Test Procedure for the LV8498CTGEVB Evaluation Board

For AF-VCM control
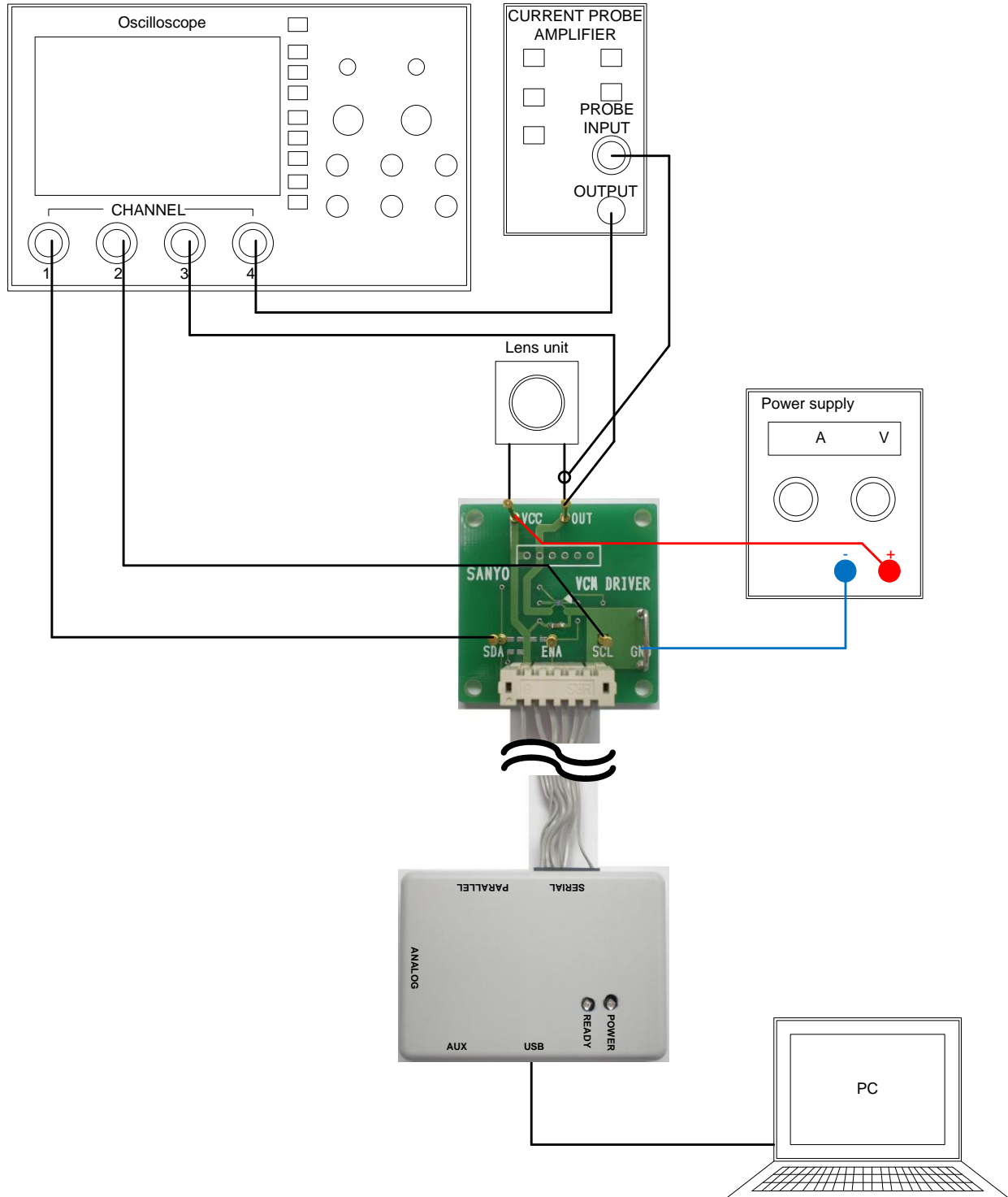

Figure 1. Setup for AF-VCM control

Table1: Required Equipment

Equipment	Efficiency
Power supply	5V-0.5A
Oscilloscope	4 channel
Current probe	
LV8099CT Evaluation Board	LV8498CTGEVB
USB adapter	USBADAPTORGEVK
Cable for USB adapter	LV8483CSCBLGEVK
USB cable	Type mini-B
Lens unit	5V-200mA

Allowable Operating Ratings

Power supply voltage (V_{CC}): 2.2 to 5.0V

Coil resistance of VCM:

R_{AF} +RTTL < V_{CC} / I_{OUT}

(R_{AF}: Coil resistance of VCM, RTTL: combination of Output ON resistor and sense resistor,
I_{OUT}: Output current)

In case of V_{CC}=2.8V

R_{AF} < V_{CC} / I_{AF}- RTTL

< 2.8V/ 120mA- 3 Ω

< 20.3 Ω

Test Procedure

· Connect AF-VCM with OUT and V_{CC}.

