

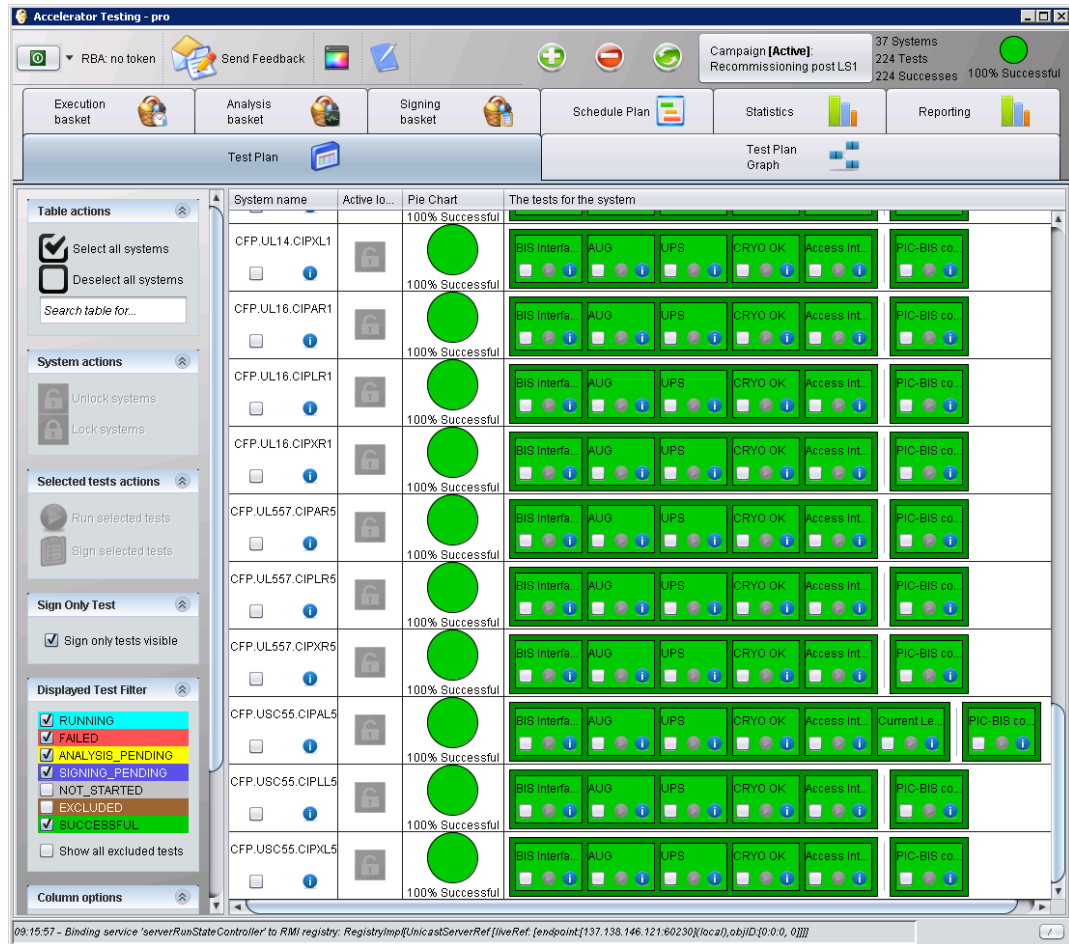
PIC/WIC/FMCM

Commissioning status

16.04.2015

PIC status

- Commissioning completed:
 - BIS interface (CIBU tests)
 - BIS interface (Functional)
 - Circuit fault propagation to BIS
 - Verification of PIC configuration, e.g. ROD/F as MASKABLE during RUN2
 - Propagation delay between PIC vs BIS (typically ~2ms)
 - Fully integrated in ACC_TESTING which allowed to test more than 800 sc circuits
 - Global interlocks (CRYO, UPS, AUG)
 - Access interlocks
- No other specific tests are required with beam



WIC status

- Commissioning completed:
 - BIS interface (NC:Missing ground connection on pins 1&2 of interfaces)
 - Magnet fault to BIS
 - PC fault to BIS
 - Remove Permit to BIS
- Diagnostics issue:
 - Time-stamping issue provoking up to 900ms delay wrt BIS (PLC firmware?)
- No other specific tests required with beam

