Polarized target status

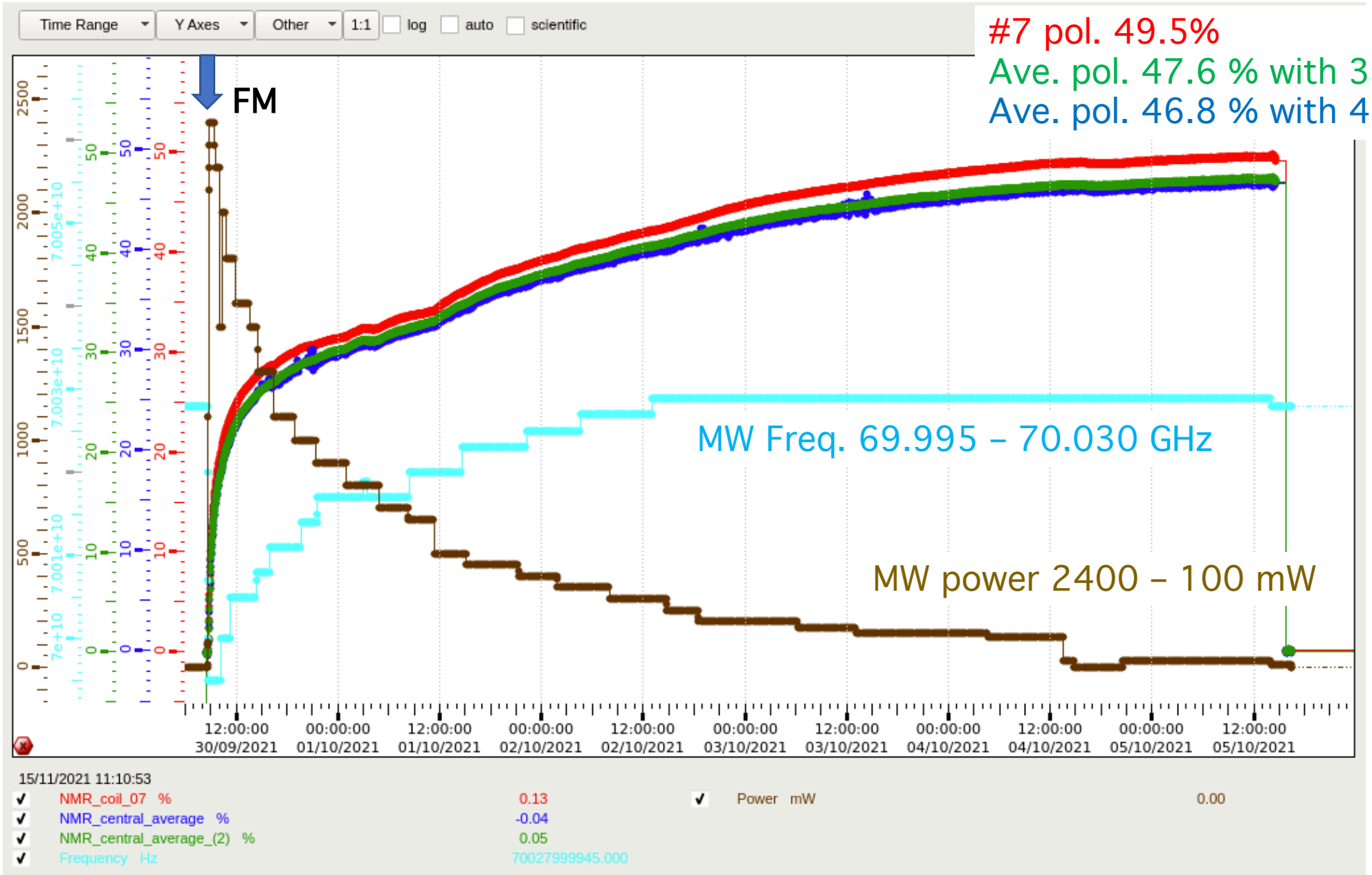
Norihiro DOSHITA

1) Summary of target activities in 2021
2) Preparation for 2022
3) PT schedule and Manpower

