

# ORG447X Evaluation Kit

## Quick Start Guide



## 1. Packaging List

The ORG447X Evaluation Kit contains:

- A. ORG4472 module mounted on the Demo Board
- B. Passive patch antenna assembly
- C. USB to UART cable
- D. Support CD

## 2. Setup

### 2.1 Open CD. Select ORG447X series from the main menu.



## 2.2 Install FTDI USB-UART driver by pressing Driver button.

The driver setup is done in silent mode.

The presence and enumeration of the Virtual COM port can be verified via Control Panel→System→Device Manager.

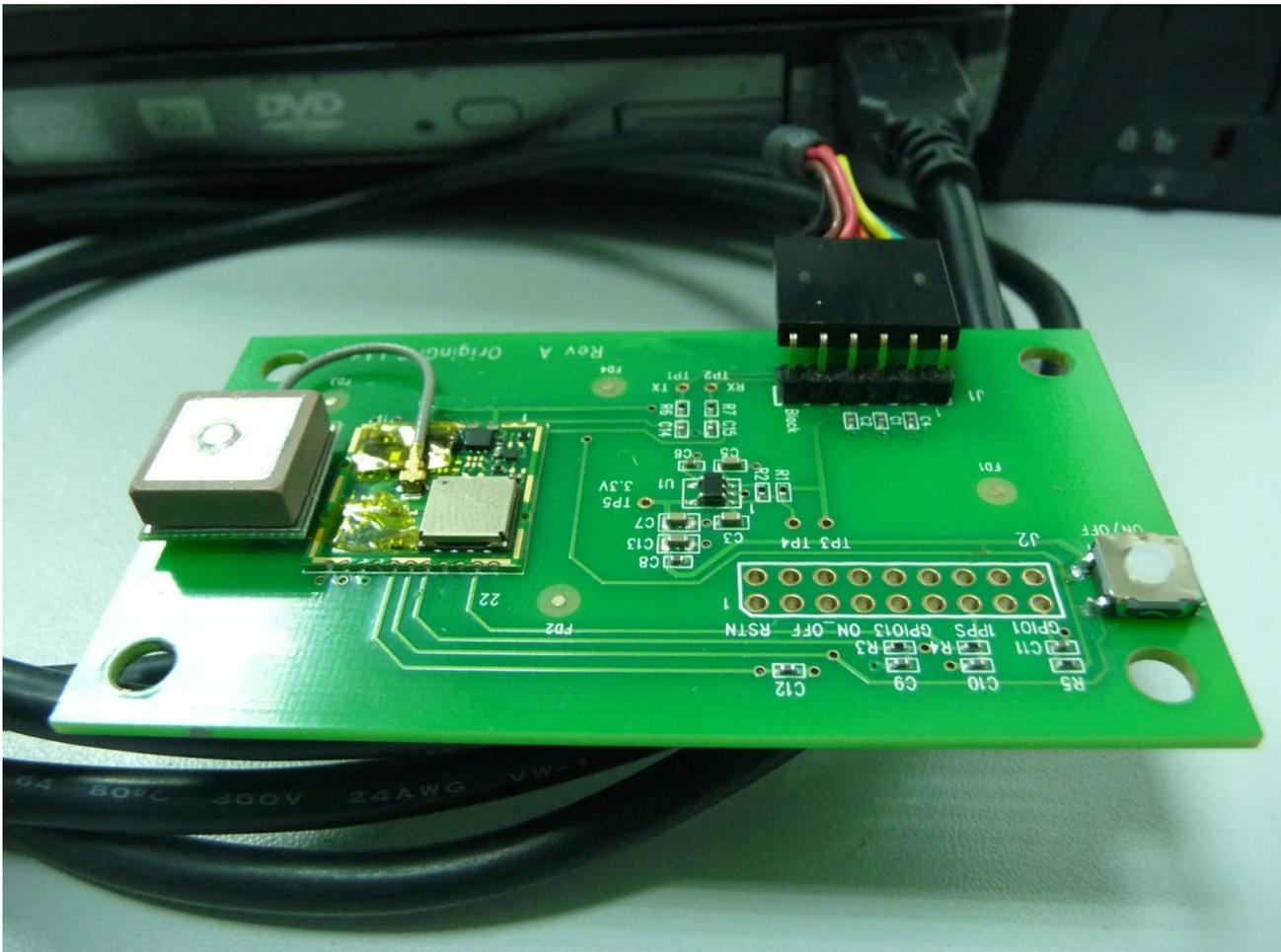
## 2.3 Install SiRFLive software by pressing SiRF Live Setup button.

