

CP-prototype cold mass

MTF: HCLMCXF001-CR000001

Discussion on flattop quenches

Gerard Willering

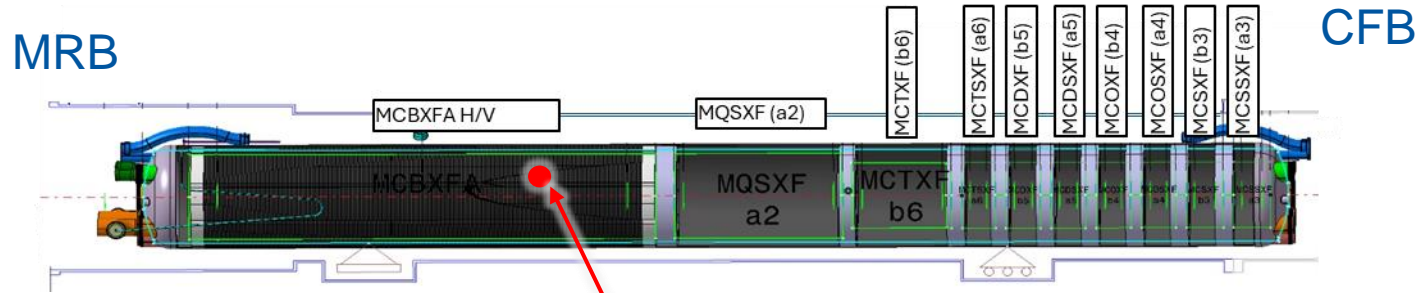
Franco Mangiarotti, Gaëlle Ninet, Guillaume Pichon

Many thanks to Raphaël Bouvier

Test plan: EDMS 3177216

Test results: EDMS 3213574

CP-assembly on the SM18 test bench

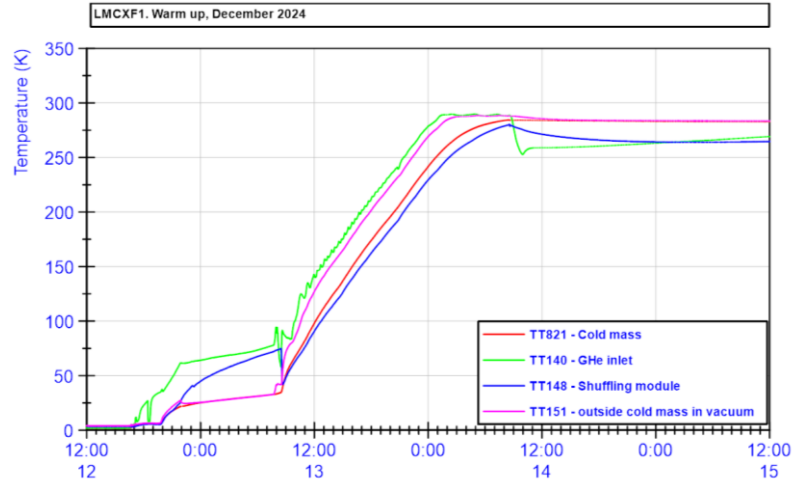
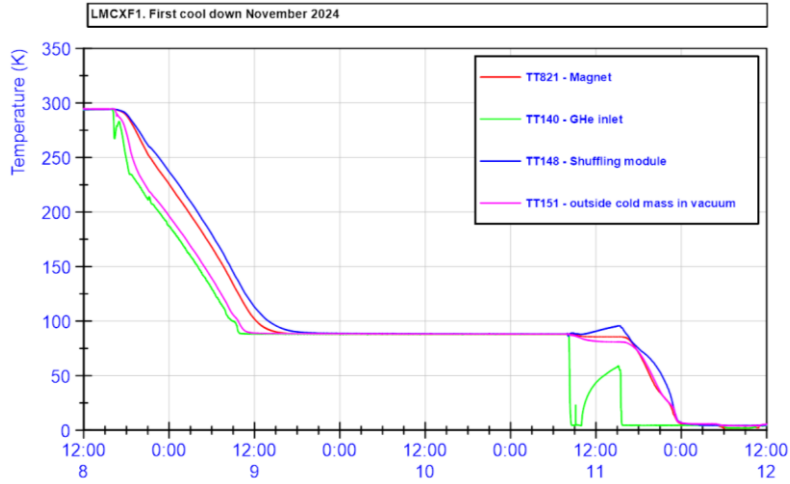


10 magnets are in the cold mass:

- MCBXFAP1
- MQSXF2
- MCDXF01b
- MCDXF02b
- MCOXF03
- MCOXF03b
- MCSXF01b
- MCSXF02
- MCTXF2
- MCTXF1

Approximate location of TT821
2 meter from end of cold mass.



