

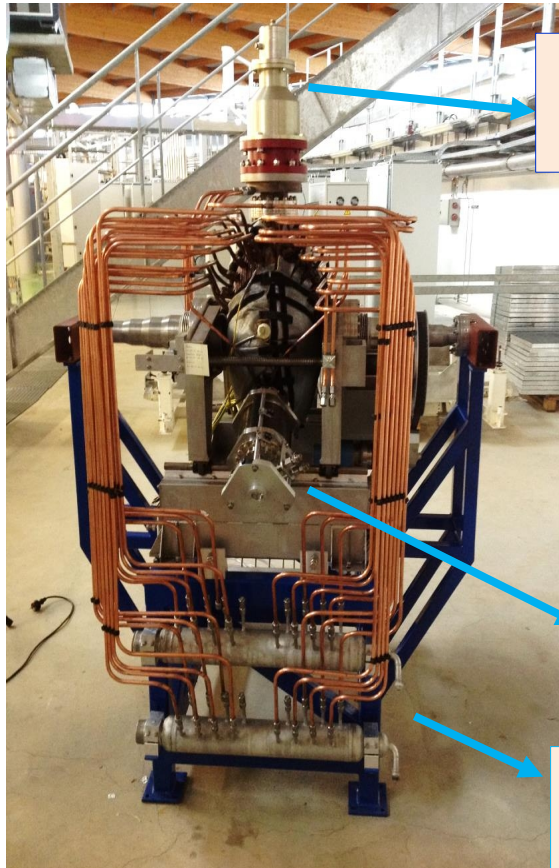
ThomX Machine Advisory Committee

(LAL Orsay, March 20-21 2017)

P. Marchand

RING RF system

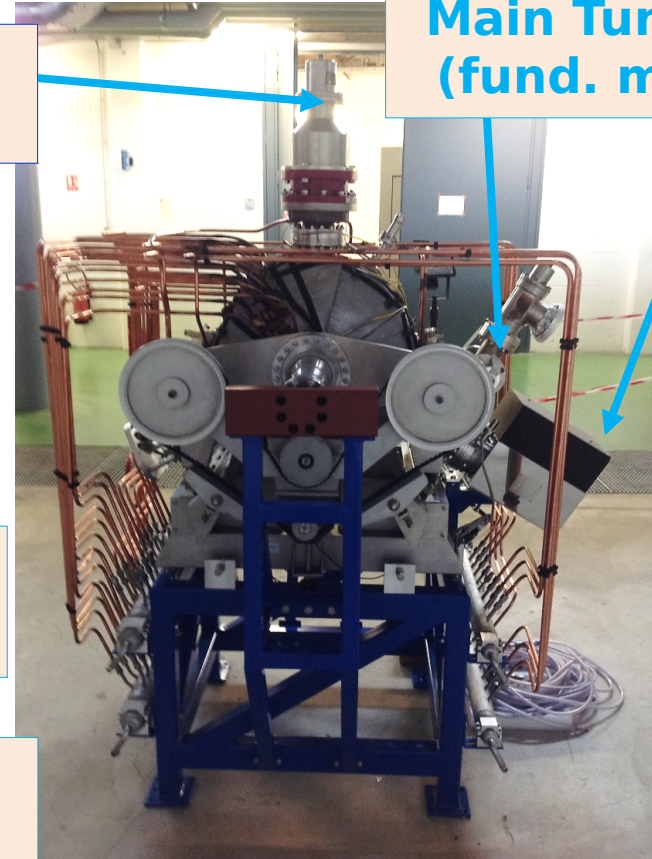
Previous ELETTRA cavity refurbished



Power
coupler

Tuner
(HOM)

Cooling
+ HOM
tuning



Main Tuner pr
(fund. mode)