Follow on-screen instructions during SiRFLive setup process.

Uninstall any previous SiRFLive version before current setup attempt.

## 2.4 Connect antenna assembly cable into RF input connector.

## 2.5 Connect FTDI USB to UART cable between the Demo Board and the PC.



## 3. Evaluation Kit Essentials

### 3.1 Patch antenna

GPS patch antenna should be placed up towards the sky to keep GPS satellites in view.

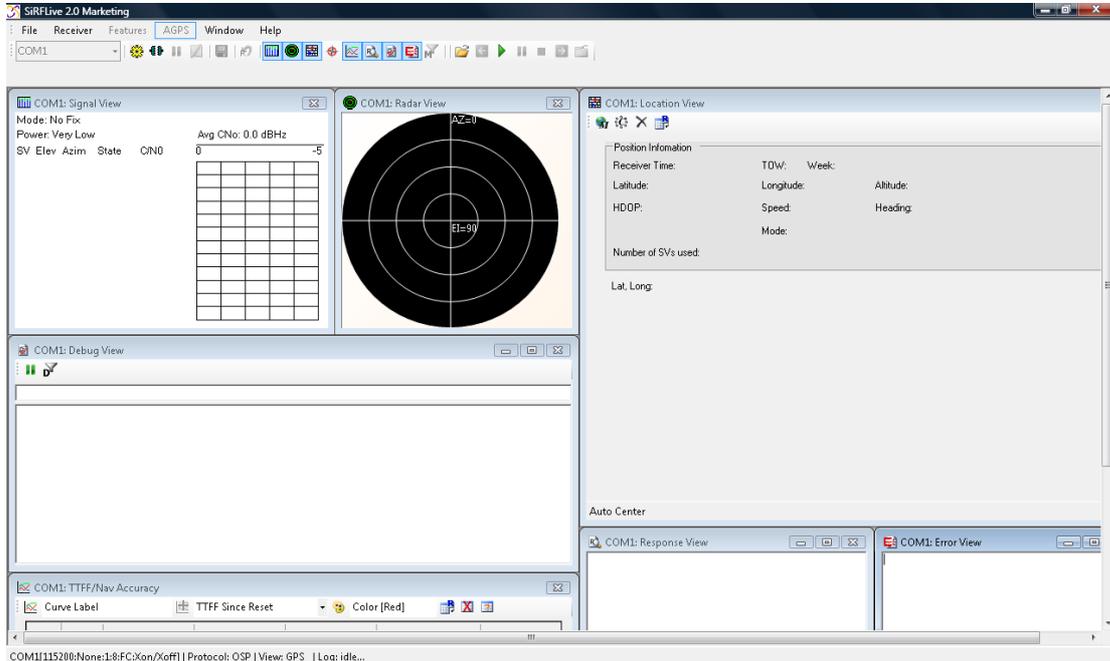
### 3.2 Tactile switch

The tactile switch is used to wake up to GPS module from the Hibernate state of one of the low power modes, typically for triggering Push-To-Fix (PTF™).

## 4. SiRFLive Essentials

### 4.1 Linking with EVK

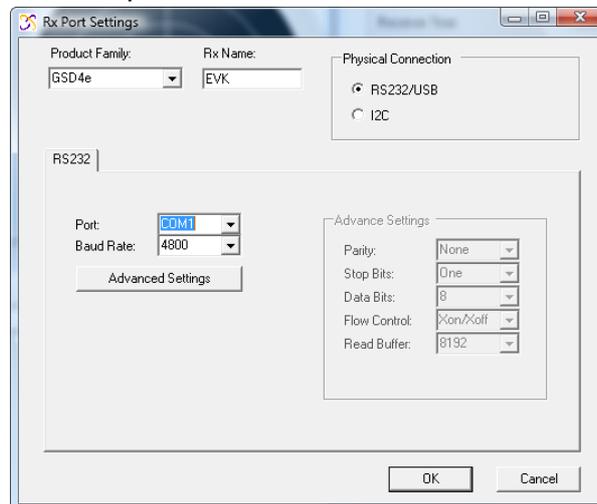
A. Open SiRFLive by clicking desktop icon



B. Press Receiver Settings button on the main toolbar



C. Rx Port Settings window will open



Select GSD4e in Product Family box.