· Connect a power supply with V_{CC} pin.
Connect GND line with GND pin.

· If you use the master device we provided, connect USB adapter with the evaluation board.
If you have the original master device, connect I^{2}C lines with SDA and SCL pin.
Check if pull-up resistors have been connected to the lines. If not, mount R1 and R2 on the evaluation board.

· The USB adapter we provided has built-in resistors. Therefore, you do not need to mount any resistor.

· Check the ENA pin is not OPEN. And supply power.
After powered, if the ENA pin is pull-down, input High signal to the pin.
If the pin is pull-up, transfer zero-code to all data.

· If you use the master device we provided, refer to manual below.
If you have the original master device, refer to "Description of Operation" from P. and make I^{2}C program.

· Check the drive signals and output current waveforms in the scope if they are similar to the charts.

(1) Window setup details
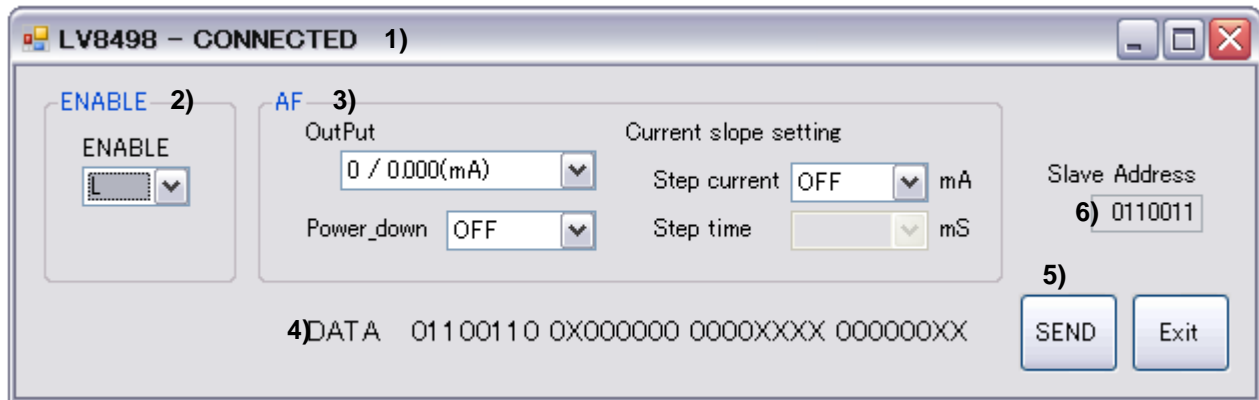
1) Connection status of I^{2}C transmission board
   "CONNECTED" = I^{2}C transmission board is connected with PC properly via USB cable.
   "DISCONNECTED" = I^{2}C transmission board is not connected with PC.
2) Chip enable setup
   Select L (standby) or H (active).
3) Output setup
   Select a setting value from the pulldown menu.

