**ONSPEED V3 Prep and Flight Test Checklist Version 4.5**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Version: \_\_\_\_\_\_\_\_\_(WiFi)\_\_\_\_\_\_\_\_\_\_\_\_**

**Software**

**WARNING:** When re-programming using a cable, do not pull cable early or turn off Teensy app that appears any time you upload via Arduino app. This will corrupt serial port. Box must be disassembled for a Teensy reset.

**RV-4 Networks:** Onspeed (2\_dB “Cockpit”) or Doc’s Box (15\_dB “Doc’s Box”). Connect using wifi. Access both by opening internet software and typing onspeed.local (Apple) or 192.168.0.1 (Windows).

**Software Prep:** Move old software to “Software” folder, re-label. Download new version from GitHub. Use green CODE button to zip and download software to browser. Move folder to desktop. Default name is “OnSpeed-Gen2-master-X”. Rename folder to current version of software. Arduino “libraries” folder: DOCUMENTS > ARDUINO (copy/replace). ***Prior to compiling any software, read notes to ensure board configuration (and board software version) is correct.*** Change SSIDs, firmware version nomenclature and adjust wifi network strength, export new .bin file for each wifi system (set board to TOOLS > BOARD > ESP32 ARDUINO > ESP32 PICO KIT). ***Reset board to Teensy 3.6 after exporting new .bin files. Software will not compile/upload correctly with board mis-set.***

**RV-4 Doc’s Box: Powered by AIRCRAFT MASTER switch.**

Orientation: Ports UP, Top LEFT. Disable all features (boom, etc.)

**RV-4 Cockpit Box: Powered by RADIO MASTER Switch**. Technique: turn radio master on PRIOR to Master to synch start times. Confirm radio OFF, GNS CB PULLED.

**Use cable when updating OnSpeedTeensy code.** Download post-flight via wifi (micro-USB cable back-up). System calibration recommended with each upgrade. Obtain pressure altitude, roll, and pitch angles using cockpit longerons. ***Any time system calibration is performed, update default configuration (config.h tab) in AHRS.ino software.*** RV-4: Cockpit and wing systems have DIFFERENT default configuration files.

**Software Checks (OnSpeedTeensy\_AHRS > OnSpeedTeensy\_AHRS.ino)**

OnSpeedTeensy:

1. SET RECORDING SPEED (50Hz Normal or 208Hz AHRS Debug)

Comment line IN or OUT to set frequency

#define LOGDATA\_PRESSURE\_RATE (50Hz)

#define LOGDATA\_IMU\_RATE (208Hz)

**Note:** IMU RATE Files are large. Consider disabling boom. In-flight re-boot via WiFi will reduce file size. Turn off WiFi on iPhone when not required for in-flight use.

1. RV-8 Only:

#define NOBOOMCHECKSUM

1. ASYMMETRIC\_GYRO\_LIMIT: \_\_\_\_\_ deg/sec (Nominal 30o/sec or 20% of maximum roll rate [150o/sec])
   1. Default 15 deg/sec for test
2. // coefficient of pressure formula

#ifdef SPHERICAL\_PROBE

#define PCOEFF(p\_fwd,p\_45) p\_45,p\_fwd; //spherical CP3

#define IASCURVE(x) x // Zlin IAS curve

#else

#define PCOEFF(p\_fwd,p\_45) p\_45/p\_fwd; // CP3

1. #define OAT Probe
2. RV-4 Boom Curves (May 2021, Master Workbook Tab)
   1. Alpha: 7.0918e-13x^4 – 1.1698e-08x^3 + 7.0109e-05x^2 – .21624x + 310.21 //degrees
   2. Beta: 2.0096e-13x^4 – 3.7124e-09 x^3 + 2.5497e-05x^2 -
   3. 3.7141e-02x – 72.*5*05 //degrees
   4. Static: .00012207\*(x-1638)\*1000 //millibars
   5. Dynamic: (.01525902\*(x-1638))-100 //millibars
3. RV-8 Boom Curves
   1. Alpha: 0.0358x – 138.8 //degrees
   2. Beta: TBD
   3. Static: .00012207\*(x-1638)\*1000 //millibars
   4. Dynamic: (.00610360875\*(X-1638))-40 //millibars