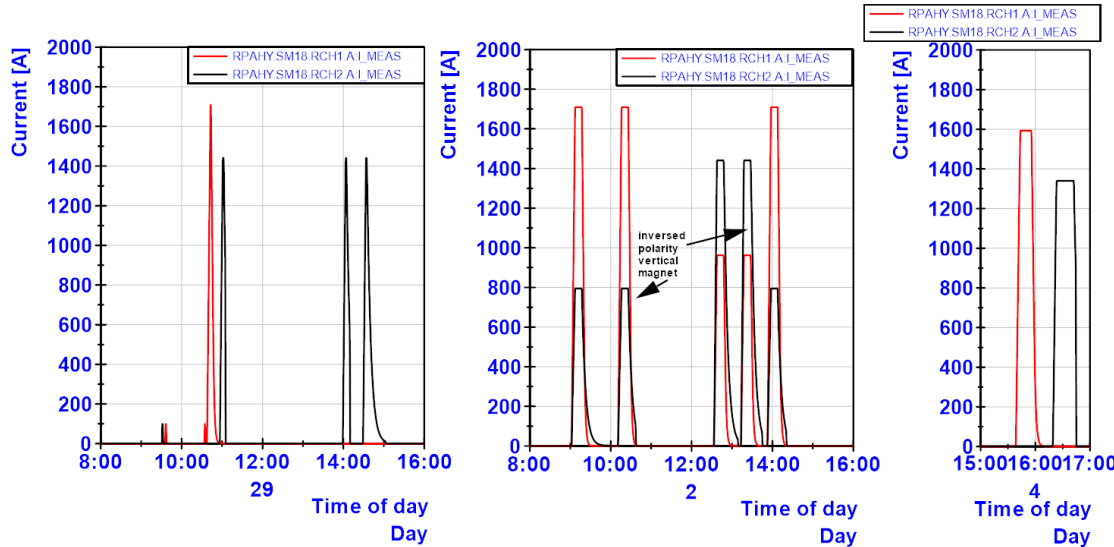


Cool down and warm up.

Polarity +	Warm before CD	1.9 K LHe before powering	1.9 K LHe after powering	I _{max} [uA]
MCBFAH	200 V – OK	1000 V – OK	1000 V – OK	200 V – OK
MCBFAV	200 V – OK	1000 V – OK	1000 V – OK	200 V – OK
MQSXF	200 V – OK	1000 V – OK	1000 V – OK	200 V – OK
MCTXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCTSXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCDXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCDSXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCOXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCOSXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCSXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK
MCSSXF	150 V – OK	710 V – OK	710 V – OK	150 V – OK