4) I^{2}C data display
   Displays I^{2}C data based on the setting value of 3).
5) Data transfer button
   After all the parameter setups are completed, click this button.
6) Slave address display
   The slave address transferred from this software is fixed to "0110011" from LV8498CT that cannot be modified.
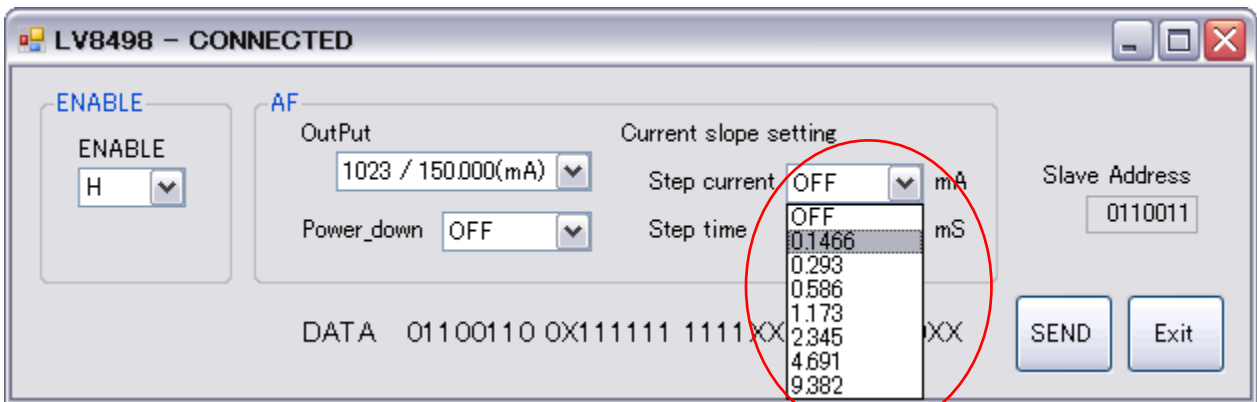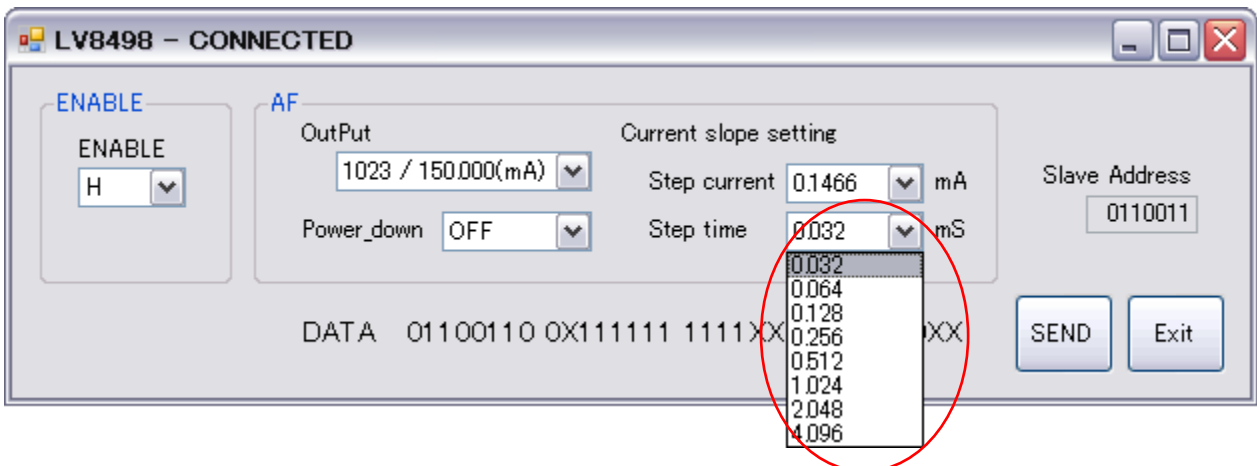
(2) Function setup