To record raw data only (counts):

* 1. #define Boom\_Alpha\_Calc(x) x
  2. #define Boom\_Beta\_Calc(x) x
  3. #define Boom\_Static\_Calc(x) x
  4. #define Boom\_Dynamic\_Calc(x) x

1. #define HIGHRES\_ANALOGREAD (13 vs 10-bit pot resolution)
   1. Used to create greater difference between flap settings (if required)
   2. ***Must recalibrate pot settings if used***
2. //smoothing windows

int aoaSmoothing= \_\_\_\_\_ [# of samples to lag]

int pressureSmoothing= \_\_\_\_\_ [median filter window]

int accSmoothing= \_\_\_\_\_ [simple moving average]

int IMUTempSmoothing \_\_\_\_\_

int gyroSmoothing= \_\_\_\_\_ [simple moving average]

int compSmoothing= \_\_\_\_\_

int iasSmoothing= \_\_\_\_\_ [50 sample moving avg 238Hz]

int tasSmoothing= \_\_\_\_\_

int ahrsSmoothing \_\_\_\_\_ [AHRS SMOOTHING, Exponential]

int serialDisplaySmoothing \_\_\_\_\_ [SMOOTHS ENERGY DISPLAY]

float gyroScaleCorrection \_\_\_\_\_ [optimized for IMU]

**Daily Ops:** Power up with cable and battery pack to enable WiFi. LED on panel flashes to indicate normal operation, locks up during data download. No LED for secondary DAS in wing (RV-4). Download data via WiFi. SSID: OnSpeed (or Doc’s Box, RV-4 wing system). P/W angleofattack.

Else, plug in computer and open terminal program. STOP! LIST! FORMAT!, as required. Always STOP! prior to log if using terminal software to download. WiFi download automatically sends STOP command. Avoid sending PRINT! Command twice by closing window.

**WiFi Firmware updates:** OnSpeedWifi.ino.pico32.bin file contains firmware. Establish wifi connection, and open ONSPEED.LOCAL: TOOLS > UPGRADE WIFI MODULE. Select new .bin file and upload (Note .bin file icon shows as zip file on Mac). Verify correct firmware version displayed after upgrade.

**Wifi.ino Update.** To change name of wifi network: search ssid = “OnSpeed” in .ino. RV-4: Use “Onspeed” at 2dB; and “Doc’s Box” at 15 dB. Modify firmware version lines: X.X.X Cockpit, X.X.X Doc’s Box. Change board configuration to ESP 32 PicoKit, compile .ino. Sketch > Export Compiled Binary. Upload new bin file using WiFi. Change board type back to Teensy 3.6 when finished. Note: If UNABLE to update via WiFi, remove ESP-32 chip from board, and update with cable using WiFi.ino file.

**M5 Programming:**

1. In M5.ino: Comment IN #define IAS\_IN\_MPH (RV-4 Only)

BOARDS MANAGER, search “esp32”, change version of ESP board library from 1.0.6 to 2.0.0. Export compiled binary using M5Stack-Core-ESP32. Reset board version to 1.0.6 and change board back to Teensy 3.6 after .bin is exported.

**SETTINGS > AOA CONFIGURATION**

AOA Smoothing \_\_\_\_\_\_\_\_\_\_

Pressure Smoothing \_\_\_\_\_\_\_\_\_\_

Flap Position Settings should be performed in flight, under air loads.