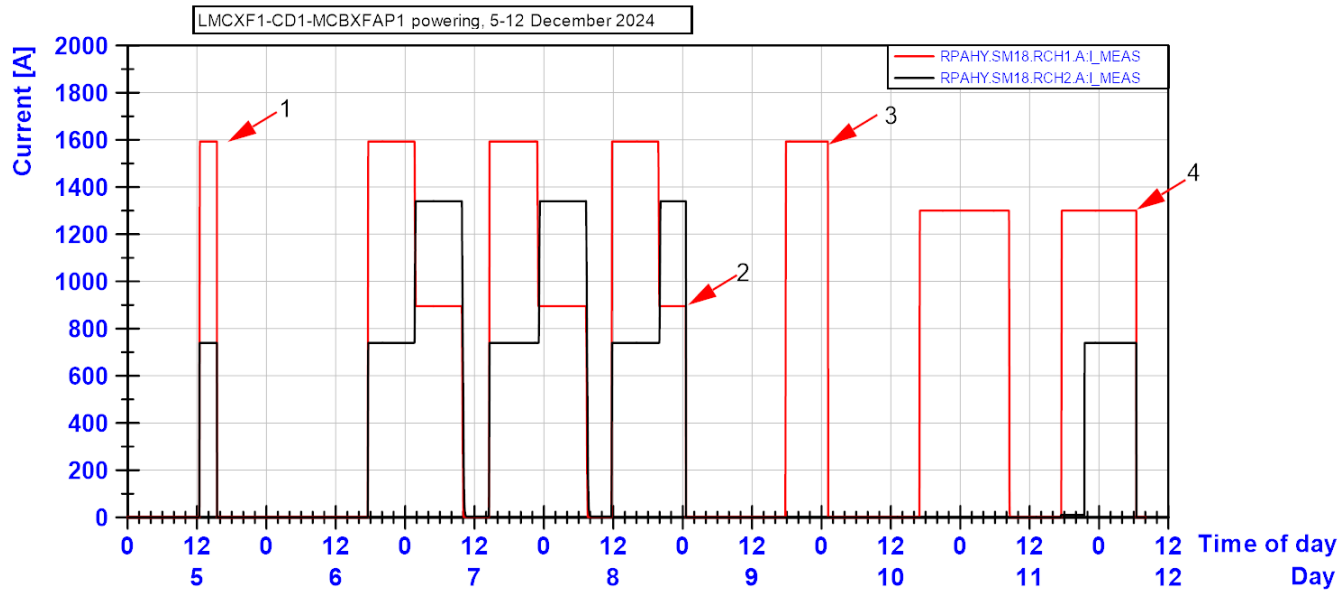
LMCXF1-MCBXFAP1

LMCXF1-CD1-MCBXFAP1 powering, 29 Nov - 4 December