Select RS232/USB for Physical Connection.

Select the Virtual COM port as assigned by the driver. Typically it would be the highest available.

Select 4800 for Baud Rate.

Press OK button when finished.

D. Press Connect button on the main toolbar

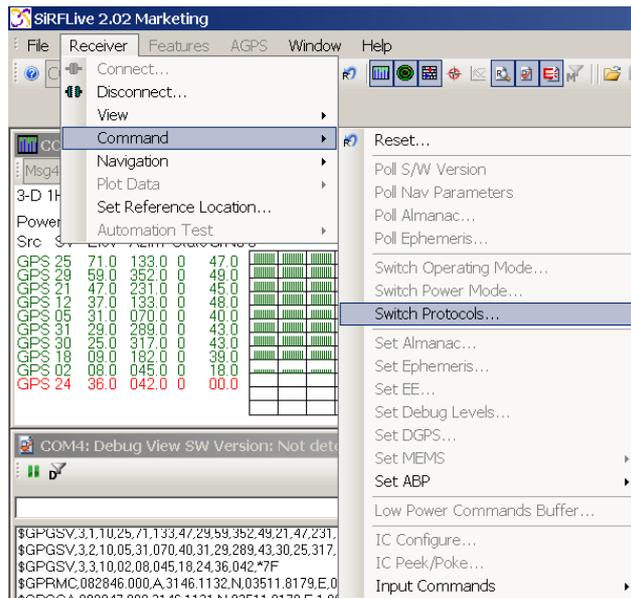


The NMEA messages will start bursting in Debug View window.

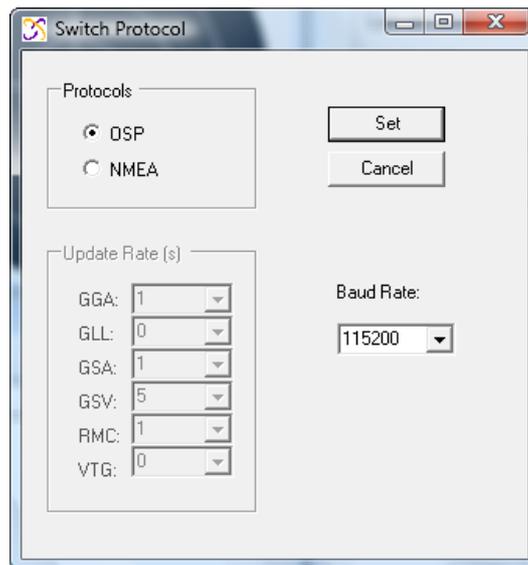
## 4.2 Switching Protocols

Extended functions like TTFF measurement are available after switching the receiver into OSP binary protocol.

A. Goto Receiver → Command → Switch Protocols



B. Switch Protocols window will open



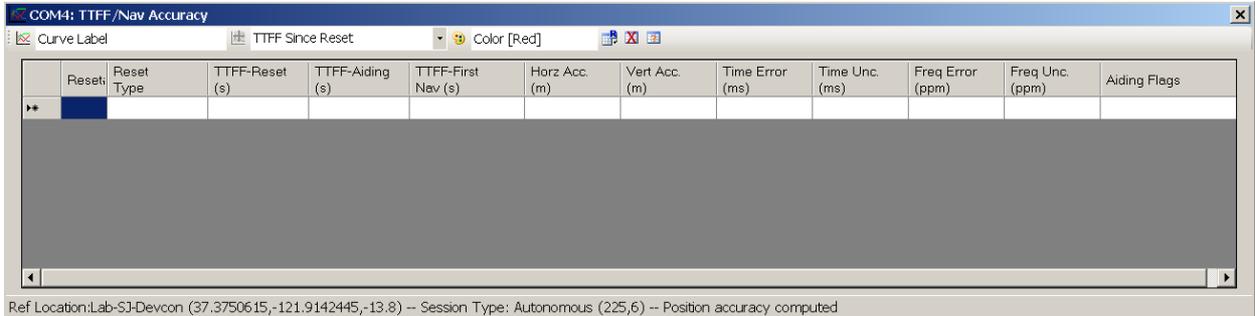
Click Set button to transfer the EVK into OSP binary protocol @ 115,200 bps.