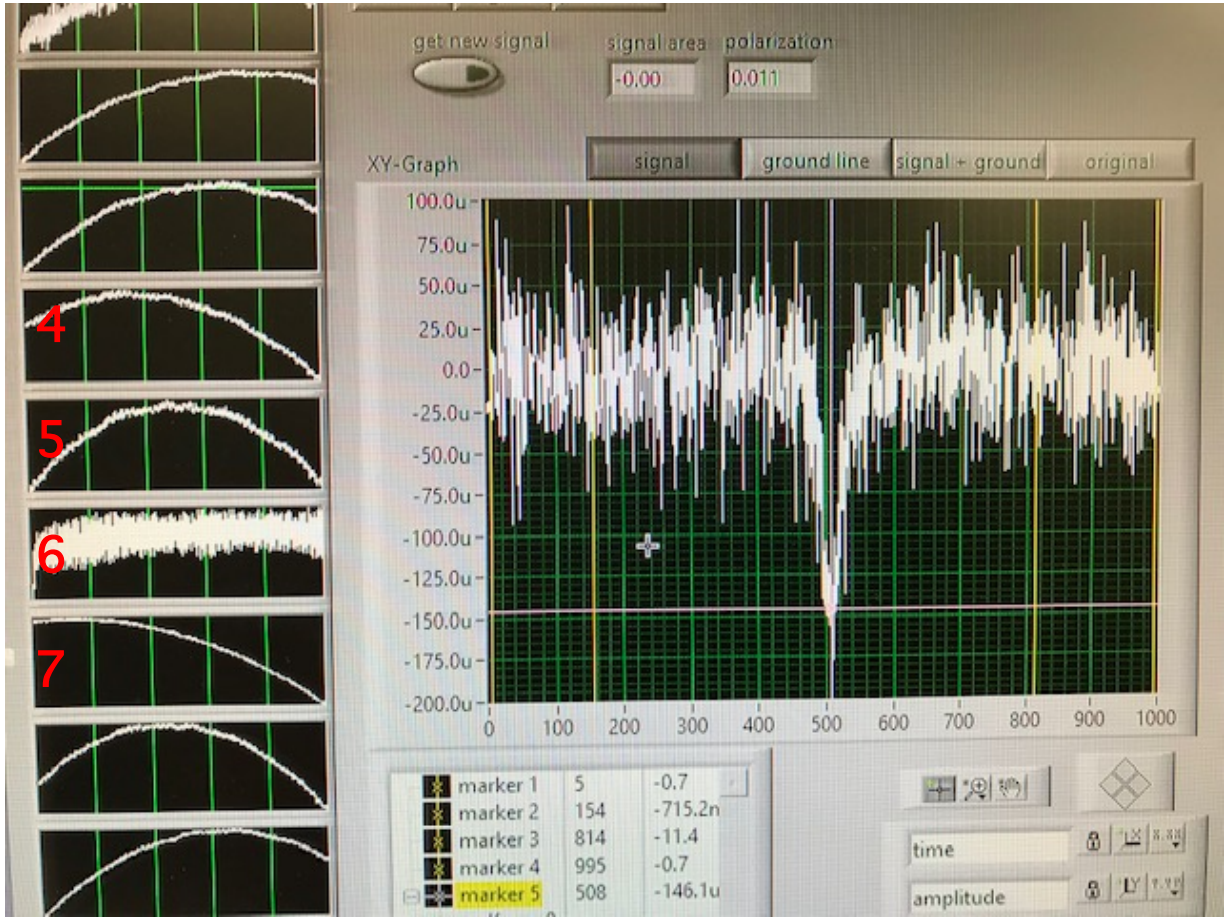
Activities since last TB

- Since last TB (28/09/2021)
- Polarization test on going
- Oct 4 : Trim coils tuning → < 6 x 10-5 homogeneity in each cell
- Oct 5 : EPR line measurement
- Oct 7 : blockage in 3He line
- Oct 12 : Unloading

3rd DNP test


Time Range
Y Axes
Other
1:1
log
auto
scientific
FM
#7 pol. 49.5%
Ave. pol. 47.6 % with 3 chs
Ave. pol. 46.8 % with 4 chs
MW Freq. 69.995 – 70.030 GHz
MW power 2400 – 100 mW
12:00:00 30/09/2021
00:00:00 01/10/2021
12:00:00 01/10/2021
00:00:00 02/10/2021
12:00:00 02/10/2021
00:00:00 03/10/2021
12:00:00 03/10/2021
00:00:00 04/10/2021
12:00:00 04/10/2021
00:00:00 05/10/2021
12:00:00 05/10/2021
15/11/2021 11:10:53
NMR_coil_07 % 0.13
NMR_central_average % -0.04
NMR_central_average_(2) % 0.05
Frequency Hz 70027999945.000
Power mW 0.00

NMR TE signals at 1.49 K



Produced by Gerhard

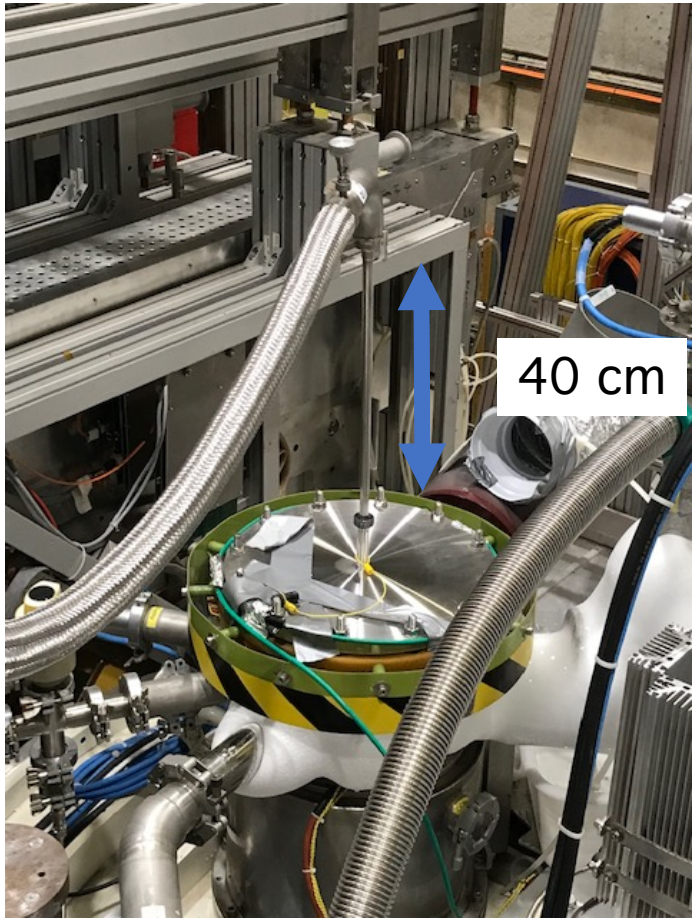
Coil	TE-AU	dAU	
1	-0.0016	0.0004	
2	-0.00411	0.0002	
3	-0.004042	6.9e-05	Central cell
4	-0.002483	0.0005	
5	-0.00397	0.00025	
6	No data		
7	-0.0062998	8e-05	1.2 % error
8	-0.00505	0.0001	
9	-0.00594	0.00017	
10	-0.003321	5.3e-05	

