Test Procedure for the LV8727GEVB Evaluation Board

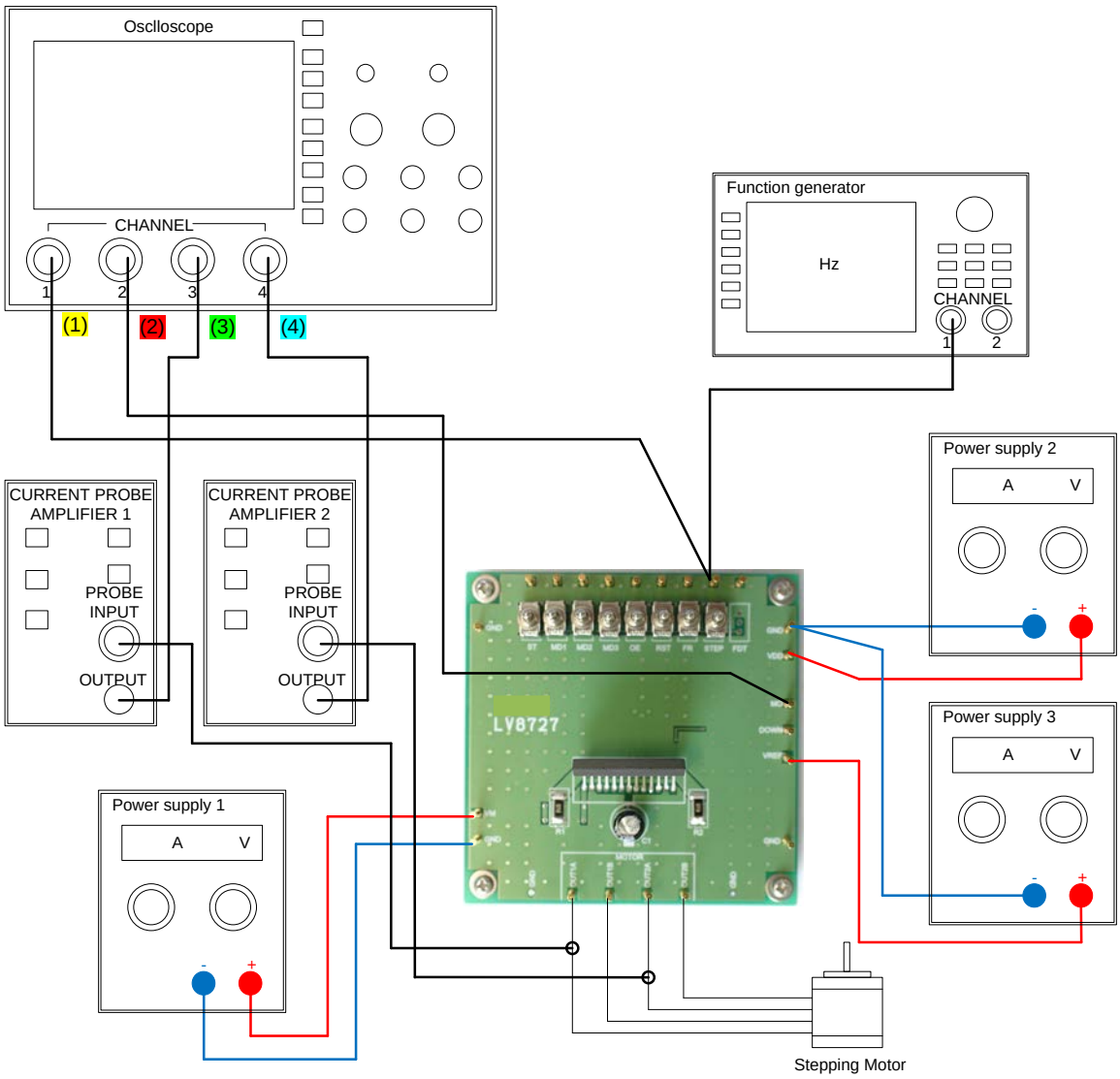


Table 1: Required Equipment

Equipment	Efficiency
Power supply1	100V-10A
Power supply2	5V-0.5A
Power supply3	10V-1A
Function generator	200kHz
Oscilloscope	4 channel
Current probe1	-
Current probe2	-
LV8727 Evaluation Board	-
Stepper Motor	35V-3A

Test Procedure:

1. Connect the test setup as shown above.

2. Set it according to the following guide.

   [Supply Voltage] VM (9 to 45V): Power Supply for LSI
   VREF (0 to 3V): Const. Current Control for Reference Voltage
   VDD (2 to 5V): Logic “High” voltage for toggle switch

   [Toggle Switch State] Upper Side: High (VDD)
   Middle: Open, enable to external logic input
   Lower Side: Low (GND)

   [Operation Guide]
   1. Initial Condition Setting: Set “Open” the toggle switch STEP, and “Open or Low” the other switches.
   2. Power Supply: Supply DC voltage to VM, VREF and VDD.
   3. Ready for Operation from Standby State: Turn “High” the ST , OE and RST terminal toggle switch. Channel 1 and 2 are into Full step excitement initial position (100%, -100%) .
   4. Motor Operation: Input the clock signal into the terminal STEP.
   5. Other Setting
      i. FR: Motor rotation direction (CW / CCW) setting.
      ii. MD1 , MD2 , MD3 : Excitation mode.