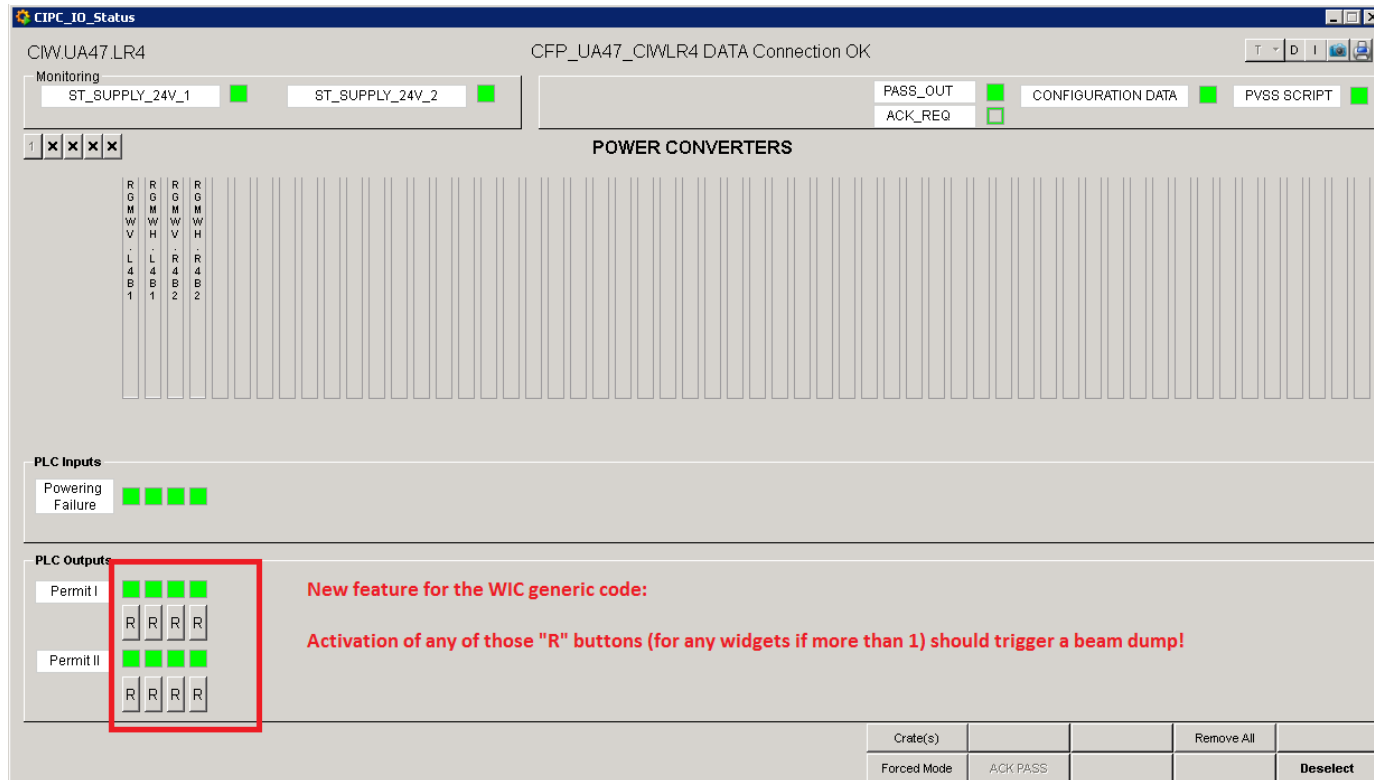
The screenshot displays the 'Accelerator Testing - pro' software interface. At the top, a status bar shows 'Campaign [Active]: Recommissioning post LS1' and '8 Systems, 48 Tests, 32 Successes, 66% Successful'. Below this are navigation buttons for 'Analysis basket', 'Signing basket', 'Schedule Plan', 'Statistics', and 'Reporting'. A secondary row contains 'Test Plan', 'Test Plan Graph', and 'Execution basket'. The main area features a table of system data and a sidebar with control options.

System name	Active lo...	Pie Chart	The tests for the system
CFP.TZ76.CIWLR7		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.UA23.CIWLR2		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.UA47.CIWLR4		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.UJ33.CIWLR3		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.US15.CIWLR1		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.US65.CIWLR6		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.US85.CIWLR8		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...
CFP.USC55.CIWL...		66% Successful	BIS Interfa... Magnet Fa... PC Fault Remove P...