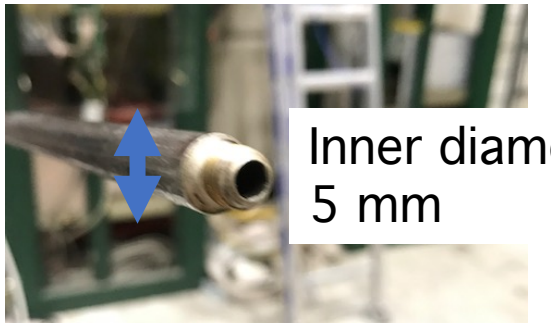
Summary of the target test in 2021

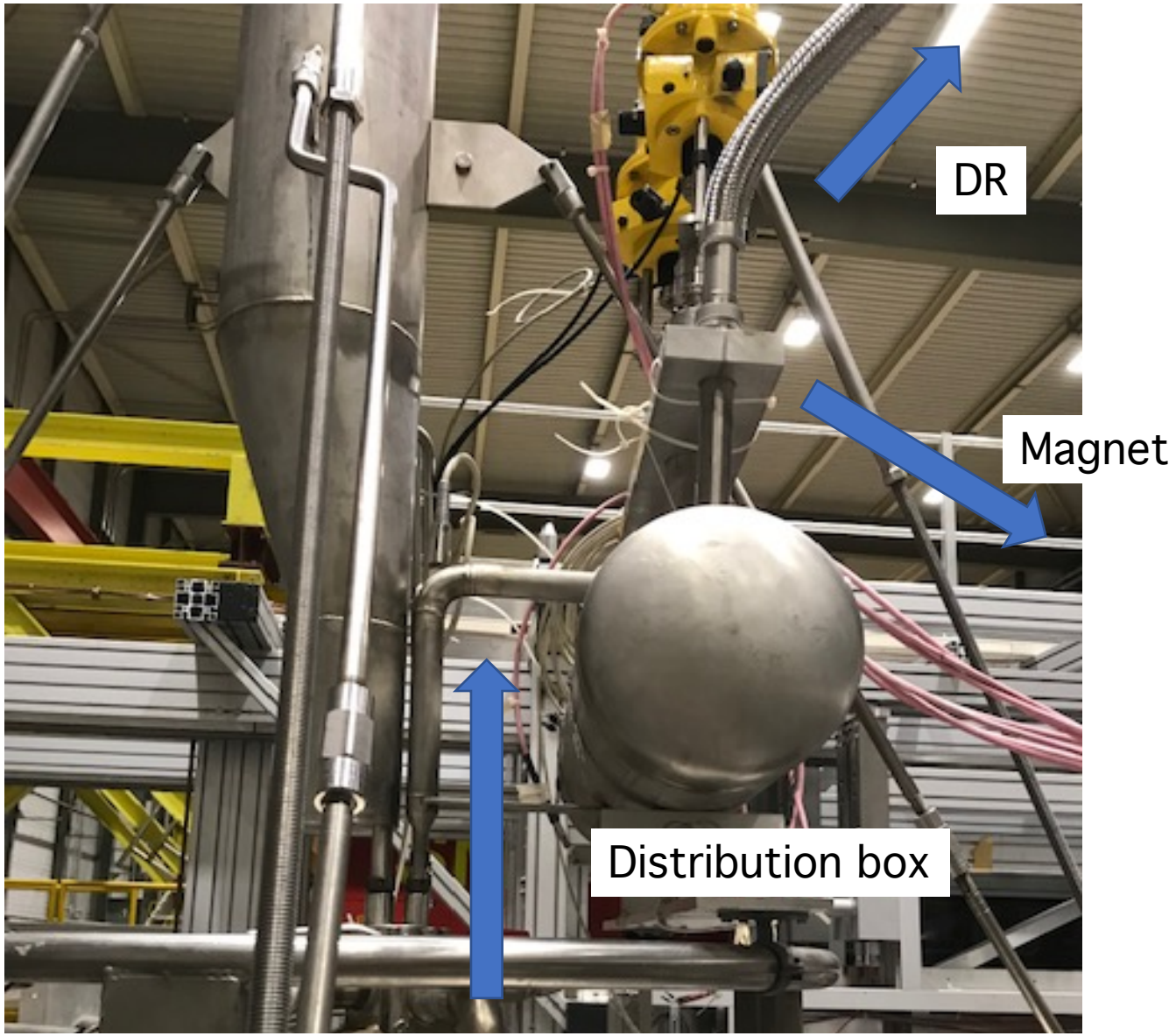
- **Dilution refrigerator**
- Target holder vacuum leak
  -- indium joint
- 3He pumping line corruption
  -- 2 mm thickness
  -- reinforcement planed between gate valve and pump
- **Polarizing**
- Difficulty of frequency and power tuning by EIO tube
  -- polarized by Gunn diode
  -- 40 % in 2 days
- Two more Gunn diodes for 2022
- NMR noise – amplifier was off
- **Magnet operation**
- Homogeneity 6 x 10-5 homogeneity
- New function of current adjustment
- Lost of helium Level control
  -- improvement of helium filling for 2022 (Transfer line and distribution)

Preparation for next year

- 3He reinforcement : Nov 22 ~
  - TE-CRG
  - 3He pipe disconnection ← room temperature required
  - Scaffolding → clean up of Gunn diode
- He transfer line for the magnet
  - taken care by Tino
  - meeting with Alexey
- 3He gas panel hand valve
  - valves ordered
- Gun diode
  - Test of new diodes
  - Waveguide ordered
- 4He pump system maintenance : Nov 22 ~
  - 10k CHF by Yamagata
- Leak detector maintenance : Oct 21 ~
  - will be paid by Yamagata (1 kCHF)