Data Source [ ] Sensors

[ ] Test Potentiometer

[ ] Range Sweep

[ ] Replay Log File

**Flap Curve 1**

Flap Position: \_\_\_\_\_\_\_\_\_\_ Sensor Position: \_\_\_\_\_\_\_\_\_\_

L/DMAX AOA: \_\_\_\_\_\_\_\_\_\_

OnSpeed Fast AOA: \_\_\_\_\_\_\_\_\_\_ [ ] Absolute α

OnSpeed Slow AOA: \_\_\_\_\_\_\_\_\_\_ [ ] Geometric α

Stall Warning AOA: \_\_\_\_\_\_\_\_\_\_

AOA Curve Type [ ] Polynomial

[ ] Logarithmic

[ ] Exponential

Algorithm: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Flap Curve 2**

Flap Position: \_\_\_\_\_\_\_\_\_\_ Sensor Position: \_\_\_\_\_\_\_\_\_\_

L/DMAX AOA: \_\_\_\_\_\_\_\_\_\_

OnSpeed Fast AOA: \_\_\_\_\_\_\_\_\_\_ [ ] Absolute α

OnSpeed Slow AOA: \_\_\_\_\_\_\_\_\_\_ [ ] Geometric α

Stall Warning AOA: \_\_\_\_\_\_\_\_\_\_

AOA Curve Type [ ] Polynomial

[ ] Logarithmic

[ ] Exponential

Algorithm: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Flap Curve 3**

Flap Position: \_\_\_\_\_\_\_\_\_\_ Sensor Position: \_\_\_\_\_\_\_\_\_\_

L/DMAX AOA: \_\_\_\_\_\_\_\_\_\_

OnSpeed Fast AOA: \_\_\_\_\_\_\_\_\_\_ [ ] Absolute α

OnSpeed Slow AOA: \_\_\_\_\_\_\_\_\_\_ [ ] Geometric α

Stall Warning AOA: \_\_\_\_\_\_\_\_\_\_

AOA Curve Type [ ] Polynomial

[ ] Logarithmic

[ ] Exponential

Algorithm: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Use **ADD NEW FLAP POSITION** button, as required

**Test Boom Data** [ ] Enabled

RV-4 CAS Curve adjusts V2 derived IAS to match EFIS IAS. To determine CAS, use correction chart on page 9 or apply correction: 1.0125x-2.2466 where x = IAS

[ ] Disabled

**Airspeed Calibration** [ ] Enabled

[ ] Disabled

CAS Curve: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pressure Ports Orientation** [ ] Up

[ ] Down

[ ] Left

[ ] Right

[ ] Forward

[ ] Aft

**Box Top Orientation** [ ] Up

[ ] Down

[ ] Left

[ ] Right

[ ] Forward

[ ] Aft

**Serial EFIS Data** **EFIS Type**

[ ] Enabled [ ] Dynon D10/D100 [V3]

[ ] Disabled [ ] SkyView/Advanced

[ ] Garmin G5

[ ] Garmin G3X

[ ] Aerovonics

[ ] MGL iEFIS

[ ] VectorNav VN-100 AHRS

[ ] VectorNav VN-300 GNSS/INS

**Calibration Data Source**

[ ] ONSPEED (Internal IMU)

[ ] EFIS (via serial input)

**Potentiometer Volume Control**

[ ] Enabled

[ ] Disabled

Audio Test (Confirm proper stereo operation, required for 3D audio)

“ONSPEED SPEAKER LEFT/RIGHT” in appropriate earpiece.

**Garmin ICS BIT:** Press/hold inner right knob and turn radio on to enter configuration mode. Turn large knot to HEADSET TEST. Use small knob to select LEFT or RIGHT test.

**Low Vol Value** (Turn volume knob all the way down, press READ button): \_\_\_\_\_\_\_\_\_\_\_

**High Vol Value** (Turn volume knob all the way up, press READ button): \_\_\_\_\_\_\_\_\_\_\_

**Mute Audio Under IAS (kts):** \_\_\_\_\_\_\_\_\_\_ **3D Audio**

[ ] Enabled

[ ] Disabled

**Over-G Audio Warning Positive G Limit:** \_\_\_\_\_\_\_\_\_\_\_

[ ] Enabled

[ ] Disabled **Negative G Limit:** \_\_\_\_\_\_\_\_\_\_

**Vno Chime** [ ] Enabled [ ] Disabled \_\_\_\_\_\_KIAS \_\_\_\_Sec

**SD Card Logging** [ ] Enabled [ ] Disabled

**Serial Out Format Serial Out Port**

[ ] Garmin G3X [ ] None

[ ] OnSpeed [ ] Serial 1 (V2 Box Only!)