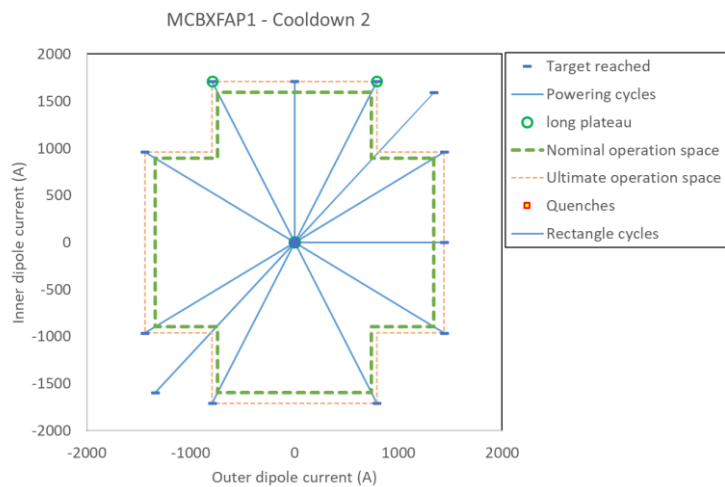
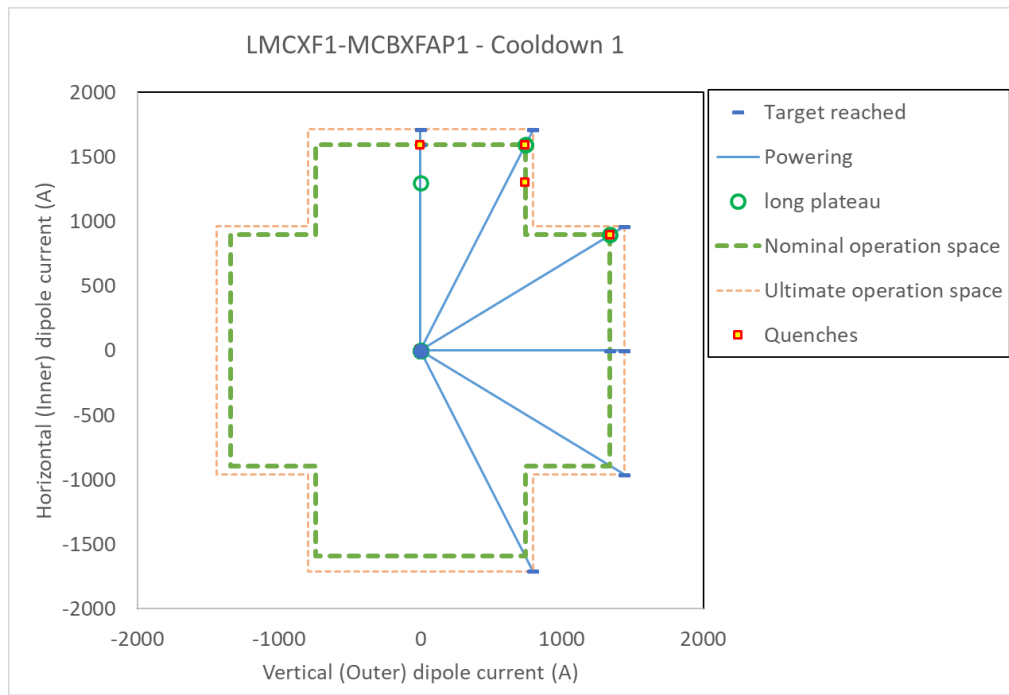
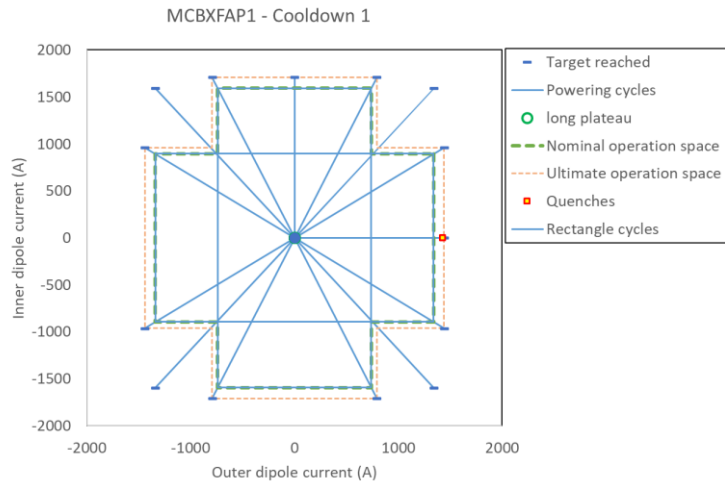