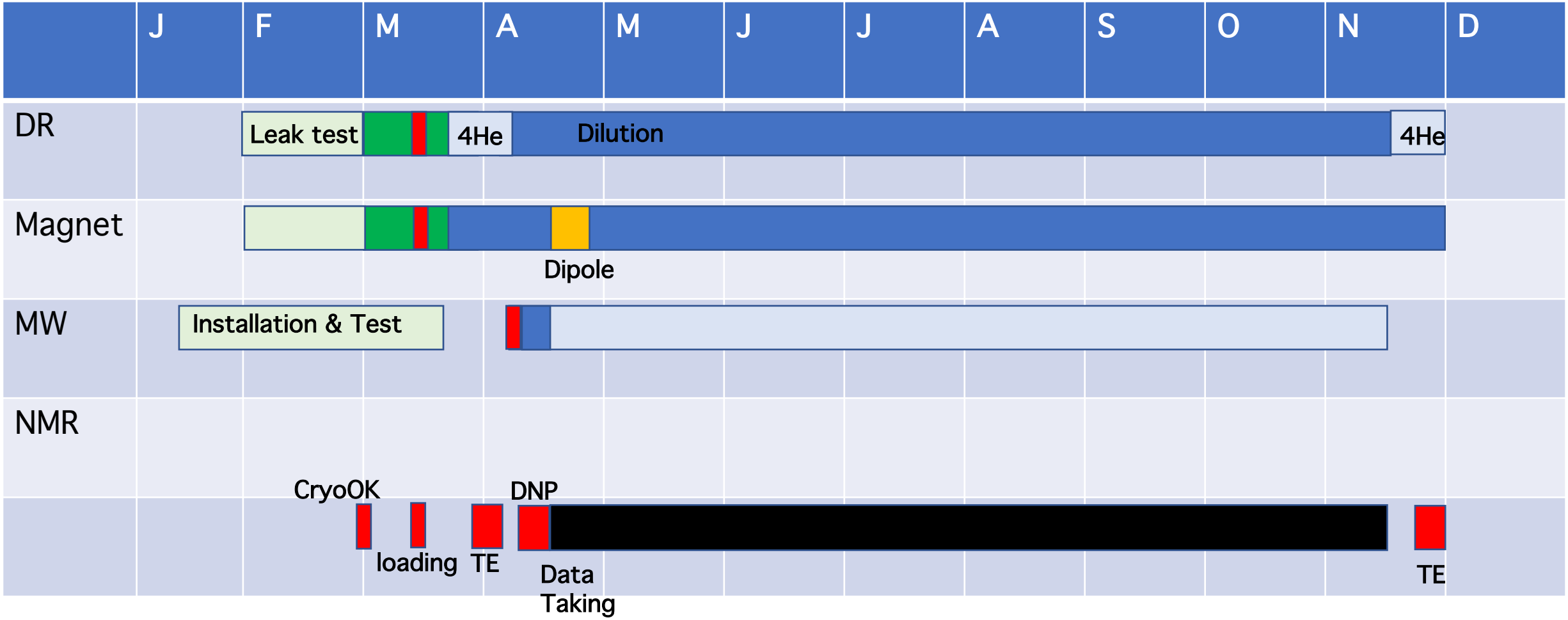

40 cm


Inner diameter
5 mm

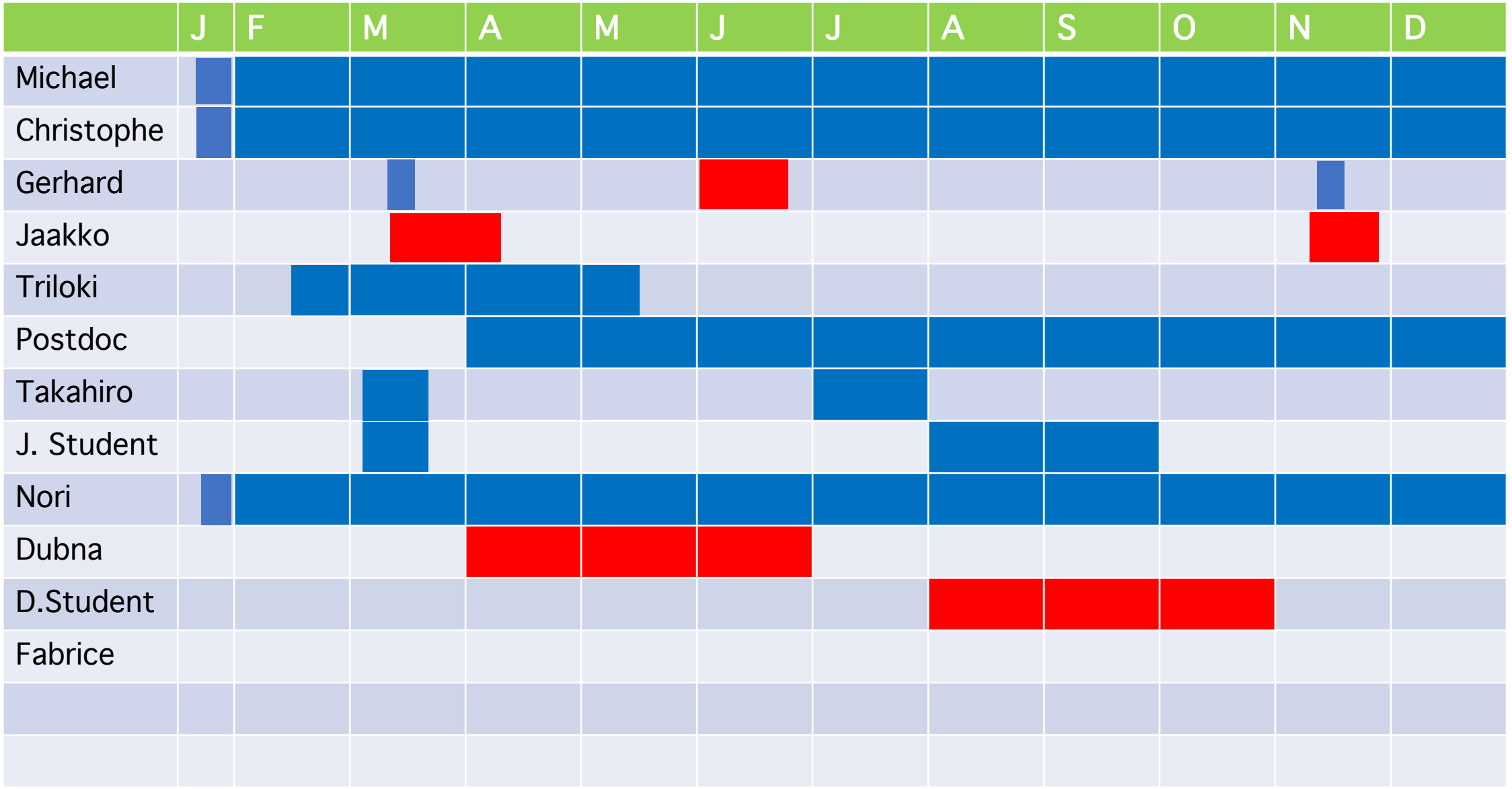

DR
Magnet