### 4.3 The TTFF Measurements

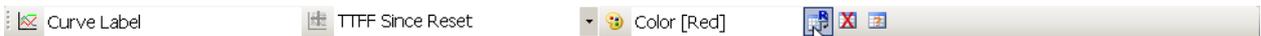
A. Press TTFF button of the main toolbar



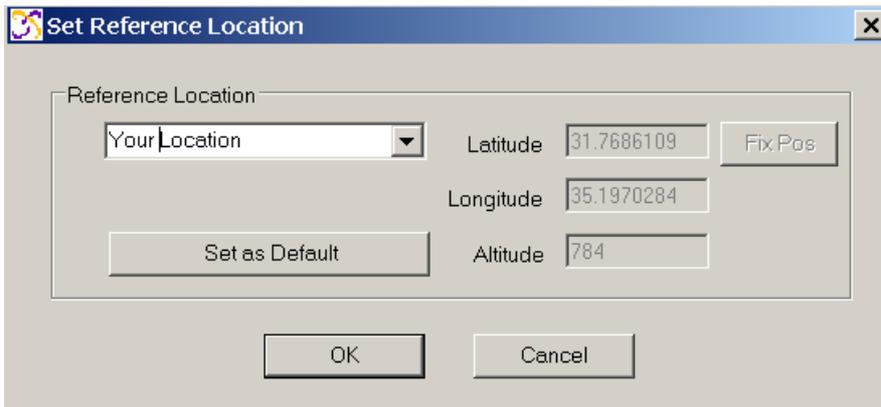
B. TTFF/Nav Accuracy window will open



C. Click the Setup Reference Location button (for accuracy measurements)



D. Set Reference Location window will open



Select USER\_DEFINED under Reference Location.

Input location name.

Press Fix Pos button to use current position coordinate.

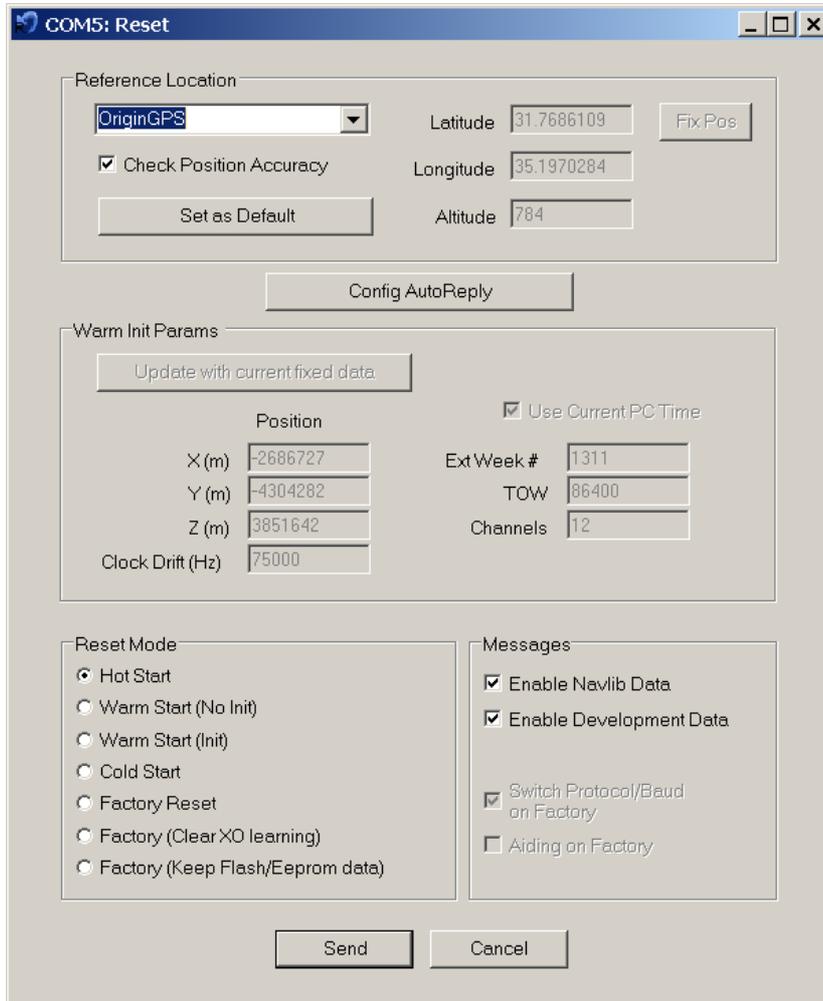
Press Set as Default button to use current location for position reference.

