

1. Test Name: PWM Fan Control

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A potentiometer is used to change the duty cycle supplied to an electric fan. This variable resistor should adjust the fan speed between ~50-50% duty cycle.

2. Required Equipment

	Equipment Description	Quantity	Settings
1	Power supply	1	12V input Voltage
2	Oscilloscope	1	Measure duty cycle of PWM
3	555 Timer	1	Generate PWM signal
4	12V DC fan	1	+ and – wire connected to 12V and 0V rails. PWM wire connected to 555 timer output.

Table 1: Required equipment and its settings.

3. Test Procedure

Step 1: Connect the power supply to fan and 555 timer. Build 555 timer circuit according to PWM schematic (25kHz and 50% duty cycle).

Step 2: Verify fan is running and measure duty cycle with oscilloscope.

Step 3: Adjust the Potentiometer (increasing resistance will decrease duty cycle and slow fan speed)

Step 4: Verify fan is still running and measure duty cycle with oscilloscope.

4. Test Results

Step #	Description	Spec	Measurement
1	Measure Duty cycle with Potentiometer at maximum Resistance.	Duty cycle=50%	
2	Measure Duty Cycle with potentiometer at minimum resistance	Duty cycle=60%	

Table 2: The results of the test procedure.

5. Pass/Fail

Did the unit pass or fail the test? Defend your decision.

PASS	FAIL

Table 3: PASS/FAIL