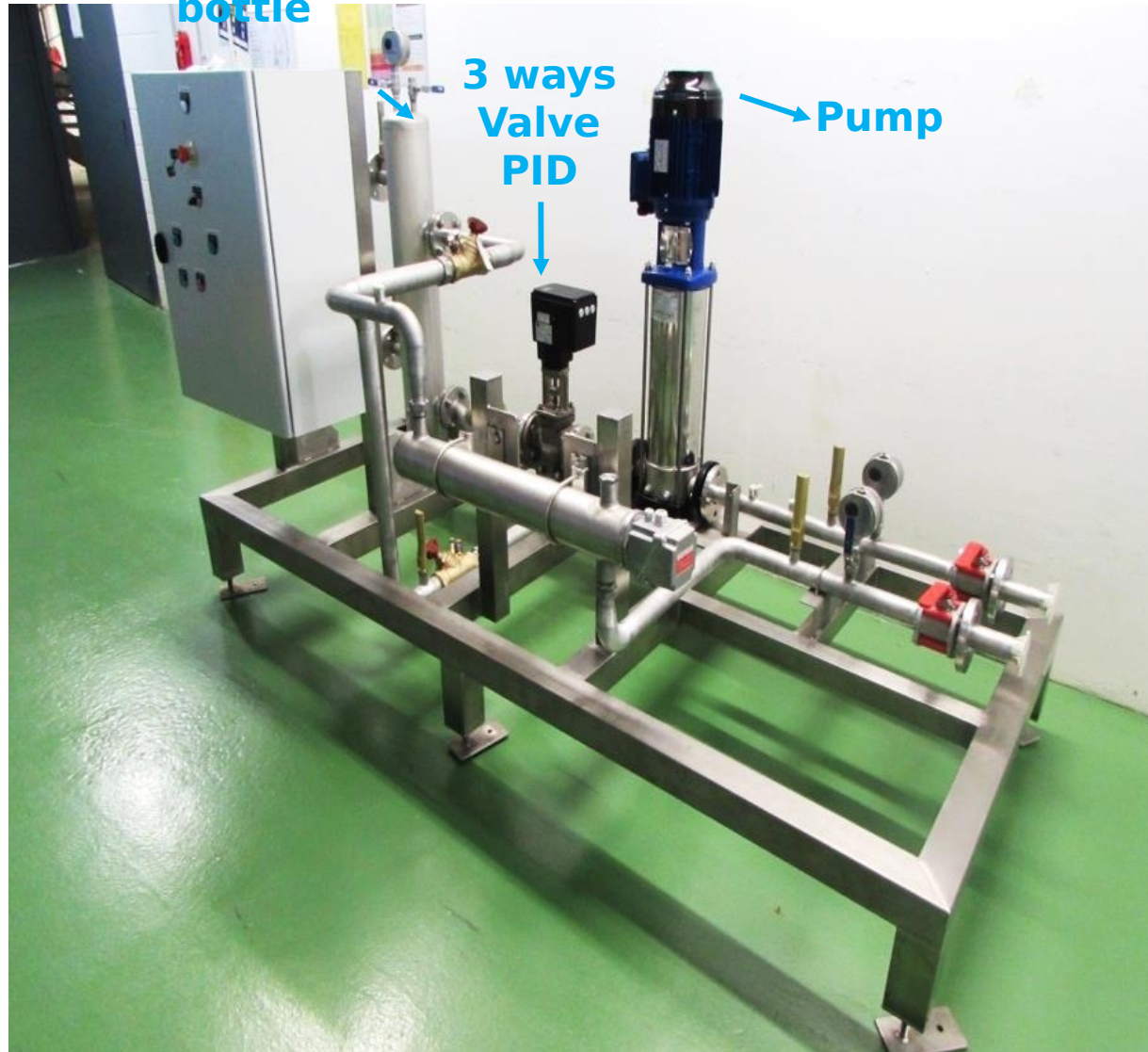
Pump

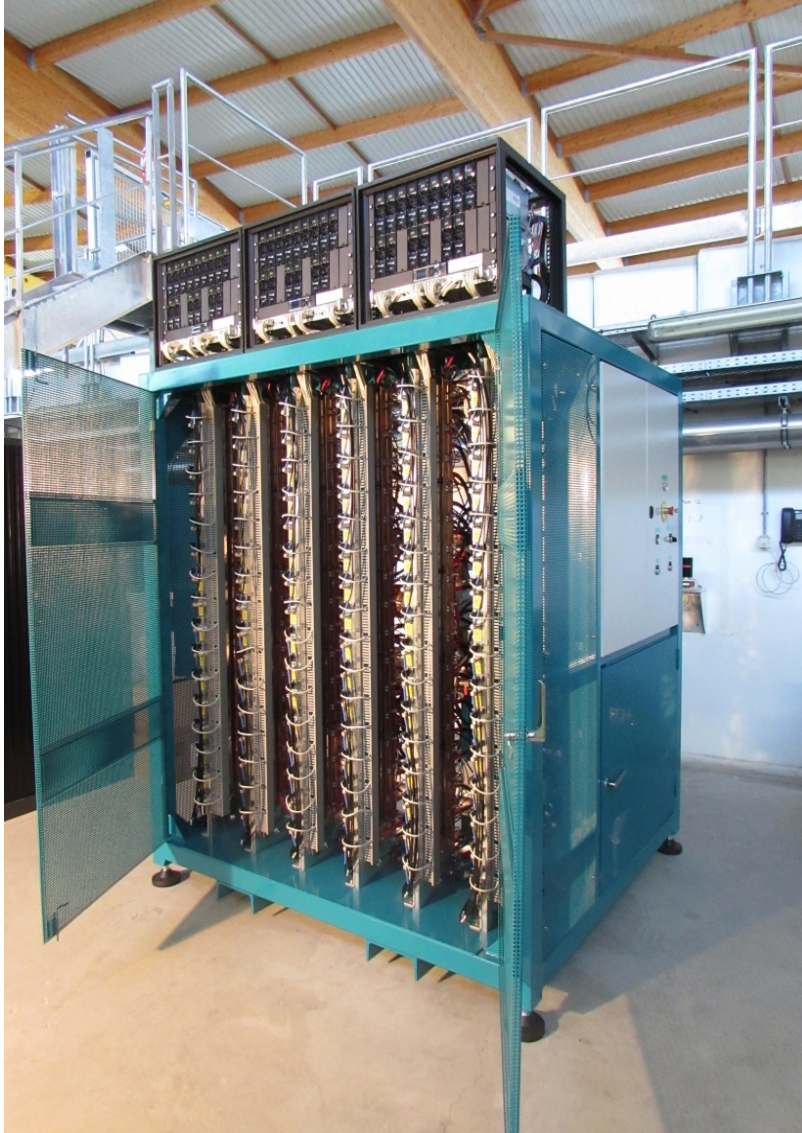
- Vacuum : $4 \cdot 10^{-10}$ mbar after baking
- HOM measurement versus temp. scheduled T2 2017 et SOLEIL (dispo cooling rack)
- RF conditioning once the cavity in the tunnel "in control access mode"

Pressur breaking
bottle**Cavity temp. Control :**

- Dynamic : 30 à 70°C