Training MCBXFAH/V. On the second day polarity inversions were done.





Combined powering – holding currents
MCBXFAP/V. All powering in the ++ quadrant.



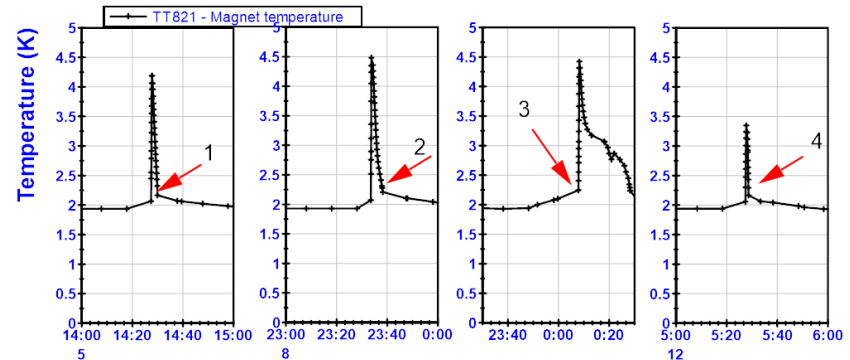
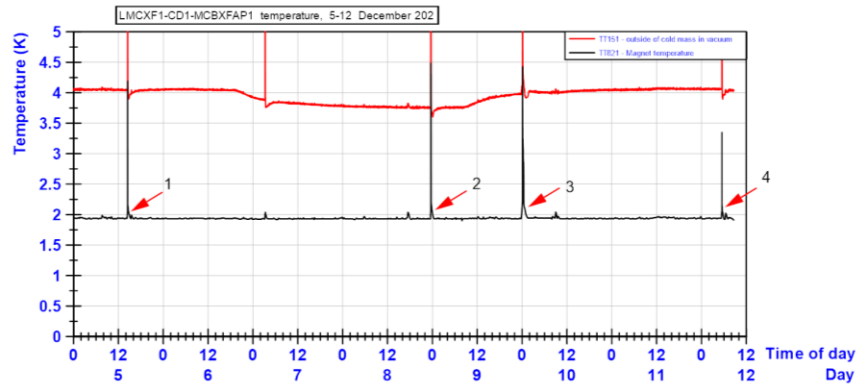
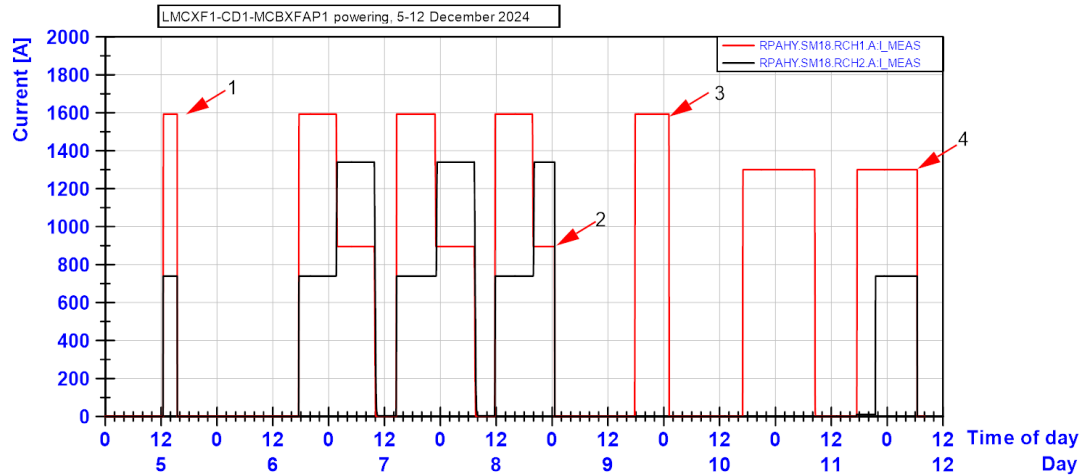
Full powering overview MCBXFAP1, vertical cool down 1 and 2 and in the LMQXF1

Name Wiring
Magnet short name **MCBXFAP1**
Magnet MTF name HCMCBXFA001-E9000001
Inner coil ICA03
Inner coil ICA1
Outer coil OCA01
Outer coil OCA02

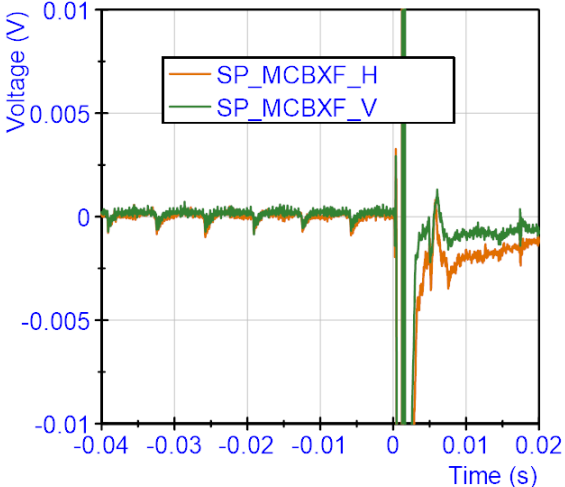
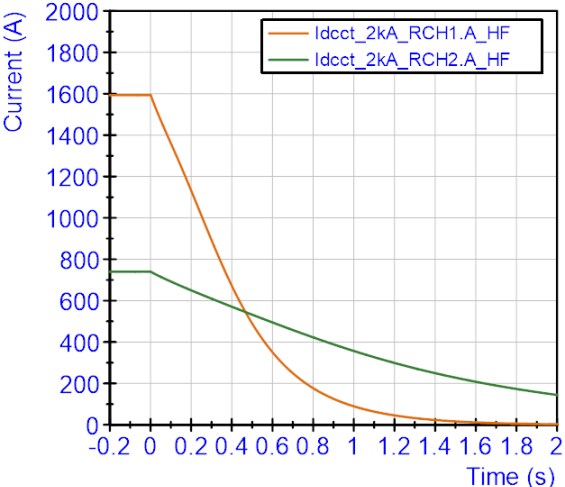
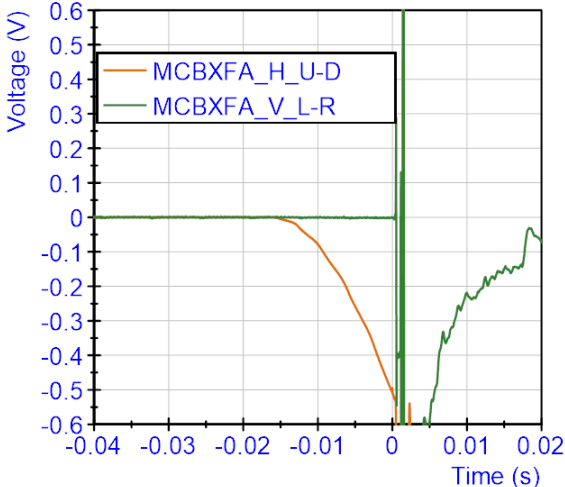
Legend:
P - Provoke discharge
T - Quench
R - Targer reached
L - Long time load (plateau)