[ ] Serial 3 (RS323 – Pin 12)

[ ] Serial 5 (TTL – Pin 9)

**SAVE** as required. Confirm “Configuration Saved.” *Failure to save will result in settings defaulting to previous.*

**SETTINGS > SENSOR CONFIGURATION**

-Be sure box orientation is correct in AOA CONFIGURATION settings.

-Aircraft should be in a hangar (if practical) to perform sensor bias. Do not disturb aircraft during sensor calibration (do not sit in aircraft—use WiFi). Use an electronic level to measure FRL angle (FRL in weight and balance instructions/builder’s manual).

Enter aircraft (FRL angle) in degrees: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enter aircraft ROLL in degrees:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enter pressure altitude (altimeter set to 29.92) in FEET:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Select **CONFIGURE SENSORS.**  New parameters will display.

Pressure

PfwdBias \_\_\_\_\_\_\_\_\_\_

P45Bias \_\_\_\_\_\_\_\_\_\_

gxBias \_\_\_\_\_\_\_\_\_\_

IMU

gyBias \_\_\_\_\_\_\_\_\_\_

gzBias \_\_\_\_\_\_\_\_\_\_

staticBias \_\_\_\_\_\_\_\_\_\_

Pitch Bias \_\_\_\_\_\_\_\_\_\_ (Δ longitudinal axis/box axis)

Boresite

Measured Pitch \_\_\_\_\_\_\_\_\_\_

Corrected Pitch \_\_\_\_\_\_\_\_\_\_ (should = FRL angle ± 0.1o)

Corrected Roll \_\_\_\_\_\_\_\_\_\_

**DOC’S BOX SET-UP** (RV-4 Wing-mounted Secondary System)

-Software set-up

**#define SPHERICAL\_PROBE**

**#ifdef SPHERICAL\_PROBE**

**#define PCOEFF(p\_fwd,p\_45) (p\_45+8192)/(p\_fwd+8192); //spherical CP3**

**#define SphericalIASCurve(p\_fwd,p\_45)**

-Confirm box orientation: Ports UP, Top LEFT

-Disable all functions except for flap Curve 1

-Save configuration

-Run Sensor Calibration (same as V2):

-Be sure box orientation is correct in AOA CONFIGURATION settings.

-Aircraft should be in a hangar (if practical) to perform sensor bias. Do not disturb aircraft during sensor calibration (do not sit in aircraft—use WiFi). Use an electronic level to measure FRL angle (FRL in weight and balance instructions/builder’s manual).

Enter aircraft (FRL angle) in degrees: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enter aircraft ROLL in degrees:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enter pressure altitude (altimeter set to 29.92) in FEET:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Select **CONFIGURE SENSORS.**  New parameters will display.

Pressure

PfwdBias \_\_\_\_\_\_\_\_\_\_

P45Bias \_\_\_\_\_\_\_\_\_\_

gxBias \_\_\_\_\_\_\_\_\_\_

IMU

gyBias \_\_\_\_\_\_\_\_\_\_

gzBias \_\_\_\_\_\_\_\_\_\_

staticBias \_\_\_\_\_\_\_\_\_\_

Pitch Bias \_\_\_\_\_\_\_\_\_\_ (Δ longitudinal axis/box axis)

Boresite

Measured Pitch \_\_\_\_\_\_\_\_\_\_

Corrected Pitch \_\_\_\_\_\_\_\_\_\_ (should = FRL angle ± 0.1o)

Corrected Roll \_\_\_\_\_\_\_\_\_\_

**Cameras**

All: fully charged, blank SD card inserted and **formatted**. Use camera to format card.

Oblique: MED FOV if boom installed, else WIDE for visual only

Forward: MED FOV all flights. Audio harness connected. **ENSURE HARNESS IS PLUGGED INTO CAMERA.** If Gen 1 recording required, install additional patch cable. Adjust ONSPEED volume to 12 O’clock MINIMUM to ensure sufficient thru put to camera for post-flight edit.

Hero 4 max battery time 1+50 minutes to fail off. Spare batteries as required. Monitor camera LED during flight to confirm operation.

**BOOM**

Secure: six #6 screws + 2 x thru bolts with locking hardware. **BATTERY FACES AWAY FROM COCKPIT.** Adjust receiver antenna on roll-over bar to an angle that can be observed by pilot during flight to confirm proper operation. Flashing LED on receiver indicates proper boom operation.

