

# Risk Assessment of Gyrotron and Microwave

## 1. Location

DNP MAS NMR Hall (B30) at the Sir Peter Mansfield Magnetic Resonance Centre (SPMMRC)

## 2. Responsible person: Subhradip Paul/Walter Köckenberger

## 3. Brief Description of work activity

There is no exposure to microwave though the users are expected to use the gyrotron. All the parts are well shielded. Users are to operate only the system interface.

## 4. List of main Hazards

- Accidental mechanical contact with the wave guide.
- Accidental loading and unloading of samples with the microwave on.

## 5. Hazard Rating: 2

## 6. List of control measures

- Always operate the gyrotron with the wave guide/transmission line connected from the gyrotron output to the probe base.
- Make sure that there are no gaps visible in the transmission line.
- Never look directly into the transmission line with the gyrotron on.
- Always operate the gyrotron with the probe at low temperature (< 190K)
- Please place the gyrotron at the stand-by mode while operating at the probe base e.g. tuning/matching and/or sample insert/eject.
- **DO NOT** step over the transmission line and make sure that you do not make mechanical contact with the transmission line.
- CPI Hazard sheet may be obtained from the facility manager in case necessary.
- **There are several interlocks to make sure that if any unwanted operation is done on the gyrotron it will switch itself off. All the interlocks have been tested during installation.**
- **In case there is a fault in the chiller unit the water supply switches over to the mains supply which prevents magnet quench of the gyrotron and keeps the functions running for all operations.**
- **A constant nitrogen flow detects whether there is any leak in the waveguide. If the wave guide is accidentally opened the interlock switches off the MW source.**

7. Risk factor: 2

8. Extent: 1

9. Hazard x Risk x Extent: 4

10. Comment

Please read the gyrotron operation manual in the folder regarding what you are supposed to operate.

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Subhradip Paul  
Research Facility Manager

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