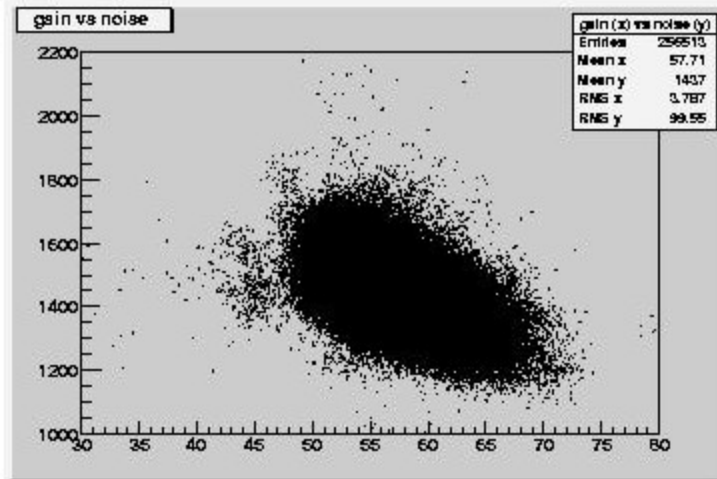
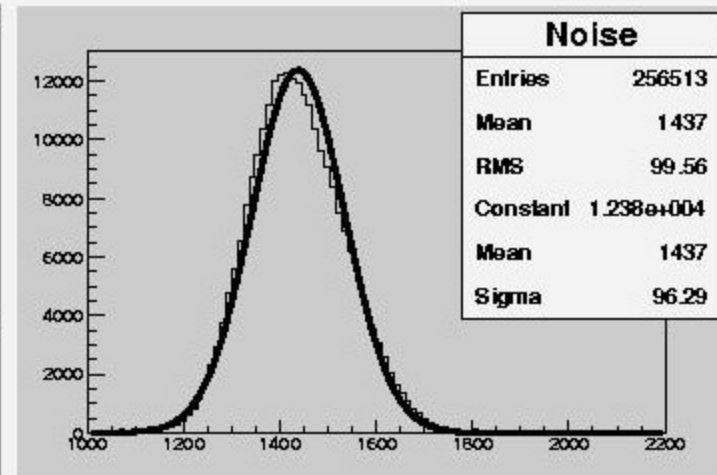
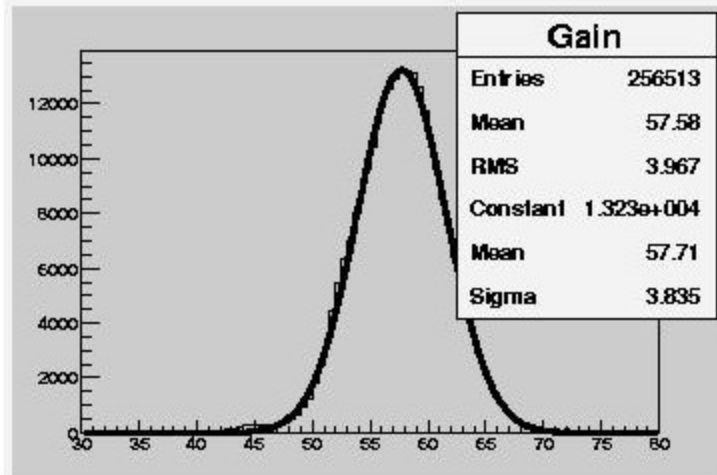


# Gain-Noise





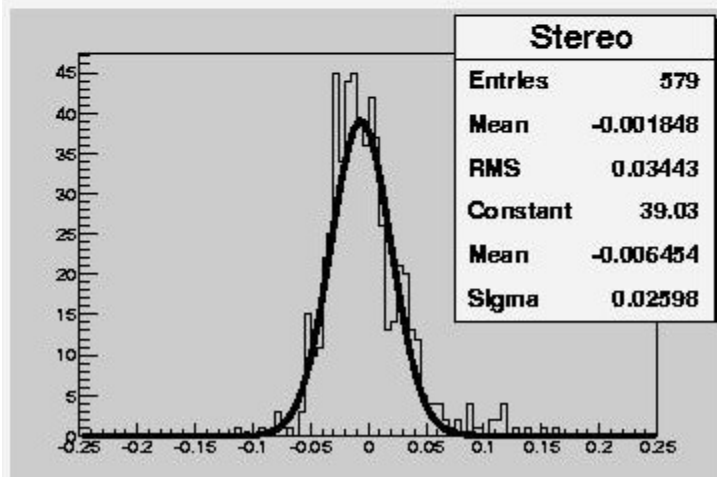
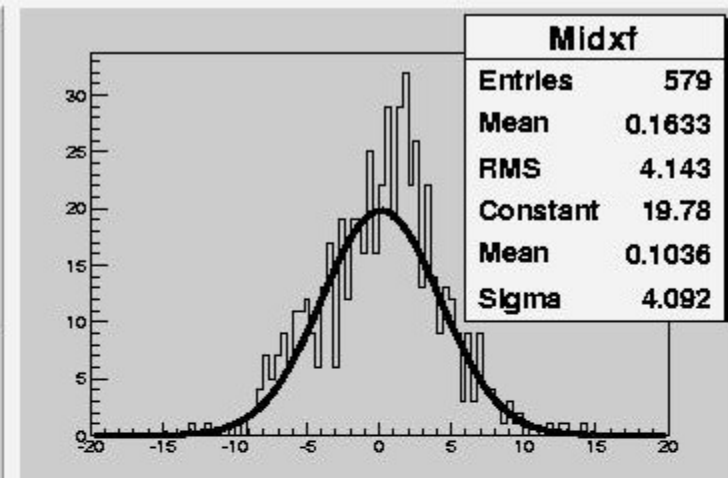
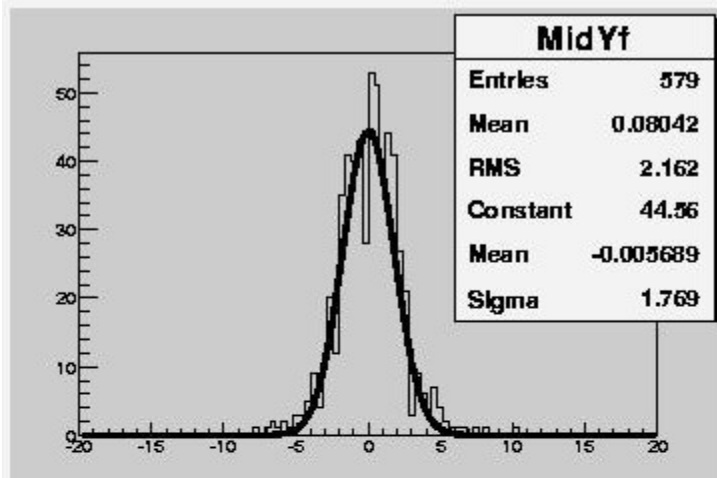
# Gain-Noise



