M4 Driver Test Requirements

# Test Interface

The test interface will be CAN. The protocol will be per ED-1330.

The Gateway variant SA is 0xB0.

# ADC Driver

Sweep the voltage through the specified range for each input, reading the measured voltage at several points. Multiple inputs should be tested at the same time.

# CAN Driver

A loopback PGN will can be implemented that will reply with the same data it receives. Verify that each CAN port remains responsive through various bus disturbances. For example, verify that the bus recovers after being disconnected and reconnected.

# Clock Driver

Read each clock periodically for several minutes and compare to test system clock.

# COM Driver

# DIN Driver

Connect the specified switchable pull resistor in the specified direction for each digital input. The current through each resistor should be measured to detect wetting current. Perform the following steps for each input.

1. Disable wetting current
2. Connect pull resistor
3. Verify that there are no wetting current pulses
4. Read input state and compare with expected result
5. Disconnect Pull resistor
6. Read input state and compare with expected state
7. Enable wetting current
8. Read input state and compare with expected state
9. Connect pull resistor
10. Read input state and compare with expected state
11. Verify wetting current exists

# DOUT Driver

Connect small pull-down resistor to each high side digital output and a small pull-up resistor to each low side digital output. Verify that each digital output can be turned on and off.

# FIN Driver

Sweep the frequency feed into each frequency input across the specified range, reading the measured frequency at several points. Multiple inputs should be tested at the same time with different frequencies if possible.

# NVM Driver

The following steps should be performed with several test patterns

1. Wait until the NVM is not busy
2. Fill the Non-volatile memory with a test pattern.
3. Issue NVM re-read command
4. Wait until the NVM is not busy
5. Read and verify the pattern
6. Remove power from the controller
7. Wait 15 minutes
8. Restore power to the controller
9. Wait until the NVM is not busy
10. Read and verify the pattern

# PWM Driver

Sweep commanded duty cycles and frequencies across the specified ranges for each PWM output and verify that correct frequency and duty cycle are observed at each output.