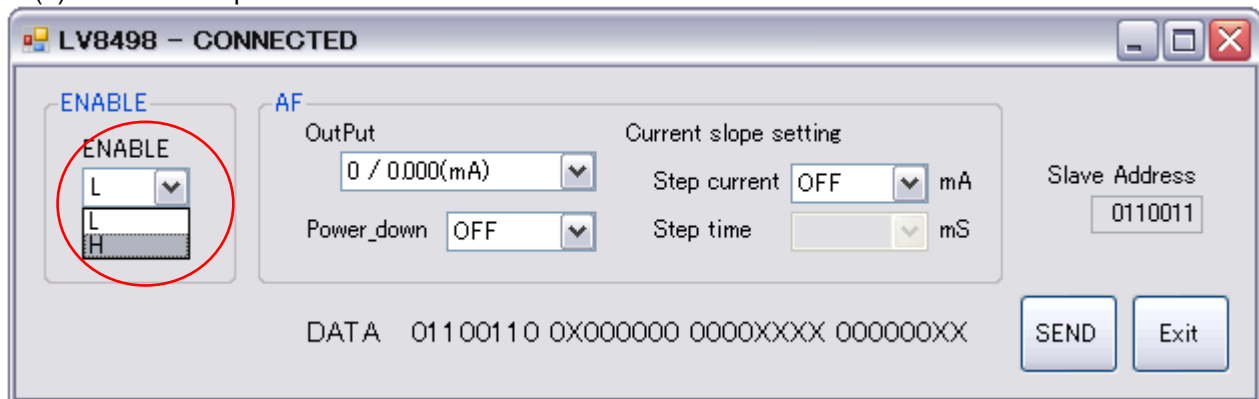
To startup the IC, select H in the "ENABLE".
As soon as H is selected, ENABLE signal is output.
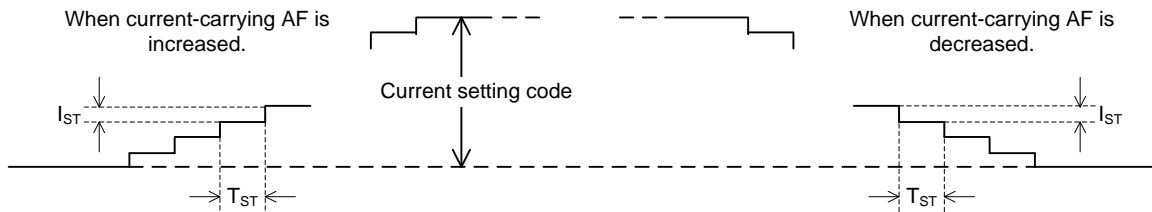To set to standby, select L.
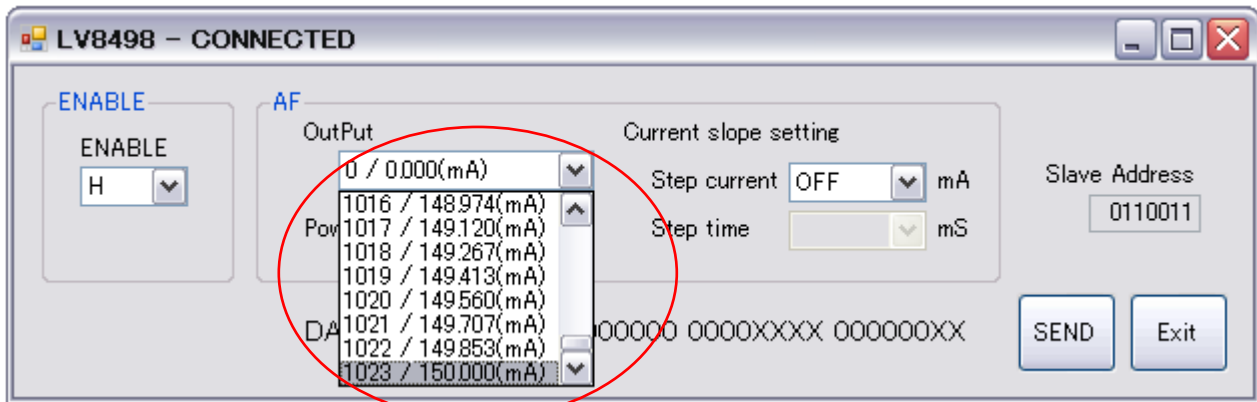
From "Output" pulldown menu, select an output current value between 0mA and 150mA.
When 0mA is selected, the drive circuit is set to standby mode.