3pt response  
 SDF=40  
 ISH=20 (for LGS)



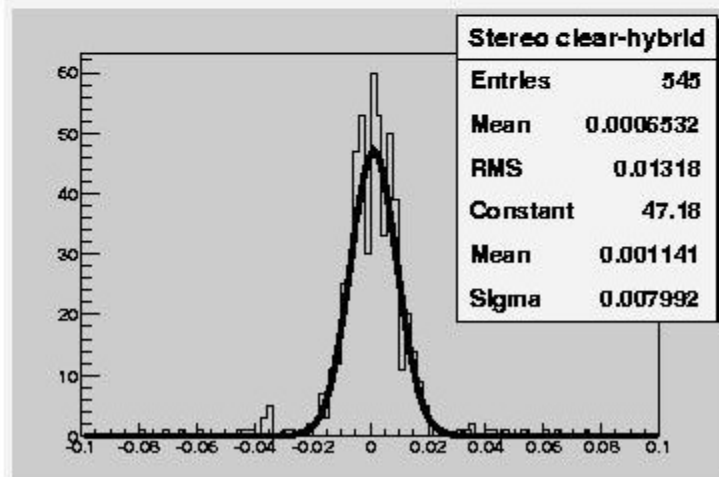
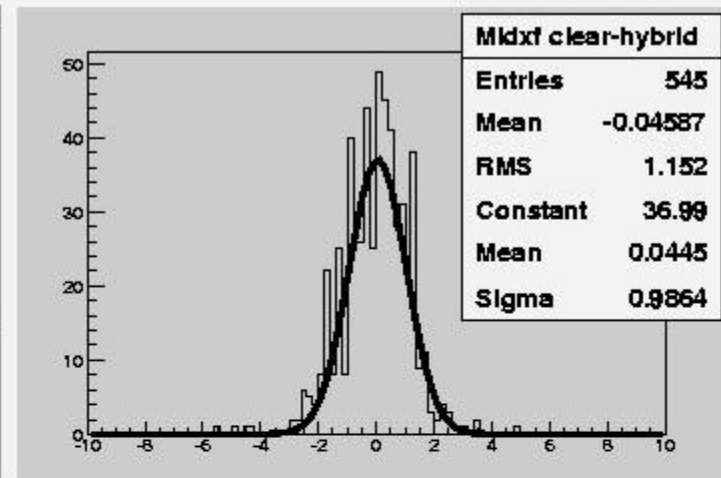
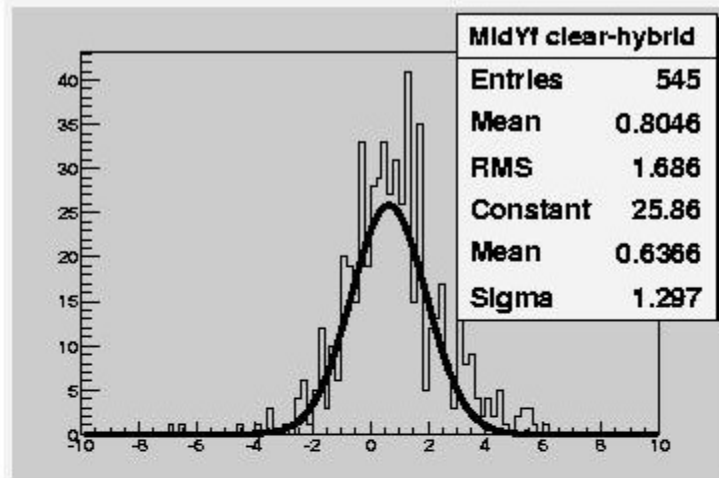
# Metrology



Before Hybrid attach



# Metrology



Difference clear-hybrid





## Shipments

- Shipments started on April 1 (20 modules)
- Followed by 14 more shipments (40/shipment)
- No physical damage
- Shock logger reading OK





## Module Verification

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- Reception tests OK
- ALL modules tested at Oxford
- Results verification in progress
  - Barrel assignment will change for a few modules
  - Mainly IV discrepancy
  - Token problem (solved)
  - Final Quality/Sign-off