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| Test Writer | Sabin Maharjan | | |
| Test Case Name | Throttle Test | Test ID | 1 |
| Description | Communicate with MWC Flip 1.5 Flight Controller using MultiWii Serial Protocol (MSP) commands to set the throttle for the drone. | Type: | |
| | | | |
| Name of the Tester | Sabin Maharjan | Date | May 15, 2016 |
| Hardware Version | N/A | Time | 8:33 PM |
| Required | - Drone<br>- Intel Edison with breakout board<br>- GPIO Board attached to Intel Edison<br>- MWC Flip 1.5 Flight Controller<br>- WIFI with SSH connection with Edison<br>- 2x Mini USB –type B connector<br>- 4 female-female pin connector<br>- Stake<br>- Rope | | |
| Pre-Requirement | RC read and arm/disarm tests should be completed | | |
| Setup | Connect Mini USB to Console port of the Intel Edison. Connect 4 female-female pin connector from serial port (Tx, Rx, Gnd, 5v) of the Flip 1.5 Flight Controller to GPIO Board's Serial Pin heads (Rx, Tx, Gnd, 5v). The blue light on Edison should be on. Red light on Flip 1.5 Controller should be on.<br><br>Login to Edison using root. Change directory to "Drone/src". Type "make all". The following actions are done under this directory.<br><br>The flight controller should be configured so that yaw, pitch, roll and throttle value should be all 1000.<br><br>For Step 1-4, No Drone battery connection required.<br>For Step 5-8, Done battery connection is required. **Remove Propellers from the motors**.<br>For Step 9-10, Done battery connection is required. **Add Propellers on the motors**. **The drone should be ties to the stake with the rope and make sure no one is closer to drone than 5ft.**<br><br>**Console Command: ./drone throttle** | | |

| Step | Action | Header 3x(uint8_t) | Length (uint8_t) | Code (uint8_t) | Data 4x(uint16_t) | CRC (uint8_t) | Expected Result | P/F | Comment |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Key up | $M< | 16 | 200 | 1000 1000 1000 1005 | 221 | Value of throttle goes up by 5 when up key is pressed once. | | |
| 2 | Key up | $M< | 16 | 200 | 1000 1000 1000 1010 | 194 | Value of throttle goes up by 5 when up key is pressed once. | | |

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| 3 | Key down | $M< | 16 | 200 | 1000 1000 1000 1005 | 221 | Value of throttle goes down by 5 when down key is pressed once. | | |
| 4 | Key down | $M< | 16 | 200 | 1000 1000 1000 1000 | 216 | Value of throttle goes down by 5 when down key is pressed once. | | |
| 5 | Key Up | $M< | 16 | 200 | 1000 1000 1000 1005 | 221 | The motors should spin at rate of 1005 | | |
| 6 | Key Up | $M< | 16 | 200 | 1000 1000 1000 1010 | 194 | The motors should spin at rate of 1010 | | |
| 7 | Key Down | $M< | 16 | 200 | 1000 1000 1000 1005 | 221 | The motors should spin at rate of 1005 | | |
| 8 | Key Down | $M< | 16 | 200 | 1000 1000 1000 1000 | 216 | The motors should spin at rate of 1000 | | |
| 9 | Keep pressing key up until drone makes a lift off | $M< | 16 | 200 | 1000 1000 1000 [1000 varies with the key press] | varies | The drone takes off from the ground with increase in throttle. | | |
| 10 | Keep pressing key down until drone makes a landing | $M< | 16 | 200 | 1000 1000 1000 [1000 varies with the key press] | varies | The drone decreases the throttle and lands on the ground. | | |