

To: C. Despas, G. Roy.
From: E. Ciapala, V. Rodel, R. Losito, W. Hofle
Subject: Replies to questions concerning Test Mode for LHC RF from meeting of 13th January 2004.

1. La position des stoppers encadrant les cavités RF est à définir (plan actualisé)

- As defined in [ECR 404060](#) by M. Jimenez, between the D3 magnet and the ACN cavities, similarly on both sides of IR4. This ECR still has to be approved.

2. Des chicanes au plus près des ACS sont elles toujours envisagées? (plan actualisé)

- We have had no feedback on this from TIS. In LEP there were no chicanes in the RAs

3. Préciser les vannes à vide (entre les stoppeurs) qui resteront ouvertes, et qui ne doivent donc pas être dans la chaîne d'interlock

- The valves of interest are those fitted to the SC modules, one on each side of each module and also the valves on either side of the ACN (Coloured GREY in the IR4 layout shown in LHC project document [LHC-LVW-ES-0003](#) figure 1b - page 11). These should normally stay open (exception helium processing - see point 5) during test mode to protect them from radiation damage.
- During access the SC module valves **must** be closed:
 - a) To limit equipment damage in case of loss of beam vacuum and
 - b) To ensure that, in the event of beam vacuum loss with the SC modules filled with helium, helium discharge into the tunnel would be limited to that of a single module containing 300 litres. The TIS allowed maximum is 400 l, to our present understanding.
- See **Table 1** below for the states of these valves for the various access modes.

4. La confirmation que pour les Dampers, aucun accès avec la tension est prévu (sinon prévoir un élément d'interlock autre que la HT)

- Confirmed by W. Hofle.

5. Dans le cas de l'Helium processing (?) il est convenu de ne pas prévoir un mode particulier officiel, mais nous souhaiterions savoir ce que vous comptez faire dans ce cas exceptionnel

- Normally when the valves on the SC modules are closed the RF will be interlocked to prevent radiation damage to the valves. For He processing this will have to be inhibited. In test mode, as long as beam stoppers are in, the position of these valves is irrelevant from the safety viewpoint and therefore “don't care” for the access system: see **Table 1**. Note that the main risk in He processing is in the ‘manual’ introduction of He into the module.

6. Prévoir avec BI (C. Fisher) une possibilité d'intervention pendant vos tests

- An access will have to be given for any intervention, this should be planned beforehand with BDI. BDI would need He permission on their access cards.

18th Feb 2004 ec

Table 1 Valves and stoppers positions for different modes of operation

Activity	Access Mode	Stoppers	Valves SC Module	Valves ACN	HV inhibit	RF inhibit
Beam	CLOSED	OUT	OPEN	OPEN	NO	NO
Access	ACCESS	IN	CLOSED	CLOSED	YES	X
Conditioning, RF Tests	TEST	IN	OPEN	OPEN	NO	IF Valves CLOSED
He Processing	TEST	IN	CLOSED/OPEN	OPEN	NO	NO (Exception to above)

X = Don't Care