# Flight Readiness Review
# New Mexico Space Grant Consortium

University/Institution

Team Members

Date

Due February 1st

# User notes

- This readiness tool is the last step before flight. There will be a final report due at a later date, but we want to know the following final analysis:
  - Mission Overview
  - Subsystem Requirements
- In this exercise, you must prove that you are ready to fly!

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# Mission Overview

- What is your objective?
- What do you expect to prove, discover, or learn from your experiment?
- Brief overview of underlying science/theory
- What other related research/experimentation has been done in the past?
  - Results?
- Mission Requirements

- **Note: This is a more refined rendition of the previous DTR slides.

# Subsystem Requirements

- What subsystems do you have: power, C&DH, thermal, etc.
- What requirements do you have for each subsystem.
- What requirements do each subsystem impose on each other.
  - You should have quantifiable requirements in this section.
    - Power subsystem shall supply 2W to…
    - Power subsystem shall remain at or above 72 F at all times during the flight.
- Which requirements are design drivers?

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# Block Diagrams

- Block Diagrams of each of the major subsystems shall be included.
  - Use these as visual queues to explain the connections between subsystems
  - Don’t skimp on details… if there is a power switch or a g-switch, make sure that it is included
- This is where you explain the design of you system and how it operates.

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# Schematic/Drawings/Analysis

- This section is reserved for electrical schematic and mechanical drawings.
  - These show the reviewers that you have taken the design to the next level and understand the physical dimensions of the system as well as the electrical characteristics
- Any analysis that has been completed so far shall also be contained in this section.
  - Computer models
  - Any component tests or research that may have been completed

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# Commands and Sensors

- This section contains charts that show the flow of data and commands.
  - What states can your payload be in?
    - Active, Active/Safe, Idle… etc.
- The key items that we are looking for are data flow diagrams and budgets
  - Memory budgets
    - How many samples, how long, do you have enough memory?
  - Where is data stored?
  - How does the data get there?
  - What commands queue data acquisition?
- General software flow chart for “main” code
- Be sure to include sensor specifications
  - Will they meet your need?

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# Test Plans

- What type of testing can be performed on your payload pre-flight?
- What is required to complete testing?:
  - Support Hardware
    - Purchase/produce?
  - Software
    - Purchase/in-house?
- Potential points of failure
- Testing/Troubleshooting/Modifications/Re-Testing Schedule

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# Parts List

- MAJOR Components lists
  - Not at the nut and bolt level… just major hardware that will be purchased or built in house
  - Lead times (This can make or break a project)
  - Distributors
  - Manufacturers
  - Cost (Don’t forget to consider shipping and tax)

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# Spaceloft XL Payload
# Canister User Guide Compliance

- Mass, Volume
  - Estimated fraction of allotment vs. assigned fraction
- Payload activation?
  - What have you planned for?
  - How does it comply with Wallops “no volt” requirement
- Rocket Interface
  - Shorting wires

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# Shared Can Logistics Plan

Update us since DTR
If not a shared can, just leave out

- Institutions/Universities in can
- Plan for collaboration on interfacing
  - Know relative locations in can
    - Especially important for payloads needing ports
- Structural interfacing to each other
  - To the top and bottom bulkheads

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# Management

- Updated Organizational Chart
- Updated Schedule
- Updated mass/monetary budgets

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# Protocol & Testing

- What protocol will you be using to test your materials?
  - How will you go about testing your materials?
- What test procedures will you utilize?
  - How will you carry out the protocol?
- How will you analyze your results?

NOTE: A Functional and Flyable Payload is the driving element of an FRR. Prove to the reviewers that your design is finished and Ready to Fly.

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# Protocol & Testing

- Pictures of Protocol
  - Power on system test (POST) visual
  - Full system integration visual
  - Video of POST

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# Protocol & Testing

- Bench Test Results
- Changes since original design
  - Why changes were necessary?
- Vibration testing results
  - Please include the documentation that vibration testing had been accomplished on protocol. (Very Important)

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# Results

- Explain what your data results are
  - Provide graphs, etc

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# Conclusions

- What does your data imply about your instruments
  - Make several inferences

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# Revised Hypothesis

- Now that you have bench test results, how do you expect your instruments to handle in the suborbital environment?
- If your hypotheses have changed, please note why you have made the changes.
- If your hypotheses have not change, please indicate why they have not.

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# Conclusions

- Issues and concerns
- Closing remarks

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