DEFCON 32 Badge
Functional Test Procedure

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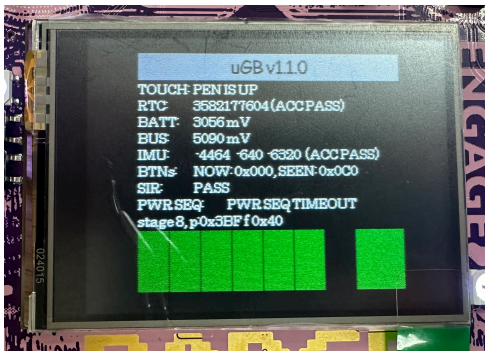
Initial Setup:

1. Press and hold START and SELECT button
2. Attach USB-C cable to DUT
3. Release START and SELECT button



Test Procedure:

4. Piezo buzzer will play a beep sequence
    a. No sound indicates failure at sections Microcontroller, Flash, Power OR, USB, or Speaker
5. Each LED will blink RED, BLUE, GREEN, then solid WHITE
    a. No LED indicates failure at sections Microcontroller, Flash, Power OR, or Das Blinkenlight
6. LCD will display text
    a. No LCD indicates failure at sections Microcontroller, Flash, Power OR, or Simple Backlight Control, 2.4" LCD (CH240QV23A)

7. BUS on LCD will display 5000mV +/- 10% = 4500mV to 5500mV
    a. Value out of range indicates failure at USB-C power supply or sections VBUS Monitor, I2C Pullups, or Motion Sensor
8. 3.3V bus = 3.25V +/- 2% = 3.18V to 3.32V (measure between J9 pins 1 and 4)
    a. Value out of range indicates failure at section 3.3V Buck Power Supply
9. Press each button one by one EXCEPT for SW3 (Reset) and SW12 (Power)
    a. BTNs: NOW: on LCD will display different values (example 0x001, 0x002, 0x004, 0x008, 0x010, 0x020, 0x040, 0x080, 0x100, 0x200)
    b. No different value during button press indicates failure at sections Microcontroller or Buttons
10. RTC on LCD will display ACC PASS
    a. Display FAIL indicates failure at sections I2C Pullups or Real-Time Clock
11. IMU on LCD will display ACC PASS
    a. Display FAIL indicates failure at sections I2C Pullups or Motion Sensor
12. SIR on LCD will display PASS
    a. Display FAIL indicates failure at section IrDA Transceiver
13. External Battery Test
    a. BATT on LCD will display fixed value (example 3056mV)

b. Connect Li-Ion 3.7V battery to J5

c. LED11 = RED or LED12 = GREEN

    i. No LED indicates failure at sections Battery or Battery Charger

d. BATT on LCD will display actual battery voltage value (example 4300mV)

    i. No different value indicates failure at sections Battery, Battery Gauge, or Motion Sensor

e. Remove battery from J5

14. Disconnect USB-C cable from DUT

NOTE: Subsystems not tested = Power Button (SW12), Reset Button (SW3), Power Switch, Resistive Touch Controller

END OF TEST