- Stability : $\pm 0.1^\circ\text{C}$

- Still ongoing :
 - Cabling
 - PID valve control
- Load test qualification schedule in May 2017 at SOLEIL



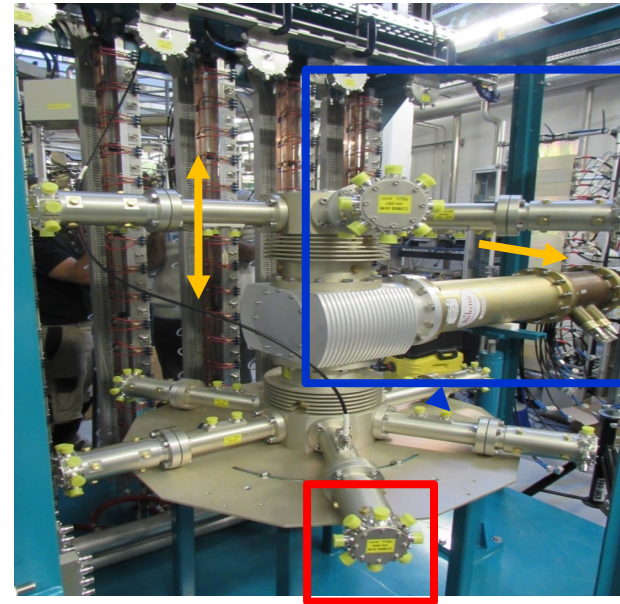


Power supplies : 3 racks each including
15 converters 230 Vac / 50 Vdc of 2 kW

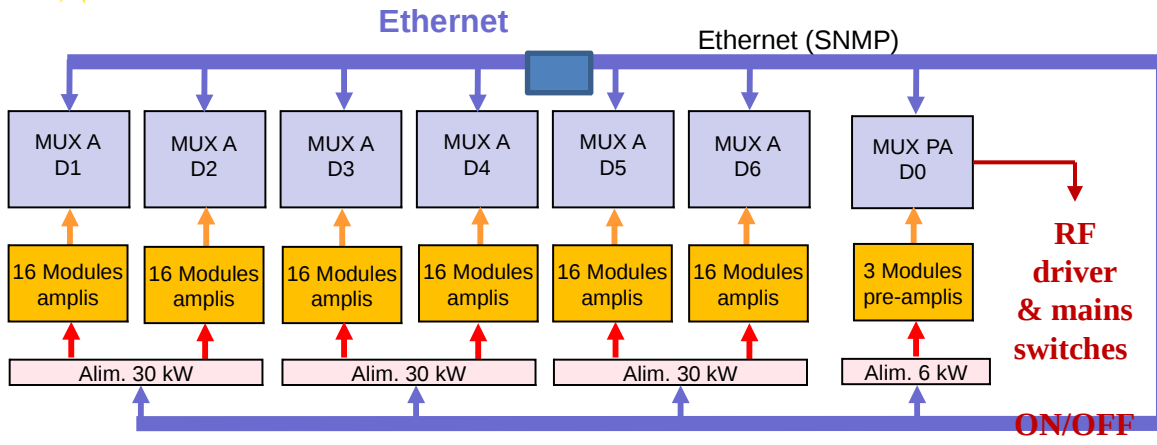
6 cooled dissipators each including 16
modules RF of 550 W

