

Status of ARCS 6.0 – SW Parameter & DB Issues

**Module Test Meeting
CMS Week
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- Released in May
- arcs.dll was exchanged - GUI did not change in respect to Version 6.0Beta

Changes:

- *Object ID is indicated by root file name*
 - *Data storage directory has to be specified just once*
- *XML file is database compliant*
 - *Some minor changes(date format; status)*
- *Semaphores removed*
 - *Not the final solution*
- *Salvatore My reported bug in fast test*
 - *Channel ordering was completely wrong*
- *Common Mode correction is applied to pulse shape test*
 - *Pulseshape Curve is much smoother now*

General & Environment Parameters

- | | | | |
|----------------|---|-------------------|---|
| • Date | ✓ | • TempSenNtsc1Dcu | ✓ |
| • Operator | ✓ | • Ihyb25 | ✓ |
| • Tool ID | ✓ | • Ihyb125 | ✓ |
| • Temp Setup | ✓ | • Vhyb25 | ✓ |
| • TempExt | | • Vhyb125 | ✓ |
| • HumSetup | ✓ | • Vhyb25Dcu | ✓ |
| • HumExt | | • Vhyb125Dcu | ✓ |
| • TempHybDCU | ✓ | • HVBias | |
| • TempHybNtsc | ✓ | • IleakDcu | ✓ |
| • TempSenNtsc1 | ✓ | • Ileak | |
| • TempSenNtsc2 | | | |

Test Parameters

- **Trigger Pattern** : 1000.0000...150...0000.0000
- **APV-Mode** : 5, 15, 37, 47

All other APV settings adjustable

Fixed values of parameters in Valery's Code:

- **theNStrips = 32**
(number of strips used for cmn mode calculation)
- **theNCmnIter = 1**
(Number of iterations for cmn mode calculation)
- **theNRawEvent = 0.2 · (number of events)**
(Percentage of events used before noise calculation)



Pedestal & Noise Test DB

Tracker DB

- <apvmode> ✓
- <pedestal> ✓
- <noise> ✓
- <rawnoise> ✓
- <avgnoise> ✓
- <avgrawnoise>
- <avgpedestal> ✓
- <sgnoise> ✓
- <sgrawnoise>
- <sgpedestal> ✓

Additional in local File

- truncated average pedestal
- truncated RMS of pedestal
- truncated average noise
- truncated RMS of noise
- histograms with flags on percentage cuts
- pedestal Distribution
- noise Distribution

- Test Parameters

- **Trigger Pattern:**

- 1010.0000..pipe%192+23-a..0000.0001

- a=0 for Peak, a=2 for Dec

- **Latency** : 10

- **APV Mode** : 5, 15, 37, 47

1 ms wait between SendTrigger() and ReadRam()

All other APV settings adjustable

Additional in local File



Calibration Pulse Test

• Test Parameters

- **TriggerPattern:** 1100.0000...5+a...0001.0011 , a=3 for Peak, a=0 for Dec
- **APV Mode:** 1 11 33 43
- **Latency:** minLatency ... maxLatency
- **Csel:** 254, 253, 251, 247, 239, 223, 191, 127
- **Cdrv:** 254, 253, 251, 247, 239, 223, 191, 127
- **Ical:** 29·Mips
- **CM Correction:** 112 channels that are not hit by the calibration pulse

All other APV settings adjustable

Tracker DB

- <apvModeCalP> ✓
- <calApeak> ✓
- <avgcalAPeak> ✓
- <sgcalPApeak> ✓
- <calA>
- <avgcalA>
- <sgcalA>

Additional in local File

- (truncated) average risetime, peakttime and pulseheight
- (truncated) RMS of risetime, peakttime and pulseheight
- flags for bad channels: risetime, peakttime and height
- histograms for peakttime, risetime, pulse height
- fits and Chi2 histogramms
- complete set of measurement points of the shape curve

• Test Parameter:

• **Trigger Pattern:**

- If Inverter On: 1100.0000...30...0000.0000
1100.0000...6+a...0001.0000
- If Inverter Off: 1100.0000...6+a...0001.0011

a=3 for Peak, a=0 for Dec

- **APV Mode:** 1 11 33 43
- **Latency:** 18
- **Csel:** 254
- **Ical:** MinIcal...MaxIcal (in (Steps+1) equidistant steps)

All other APV settings adjustable

Only in local file

- APV Mode
- (truncated) average of gain slope, gain offset, chi2 fit
- (truncated) RMS of gain slope, gain offset, chi2 fit
- flags for bad channels: gain slope, gain offset, chi2 fit
- complete set of measurement points of the gain curve

- **Test Parameter:**

- **Trigger Pattern:** 0000.1000...0...0000.0000
(external from the LED Controller)
- **APV Mode:** 47
- **Latency:** 2

All other APV settings adjustable

Tracker DB

Additional in local File

- (truncated) average LED response
- (truncated) RMS of LED response
- flags for bad channels
- truncated RMS of noise

• Test Parameter:

- **Trigger Pattern:** 1100.0000...5...0001.0011
- **Latency:** 13
- **Csel:** 127
- **APV Mode:** 11
- **Ical:** 100

All other APV settings adjustable

Tracker DB

- <apvModeLight>
- <calAlign>
- <avgcalAlign>
- <sgcalAlign>

Additional in local file

- pinhole curve maximum
- pinhole curve difference
- (truncated) average of maximum and difference
- flags for bad channels
- complete set of measurement points of the pinhole curve

Procedure to write Data to DB:

1. Do tests – create root file
2. Start xml parser in ARCS
3. Chose root file and record
4. Push apply button – create xml file
5. Start big browser
6. Chose xml file and update it to the db

Additional Features of next ARCS Version

- **Fast Test Results will be stored in root file**
 - Important for centers doing fast tests on Hybrids
- **Makros to produce plots from xml file**
 - Almost finished
 - Comparison with work done by Tony
- **Automated intialisation**
 - Almost finished
 - Write boards into config file
- **Automated I-V curve**
- **Standalone program to produce plots**
- **Summary table**
 - Good tool to give error proposal (see also Tony's)

***Next ARC Version will involve mayor changes in
the config file!! Read our comments!!***