Ukpik-1

*DOCUMENT TITLE*

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**Document Change Record**

|  |  |  |  |
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| Issue | Date | Changes Made | Name |
| 0.1 | YYYY-MM-DD | First Draft | Last Name, First Names |
|  |  |  |  |
|  |  |  |  |

**Reference Documents**

*Insert applicable reference document titles, such as requirements documents*

**Terms, Definitions, Abbreviations**

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| --- | --- |
| CSA | Canadian Space Agency |
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# Requirements

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| **Requirement ID** | **Requirement Description** | **Parent Requirement** |
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# Architecture and Interface Diagrams

*Block diagram schematic to show internal interface connections and external interface connections. Label data connections with signal paths, connector types, protocols, etc. Label power connections with current flow paths, voltages, connector types, etc. Identify physical connection points with connector, screw type, adhesive type, etc.*

*3D rendering of packaging, RBF location and placement inside the CubeSat*

*Umbilical power connection including battery changing*

*Illustrate the complete design of the power subsystems including the interconnects, inhibits, 30-minute time, Remove Before Flight (RBF) pin, and grounding diagram*

# Functional Operations

*Provide a functional block diagram or state diagram with description of how the subsystem operates, including state transitions with input and output triggers*

*Proposed telemetry and number of channels (load current and temperature, battery voltage current and temperature, solar panel temperature, main switch voltage and current, PDU temperature, etc.)*

# Election Power System

## Power Generation

*Present the power generation subsystems including the solar cell layout and power tracking strategy*

## Power Storage

*Present the battery selection*

## Power Distribution

*Present the EPS board functionality*

# Power Budget

*Illustrate the power budget that demonstrates a sufficient margin*

# Power Analysis

*Verify that the cubesat can maintain power positive in tumbling situations*

*Verify that cubesat is power positive in all operating modes and note exceptions*

# Assembly and Integration Plan

*Provide a step-by-step walkthrough of how the subsystem will be assembled and integrated with the CubeSat*

# Test and Verification Plan

*Battery test plan*

*Provide a step-by-step test and verification plan, including equipment needed and what results in a passing test*

*Requirement verification strategy: Take the subsystem requirements and identify how that requirement will be verified to have been met, and identify the necessary equipment or resources to complete that verifications*

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| **Requirement ID** | **Verification Strategy** | **Resources** |
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# Schedule and Work Plan for Phase C2 and D

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| **Task Description** | **Estimation of Time and Human Resources** | **Required Resources to Complete** |
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*Provide a description of the work that remains to be completed to complete the detailed design process. Provided an estimated time required to complete that work. Provide an estimate on the time and schedule for completing the testing, verification, assembly, and integration.*

# Datasheets for COTS Components

*Attach any datasheets or spec sheets for identified COTS components*