Battery Installed, ***positive end forward*** (check battery log for time remaining. Maximum cumulative flight use: 6 hours).

Note: Boom wifi connection is powered via ONSPEED box (Avionics Master or battery plugged in to V2 box). Boom may be disabled in flight by pulling ONSPEED CB.

**Ensure battery “snaps” in place.** It is possible to install battery correctly, but not achieve proper contact. This will result in an inoperative boom (no LED).

Chart, line chart

Description automatically generated

**AFTER START**

Radio Switch – ON

Comm Radio – ON

ICS – CHECK

ONSPEED Rotary Switch - ADJUST VOLUME / LED FLASHING

Boom – LED BRIGHT FLASH

Cameras – ON LEDs CHECKED

Verify audio hook-up for FWD camera

M5 – CYCLE THRU DISPLAYS (middle switch, PUSH), CONFIRM ADI

**TAKEOFF**

Monitor tone for proper operation at 25 KIAS

**TEST AREA**

Altimeter – SET AS REQ FOR TEST (QNH or 29.92)

Confirm all LEDs

ONSPEED

Camera

Boom

Confirm VOLUME SET

Tone Check, As Required (FAR 23 Stall warning 1.15 VS)

**ABNORMALS**

Gen 2 LED not flashing:

Short Push to Activate or RESET 1 AMP CB to hard boot

Remove boom power: Pull 1 AMP ONSPEED CB (also disables V2 box)

Soft Boot: Save CONFIGURATION; then TOOLS > REBOOT

Can be used at High Data Rate to control file size

**PROGRAM FLAP POSITION IN-FLIGHT** (WiFi)

Ensure WiFi is enabled on the smart phone, tablet or computer

Select ONSPEED network from WiFi and connect

Open browser: ONSPEED.LOCAL

SETTINGS > AOA CONFIGURATION

[ ] Set Flaps

[ ] Press READ

[ ] Repeat for each flap configuration

[ ] Scroll to bottom of page and SAVE

|  |  |  |  |
| --- | --- | --- | --- |
| **RV-4 Baseline MPH IAS EFIS (1G ½ KT Deceleration Rate) Set Points** | | | |
|  | Flaps 0 | Flaps 20 | Flaps 40 |
| L/DMAX | 97-98 | 94 | 94 |
| ONSPEED FAST | 77 | 75-76 | 74-75 |
| ONSPEED SLOW | 69 | 67 | 66 |
| Stall Warning | 63 | 62 | 60.5-61 |
| Stall | 56-57 | 54-55 | 52 |
| \*Nominal Test Weight at 5K’ Pressure Altitude. BOW 1148 lbs no parachute. 1160 with parachute (not normally fitted). Add fuel on board (FOB) to BOW to determine test run gross weight. FOB recorded on FWD VIDEO only. | | | |