96 SSA modules

Power combiner
(8 x 6 x 2)



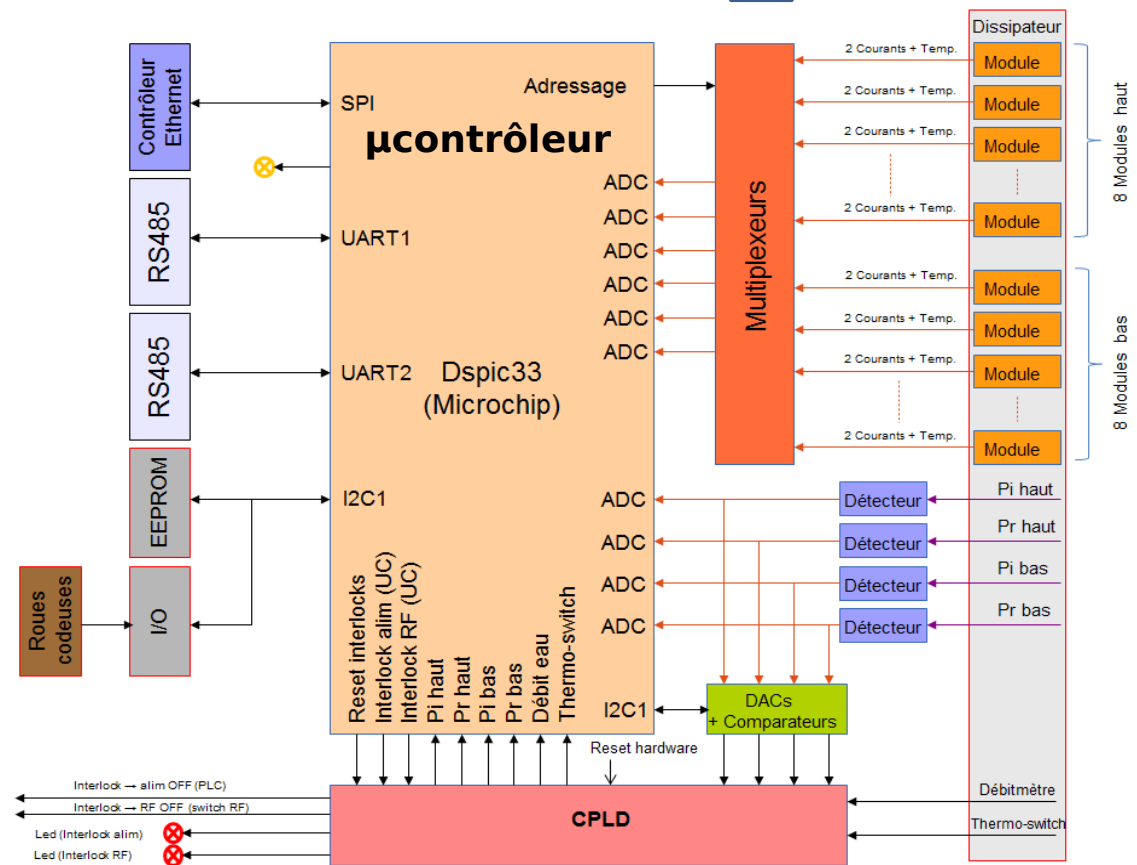
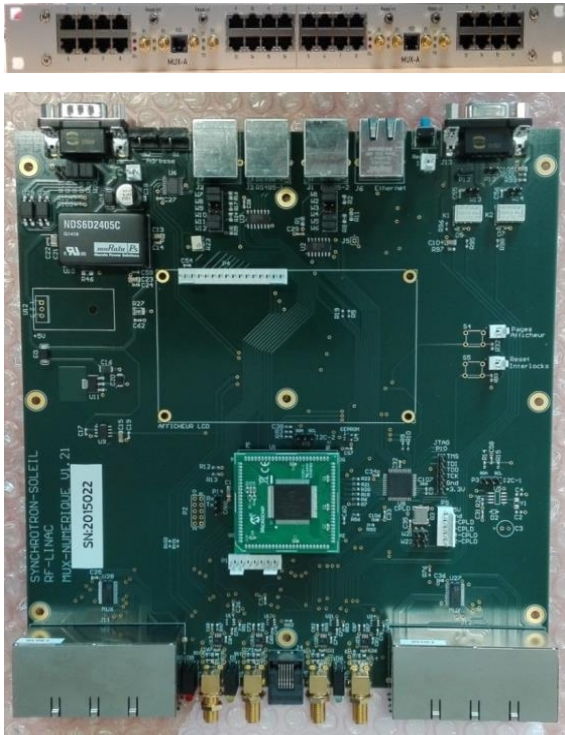
Fully assembled and tested at SOLEIL
Run over 500 hours at 52 kW with an efficiency of 54 %