The sidebar on the left includes sections for 'Table actions' (Select all systems, Deselect all systems, Search table for...), 'System actions' (Unlock systems, Lock systems), 'Selected tests actions' (Run selected tests, Sign selected tests), 'Sign Only Test' (Sign only tests visible), and 'Displayed Test Filter' (RUNNING, FAILED, ANALYSIS PENDING).

At the bottom, a status bar shows: '09:15:57 - Binding service 'serverRunStateController' to RMI registry: RegistryImpl[UnicastServerRef[liveRef: [endpoint[137.138.146.121:60...

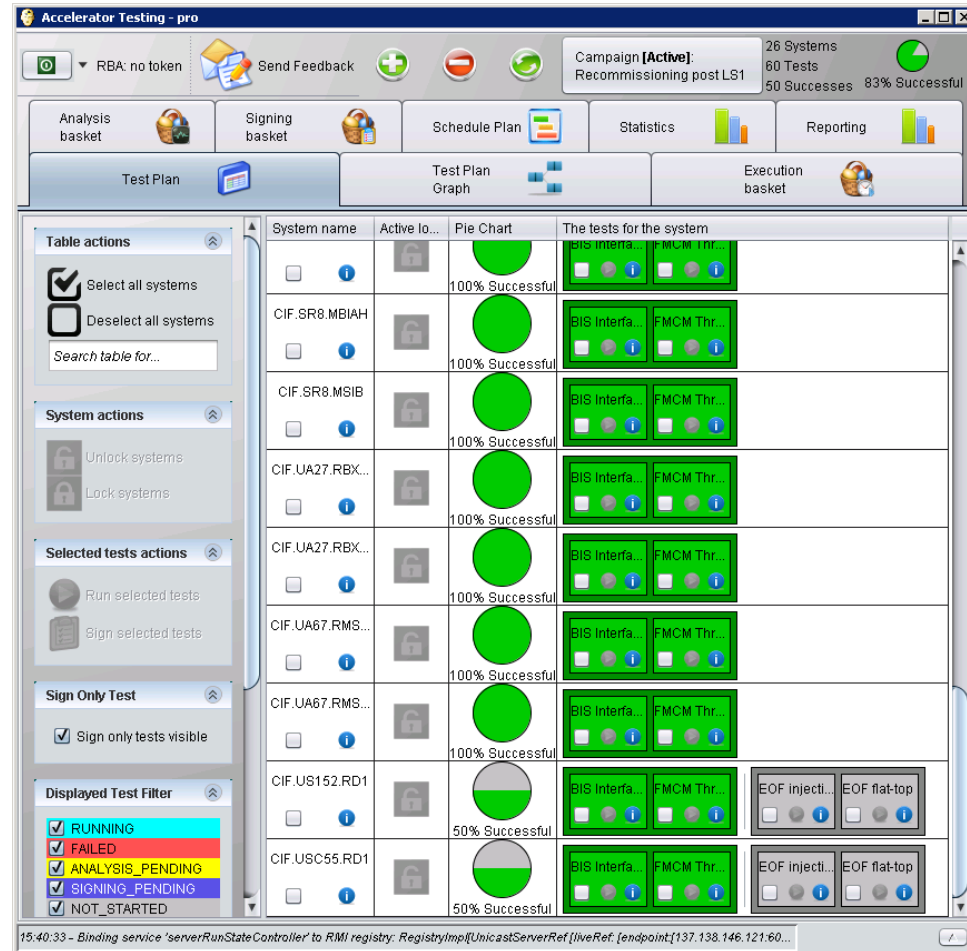
Remove Permit does not activate Beam Dump



