**TEST EQUIPMENT DATA PACKAGE**

***Principal investigator’s name***

***Research organization***

*Email address*

*Phone number*

*Mailing address*

***Experiment Title***

TEDP Completion Date:

**IMPORTANT THINGS TO NOTE:**

**Avoid permanent magnets if possible**

**Avoid Shaterable materials if possible (e.g. class) However there are ways to secure these items, just be sure Mentor and NanoRacks are aware so that they can be packaged appropriately.**

**Avoid pressure vessels**

**Avoid substances with toxicity higher than 2 on MSDS’s**

**CHANGE RECORD**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Doc. Version** | **Date** | **Description** | **Page No.** | **Change Authority** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**QUICK REFERENCE DATA SHEET**

Team Name:

Principal Investigator:

Contact Information:

Experiment Title:

Work Breakdown Structure (WBS):

Flight Date(s):

Overall Assembly Weight (lbs):

Assembly Dimensions (L x W x H):

Equipment Orientation Requests in reference to NanoRack:

Proposed Mounting to NanoRack:

Does Experiment need to be located next to fan on NanoRack: (Yes or No)

Power Requirement (Voltage 9and Current Required):

Camera or Video Requested? (Yes or No):

**TABLE OF CONTENTS**

Section\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Page Number

Change Page

Quick Reference Sheet

Basic Mission Objective

Experiment Background

Experiment Description

Operational Scenario

Equipment Description

Electrical Analysis

Institutional Review Board Information

Hazard Analysis

Tool Requirements

Photo Requirements

Hazardous Material

Material Safety Data Sheets (MSDS)

Experimental Procedures Documentation

Bibliography

Deviations/Exceptions/Waivers

**BASIC MISSION OBJECTIVE:**

*Technology demonstration, research, Proof of concept?*

**EXPERIMENT BACKGROUND**

*Why is this experiment relevant? What questions will it answer? Include NASA supporting org. and programs and research history.*

**EXPERIMENT DESCRIPTION**

*Brief explanation of experiment. Include sketches or AUTOCAD ipt files*

**OPERATIONAL SCENARIO**

1. *High Level Summary of Payload Operations, general overview*
2. *Specific constraints for payload (ie. Activation requirements, temperature requirements to/on/from ISS, orientation requirements during transport to ISS)*
3. *How long does the experiment need to operate for? Does the experiment require any crew interaction?*
4. *Will payload need to be returned or disposed of once ops complete*
5. *What kind of data needs to be collected during the mission and will ground operations be required (ie. Downlinking to NanoRacks mission control?)*

**EQUIPMENT DESCRIPTION**

1. Ground-Based and Flight Equipment (if there is no difference just reference the flight Equipment. Please make excel spreadsheet for all categories of the equipment.)
	1. Pictures
	2. Descriptions of each piece of equipment
	3. Dimensions
	4. Mass
	5. Hardware Class (different classes based on toxicity of material)
2. Equipment Layout for Take-off, in Flight, and Landing (some of this information provided by NanoRacks. Equipment may be stowed in flight stowage bag during liftoff and landing. Show how the ardulab should be interfacing the NanoRack with orientation. Diagrams are helpful.
3. Special Handling/Special Hazards/Special Requirements

*Crew handling during mission? Will crew be handling toxic materials?*

1. Bio/Chemical Contents :

*Complete JSC form 27472 if applicable and provide MSDS . Avoid substances with toxicity higher than a 2 on MSDS form.*

1. Inventory of In-flight Items

*Any extra materials that will need to be stowed outside of the ardulab? If you have items that are going to be operated by the crew outside of the module provide a sketch or enough details to create a drawing. Photographs are great if available.*

**ELECTRICAL ANALYSIS**

1. Schematic drawing with all current and voltage draws
2. Load Table
3. Stored Energy
4. Electrical Kill Switch

*How will experiment be turned off in event of an emergency?*

1. Loss of Electrical Power (Fail-Safe)
2. TRY TO DESIGN without Batteries and just use the NanoRacks platform with USB power. If Batteries cannot be avoided, please include the following information and specifications:
	1. Schematics of entire unit must include the batteries (if batteries are rechargeable, include the schematics of the battery charging circuits).
	2. Protection circuit
		1. Manufacturer, details, and model number
		2. Schematics
		3. Voltage and current cutoff levels
	3. Battery type and configuration
	4. Battery manufacturer
	5. Battery history
		1. Testing history, including reports
		2. Previous NASA use, if any.
		3. Lot and cell Data
	6. Specifications on any active thermal system (N/A if no heater internal to Module experiment.)

**INSTITUTIONAL REVIEW BOARD**

*Only for human or vertebrate animal test subjects.*

**HAZARD ANALYSIS**

1. General Hazard Identification Checklist

[*http://jsc-aircraft-ops.jsc.nasa.gov/Reduced\_Gravity/docs/NS-STO-CH01.pdf*](http://jsc-aircraft-ops.jsc.nasa.gov/Reduced_Gravity/docs/NS-STO-CH01.pdf)

**TOOL REQUIREMENTS**

1. Additional Tools that will be required in flight for crew monitoring of the project.

**PHOTO REQUIREMENTS**

1. Camera/Video required? How often during mission required?
2. Downlink Requirements
3. Still/Video Photographer Special Requests

**HAZARDOUS MATERIAL**

*List any hazardous material being used and it hazard number associated with it. Include MSDS sheet for that material in section below.*

**MATERIAL SAFETY DATA SHEETS (MSDS)**

**EXPERIMENT PROCEDURES DOCUMENTATION** *This section is to include procedures for all aspects of the experiment from shipping to KSC to unloading and return to Houston. Please be specific about all procedures, especially those procedures that need to take place while on the Space Station. If there are not specific aspects to consider then please put N/A*

1. Equipment shipment to KSC
2. Ground Operations while at KSC
3. Loading/Stowing
4. Pre-Flight
5. Ascent (Launch)
6. On-Orbit
7. Descent (Return/landing)
8. Post-Flight
9. Off-Loading
10. Emergency/Contingency

**BIBLIOGRAPHY**

*Include at least 5 sources*

**DEVIATIONS/EXCEPTIONS/WAIVERS**

*Include any waivers or exceptions documentation from CASIS, NanoRacks, or NASA JSC if applicable.*