**1 MUX per dissipator controlling their parameters (mod. RF & alims)
Communication via Ethernet SNMP**

MUX : 1 microcontroler + multiplexers & comparators + 1 CPLD for the interlocks

MUX card



Appli_SESAME_PROD_46_labview_2010.vi

FILE PATH: D:\RF\SESAME\min_max\2016_01_27_00_00_sauv_24h_min_max.xls

27/01/2016 11:28:29

DIS: 1 Module: 1

ARCHIVING FILES 24HOURS

2016_01_27_00_00_sauv_24h_min_max.xls
 2016_01_26_00_00_sauv_24h_min_max.zip
 2016_01_25_00_00_sauv_24h_min_max.xls
 2016_01_24_00_00_sauv_24h_min_max.zip
 2016_01_23_00_00_sauv_24h_min_max.zip
 2016_01_22_00_00_sauv_24h_min_max.zip
 2016_01_21_00_00_sauv_24h_min_max.zip
 2016_01_20_00_00_sauv_24h_min_max.zip
 2016_01_19_00_00_sauv_24h_min_max.zip
 2016_01_18_00_00_sauv_24h_min_max.zip
 2016_01_17_00_00_sauv_24h_min_max.zip
 2016_01_16_00_00_sauv_24h_min_max.xls
 2016_01_15_18_29_33_sauv_24h_min_max.zip
 2016_01_15_18_29_33_sauv_24h_min_max.xls

ALL VALUES AMPLI

LIG 2752 COL 555

CURRENT MODULES (A)

