Application Note

Use of Lives Temperature Dataloggers in Ultra-Low Temperature Environments ($<$-50 to $\geq$-90°C)

Before running any test with Lives RF Loggers at -80 please observe the following:
- Remote activation is disabled,
- Batteries have been replaced less than 4 months prior to start a test; if this is not the case, replace them with new batteries and run a one-hour test at ambient temperature with a 10 sec update rate to activate the batteries,
- In Administration, Options – the option "Confirm Enable RF at Ultra Low Temperature" is disabled,
- If the loggers haven't been used for more than a month prior to start a test, run a one-hour test at ambient temperature with a 10 sec update rate to activate the batteries.

While programming the loggers to start an ultra-low temperature test, please make sure:
- For RF loggers the "Logger update rate" should be setup as 00:00:00
- Use sequential mode to program the loggers.

Firmware version:

GMP loggers FW version 2.32 (or higher) or GMP-RF loggers FW version 1.96 (or higher):

- o loggers can start collecting data after being placed inside the freezer.

Any previous FW versions

- o loggers must start collecting data at least 30 minutes before being placed inside the freezer

After the run is finished and loggers retrieved from the freezer, allow a warm-up of 30 minutes before activating the loggers to retrieve the data.

To check the version of firmware onboard select 'show details' from the logger prepare screen or in verify validation equipment screen.
Firmware updates – All loggers that come into the Lives service department have firmware version checked and any available update applied FOC.

Lives International QA   **Date: 24 March 2023**
Andreea Ciorogariu