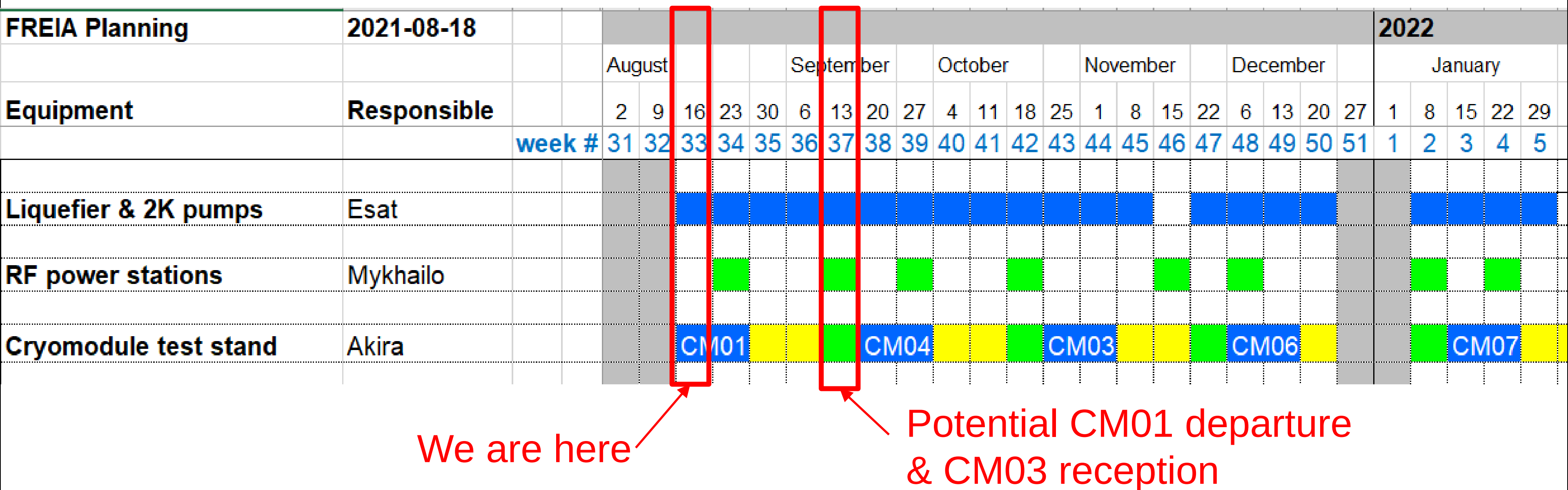
UPPSALA
UNIVERSITET

ESS weekly meeting (2021 W33)

A. Miyazaki et al.

General planning



<u>Question from Orsay</u>

- Orsay has 2 boxes and 2 cryomodules ready for shipping (CM03 and CM06) and maybe another one (CM07) within 2 weeks from now. Simple question: could we send more than 1 cryomodule after the CM01 (successful) testing, taking into account that CM04 is already at FREIA?
- FREIA’s answer: we do not have any spaces ☹

→ Can ESS provide temporarily storage before CM coming to FREIA?