Distribution box

Planning

Beam : 11/4 – 14/11
Easter15–18 April 2022



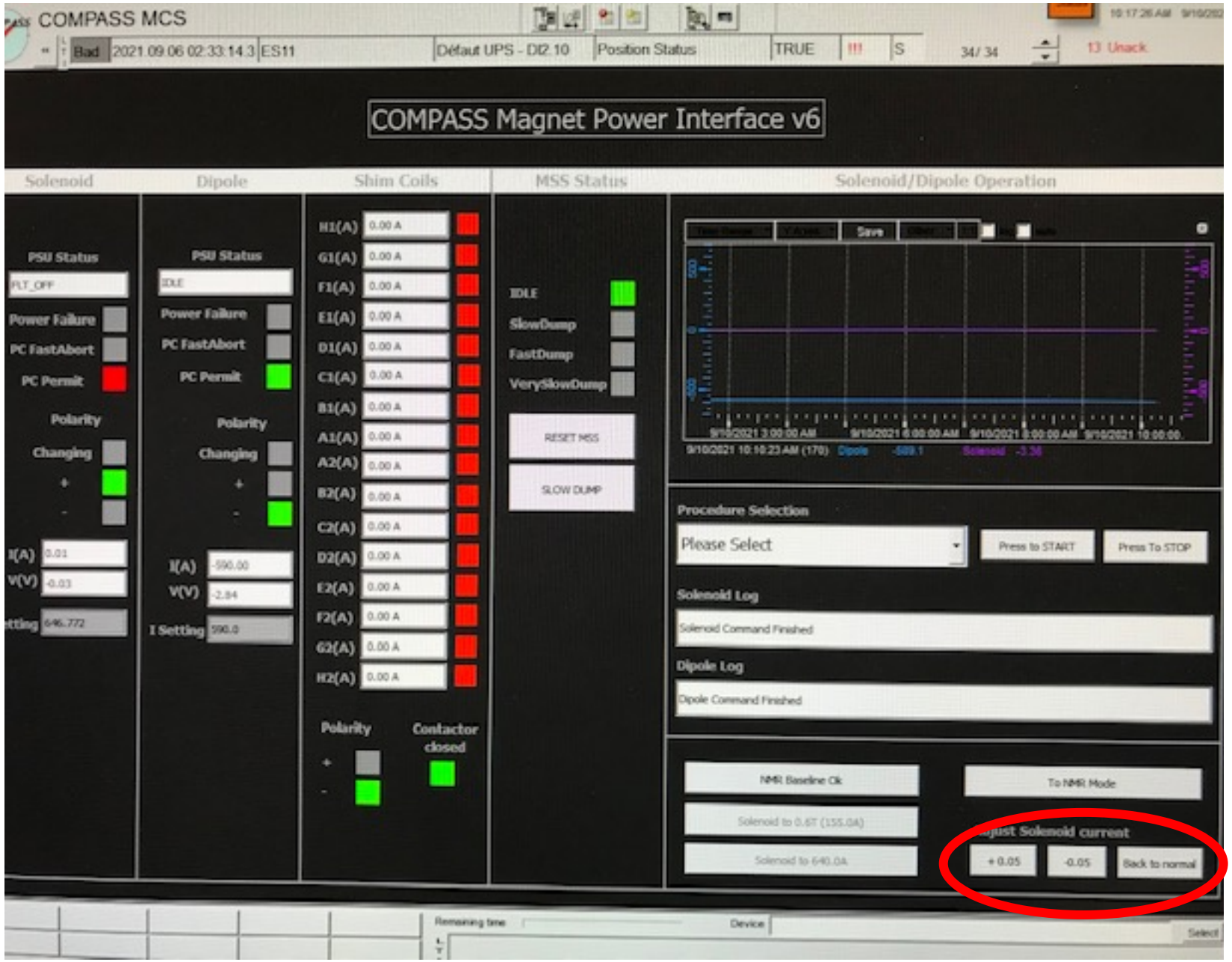
Mapower