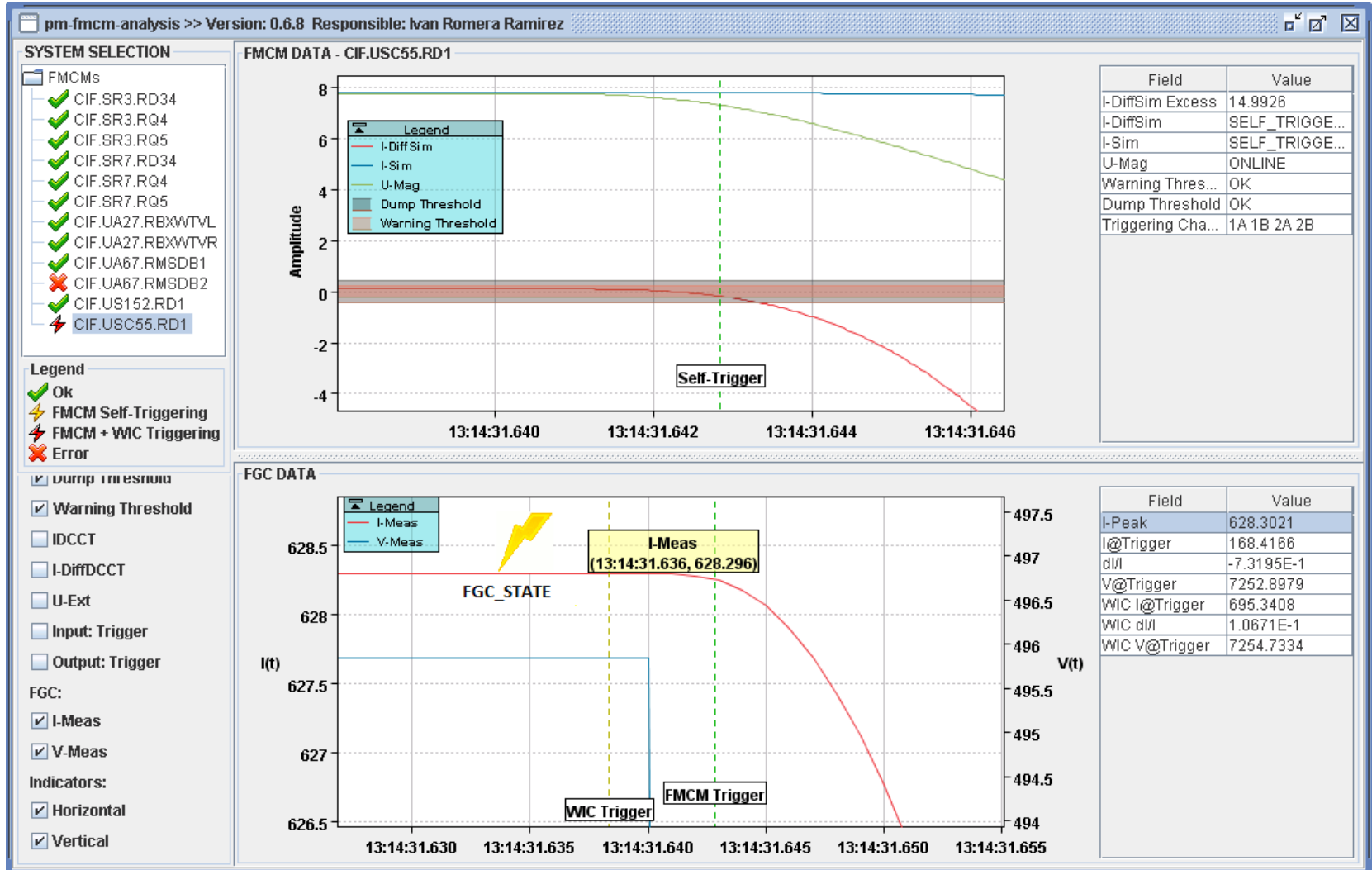
- New functionality in WinCC that allows to open the relay outputs used to generate "Fast Abort" commands to the power converters.
- By doing so, it will trip the associated power converter.
- In case there is beam circulating in the machine, this action will NOT send a beam dump request as this information is NOT going through the matrix at the level of the PLC.
- So, to avoid a possible human error, any human action on any of these relays, will trigger a beam dump request!

FMCM status

- 26 monitors installed in LHC & SPS TLs
- Test without beam completed:
 - BIS interface (CIBU tests)
 - Trigger and BIS (Validation of correct trigger and propagation to the BIS)
- Test with pilot beam (TO BE DONE)
 - Validation of correct trigger and propagation to BIS at 450Gev and 6.5TeV (EOF)
 - Verify beam excursion and beam losses observed before going to high energy beams
- **Remaining:** New version of FESA class ready to solve an issue on the PM layer after upgrading to Linux (MEN A20)