Quench #	Quench file name	File extension	eventType	Temp [K]	RR [A/s]	I_inner	I_outer	Location (inner/outer)	Location (coil)	Comment
1	HCLMCXF001-CR000001__C202412051527_ta025(0)	ta025	P	1.9	5.5					
			R	1.9	5.5	1709	0			1 min
			R	1.9	5.5	0	1441			1 min
			R	1.9	5.5	1709	794			10 min
			R	1.9	5.5	-1709	794			10 min
			R	1.9	5.5	962	1441			10 min
			R	1.9	5.5	-962	1441			10 min
			R	1.9	5.5	1709	794			10 min
			R	1.9	5.5	1593	0			12 min
			R	1.9	5.5	0	1340			18 min
			T	1.9	5.5	1593	740	Inner	ICA01-EE824-EE825	Flattop quench 2h55
			L	1.9	5.5	1593	740			8h stable
			L	1.9	5.5	895	1340			8h stable
			L	1.9	5.5	1593	740			8h stable
2	HCLMCXF001-CR000001__C202412090033_ta029(0)	ta029	T	1.9	5.5	895	1340	Inner	ICA01-EE824-EE825	Flattop quench 4h20
			L	1.9	5.5	1593	740			8h stable
3	HCLMCXF001-CR000001__C202412100107_ta033(0)	ta033	T	1.9	5.5	1593	0	Inner	ICA01-EE824-EE825	Flattop quench 7h15
			L	1.9	5.5	1300	0			8h stable
4	HCLMCXF001-CR000001__C202412120627_ta041(0)	ta041	T	1.9	5.5	1300	740	Inner	ICA01-EE824-EE825	Flattop quench 11h50





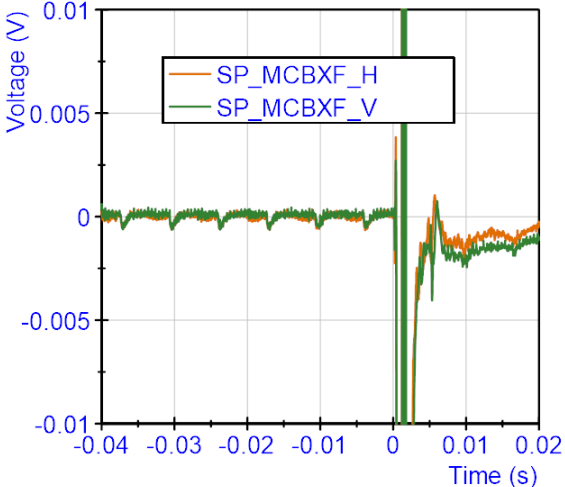
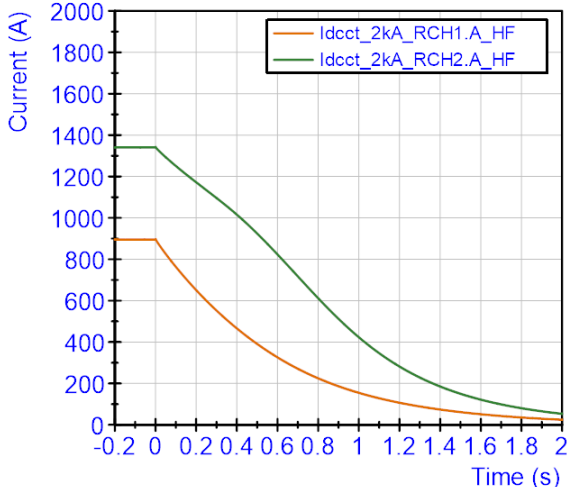
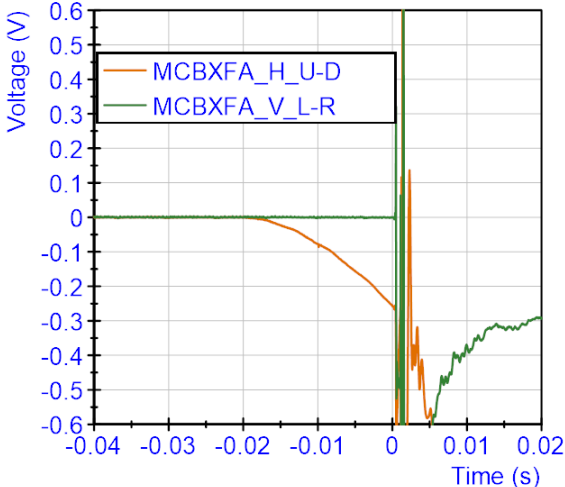
Quench 1