March 16 : loading

AOB

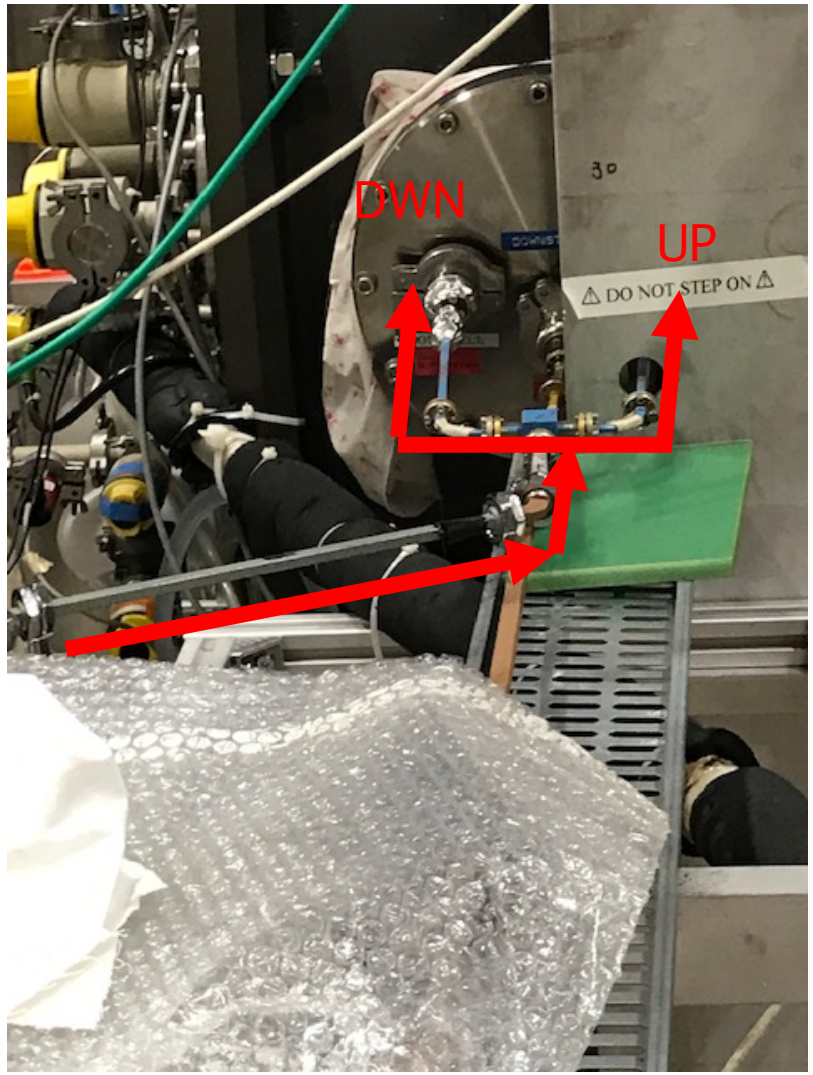
- LN2 filling for material storage during winter shutdown

