Christopher Hales
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BATTERY PACKS FOR ALL!

1. Introduction

This document provides a brief rundown on what needs to occur in order for BLUEsat to obtain fully functional and space-ready battery packs.

The contact for the batteries is:

Geoff Schaper
Manager - Battery Products Division
Master Instruments Pty Ltd
Sydney & Melbourne AUSTRALIA
PH 02 9519 1200
FX 02 9519 4604
Email geoffs@master-instruments.com.au
Web www.master-instruments.com.au

Geoff has mentioned that the agreement made with BLUEsat some years ago whereby he would supply us with a considerable number of NiMH batteries in return for some good publicity is still intact. According to email communication with him on 8th September 2005, Geoff wrote:

"Assuming we're still going to get some sponsorship acknowledgement & materials i.e. photos useable for our self promotion in the future once your project is launched (literally) then we will keep the arrangement intact dependant on your ongoing requirements."

He also specifically mentioned that he could supply us with 500 batteries (enough for 20 battery packs). In other words, we can rely on him for all our battery needs provided we keep him in the loop visa-vi sponsorship documentation and products (such as pictures, videos etc). Note that this also includes Master Instruments tabbing our batteries for us.

2. Procedure

a) Verify battery dimensions with Geoff
b) Check how much delrin BLUEsat owns, and ensure its specifications are documented and placed on the wiki
c) Manufacture 20 delrin battery packs
d) Verify glue we will be using (E20-HP: ensure specifications are documented and placed on wiki), and purchase more if necessary

e) Perform and document an outgassing test on the glue (i.e. weight before and after testing)
f) Check the condition of the delrin washers we will be using (we still have a bit over 450 in the cleanroom?), ensure its specifications are documented, and purchase more if necessary
g) Determine the details of the temperature sensors that will need to be placed on the batteries
h) Discuss and prepare some documentation to formalise (or at the very least acknowledge) the agreement between BLUEsat and Master Instruments (this can be a draft at this stage – he doesn't expect a return on this deal until we are actually launched). Some ideas are:
    - Take numerous photos of BLUEsat members using and testing the battery packs. Also include data from the charge/discharge characterisations
    - Show how we have used their logo on our posters/banners/presentations/flyers for the last year or more
    - Write a news article for the website about the renewal of our sponsorship arrangement with Master Instruments and the acquisition of the new batteries
i) Send Geoff the sponsorship documentation and request 500 batteries
j) When the batteries are available, pick them up from Master Instruments
k) Determine whether glue will be out-gassed before, after, or at both times during the battery installation process (note that it definitely needs to be done after the battery installation)
l) Clean/prime all surfaces to be glued – obtain advice from P. Matthison about this as he has used this glue before
m) Glue batteries into the packs and immediately place into vacuum chamber. Weigh before and after, and ensure that the thoroughly photographed and videoed – this will make great sponsorship material
n) Prepare a quick Visio document showing how all the batteries should be tabbed
o) Take this document and 15 battery packs back to Master Instruments and request that aerospace-grade 4-point arc welded tabbing be applied to our batteries. Our current understanding is that the tabbing involves a silver coated material; however we need much more specific information, and so this needs to be requested. The tabbing process should take a week or two
p) The excess battery packs and batteries can be kept and used for displays (i.e. cut one in half and put in under glass?) or for any other purposes that may become apparent later