HCLMCXF001-CR000001_C202412051527_tao25(o)



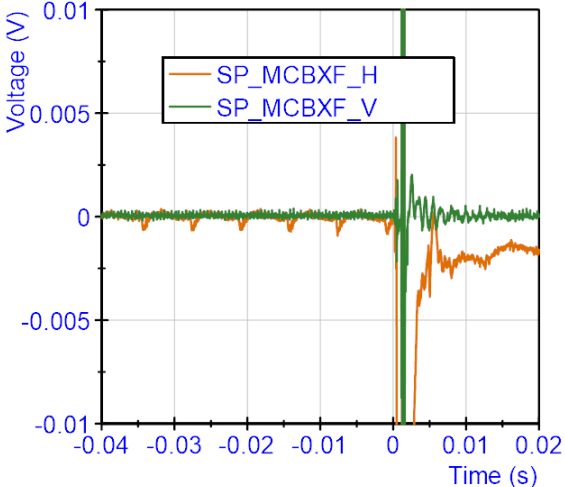
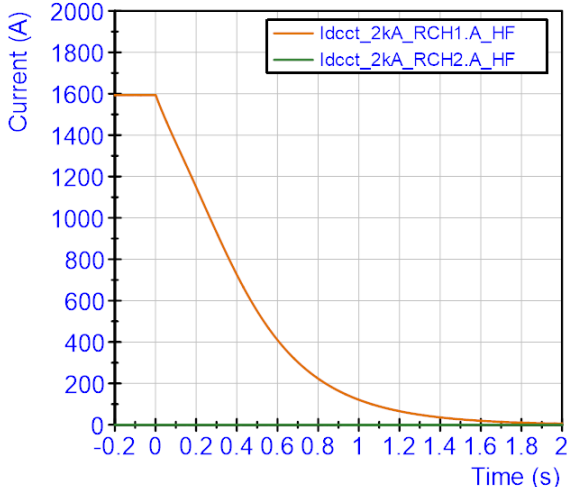
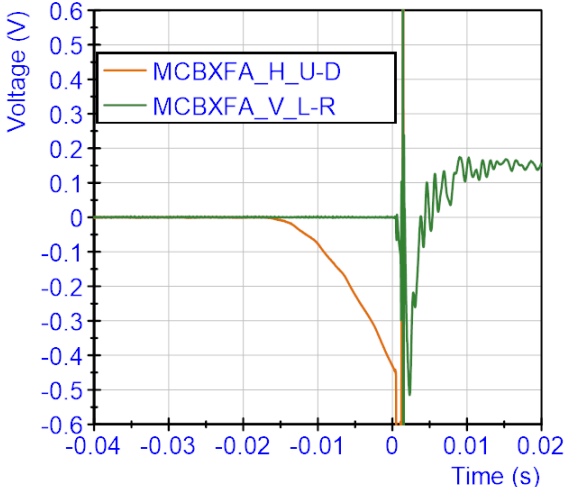
Quench 2