	DIS.1	DIS.2	DIS.3	DIS.4	DIS.5	DIS.6	DIS.7	DIS.8	DIS.9	DIS.10
MODULE.01	8,00	8,04	8,03	7,95	8,24	8,19	8,63	8,39	8,73	8,37
MODULE.02	8,38	8,29	8,20	8,02	8,04	8,04	8,72	8,51	8,69	8,41
MODULE.03	8,49	8,11	7,84	8,06	7,87	7,96	8,95	8,54	8,30	8,15
MODULE.04	7,89	8,22	8,12	7,88	7,98	8,05	8,53	8,41	8,69	7,78
MODULE.05	7,98	8,24	8,04	7,91	8,11	8,16	8,37	8,50	8,49	8,07
MODULE.06	8,30	7,94	7,76	7,97	7,79	8,28	8,51	8,55	8,35	7,90
MODULE.07	8,28	8,07	7,70	8,14	7,84	8,35	8,70	8,31	8,59	8,02
MODULE.08	7,88	7,97	7,76	7,98	7,93	7,82	8,29	8,51	8,18	7,85
MODULE.09	8,02	8,14	7,88	8,04	8,16	8,33	8,49	8,35	8,17	8,14
MODULE.10	8,17	8,02	7,69	8,10	7,98	7,85	8,17	8,07	8,03	8,14
MODULE.11	8,36	8,20	7,62	8,24	8,32	7,94	8,24	8,03	8,79	7,88
MODULE.12	8,48	7,99	7,88	8,33	7,92	8,06	8,29	8,30	8,64	7,99
MODULE.13	8,33	8,01	8,02	8,13	8,27	8,21	8,42	8,38	8,55	8,23
MODULE.14	7,87	8,58	8,14	8,51	8,10	7,89	8,32	8,52	8,30	8,32
MODULE.15	7,61	8,55	8,17	8,44	8,30	7,79	8,19	8,37	8,40	8,04
P.I	4,0	3,9	3,8	4,0	3,9	3,8	4,3	4,0	4,6	4,3
P.R	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1
P.I	3,9	4,1	4,5	4,0	4,0	4,2	4,0	4,2	4,1	4,3
P.R	0,0	0,0	0,1	0,0	0,0	0,0	0,1	0,0	0,0	0,0
MODULE.09	7,92	7,83	8,21	8,44	8,03	8,20	8,48	8,49	8,03	8,11
MODULE.10	7,93	7,83	8,35	8,39	8,30	8,23	8,48	8,18	8,50	8,44
MODULE.11	7,84	7,70	8,14	8,20	7,69	8,06	8,30	8,43	8,44	7,97
MODULE.12	8,19	8,10	8,19	8,13	7,63	8,14	8,20	8,93	8,46	8,03
MODULE.13	7,36	7,81	8,18	7,88	8,22	7,90	8,36	8,30	8,12	8,15
MODULE.14	7,41	7,97	8,13	7,89	8,98	7,85	8,30	8,32	8,39	8,20
MODULE.15	8,52	8,74	7,63	8,09	8,37	8,21	8,15	8,11	8,35	8,02
MODULE.16	8,76	8,89	7,92	8,04	8,49	8,12	8,26	8,15	8,53	8,11
MODULE.17	7,76	8,14	7,72	8,37	8,60	8,14	8,31	9,23	8,06	8,18
MODULE.18	7,66	8,51	7,86	8,32	8,46	8,31	8,84	8,45	8,02	8,44
MODULE.19	8,24	8,06	8,41	8,51	8,37	7,68	8,56	8,44	8,04	8,46
MODULE.20	8,36	8,20	8,51	8,39	8,45	8,27	8,57	9,18	8,14	7,99
MODULE.21	8,10	8,20	7,97	8,16	8,04	8,28	8,32	8,78	8,44	8,42
MODULE.22	8,17	8,62	7,92	8,16	8,44	8,49	8,73	8,89	8,48	8,79
MODULE.23	8,25	8,36	8,55	8,47	8,67	8,42	8,59	8,62	8,14	8,51
MODULE.24	8,07	8,42	8,52	8,95	5,75	8,59	8,53	8,51	8,29	8,45
MOD.1	MOD.1	MOD.2	MOD.2	MOD.3	MOD.3	MOD.4	MOD.4	MOD.5	MOD.5	
DIS.0	7,07	7,10	7,10	6,93	6,83	6,80	7,15	7,26	7,11	7,41