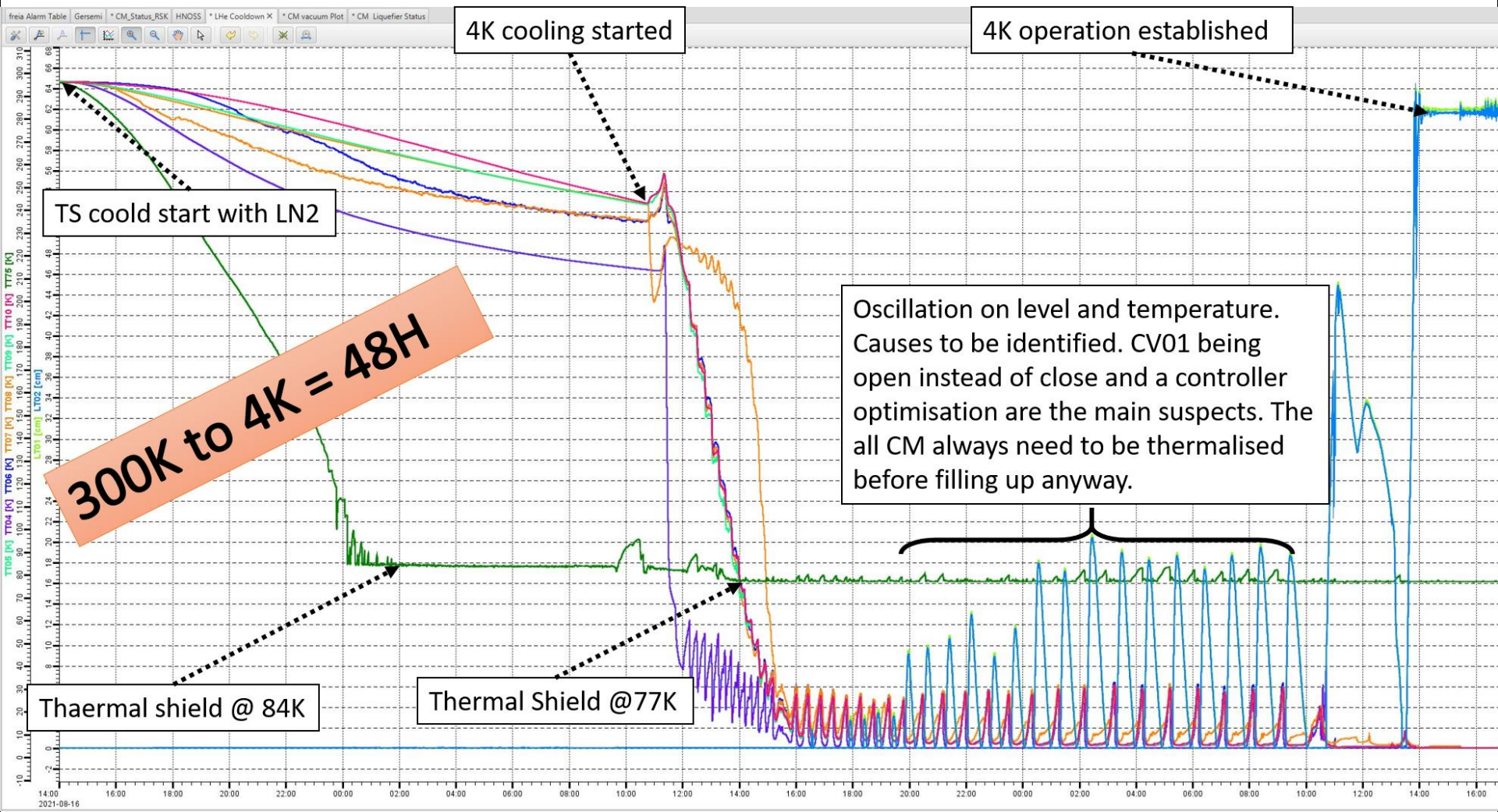
W33 progress and W34 planning

week		W33											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		16-aug		17-aug		18-aug		19-aug		20-aug		21-aug	22-aug
		m	a	m	a	m	a	m	a	m	a		
present CM	**CM01**	He purging	N2 cooling	4K cooling		LHe filling	coupler cold conditioning	2K pumping, f vs P	RF calibration, LLRF interlock	cavity MP conditioning		thermalize CTS	
next CM	**CM04**	no acvitities We are here											

week		W34											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		23-aug		24-aug		25-aug		26-aug		27-aug		28-aug	29-aug
		m	a	m	a	m	a	m	a	m	a		
present CM	**CM01**	prepare motor driver, static heat load		CTS test		LFD	dynamics heat load	cavity measurement continued		cavity measureme	warming up		
next CM	**CM04**	doorknob mounting										Goal	

- We decided to use Orsay's dedicated motor driver
- RS232 + LabVIEW prepared for its software