Press OK button when finished.

E. Press Reset button on the main toolbar.



F. Reset window will open



Select Reset Mode.

Reset Modes are:

Hot Start - Ephemeris, Almanac, clock and last position data are kept in receiver's RAM.

Warm Start (No Init) – Ephemeris and last position data are discarded.

Warm Start (Init) - Ephemeris data is discarded, position data is loaded.

Cold Start – All data except reference Almanac is discarded.

Factory Reset – All data, including reference Almanac and power settings is discarded.

Factory (Clear XO learning) – Not relevant

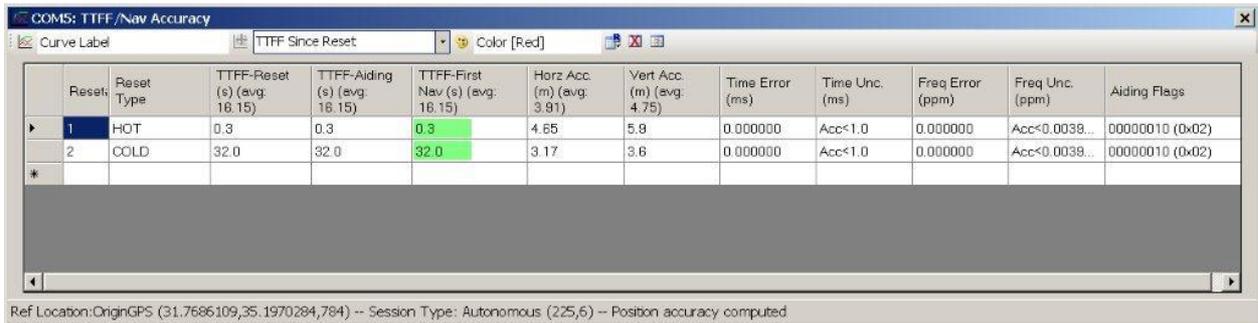
Factory (Keep Flash/Eeprom data) – Not relevant

Check Enable Navlib Data box and Enable Development Data box.

Press Send button to start the procedure.

The EVK will perform reset sequence.