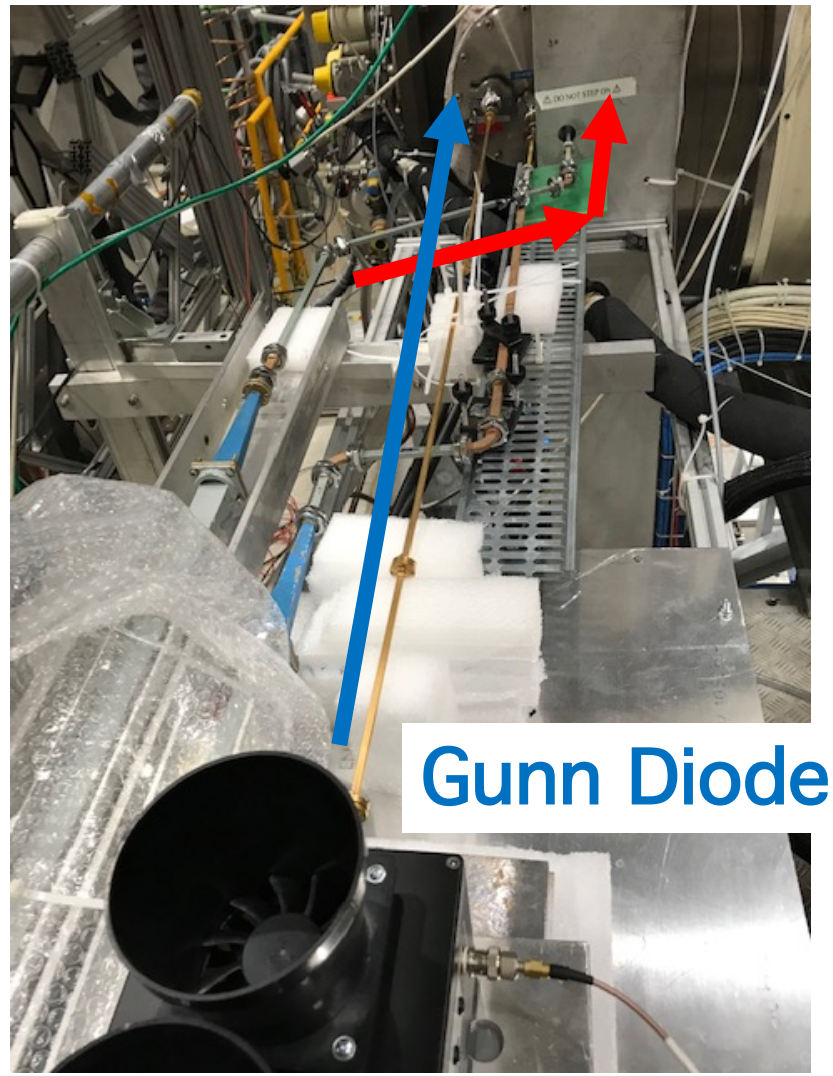


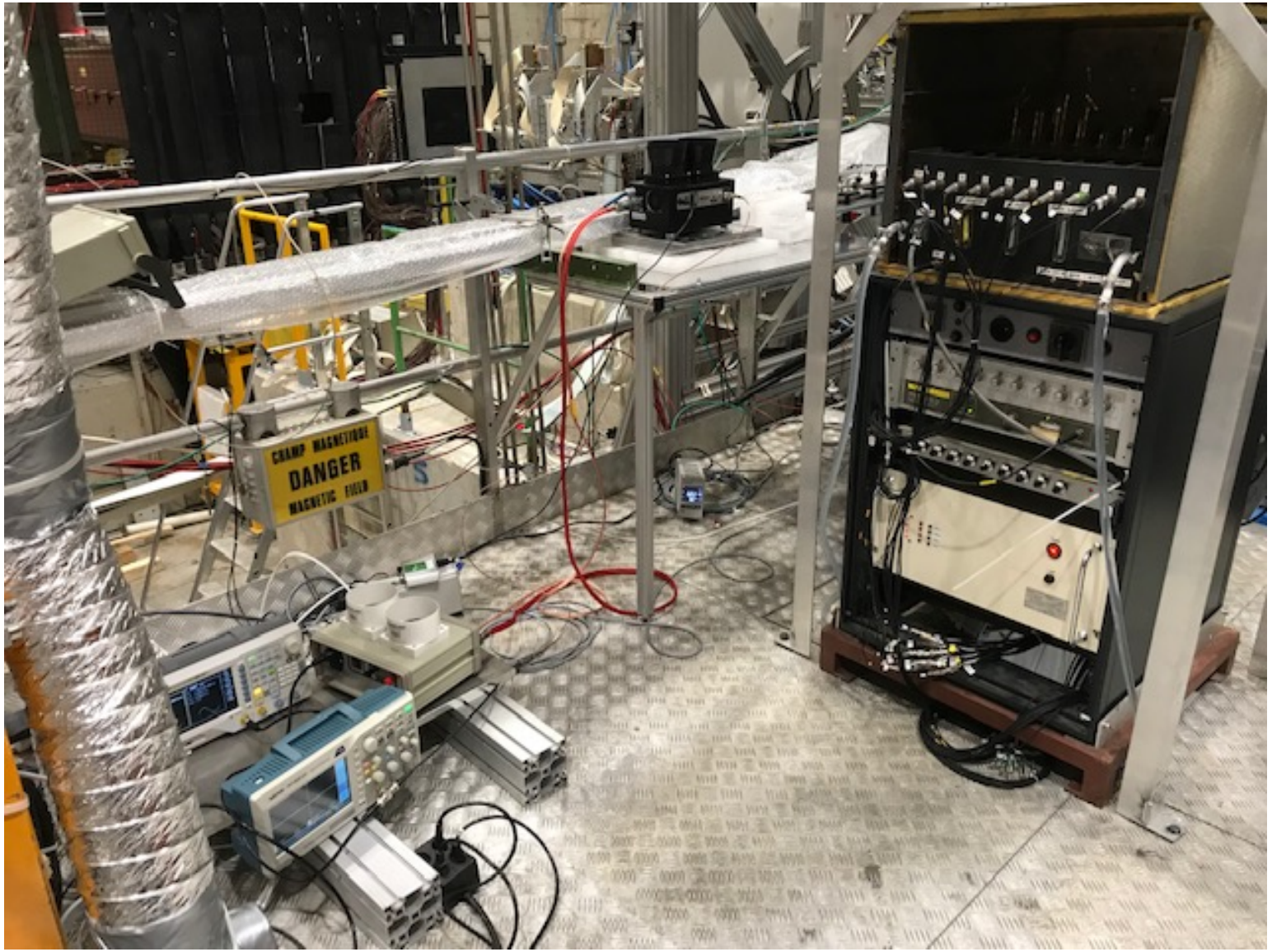
0.05 A (Magnet)
= 5.4 MHz (MW)
= 12ch (NMR)

