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**RadFXSat-2 (Fox-1E)** **Final Preflight Initialization Procedure**

## Satellite Team Change Log

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| **Revision** | **Date** | **Authors** | **Change Log** |
| 1 | March 13, 2018 | G. Buxton (N0JY) | Initial version |

## Satellite Team Responsible Engineers

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**Purpose:** The purpose of this document is to detail the procedure for the final preflight initialization of the RadFXSat-2 (Fox-1E) CubeSat. This procedure may be completed as needed to configure launch mode for testing, and shall be completed before the CubeSat is stored or delivered for integration. Battery charging may be performed after the final preflight initialization, and that action will not invalidate the results of this procedure.

**What is tested:** Performing this test confirms the following:

1. CubeSat is set in initial state and ready for integration

**Required equipment:**

1. AMSAT Fox-1 Umbilical/Battery Tender (UBT), Type I or II
2. Household power electrical outlet or extension cord
3. PC running appropriate terminal software

**Preflight Initialization:**

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| --- | --- | --- | --- | --- | --- |
| **Step #** | **Description** | **√ or Value** | **Time** | **Date** | **Initial** |
|  | Verify the CubeSat’s physical flight configuration (except for the RBF Pin being installed and the Solar Panel covers may be installed). | Stak | 9:12EDT | 3/13/2018 | *BF* |
|  | Attach the UBT’s umbilical USB (mini-B) cable to the CubeSat’s umbilical port. | X | 9:12 | 3/13 | *BF* |
|  | Attach the PC end of the UBT’s umbilical USB cable to the PC. | X | 9:13 | 3/13 | *BF* |
|  | Verify the UBT’s PWR switch is in the OFF position. | XX | 9:13 | 3/13 | *BF* |
|  | Plug the UBT into a wall socket. | X | 9:13 | 3/13 | *BF* |
|  | Move the UBT’s PWR switch to the ON position and verify the UBT power light is lit. | X | 9:17 | 3/13 | *BF* |
|  | Verify through the –X opening of the CubeSat that the GREEN BTRY CHARGING LED is lit. | X | 9:18 | 3/13 | *BF* |
|  | Open a terminal window on the PC and (electronically) connect to the CubeSat’s IHU. | X | 9:20 | 3/13 | *BF* |
|  | In the terminal window, type **‘v’** to verify the bootloader; then type **‘a’** to begin execution of the flight software and close the terminal window. | X | 9:20 | 3/13 | *BF* |
|  | Open a new terminal window on the PC and (electronically) (re)connect to the CubeSat’s IHU (reboot time is approximately 20 seconds). | x | 9:21 | 3/13 | *BF* |
|  | In the terminal window, type **‘PREFLIGHT INIT’** and press **ENTER**; verify the end response of “All variables initialized and ready for flight”. | X | 9:24 | 3/13 | *BF* |
|  | In the terminal window, type **‘GET STATUS’** and press **ENTER**; verify the following items in the response (record via check marks): | X | 9:25 | 3/13 | *BF* |
|  | On-orbit flag is FALSE | x | 9:25 | 3/13 | *BF* |
|  | In the terminal window, type **‘GET ANTENNA STATUS’** and press **ENTER**; verify the following items in the response (record via check marks): |  |  | 3/13 | *BF* |
|  | Transmit antenna is NOT deployed | No |  | 3/13 | *BF* |
|  | Receive antenna is NOT deployed | No |  | 3/13 | *BF* |
|  | Move the UBT’s PWR switch to the OFF position. | x | 9:26 | 3/13 | *BF* |
|  | Disconnect the UBT’s USB (mini-B) cable from the CubeSat’s umbilical port. | X |  | 3/13 | *BF* |
|  | Disconnect the UBT from the wall outlet and the PC. | X |  | 3/13 | *BF* |
|  | Mark the satellite as being in the preflight init state. | No |  | 3/13 | *BF* |

**Notes to any exceptions that exist if result is declared successful:**

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| --- | --- |
| **STEP NUMBER** | **EXCEPTION NOTE** |
| **13a,b** | **Antenna expected to read deployed since this is only a stack, no solar panels or antennas** |
| **17** | **Not fully flight ready, so not tagged** |
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I certify that a full Preflight Initialization Procedure has been successfully performed on RadFXSat-2 (Fox-1E).

**Signed**

**W Burns Fisher, WB1FJ**

Fox-1 Software Lead

March 13, 2018

**Work performed remotely by**

**Robert Davis**

**Fox-1 Mechanical Lead**