G. TTFF/Nav Accuracy window will show TTFF measurements data

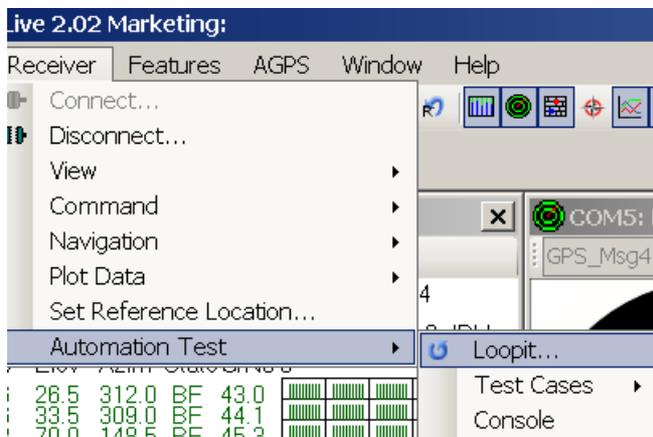


Reset	Reset Type	TTFF-Reset (s) (avg: 18.15)	TTFF-Aiding (s) (avg: 18.15)	TTFF-First Nav (s) (avg: 18.15)	Horz Acc. (m) (avg: 3.91)	Vert Acc. (m) (avg: 4.75)	Time Error (ms)	Time Unc. (ms)	Freq Error (ppm)	Freq Unc. (ppm)	Aiding Flags
1	HOT	0.3	0.3	0.3	4.65	5.9	0.000000	Acc<1.0	0.000000	Acc<0.0038...	00000010 (0x02)
2	COLD	32.0	32.0	32.0	3.17	3.6	0.000000	Acc<1.0	0.000000	Acc<0.0038...	00000010 (0x02)

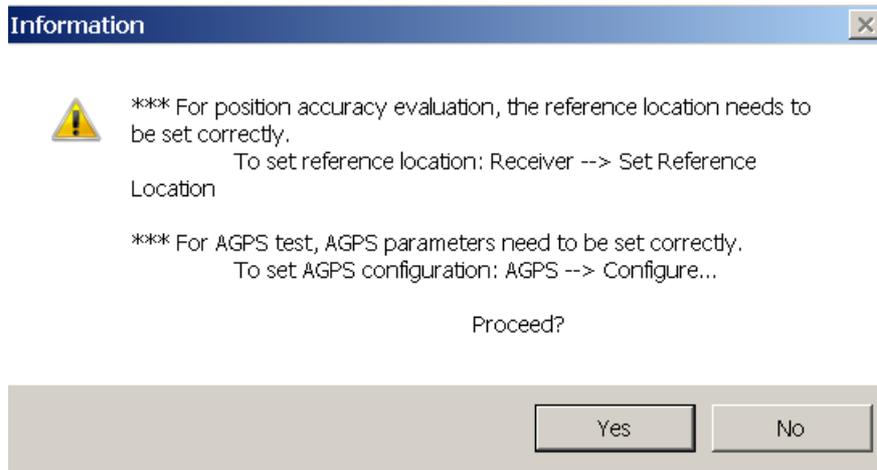
Ref Location: OriginGPS (31.7686109,35.1970284,784) -- Session Type: Autonomous (225,6) -- Position accuracy computed

#### 4.4 Sequential TTFF Measurements - LOOPIT function

A. Goto Receiver → Automation Test → Loopit

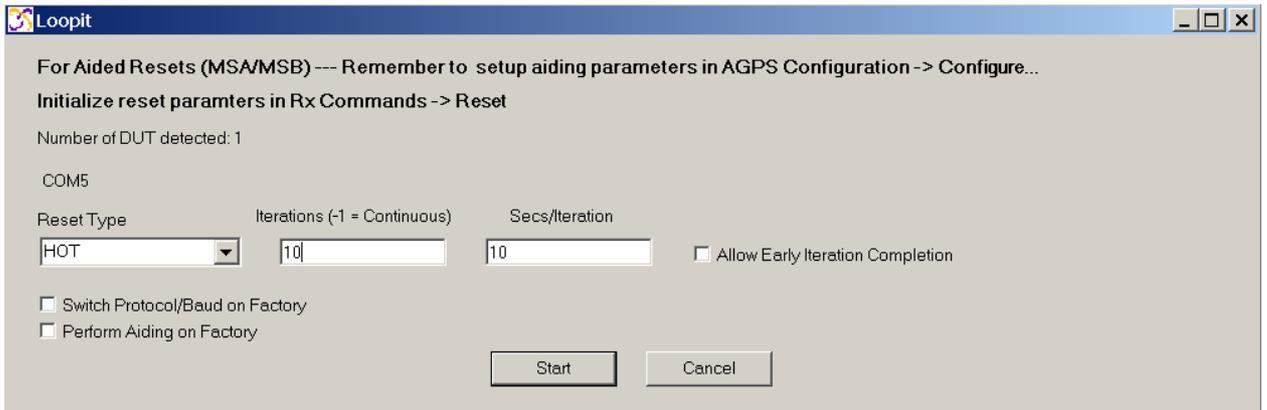


B. Information pop-up window will open



Press Yes button to continue.

C. Loopit window will open



Select the Reset Type

Set the number of iterations.

