

1 Introduction

Thank you for your interest in the EV9930 Evaluation Board.

This quick start guide will help you get started with EV9930 evaluation. The datasheet and user manual provide full details on the board, but this “quick start” guide consolidates information from multiple sources to accelerate your testing.

This guide walks the user through the following steps:

- Downloading necessary files
- Connecting the EV9930 and PE0003
- Installing PE0003 USB driver
- Using EV9930 graphical user interface (GUI) to configure CMX993 for modulated 450MHz transmission

This document is applicable to both EV9930 (for CMX993) and EV9930W (for CMX993W).

2 History

Version	Changes	Date
1	Initial release	15-04-01

Contents

1	Introduction	1
2	History	1
3	EV9930 Operation	2
3.1	Download of Documents and Software	2
3.2	Preparing for Operation	2
3.3	Basic Connections	2
3.4	PE0003 Installation	2
3.5	EV9930 Graphical User Interface	3
4	Next Steps	4
5	Helpful Hints	4

3 EV9930 Operation

3.1 Download of Documents and Software

Please visit the CML website (www.cmlmicro.com) and download the following files:

- CMX993 Datasheet
- EV9930 User Manual
- EV9930 Schematic
- EV9930 Evaluation Software package
- PE0003 Driver
- PE0003 User Manual

3.2 Preparing for Operation

The following test equipment will be needed:

- PC with Windows 8 or earlier.
- +5V power supply, rated for > 200mA, for PE0003 and EV9930.
- Baseband IQ generator (for CMX993 IQ inputs)
- RF signal generator (for CMX993 LO input)
- RF spectrum analyser (for viewing of RF output spectrum)
- Oscilloscope (for generic signal viewing)

3.3 Basic Connections

- Connect EV9930 to PE0003 “C-BUS1” connector.
- Apply +5V to EV9930 and PE0003.
- Apply 900MHz @ -10dBm to EV9930 “LO_IN” SMA connector.
- Apply baseband IQ inputs to EV9930 “TXI” and “TXQ” SMA connectors. Ensure:
 - IQ input bias=0V (not open circuit or “no connect”)
 - IQ input amplitude is between 700mV_{pk-pk} to 1.0V_{pk-pk}.
- Connect RF spectrum analyzer to EV9930 “RFOUT” SMA connector.

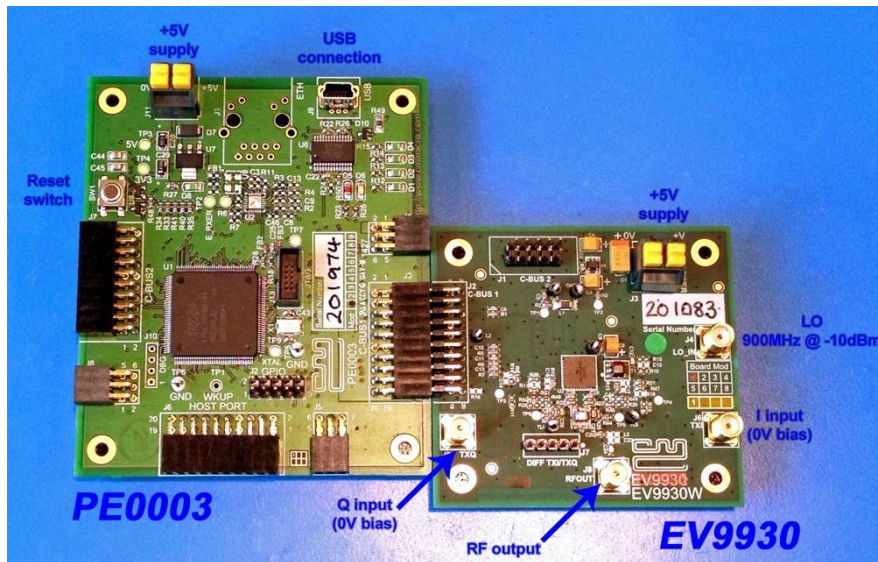


Figure 1: EV9930 Important Connection Points

3.4 PE0003 Installation

- Connect PE0003 to PC with USB cable. The PC will ask for a USB driver the first time a PE0003 is connected.
- When prompted, load the USB driver from the unzipped PE0003 Driver package.
 - Your PC may attempt to use "Windows Update" to find the PE0003 USB driver. Cancel the "Windows Update" search. On your PC click "Start" button, right click on "Computer" and select "Properties". Select "Device Manager". Right click "PE0003 Evaluation Kit" and choose "Update driver software". Choose "Browse my computer" and locate the PE0003 driver. Click "Install anyway" if you get a driver warning message.

3.5 EV9930 Graphical User Interface

The EV9930 Evaluation Software package contains a “Readme.txt” file and two zipped packages, one for PE0003 and the other for the older PE0002 board. The “Readme” file indicates that “ES99303x.zip” supports the PE0003.

- Unzip “ES99303x.zip” (x=version number) and double-click the included “ES99303x.exe” file to launch the EV9930 graphical user interface (GUI).
- **For EV9930**, configure GUI as follows and click “Write All”.