HCLMCXF001-CR000001_C202412090033_tao29(t)



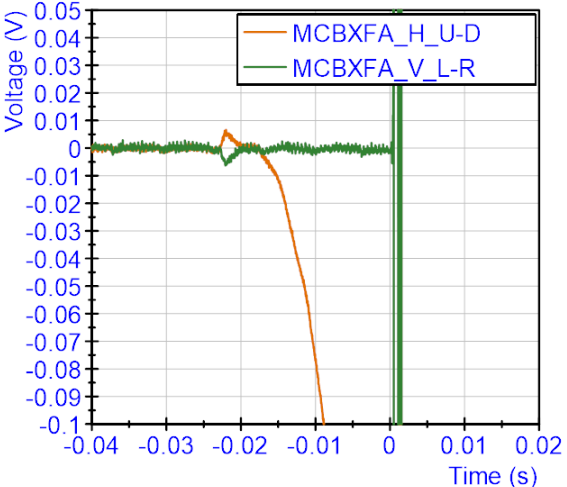
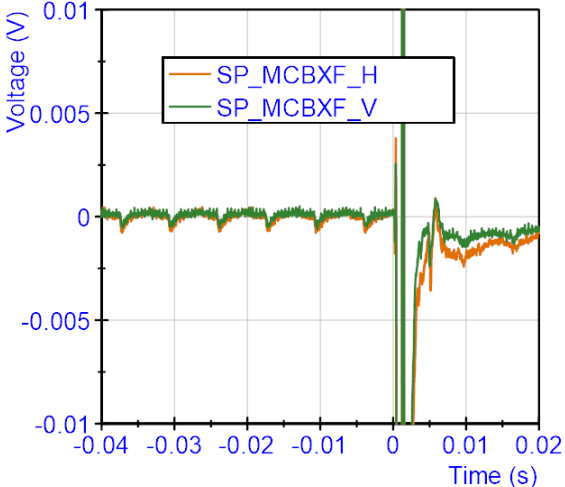
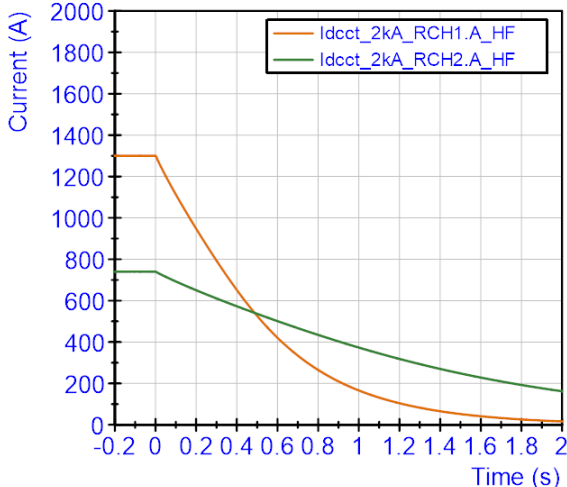
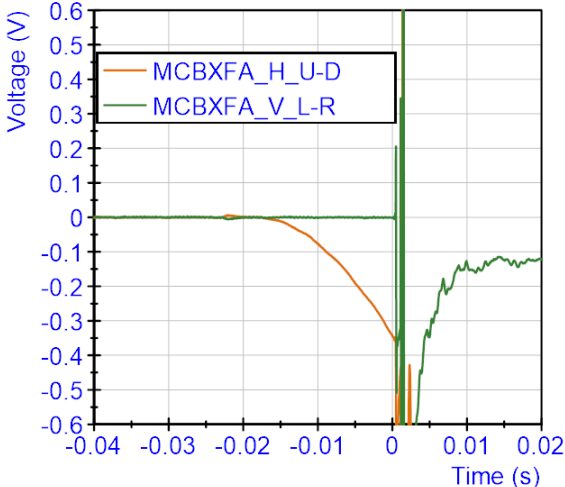
Quench 3



HCLMCXF001-CR000001_C202412100107_fa033(o)



Quench 4



HCLMCXF001-CR000001_C202412120627_tao41(0)