Select "Step current" from 8 values.
When OFF is selected, current slope function does not operate.
As a result, current value changes rapidly to the selected output current.

If you select other than OFF for "Step current", select "Step time" from the pulldown menu.

When current-carrying AF is increased.

Current setting code

When current-carrying AF is decreased.

I_{ST}

T_{ST}

I_{ST}

T_{ST}

"Step current" : I_{ST} shown in the above chart
"Step time"   : T_{ST} shown in the above chart

To drive VCM, set "OFF"(=0) for "Power_down".
Also by setting "Power_down"="ON"(=1), standby mode is set forcibly regardless of the setting value of "Output".
In this case, current decreases according to the setting value of "Current slope setting".

To change or transfer setting values besides ENABLE, click SEND button to output I^{2}C signal.
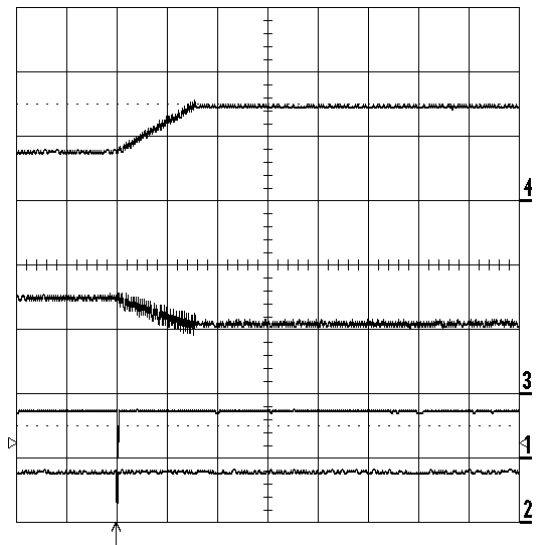
4ch: IOUT
(50mA/DIV)

3ch: VOUT
(2V/DIV)

1ch: VSDA
(5V/DIV)

2ch: VSCL
(5V/DIV)
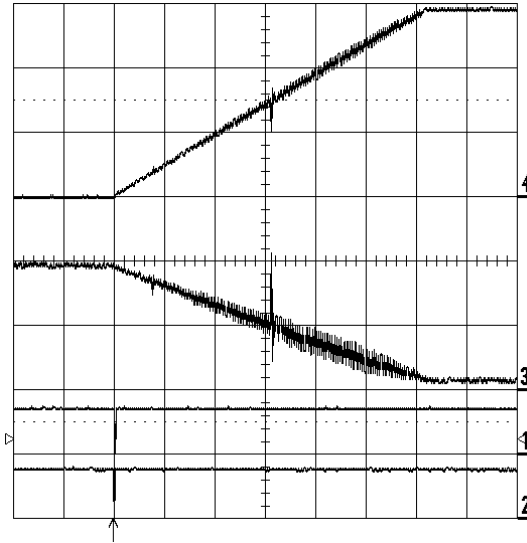
Waveform when it drives from 0 code to Full code
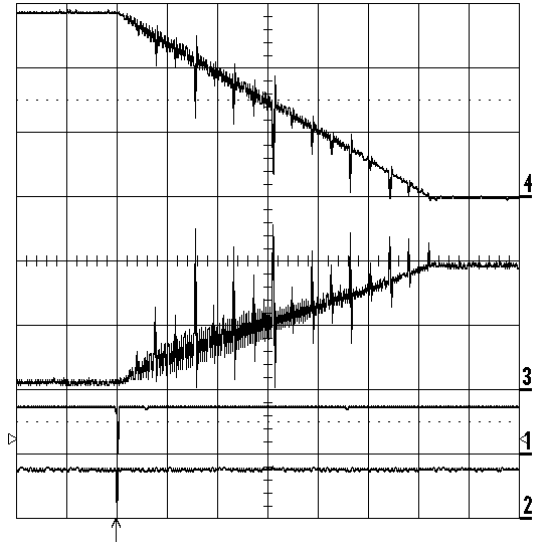
Waveform when it drives from Full code to 0 code

4ch: IOUT
(50mA/DIV)

3ch: VOUT
(2V/DIV)

1ch: VSDA
(5V/DIV)

2ch: VSCL
(5V/DIV)
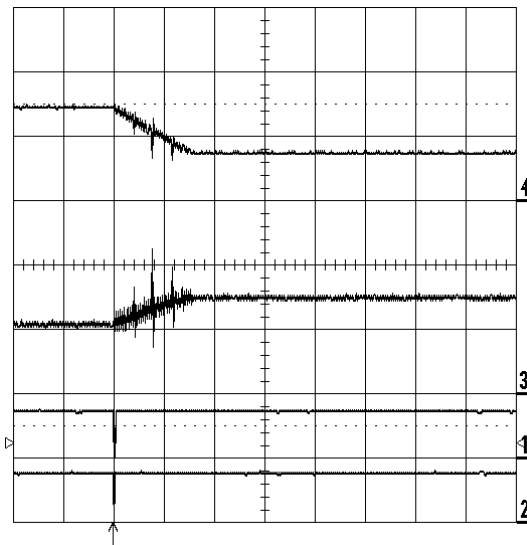
Waveform when it drives from code 256 to code 511 256

Waveform when it drives from code 511 to code

*) Time range of all waveforms are 5 mSec/DIV.
*) Current slope setting of all waveforms are
        Step time: 0.032 mSec
        Step current: 0.0978 mA