

# Plot GUI Calibration Procedure

The screenshot shows the 'Plot Main Window' interface. At the top, there are buttons for 'Disable RF Power (1)' and 'Enable RF Power (0)', along with 'Pause' and 'Resume' buttons. Below these are fields for 'RFP-1940' and 'WM1373'. The 'Graph Channel' and 'FFT Subchannel' are both set to 'Torsional Strain'. Device information includes 'Serial Number: WM1373', 'Board Info: Quad Telemetry rev 2', 'User Tag 1: <INVALID>', 'User Tag 2: <INVALID>', 'Build Info: 03671204fc-x', and 'Build Date: Jan 9 2017, 17:51:04'. The main display area is split into two plots: 'Time Domain' showing a cyan waveform over time (s) and 'Frequency Domain' showing a cyan spectrum over frequency (Hz). Below the plots is a 'Channels' table, an 'LEDs' slider, and a 'Log' window.

Channels	Mean (1s)	Std Dev
Torsional Strain	101005 LSB	213 LSB
Lateral Strain	83353 LSB	937 LSB
Radial Acceleration	-265363 LSB	70 LSB
Tangential Acceleration	-41334 LSB	366 LSB

The 'Log' window shows the message: [08/21/18 04:17:42] Connected

The 'Menu' dropdown is open, with 'Edit Device Settings' circled in blue. Other menu items include: Set User Tag 1, Set User Tag 2, Update Firmware, Advanced Actions, Set Device Mode, Change Active Streams, Run Hardware Tests, Show Packet Stats, and Show Device Information.

Once you are in device settings you will see defaults for the sensors. The sensors are labeled as Bridge A, Bridge B...

Plot Main Window

File Devices Settings Help

Disable RF Power (1) Enable RF Power (0) Pause Resume

RFP-1940 WM1373

Graph Channel: Torsional Strain Serial Number: WM1373 Board Info: Quad Telemetry rev 2  
 FFT Subchannel: Torsional Strain User Tag 1: <INVALID> Build Info: 03671204fc-x  
 User Tag 2: <INVALID>

Time Domain

Frequency Domain

Channels

	Mean (1s)	Std Dev
Torsional Strain	100803 LSB	192 LSB
Lateral Strain	83426 LSB	941 LSB
Radial Acceleration	-265193 LSB	70 LSB
Tangential Acceleration	-41305 LSB	364 LSB
Light	32530 LSB	12 LSB
RF Power Voltage	3.947 V	0.040 V
RF Power Current	35.0 mA	12.5 mA
Temperature	66 °C	0 °C
Sent Packets	71	1

Device Settings

Bridge A Bridge B Accel A Accel B Bar Graph Tach

Bridge A Enabled

Bridge A Nominal Resistance 1000 Ω

Bridge A Minimum Resistance 900 Ω

Bridge A Maximum Resistance 1100 Ω

Bridge A Channel Name Torsional Strain

Bridge A Channel Unit Type UNIT\_TYPE\_LSB

Bridge A Channel Scale 1

Bridge A Channel Offset 0

Bridge A Channel Minimum -524288

Bridge A Channel Maximum 524284

Bridge A Channel Resolution 4

Restore Defaults OK Cancel

Remote Device

Go To Radio Tab

2] Connected

Select the unit type of your preference, e.g. strain or M/s<sup>2</sup>

Channels	Mean (1s)	Std Dev
Torsional Strain	100851 LSB	208 LSB
Lateral Strain	83392 LSB	939 LSB
Radial Acceleration	-265082 LSB	70 LSB
Tangential Acceleration	-41290 LSB	361 LSB
Light	32519 LSB	10 LSB
RF Power Voltage	3.939 V	0.038 V
RF Power Current	38.2 mA	20.4 mA
Temperature	66 °C	0 °C
Sent Packets	71	1
Lost Packets		

Enter the value in the Scale field. This number scales LSB (least significant bits) to torsional strain. The calibration procedure for this was emailed previously. I can do that for you but if you need help it will be in-person.

For the Accel A and Accel B, information for their calibration was sent earlier. It can be entered directly.

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The relay start of the TDMS is possible by setting the stationary equipment to auto-start when powered. The computer MUST BE PERMANENTLY POWERED so that the GUI is running. Otherwise the computer will require login and starting the GUI. The stationary equipment can be on AC relay switch to start. To configure the stationary equipment for auto start Go to the RFP tab in the GUI and click Menu, Edit Device Settings.

