TEMPERATURE RECALIBRATION INSTRUCTIONS USING PONEMAH v6.X

TECHNICAL NOTE

1. CREATE A NEW EXPERIMENT.

- a. Launch Ponemah.
- b. Select Experiment | Create...
- c. Enter an Experiment Name and Click OK.

Create New Experiment		×
Experiment Name:		
Experiment_9		
Folder:		
C:\Ponemah_Data\		Browse
	OK	Cancel

2. CONFIGURE THE TEMPERATURE IMPLANT TO AN UNCONVERTED SIGNAL TYPE.

- a. Select Hardware | Edit PhysioTel / HD (MX2) Configuration...
- b. Configure the MX2.
 - i. From the MX2 Configuration, left click-and-drag the MX2 from the *Available MX2s* list to the *Selected MX2s* list.
 - ii. Select the MX2 from the *Tree view* on the left to display the *MX2 Details* page.
 - iii. Select Create New Implant button.
- c. Configure the Implant.
 - i. Enter an Implant Name.
 - ii. Select **TA-F40-LF** from the *Implant Model* dropdown.
 - iii. Enter the implant's Serial Number.
 - iv. Associate a Receiver to the implant by checking its corresponding checkbox.
 - v. Change the *Signal Type* of Channel 1 from **Temperature (2 Cal)** to **Unconverted**.
 - vi. For additional implants, click the **Create New Implant** button and repeat steps c.i. through vi. Then click **Save & Exit**.

PhysioTel / HD Hardware Configuration 1.9.17180.2, Copyright © Data Sciences International 1996-2017			
Configuration Investory	Implant Details		Ø
 ▲ X2 Configuration ▲ ⊙ 751266 ▲ ⊙ TA-F40-LF SN 1234 (Chipmunk 1) ⊙ J1:RPC-1 SN 6414 	Name: Implant Model: Serial Number: Enabled: HD Search Status: Battery Status:	Chipmunk 1 TA:F40-LF 1234	Receiver(s) Associated with Implant J1:RPC-1 SN 6414 J2:RPC-1 SN 8312 J3:RPC-1 SN 6411 J4:RPC-1 SN 20169
	Signal Type Ch1 Unconverted Ch2 Activity Ch3 Signal Strength	Enable Sample Rate(Hz)	Calibrations
	 Create New Implant Change implant button to retriev 	III details, modify channel settings, or ve battery information.	r assign receivers. Click 'Refresh Battery Status'
			Save & Exit Cancel

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3. CONFIGURE THE EXPERIMENT AND START THE ACQUISITION.

- a. Double-click the first Subject listed in the All tab of the Sampling Control dialog.
- b. Update the *Analysis Module* for Channel 1 to **Temp**.
 - i. By default, the Non-pulsatile Mean (**TNPMN**) derived parameter will be enabled. This will be used to help obtain the new calibration value during the acquisition.
- c. Click the Apply to Similar Subjects button and click OK to accept the changes.
- d. Click **OK** to exit the *Subject Setup*.
- e. Select Setup | Experiment Setup... | Graph Setup.
- f. Select the Arrange by Signal button to arrange the temperature signals from all subjects onto a single graph. If using more than 8 subjects, adjust the *Max per page* number to 8 prior to selecting Arrange by Signal to create multiple graphs that include a maximum of 8 signals each to allow easier viewing.
- g. Enter a *Time* of **600** Seconds.
- h. Multi-select the enabled rows with your mouse, right-click and select Set Low. Enter 0 and click OK.
- i. Right-click again and select **Set High**. Enter **5000** and click **OK**.
- j. Click **OK** to exit the *Graph Setup*.
- k. Turn on the implants and place them in proximity of the receiver.
- I. From the Sampling Control dialog, select the Start All Continuous button. Observe the live trace.
- m. Select Actions | Logging Rate...
- n. Change the Logging Rate *Time* to **00:00:10** seconds and click **OK**. Click **Yes** to close the warning.