**ADJUST SET POINTS IN-FLIGHT** (IPhone Only)

Turn off DATA

Open browser: ONSPEED.LOCAL

SETTINGS > AOA CONFIGURATION

[ ] Establish desired AOA/IAS condition

[ ] STABLE

[ ] Press USE LIVE AOA

Process takes a few seconds

[ ] Scroll to bottom of page and SAVE

[ ] Confirm proper setpoint operation

**To restore settings:** LOAD DEFAULT CONFIG + SAVE at bottom of page

**CoolTERM SERIAL DOWNLOAD**

1. Master OFF
2. Computer PLUG IN USING MICRO USB
   1. Disable Sleep Mode: SETTINGS > ENERGY SAVER
3. Cool Term START (<https://freeware.the-meiers.org>)
4. Options (Gear Icon) SELECT
5. Options SERIAL PORT (Left Column) SELECT
   1. Rescan Serial Port SELECT (Button on bottom)
   2. “usbmodem#######” SELECT
   3. Baudrate 921600
   4. Data bits 8
   5. Parity NONE
   6. Stop bits 1
   7. All other settings DEFAULT
6. Options RECEIVE (Left Column) SELECT
   1. Receive Buffer Size 1024
7. Options OK (Button on bottom of window)
   1. Options window closes
8. Connect (USB Plug Icon) SELECT
9. CONNECTION (Top Menu) SELECT
   1. SEND STRING SELECT
      1. ASCII SELECTED (Blue button)
      2. Type STOP! (Must be all caps, must have exclamation)
         1. This stops logging
         2. “STOPPED SD Logging” displayed
      3. Type LIST! (Caps + exclamation required)
         1. All files on SD card listed
         2. Last one (highest #) is junk (started when computer plugged in)
         3. Filename.csv.#### (#### is size of file, most recent file is highest number prior to last)
      4. Note name of file to download
10. Clear data (red X) SELECT
11. CONNECTION (Top Menu) SELECT
    1. Capture to Text File SELECT
    2. Start SELECT
       1. Name Folder/File
       2. File is created
12. Send String SELECT
    1. Type PRINT\_(filename).CSV!
    2. File will download to .txt created in step 11. Takes 10-15 minutes.
13. Click on Terminal Window
    1. Terminal window must be active (on top) or STOP command will be greyed out
14. CONNECTION (Top Menu) SELECT
    1. Capture to Text File SELECT
    2. Stop SELECT
15. Repeat Step 12 and 13 for all files required
16. DISCONNECT (red X over USB Plug) SELECT
17. Save file to desktop
18. Open file with TextEdit
    1. Delete first lines of junk down to data header line
    2. Save and rename to XXXX.csv (Note: CoolTerm saves in .txt format)

To Delete Files:

DELETE (filename).csv! for individual files

FORMAT! to erase all files

**Commands (Use “Send String” Command)**

**STOP!** Stops SD Logging

**LIST!** Lists Files

**DELETE (filename).csv!** Deletes individual files

**PRINT (filename).csv**! Display file contents

**FORMAT!** Deletes all files

**NOLOAD!** Shows pressure bias

**START!** Starts logging

**REBOOT!** Reboots system

**WIREFLASH!** Allows reflash of WiFi chip via USB cable

**FLAPS!** Shows current flap position pot value

**VOLUME!** Shows current volume pot value

**WIFI DOWNLOAD**

1. Use micro USB cable to power box using portable battery or
   1. Master swith ON (RV-8)
   2. Master switch ON for DocsBox (RV-4)
   3. Master and Radio Master ON for primary V2 (RV-4)
2. Check panel ONSPEED LED lit (no LED for secondary DAS)
3. Connect computer to WiFi network
   1. OnSpeed (RV-8)
   2. OnSpeed for primary V2 (RV-4)
   3. DocsBox for secondary V3 (RV-4)
4. Open browser: onspeed.local (Apple) or 192.168.0.1 (Windows) for both DAS
   1. Main Menu Appears
5. Select TOOLS
6. Select LOG FILES
7. Click **ONCE** on file to download
   1. Monitor download time by clicking on download icon on web browser.
   2. **Download a copy of CONFIG file each sortie for reference**

**Note:** clicking more than once on a file name will result in multiple downloads.

1. Create folder for data: Label conventions
   1. RV-4
      1. Date, V2 Data
      2. Date, Docs Box Data
   2. RV-8
      1. Date, V3 Data
      2. Date, Garmin Data
   3. Consolidate both folders into a single folder labled YYYY-MM-DD Data and upload to appropriate folder on G Drive

**DELETING FILES FROM SD CARD**

1. Establish WiFi connection with ONSPEED network
2. Type ONSPEED.LOCAL (Apple) or 192.168.0.1 (Windows) in browser address line
3. Select TOOLS > FORMAT SD CARD

**Notes on Log Files**

A log file is created every time power is applied to the system. Consider deleting log files (using FORMAT SD CARD procedure above) after each sortie to simplify post flight data management. Log files are automatically created using the naming convention log\_X.csv were “x” is a number. A new log is created any time the system “hard boots” (power cycle or software glitch). A typical 50 Hz file will be approximately 50-80 MB per flight hour and will require 12-20 minutes to download via WiFi. A high data rate flight (208 Hz) will be much larger and can take an hour or more to download via WiFi. Monitor download time using web browser.