Trigger and BIS verification



Thresholds on LHC monitors

FMCM	2015 (6.5TeV equivalent)			2012 (4TeV equivalent)			$\Delta I/I$ (%) limit	Conformity
	Inom (A)	Itrip (A)	$\Delta I/I$ (%)	Inom (A)	Itrip (A)	$\Delta I/I$ (%)		
SR3.RD34	40.9200	40.84	0.195503421	40.93	40.83	0.24431957	0.035	OUT OF RANGE
SR3.RD34	594.0040	593.85	0.025925751	363.8013	363.7	0.02784487	0.035	IN RANGE
SR3.RQ4	518.3500	518.258	0.017748625	320.01	319.94	0.021874316	0.035	IN RANGE
SR3.RQ5	546.1710	546.07	0.018492377	320	319.93	0.021875	0.035	IN RANGE
SR7.RD34	40.9300	40.83	0.24431957	40.93	40.85	0.19545565	0.035	OUT OF RANGE
SR7.RD34	594.0010	593.82	0.030471329	363.84	363.75	0.024736148	0.035	IN RANGE
SR7.RQ4	550.4800	550.415	0.011807877	337	336.95	0.014836795	0.035	IN RANGE
SR7.RQ5	560.5660	560.5	0.011773814	343	342.95	0.014577259	0.035	IN RANGE
UA23.RBXWTVL	574.4280	574.32	0.018801312	577.049	576.92	0.022355121	0.035	IN RANGE
UA23.RBXWTVR	503.0220	502.93	0.018289459	503.024	502.92	0.020674958	0.035	IN RANGE
UA67.RMSD1	753.7700	753.64	0.01724664	463	462.9	0.021598272	0.035	IN RANGE
UA67.RMSD2	753.7700	753.65	0.015919976	463	462.89	0.023758099	0.035	IN RANGE
RD1.LR1	628.558	628.525	0.005250112	383	382.96	0.010443864	0.035	IN RANGE
RD1.LR5	628.2970	628.25	0.007480539	383	382.962	0.009921671	0.035	IN RANGE

- FMCMs thresholds have been set for 7TeV operation (for max ΔV scenario)
- Therefore sensitivity at 6.5TeV equivalent current is higher than at injection

Thresholds on SPS TL monitors

FMCM	2015 (6.5TeV equivalent)			2012 (4TeV equivalent)			$\Delta I/I$ (%) limit	Conformity
	Inom (A)	Itrip (A)	$\Delta I/I$ (%)	Inom (A)	Itrip (A)	$\Delta I/I$ (%)		
RBI.410147	CNGS not used			3968.1	3967.45	0.016380636	0.1	IN RANGE
RBI.410010	CNGS not used			840.3748	840.3412	0.003998216	0.1	IN RANGE
RBIH.400309	984.27	984.0767	0.01963892	674.0723	673.9502	0.018113784	0.1	IN RANGE
RBIH.400107	768.297	768.3029	-0.000767932	5275.9094	5275.0855	0.015616265	0.5	IN RANGE
RBI.81607	5274.8794	5274.3853	0.009367039	20271.9727	20256.5918	0.075872734	0.1	IN RANGE
MSE6183M	18598.6406	18589.416	0.049598249	5673.2941	5664.8254	0.149273065	0.5	IN RANGE
MST6177M	5673.6948	5669.5747	0.072617582	3743.1152	3742.5781	0.014349011	0.5	IN RANGE
RBIH.20150	3743.3701	3742.2759	0.029230345	3087.8418	3087.0361	0.026092658	0.3	IN RANGE
MSE4183M	21572.5703	21560.8516	0.054322224	20079.3457	20061.7676	0.087543191	0.2	IN RANGE
MBB.6608M	HiradMat not tested yet						0.1	
MBS.6600M	HiradMat not tested yet						0.1	
RBI.22134	5164.9614	5164.4668	0.009576064	5165.332	5165.0024	0.006381003	0.3	IN RANGE
RBIH.29314	724.0219	723.9609	0.00842516	724.2516	724.0906	0.022229844	0.3	IN RANGE
RMSI.L2B1	945.538	945.5346	0.000353238	945.5566	945.4556	0.010681539	0.35	IN RANGE
RBIH.87833	895.2255	895.1645	0.006813926	893.8599	893.8293	0.003423355	0.1	IN RANGE
RMSI.R8B2	947.889	947.84161	0.004999531	947.987	947.81065	0.018602576	0.1	IN RANGE