Logging Rate	
Logging Method and Rate	
⊡ Time (hh:mm:ss) 00:00:10 □	P3Setup
C Epoch 10 Epochs Averaging Interval Data % 0 %	Logging rates less than 1 minute are not intended for long term acquisitions or large experiments. Do you want to continue?
Apply Change Immediately	
OK Cancel	<u>Y</u> es <u>N</u> o

4. DETERMINE THE IMPLANTS' NEW CALIBRATION VALUES.

- a. Submerge the implant in a water bath of the temperature corresponding to the new **LOWER** calibration value (e.g. 5°C).
- b. Allow the implant to equilibrate from 5 minutes.
 - i. Use the *Primary* graph and *Derived Parameter List View* **TNPMN** value to ensure the signal is stable.
 - ii. Use the **TNPMN** value to choose the raw frequency data that corresponds to the **LOWER** temperature value.
 - iii. Record this value below.

LOWER CALIBRATION VALUE

Temperature in °C

Frequency from T NPMN



- c. Submerge the implant in a water bath of the temperature corresponding to the new <u>HIGHER</u> calibration value (e.g. 37°C).
- d. Allow the implant to equilibrate from 5 minutes.
 - i. User the *Primary* graph and *Derived Parameter List View* **TNPMN** value to ensure the signal is stable.
 - ii. Use the **TNPMN** value to choose the raw frequency data that corresponds to the **HIGHER** temperature value.
 - iii. Record this value below.

HIGHER CALIBRATION VALUE

Temperature in °C

Frequency from T NPMN

e. Stop the acquisition by selecting the **Stop All Continuous** button from the *All* tab of the *Sampling Control* dialog.

5. RECONFIGURE THE IMPLANT WITH THE NEW CALIBRATION VALUES.

- a. Select Hardware | Edit PhysioTel / HD (MX2) Configuration...
- b. Select the implant from the *Tree view*.
- c. Change the *Signal Type* from **Unconverted** to **Temperature (2 Cal)**.
- d. Enter the Lower Calibration Value.
 - i. Double-click the <u>LOWER</u> temperature value (35) to enable the edit field and enter your <u>LOWER</u> temperature value in °C (e.g. 5°C).
 - Enter the recorded Frequency into the lower calibration value field.
- e. Enter the Higher Calibration Value.

ii.

- iii. Double-click the <u>HIGHER</u> temperature value (39) to enable the edit field and enter your higher temperature value in °C (e.g. 37°C).
- iv. Enter the recorded Frequency into the **<u>HIGHER</u>** calibration value field.

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Configuration Inventory	mplant Details	
MX2 Configuration • • 751266 • • TA-F40-LF SN 1234 (Chipmunk 1) • J1:RPC-1 SN 6414	Name: Chipmunk 1 Implant Model: TA-F40-LF J2:RPC-1 SN 6414 J2:RPC-1 SN 6414 J3:RPC-1 SN 6414 J3:RPC-1 SN 6411 J3:RPC-1 SN 6411 J4:RPC-1 SN 20169 HD Search Status:	
	Signal Type Enable Sample Rate(Hz) Calibrations Ch1 Temperature (2 Cal) Image: Calibration (2 minor) Image: Calibration (2 minor) Ch2 Activity Image: Calibration (2 minor) Image: Calibration (2 minor) Ch2 Activity Image: Calibration (2 minor) Image: Calibration (2 minor) Ch3 Signal Strength Image: Calibration (2 minor) Image: Calibration (2 minor)	
4 Þ	Create New Implant Create New Implant Create New Implant Change implant details, modify channel settings, or assign receivers. Click 'Refresh Battery Status' button to retrieve battery information.	
	Save & Exit Cancel	

- f. Repeat b. through e. for any additional implants.
- g. Click Save & Exit.

6. CALIBRATION VERIFICATION.

The implant(s) is now calibrated to its new temperature range. It is recommended to verify the temperature accuracy throughout the range over which it was just calibrated prior to implantation and commencement of a study.

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