The screenshot displays the 'Plot Main Window' interface for an RF Power Transmitter. The window title is 'Plot Main Window' and it includes a menu bar with 'File', 'Devices', 'Settings', and 'Help'. At the top, there are buttons for 'Disable RF Power (1)' and 'Enable RF Power (0)', along with 'Pause' and 'Resume' buttons. The device is identified as 'RFP-1940' with 'WM1373' as the radio ID. The 'Graph Channel' and 'FFT Subchannel' are both set to 'Reflected Power'. The device information includes: Serial Number: RFP-1940, Board Info: RF Power Transmitter rev 6, User Tag 1: <INVALID>, Build Info: 1.0.2-86c8d04e41, User Tag 2: <INVALID>, and Build Date: Dec 22 2017, 09:41:45. The main display area contains two plots: 'Time Domain' showing a signal fluctuating between 3200 and 3800 LSB over time, and 'Frequency Domain' showing a spectrum with a primary peak at 902.5 MHz. To the right of the plots are sliders for 'Frequency' (902.5 MHz), 'PA Input Level' (17), 'VGG1 Voltage' (3.40000 V), 'VGG2 Voltage' (4.99999 V), and 'VDD Voltage' (10.0001 V). A 'Radio' section shows '1373' and a 'Channel' section shows 'Go'. A 'Menu' dropdown is open, listing options: 'Set User Tag 1', 'Set User Tag 2', 'Update Firmware', 'Advanced Actions', 'Edit Device Settings', 'Set Device Mode', 'Change Active Streams', 'Run Hardware Tests', 'Show Packet Stats', and 'Show Device Information'. At the bottom, there are sections for 'Channels' (Mean and Std Dev for Reflected Power and PA Current), 'LEDs' (White, Red, Green, Blue), and a 'Log' section showing '[08/20/18 15:35:40] Connected'.

Ensure that "Enable RF Output on Power Up" is selected.

Plot Main Window

File Devices Settings Help

Disable RF Power (1) Enable RF Power (0) Pause Resume

RFP-1940 WM1373

Graph Channel: Reflected Power Serial Number: RFP-1940 Board Info: RF Power Transmitter rev 6  
FFT Subchannel: Reflected Power User Tag 1: <INVALID> Build Info: 1.0.2-86c8d04e41  
User Tag 2: <INVALID> Build Date: Dec 22 2017, 09:41:45

Time Domain

Frequency Domain

Device Settings

General RF Power Wireless Module Receiver

Default Frequency 902.5 MHz

Default PA Input Level 110

Default VGG1 Voltage 3.40000 V

Default VGG2 Voltage 4.99999 V

Default VDD Voltage 12.8000 V

Enable RF Output on Power Up

Restore Defaults OK Cancel

Channels

|                 | Mean (1s) | Std Dev  |
|-----------------|-----------|----------|
| Reflected Power | 3390 LSB  | 163 LSB  |
| PA Current      | 16.6585 A | 0.0000 A |
| Temperature     | 56.8 °C   | 0.0 °C   |
| Link Strength   | 1         | 0        |

LEDs

Red Green Blue  
Cyan Magenta Yellow  
Black

Radio

1373

Scan

Connected

Disconnect

Advanced Menu

Channel 0

Go To Remote Tab

Go to the "Wireless Module Receiver" tab. Select "Enable Auto Connect" and enter the serial number of your Wireless Module. Yours is serial number 1221.

The screenshot displays a software interface for an RF transmitter. The main window, titled 'Plot Main Window', features a menu bar with 'File', 'Devices', 'Settings', and 'Help'. Below the menu, there are buttons for 'Disable RF Power (1)' and 'Enable RF Power (0)', along with 'Pause' and 'Resume' buttons. The interface shows the device name 'RFP-1940' and 'WM1373'. The 'Graph Channel' and 'FFT Subchannel' are both set to 'Reflected Power'. The 'Serial Number' is 'RFP-1940', 'User Tag 1' and 'User Tag 2' are '<INVALID>', 'Board Info' is 'RF Power Transmitter rev 6', 'Build Info' is '1.0.2-86c8d04e41', and 'Build Date' is 'Dec 22 2017, 09:41:45'. A 'Time Domain' plot shows a signal fluctuating between approximately 3200 and 3800 LSB over a time range from -16 to 0 seconds. A 'Frequency Domain' plot is also visible. A 'Device Settings' dialog box is open, showing the 'Wireless Module Receiver' tab. The 'Default Channel' is set to 0, 'Enable Auto Connect' is checked, and 'Auto Connect Serial Number' is set to 1373. The dialog box has 'Restore Defaults', 'OK', and 'Cancel' buttons. The background interface includes a 'Radio' section with a dropdown menu set to '1373', 'Scan', 'Connected', 'Disconnect', 'Advanced Menu', and 'Go To Remote Tab' buttons. There are also several sliders and buttons for 'RF Power' and 'LEDs'.

Say OK and the settings will save to the device memory. Now when the GUI is running on the PC and the stationary equipment is AC powered, it will auto start and connect to the module.