PI AMPLIFIER (KW) 79,5

PR AMPLIFIER (KW) 0,1

DRIVER PI (W) 35,2 PR (W) 0,2

WATER FLOW INLET 109,1 WATER FLOW OUTLET 108,3

CURRENT MIN 5,74 CURRENT MAX 9,22

AVERAGE CURRENT 8,18 TEMP MAX 49,4

STATUS BREAKER RECTIFIERS POWER SUPPLY RF

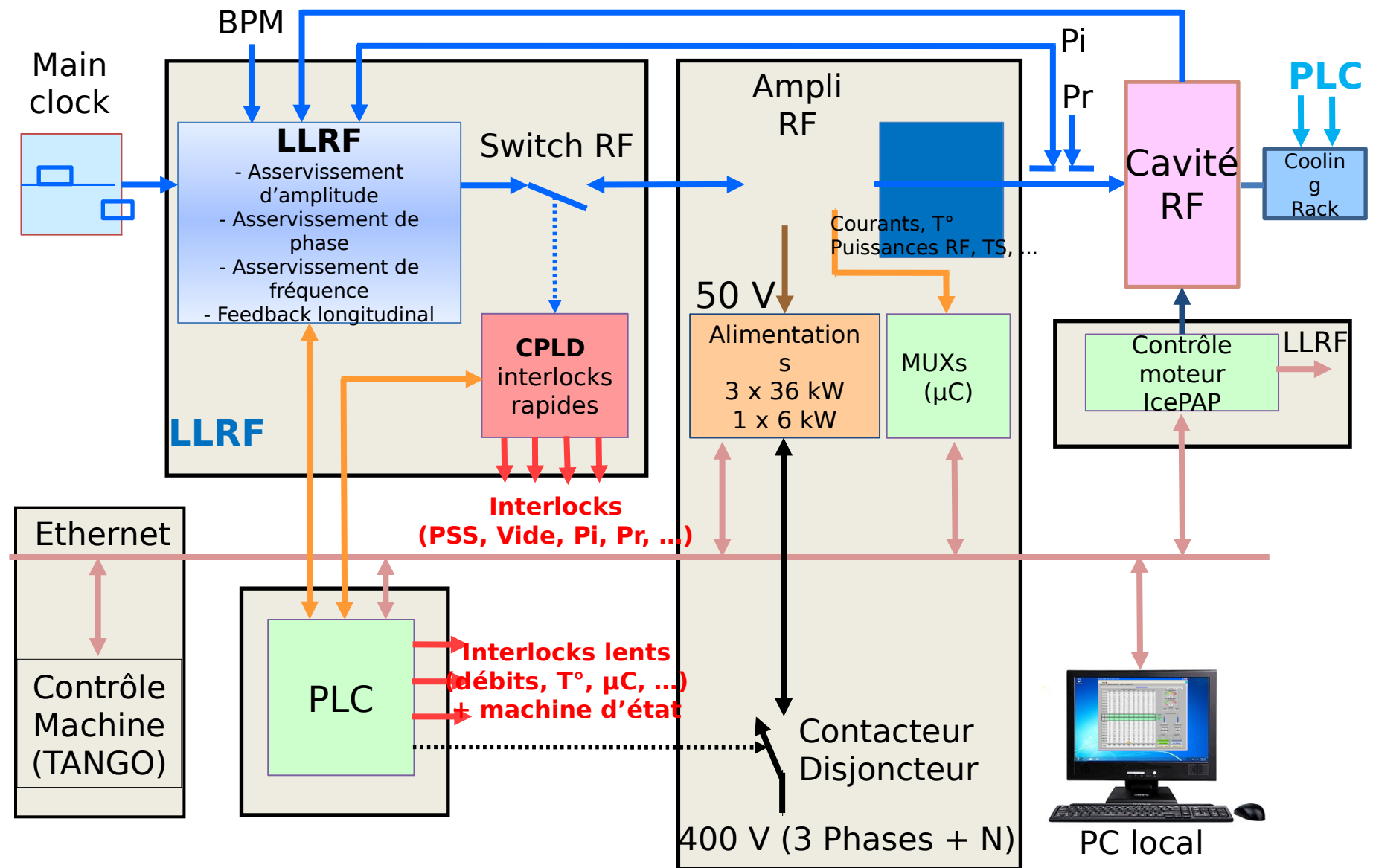
START RECTIFIERS STOP RECTIFIERS

START BREAKER STOP BREAKER

ARCHIVING 24 HOURS MESSAGES BY MONTH

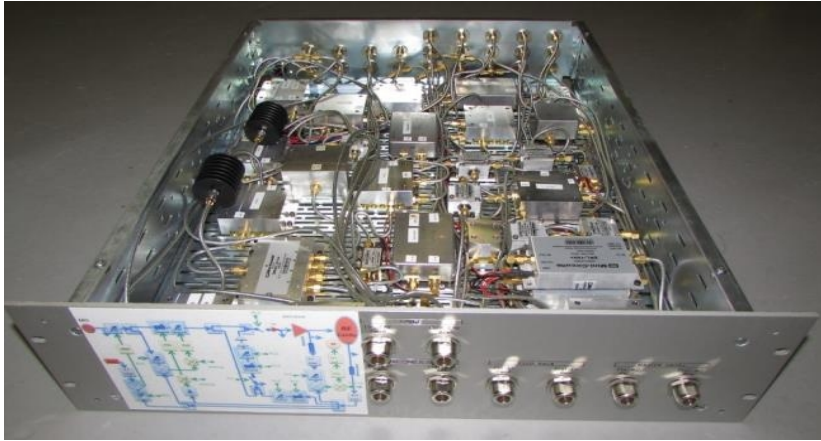
Application main view

Archived or « in real-time » data plot



- **PLC programming ongoing**
- **IcePAP for the tuner**
- **Command control Interface (?)**