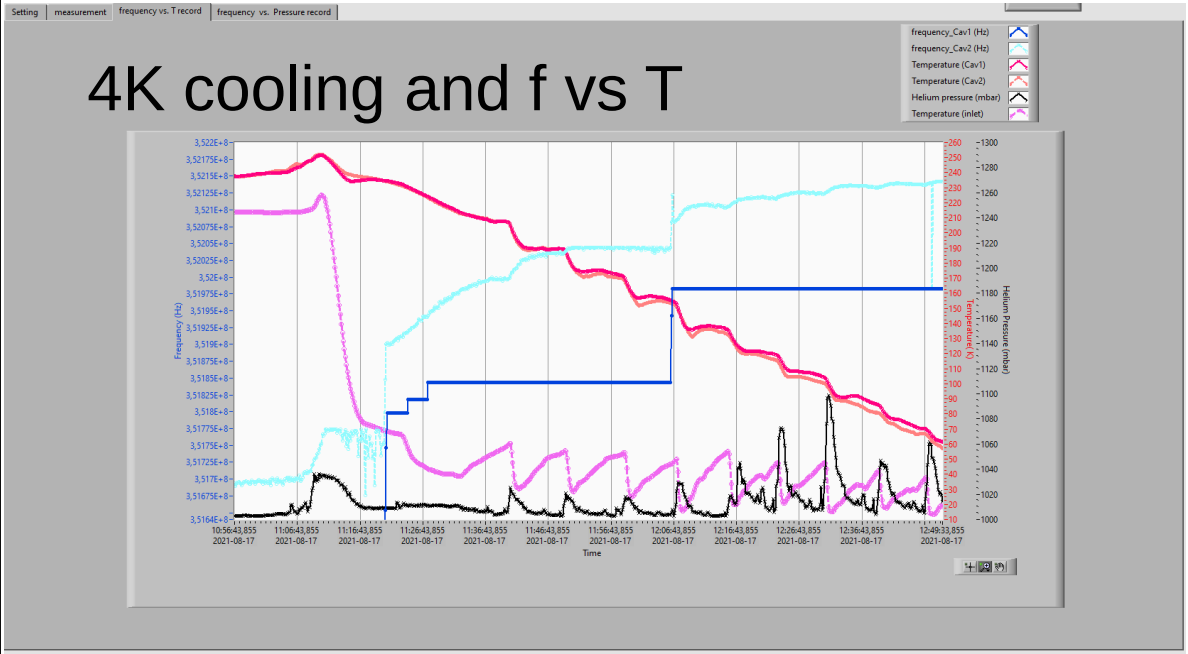
CM01 cooling down and 4K filling summary