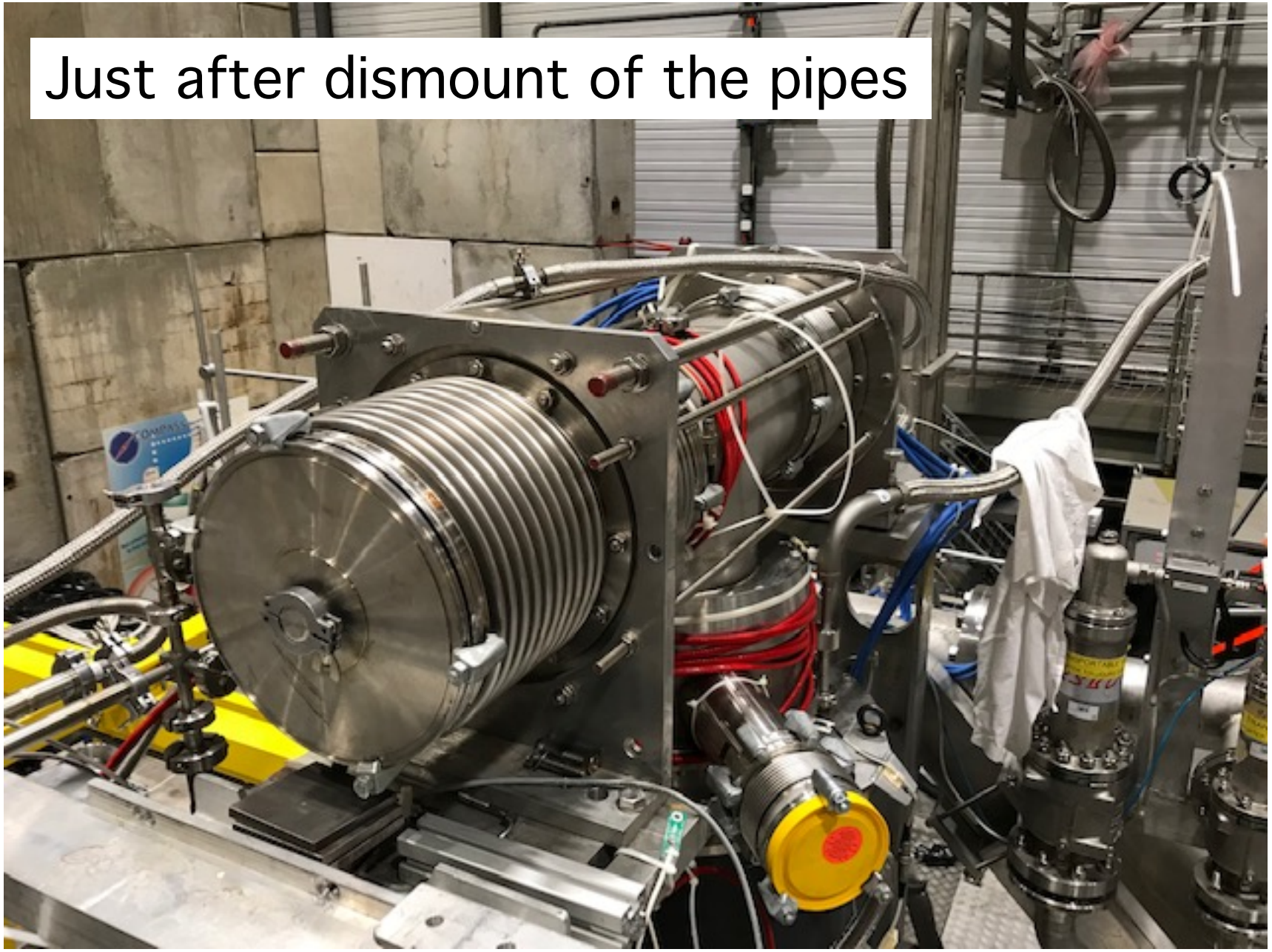
+0.05 A
-0.05 A
Back to normal

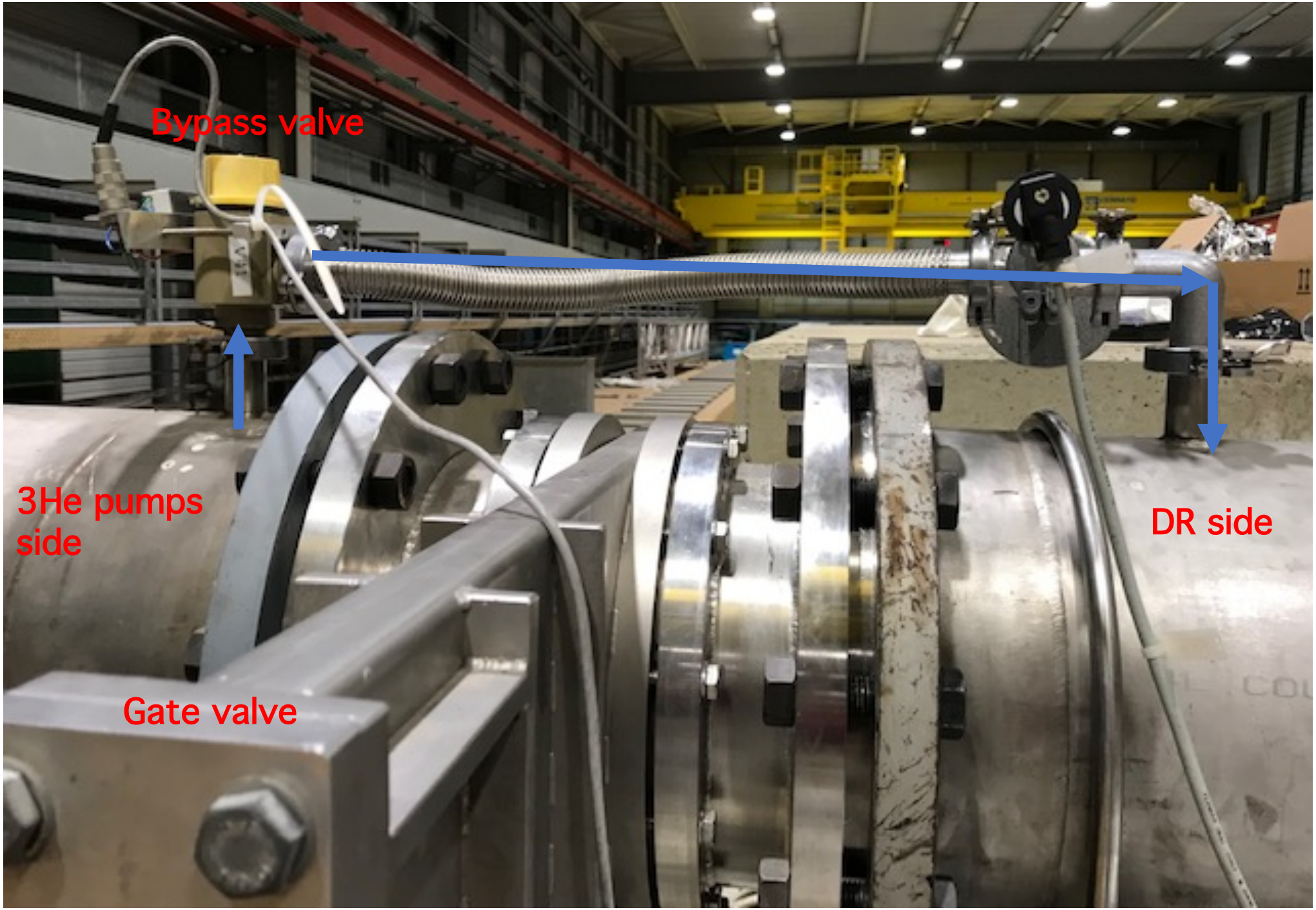
Waveguide modification






CHAMP MAGNETIQUE
DANGER
MAGNETIC FIELD


Just after dismount of the pipes


Bypass valve
3He pumps side
Gate valve
DR side