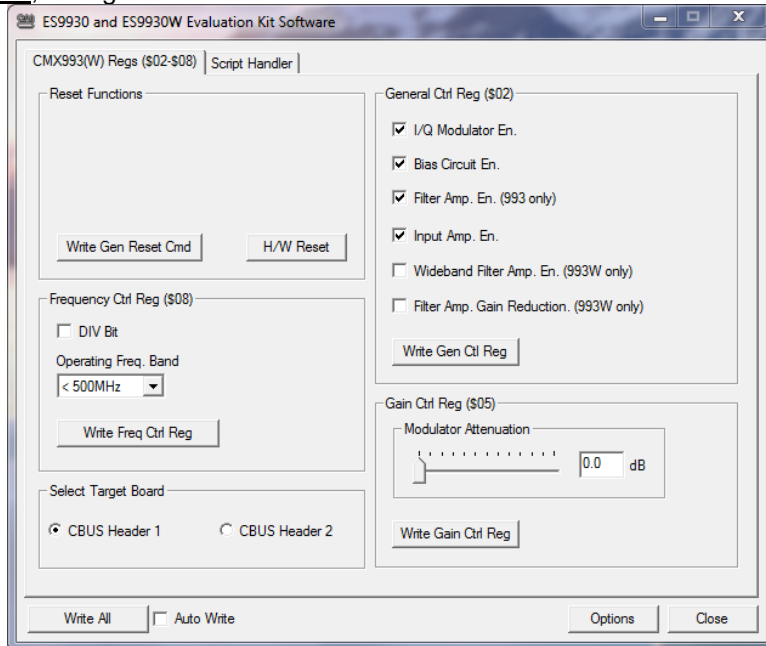


Figure 2: EV9930 Typical GUI Configuration

- **For EV9930W**, configure GUI as follows and click “Write All”.

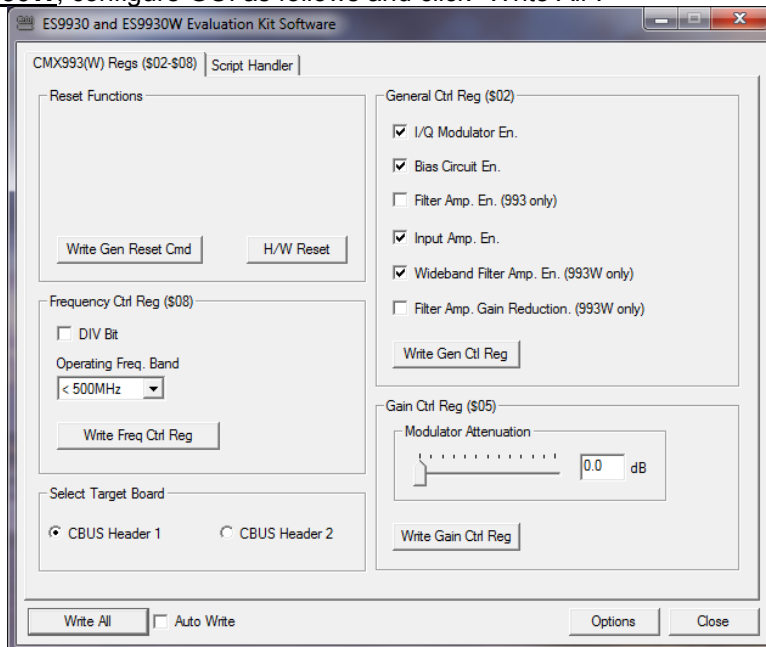


Figure 3: EV9930W Typical GUI Configuration

- Apply baseband IQ input signals (700mVpp – 1.0Vpp) to EV9930. A modulated RF carrier at 450MHz should be visible on the RF spectrum analyser.

The initial CMX993/CMX993W test is complete.

4 Next Steps

Other tests can be performed with this evaluation setup, such as:

- Adjustment of CMX993/CMX993W modulator attenuation.
- Adjustment of RF output frequency.
- Operation with other radio equipment.

The CMX993/CMX993W datasheet, EV9930 user manual, and EV9930 schematic should be consulted while crafting experiments.

5 Helpful Hints

Detailed PE0003 driver installation information can be found in the PE0003 User Manual. For Win7 and Win8 driver signing issues see the FAQ tab on the CML website's PE0003 Product page.

Detailed information on GUI operation can be found in the PE0003 User Manual.

A reference document for the Script language can be downloaded from the CML website's PE0003 product page on the Knowledge Base tab.

Keep a reasonable space between RF evaluation boards to avoid RF coupling issues.

Keep RF leads routed away from the boards and other when making precise measurements. This will avoid signal coupling affecting the results.

The PE0003 generates high spurious noise typical of high speed processors and this may be coupled into the RF circuits. While every care has been taken to avoid issues, optimum performance will be achieved with a production design that includes overall shielding and consideration of the layout with respect to the processor speed and proximity.

Please contact CML Technical Support if you have any questions or require further assistance.

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