To be provided by the command control team



LLRF rack with separated amplitude. and phase loop

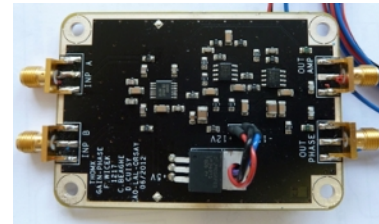


LLRF rack with IQ modulator

Analogical FBL is integrated in the LLRF



Interlocks rack

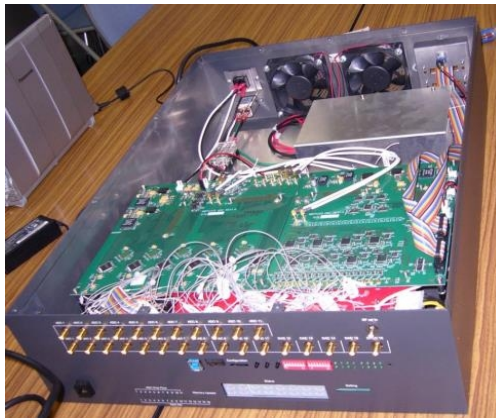


Déphasor

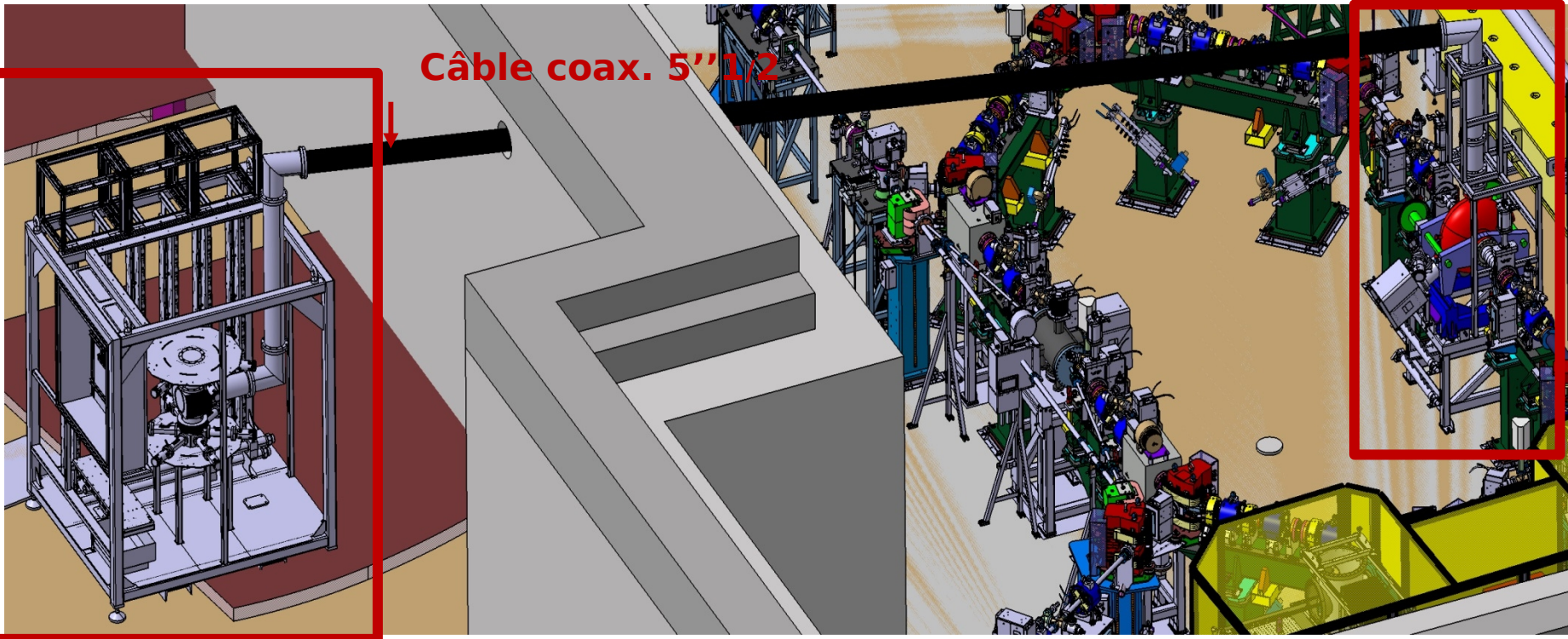


Phase comparator

**FPGA based
FBT
Acting on
Pour
electrodes
striline**



- **LLRF & FBL** : has been tested
- **FBT** : Prototype has been validated
Final delivery T2 2017



- Coaxial cable 5''1/2 reception in April 2017
- Cooling rack ongoing : cabling & PID valve control
- PLC programming still ongoing
- HOM measurement scheduled T2 2017

- Installation planning to be define soon
- RF conditioning once the cavity in the IGLEX
- Command control interface for operation to be developed ...

All ready by
summer 2017