Checking Allow Early Iteration Completion box is an option to allow the next reset to be sent immediately after the previous cycle finish.

Leave Switch Protocol/Baud on Factory and Perform Aiding on Factory unchecked.

Press Start button to commence the procedure.

D. Log file pop-up window will open



Press Yes button to continue.

H. TTFF/Nav Accuracy window will show sequential TTFF measurements data

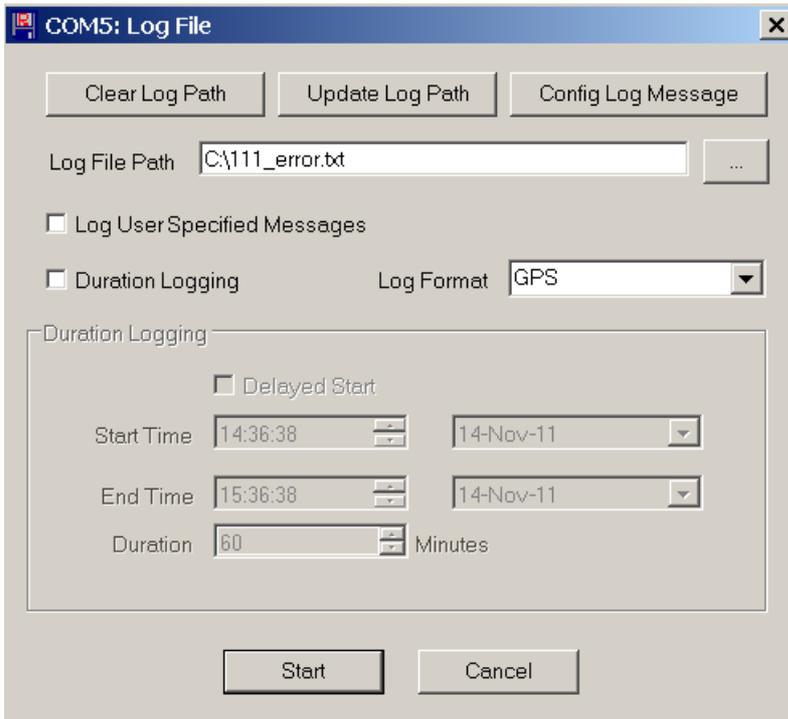
Reset#	Reset Type	TTFF-Reset (s) (avg: 0.33)	TTFF-Aiding (s) (avg: 0.33)	TTFF-First Nav (s) (avg: 0.33)	Horz Acc. (m) (avg: 4.12)	Vert Acc. (m) (avg: 4.52)	Time Error (ms)	Time Unc. (ms)	Freq Error (ppm)	Freq Unc. (ppm)	Aiding Flags
2	HOT	0.3	0.3	0.3	2.55	1.4	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
3	HOT	0.3	0.3	0.3	8.72	5.2	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
4	HOT	0.3	0.3	0.3	6.19	14.1	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
5	HOT	0.3	0.3	0.3	0.57	3.4	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
6	HOT	0.3	0.3	0.3	2.27	2.8	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
7	HOT	0.3	0.3	0.3	1.28	2.3	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
8	HOT	0.3	0.3	0.3	5.98	0.4	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
9	HOT	0.3	0.3	0.3	9.92	8.1	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
10	HOT	0.3	0.3	0.3	3.57	6.9	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
11	HOT	0.6	0.6	0.6	6.99	14.2	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
12	HOT	0.3	0.3	0.3	2.39	3.0	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
13	HOT	0.3	0.3	0.3	1.21	1.0	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
14	HOT	0.3	0.3	0.3	1.12	6.2	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
15	HOT	0.3	0.3	0.3	7.20	0.3	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
16	HOT	0.3	0.3	0.3	3.94	4.0	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
17	HOT	0.3	0.3	0.3	6.15	5.0	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
18	HOT	0.3	0.3	0.3	8.36	0.6	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
19	HOT	0.3	0.3	0.3	1.80	3.6	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)
20	HOT	0.3	0.3	0.3	0.13	3.4	0.000000	Acc<1.0	0.000000	Acc<0.0039...	00000010 (0x02)

## 4.5 Data Logging

A. Press Log File button on the main toolbar



B. Log File window will open



Prior to logging set the receiver to appropriate data protocol.

