



# Week Summary Report

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## A. Overall Summary

Week type: Manchester Water Phantom, CHUV ZFE irradiation and ChDR BPM.

Date/Week Number: 11/07/2022 to 16/07/2022 (Week 28)

EDMS number: - <https://edms.cern.ch/document/2669406/1>

Beam time: 4 days  
Fatal Failure time: 1 day  
Installation time: 0.5 day  
Number access: 10

#	Experiment Name	Responsible	Institute	Installation time (h)	Access number	Beam time (h)
1	Manchester Water Phantom	Lucy Whitmore	Manchester University	2	7	30
2	CHUV ZFE	Houda Kacem & Jonathan Ollivier	CHUV	1	2	2
3	ChDR BPM	Collette Pakuza	CERN BI	1	1	2

## Weekly activity

The week was dedicated to Manchester University Water Phantom experiment, Zebra Fish Eggs irradiations and ChDR BPM studies.

## B. Day by day report

### Monday

- Laser optimization.
- The charger of MKS11 was changed by Alan and Ruben.
- Scans of waists and one films irradiation in air.
- Added water to the beam tank.
- Had a lot of issues with one circuit breaker of MKS11 (Q04).



## Tuesday

- The malfunctioning circuit breaker of MKS11 was changed by Alan.
- The issues with MKS11 were fully fixed.
- Numerous scans of vertical waist in water were performed with different currents for the last quadrupole, QDD0920: 165, 170, 175, 185, 195, 205, 215, 225 and 235 A.
- Several films irradiations were done in water using the long holders. 15 Gy was delivered at the peak in dose.
- The first batch of films was collected and a second one was installed.
- Some beam was given to the ChDR setup while looking for vertical waist in air at the end of the line.
- Really good waists in air (and peak in dose) were found (especially the one obtained at 16:11) with QDD0920 at 180 A. Films irradiation was done with these parameters using the double long holder.
- More scans and irradiations were done in water.

Access: 2

## Wednesday

- Setup for CHUV ZFE irradiations was re-installed.
- Beam ON before CHUV arrived to warm up the machine, prepare the beam and rehearse for irradiations.
- The following irradiations were done for the ZFE:
  - o 9 Conv. irradiations (6.6 mm x 6.2 mm, 3 at 10 Gy, 3 at 12 Gy and 3 at 14 Gy)
  - o 9 UHDR irradiations (6.6 mm x 6.2 mm, 3 at 10 Gy, 3 at 12 Gy and 3 at 14 Gy)
- One alternated Conv./UHDR and 10/12/14 Gy as follows: UHDR 10 Gy, Conv. 10 Gy, UHDR 12 Gy, Conv. 12 Gy, etc.
- All the irradiations went very well. The analyzed films gave really promising results.
- Eggs were collected, checked and brought back to CHUV.
- A new batch of films was installed for Water Phantom studies.
- More scans and irradiations were done with several strengths for QDD0920.

Access: 2

## Thursday

- Another batch of films was installed for Manchester's experiment.
- Several waist scans in air were done after inverting the polarity of the last 3 magnets (QDD0870, QDD0880 and QDD0910). They gave really good results.
- An incident happened during the CLIC Beam Physics meeting: the zeroseek button was pressed while performing a waist scan. This broke the grabber.
- 2h45 were needed to repair the grabber. No beam could be given to the user after the incident that day.

Access: 2

## Friday

- One more batch of films was installed.



- Numerous scans and two irradiations were done in air. The strength of the last quadrupole was scanned: +/-180 A, +/-190 A, +/-200 A, +/-210 A with both normal and inverted polarity for the last 3 quadrupoles. The films irradiations were done with normal and inverted polarity and QDD0920 at + and -180 A.
- Numerous scans and irradiations were done with normal/inverted polarities.
- A last batch of films was installed in the afternoon after discussing the setup of week 29 experiment.
- Numerous scans and irradiations were done with normal/inverted polarities.
- One film irradiation was done with CHUV ZFE beam parameters in order to compare the dose delivered on films for CHUV and the one delivered when a waist is obtained.

Access: 3

### **Saturday**

- The 156 films irradiated on Friday were scanned.
- All the films irradiated on weeks 27 and 28 were packed, declared and dropped in the buffer zone for RP studies and were registered for shipping.

Access: 0

### **Other business**

### **Additional resources**

## **C. Main issues**

(SOLVED) Both MKS11 charger and Q04 circuit breaker were changed. This completely fixed the issue with the klystron. A big thanks to the RF experts!

## **D. Action needed to be followed up**

Since on the 3<sup>rd</sup> week of August, W.F. and P.K. won't be available for Pierluigi's experiment, another beam operation training for the new operators would be necessary. I would suggest the last week of July.