	Title: Routine Testing of -80°C Freezer Alarm Systems	Author: A Sameja	Date: 6/May/2025
	No: SOP_R20	New Author:	Date: 6/May/2025
	Version: 1		Review Date May 2027



SOP_R18: Routine Testing of -80°C Freezer Alarm Systems (Freezer challenge tests)

Disclaimer


When using this document, please ensure that the version you are using is the most up to date either by checking on the City St George's /PORTAL/HTA website for any new versions or contact the HTA coordinator to confirm the current version.

Out of date documents must not be relied upon and should be destroyed.

1	May 2025	Issued for use	AS	DI
Rev	Date	Amendment	Approved by	Authorise d by

Glossary of terms

- DI Designated Individual
- PD Person Designated
- PI Principal Researcher
- HTLRG Human Tissue Licence Review Group
- SOP Standard Operating Procedure

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1. Purpose

This SOP outlines the steps to be followed to verify the correct functioning of the alarm systems associated with -80°C freezers. Regular testing ensures that alerts for temperature excursions are triggered appropriately and notified via audible, visual, and remote means (SMS, email, phone calls), thus preserving the integrity of stored human tissue samples and maintaining compliance with the **Human Tissue Act 2004 and Codes of Practice and Standards**. The freezer monitoring system used is from Haier Biomedical and utilises Invisible Realtime cloud-based dashboards, providing a live view of temperature monitoring.

2. Scope

This SOP applies to all -80°C freezers located in freezer rooms and laboratories under the HTA Licence.

3. Responsibilities

• Persons Designated (PDs):


- Conduct monthly alarm tests as scheduled.
- At least two freezers must be selected on a rotational basis each month
- Rotate freezer selection to ensure all freezers are tested over time.
- Record all results accurately and raise any anomalies or malfunctions to the DI.
- All test data must be logged into the HTLRG Shared Drive within the named folder named “Freezer alarm challenge 2023” for audit and compliance tracking.

• Designated Individual (DI):

- Inform freezer owners/PI that their freezer will be challenged, specifying the time and date
- Review test outcomes and ensure corrective actions are completed.
- Ensure that this SOP is followed and that records are properly maintained.
- Report persistent issues to the freezer owners, Principal Investigator (PI) responsible, and/or the maintenance providers, such as Haier Biomedical (ukservice@haierbiomedical.co.uk) or repairers Varcas Cooling (julie@varcas.co.uk)

4. Materials and Equipment Required

- Appropriate Personal Protective Equipment (PPE)
- Access to the Haier freezer monitoring system (dashboard, SMS, email, and phone notification setup, temperature graph display)
- Excel log spreadsheet in the HTA Shared Drive
- Timer or clock to record alarm response times

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5. Procedure

5.1 Preparation

- Inform freezer owners/PI that there freezer will be challenged, specifying the time and date
- Wear appropriate PPE (e.g., lab coat, gloves, safety glasses).
- Confirm that the selected freezer is functioning normally at or near -80°C.
- Record the current temperature as displayed:
 - On the freezer door
 - On the Haier monitoring dashboard

5.2 Initiating the Alarm Test


1. Open the freezer door to simulate a temperature rise.
2. Wait briefly for the alarm to trigger.
3. Observe and monitor for visual (flashing lights) and audible alarms (beeping) on the freezer's LCD display.
4. Record:
 - Time the alarm is triggered
 - Time taken to receive the first alert from the Haier monitoring system (via SMS, email, and/or phone call)
5. Confirm that the monitoring system notifications have been correctly received.
6. Close the freezer door promptly to preserve sample integrity.
7. Log any issues observed (e.g., delay in alarm, failure in alerts, or malfunction).
- 8 Inform freezer owner that test has been completed and correct temperature restored

5.3 Recording Results

All results must be recorded in the designated Excel spreadsheet located in the HTA Shared Drive. "Freezer alarm challenge 2023"

- Record the following:
 - Date and time of the test
 - Freezer ID
 - Initial temperature reading (door and dashboard)
 - Alarm trigger time
 - Notification time(s) (SMS, email, phone call)
 - Test outcome (e.g., "Functioning correctly" / "Issues identified")
 - Any corrective actions taken
 - Name and signature of the person performing the test

6. Follow-Up Actions

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- If the alarm system does not function correctly, immediately notify:
 - Designated Individual (DI)
 - PIs who own the freezer.
 - Initiate necessary repairs or maintenance via the approved service provider.
 - Document all actions taken.
- If freezer contain HTA relevant materials, then either replace with a temporary functioning probe or decant content into a backup freezer which is monitored. Add new alarm recipients for the back-up freezer.

7. Compliance with HTA Standards

All freezers containing relevant human samples and monitoring systems must meet the Human Tissue Act 2004 and Codes of Practice and Standards:

- Premises, Facilities and Equipment (Standards PFE2 and PFE3)
- Maintain accurate and accessible records of all testing and maintenance for audit purposes.

8. Review Schedule

This SOP must be reviewed every 2 years or sooner if system updates, regulatory changes, or non-compliance issues occur.

9. Contacts DIs and PDs

Research Licence	DI	Dr Priya Madhou	Ext 1603	pmadhou@sgul.ac.uk
	PD	Mr Ash Sameja	Ext 2428	asameja@sgul.ac.uk
	PD	Ms Lara Painter	Ext 3077	lpainter@sgul.ac.uk