For NMEA messages log select TXT format in Log Format combo box.

The log file will be created with .TXT extension.

For OSP binary messages log select GPS format in Log Format combo box.

The log file will be created with .GPS extension.

Press Start button to commence logging.

Press Log File button while logging to stop the procedure.

## 4.6 Data Playback

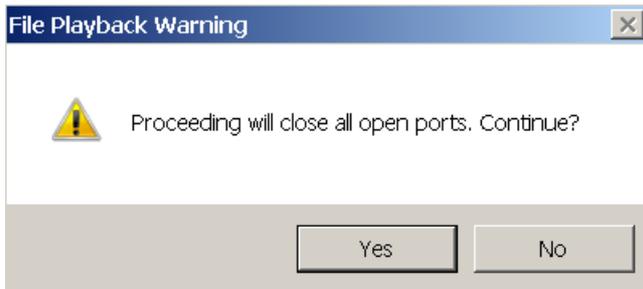
- A. Press Play File button on the main toolbar



- B. File browser will open

Select saved file.

- C. File Playback Warning pop-up will open

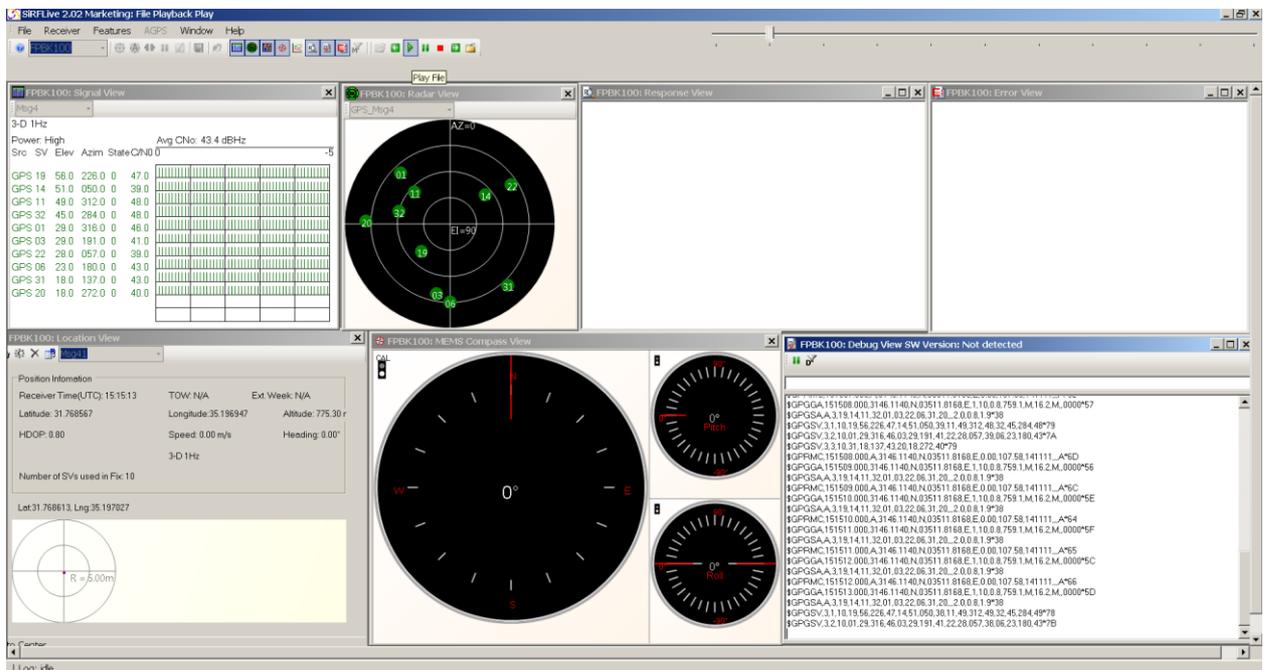


Press Yes button to continue.

- D. Navigate through recorded file with toolbar controls



- E. View windows are selected via main toolbar



For extended support for SiRFLive software refer to the SiRF Live Manual on this CD.