Courtesy Romain

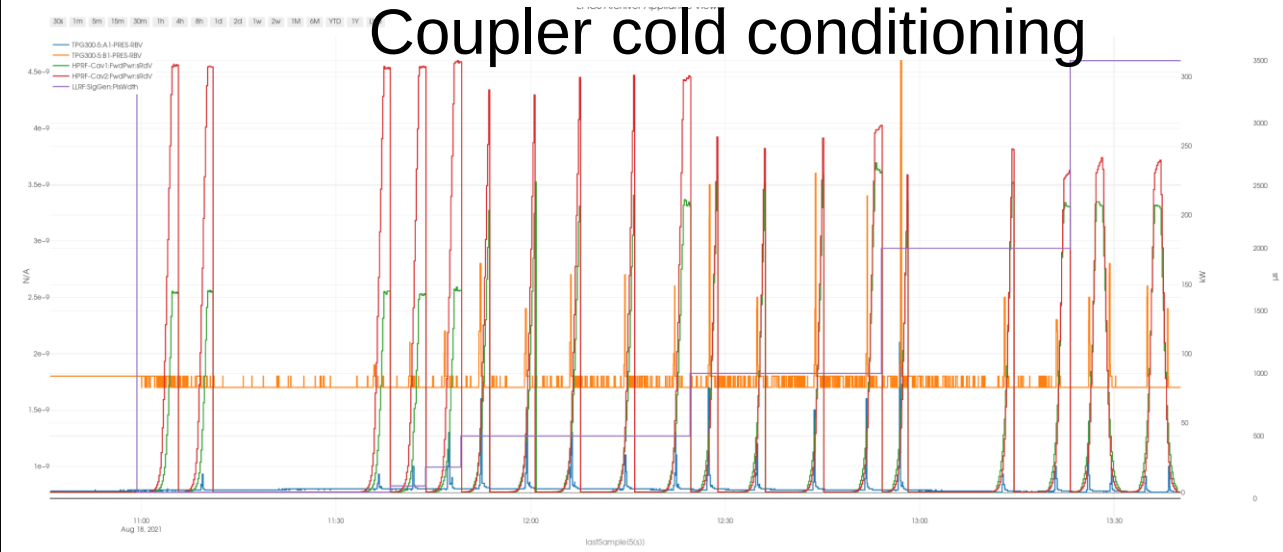
RF measurement and preparation

4K cooling and f vs T

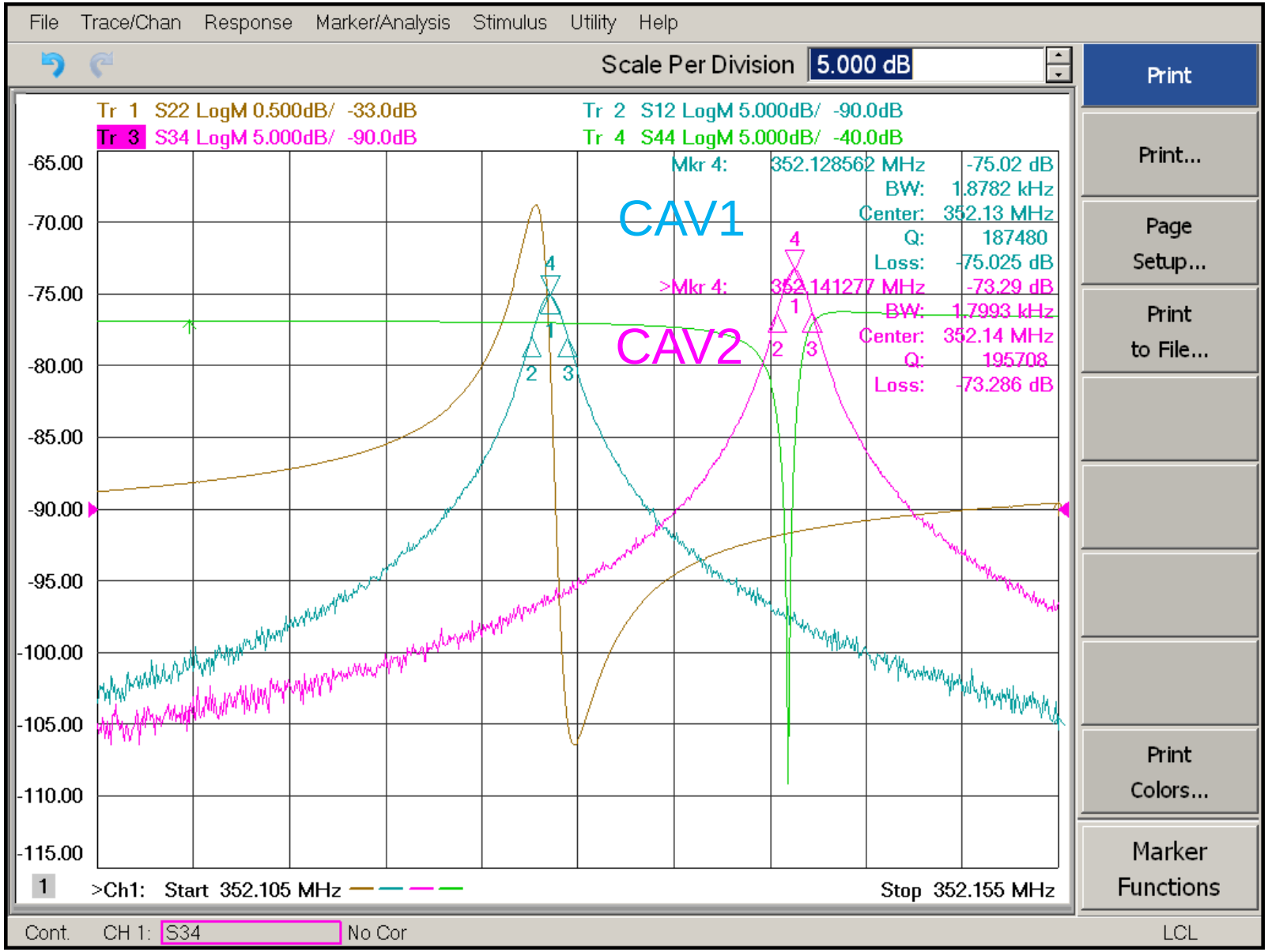


Ready for powering

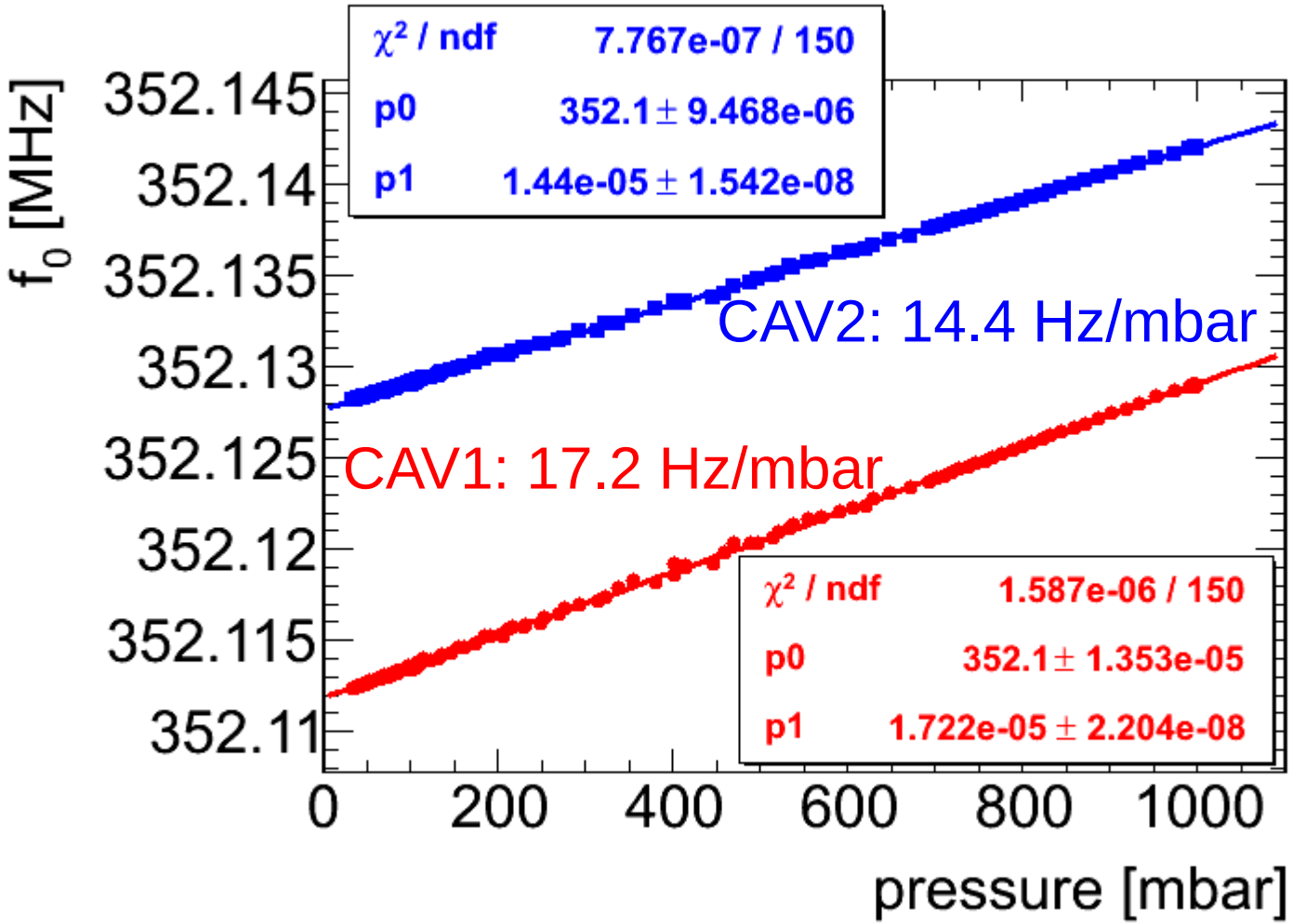
Coupler cold conditioning



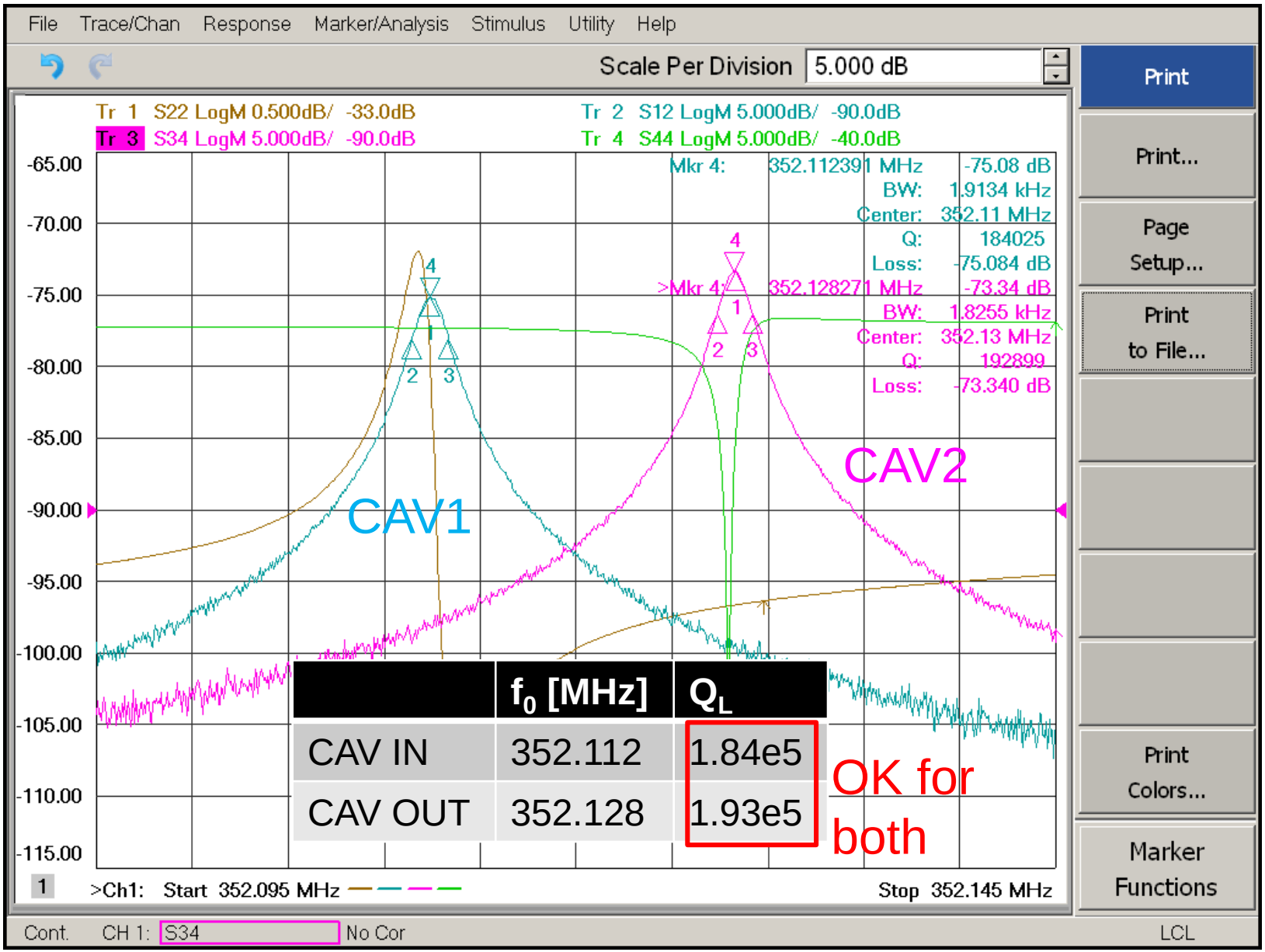
Cavities at 4K no CTS engaged



F vs p during 4K → 2K



Cavities at 2K no CTS engaged



	f_0 [MHz]	Q_L
CAV IN	352.112	1.84e5
CAV OUT	352.128	1.93e5

OK for both

Stepper motor (reports by Nicolas)

Preliminary results of different drivers at room temperature

- New driver / Motor torque : 1.2 N.m
- Old driver / Motor torque : > 4 N.m (the 3D printed adaptator broke after this measurement) with 1.2A
- Orsay driver / Motor torque : ~3.5 to 4 N.m ← selected for our next test
- Specification / Motor torque : 2.8 N.m

Broken motor in CM03

- Cryomodule was opened, visual inspection revealed nothing wrong
- We connected the motor to run it at nominal current (0.6 A), trying to go backward → motor immediately stuck
- We tried several displacements backward and forward → still completely stuck
- We raised the motor current to 1.0 A, it worked well
- We lowered the motor current back to 0.6 A, it worked well
- We proceed to a slight tuning test at room temperature (max 12kHz detuning) → OK
- We dismounted the motor, check by hand to move the rest of the mechanics → OK
- We tested the motor on table → no strange noise (unlike motor stuck on CM02)
- *New* We measured the motor torque at nominal speed and nominal current. Value obtained (between 3.5 and 4 N.m) is significantly above the specification (2.8 N.m).
- For the moment we replaced the motor by another one (which by the way show similar torque value) and we'll close the cryomodule.

Nicolas' suggestion for the next test

- Go 10 motor turns in negative direction : record limit switch state
- Repeat 7 times (-70 turns from start)
- Go 10 motor turns in **positive** direction : record limit switch state
- Repeat 7 times (back to home position)

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