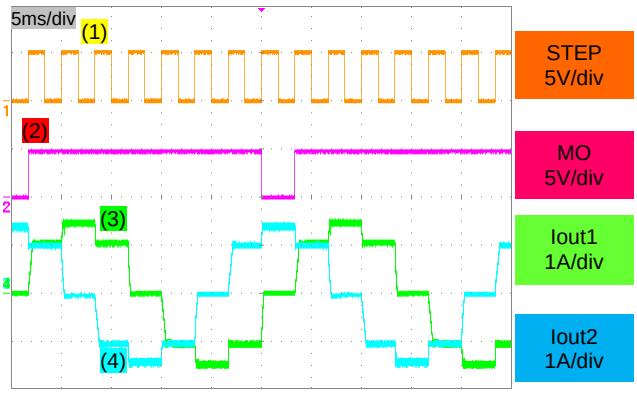
3. Check the STEP and MO terminal voltage at scope CH1 and CH2, and the output current waveform at scope CH3 and CH4.

Table 2: Desired Results

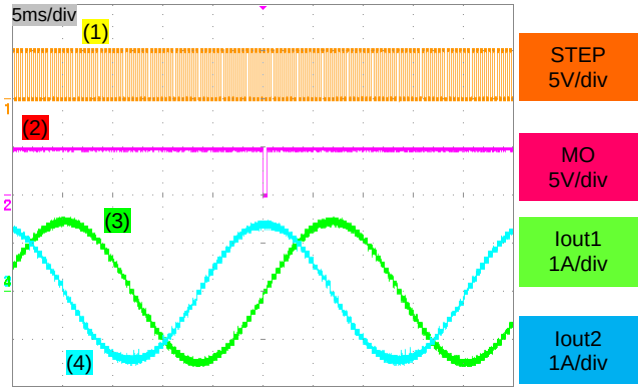
INPUT	OUTPUT
VM=24V VREF=1.5V VDD=5V ST=High OE=High RST=High FR=Low	* Refer to the following waveform

Waveform of LV8727GEVB evaluation board.

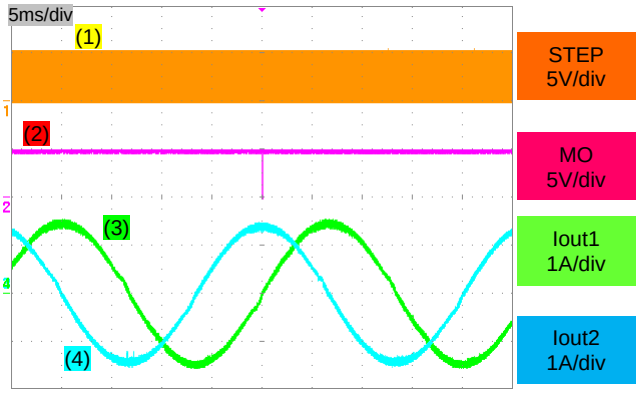
●Figure 1. Half Step
VM=24V , VREF=0.45V , VDD=5V
ST=H , OE=H , RST=H
FR=L
MD1=L , MD2=L , MD3=L
STEP=0.3kHz (Duty 50%)



●Figure 2. Half Step
VM=24V , VREF=0.45V , VDD=5V
ST=H , OE=H , RST=H
FR=L
MD1=L , MD2=H , MD3=L
STEP=2.4kHz (Duty 50%)



●Figure 3. 1/128
VM=24V , VREF=0.45V , VDD=5V
ST=H , OE=L , RST=H
FR=L
MD1=L , MD2=L , MD3=H
STEP=19.2kHz (Duty 50%)



●Figure 4. 1/20 Step
VM=24V , VREF=0.45V , VDD=5V
ST=H , OE=H , RST=H
FR=L
MD1=H , MD2=H , MD3=H
STEP=3.0kHz (Duty 50%)

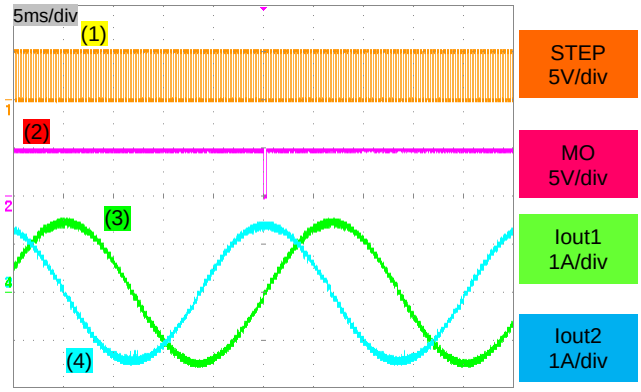


Table 3: Excitation setting method

Input			Micro step resolution	Excitation mode	Initial position	
MD3	MD2	MD1			1ch current	2ch current
Low	Low	Low	Half Step	1-2 phase	100%	0%
Low	Low	High	1/8 Step	2W1-2 phase	100%	0%
Low	High	Low	1/16 Step	4W1-2 phase	100%	0%
Low	High	High	1/32 Step	8W1-2 phase	100%	0%
High	Low	Low	1/64 Step	16W1-2 phase	100%	0%
High	Low	High	1/128 Step	32W1-2 phase	100%	0%
High	High	Low	1/10 Step	-	100%	0%
High	High	High	1/20 Step	-	100%	0%