

os3500 Fatigue Test Report

Test Start Date: September 3, 2015

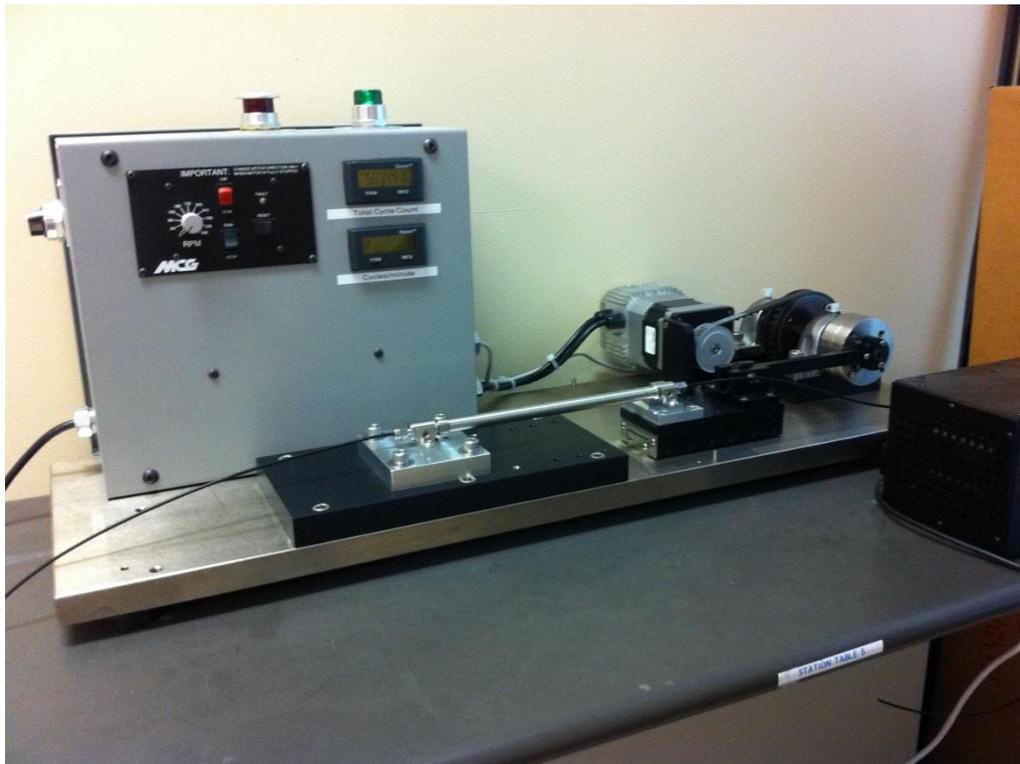
Test End Date: January 27, 2016

Sensors tested: DEV012

Test Equipment: Custom Fatigue Fixture
Interrogator: sm125 SIA9AY
Data Collection PC

Test Description:

The fatigue test was performed using the custom fixture shown below. The fixture has a variable speed motor that drives an eccentric cam. A connecting rod connects the cam to a linear slide which actuates the strain sensor. The amount of strain applied to the sensor can be adjusted by changing the amount of offset in the eccentric cam. The actuation speed can be adjusted by changing the motor speed.

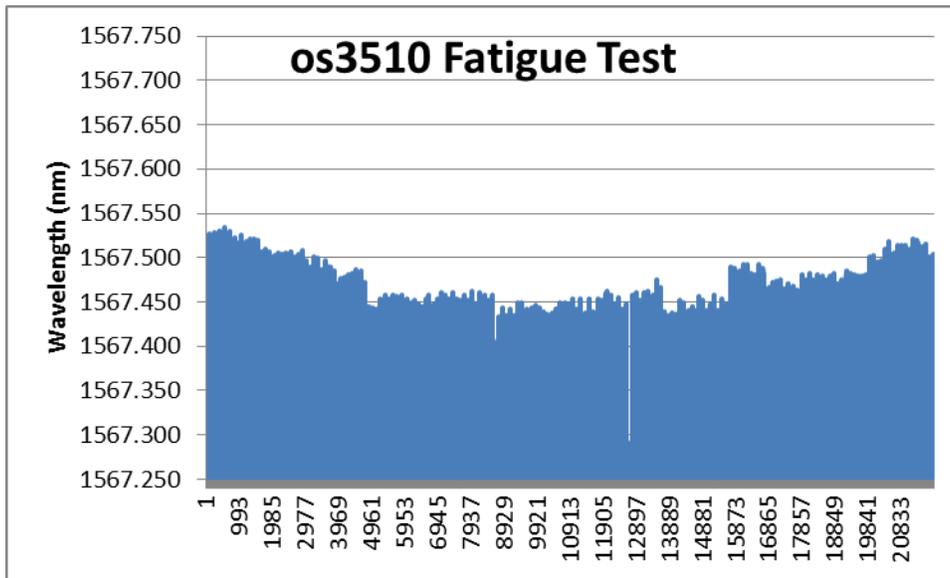


While exercising the strain sensor, the wavelength (WL) of the strain and temperature FBG were captured using a Micron Optics sm130. The strain FBG WL data is basically a sign wave as the sensor is extended from minimum strain to maximum strain.



The sm130 was configured to capture one second of data at a 1 kHz rate every hour. To represent this data in graphical form, one second burst of data was added to the graph every. If a failure were to occur the hourly snapshots are available to zero in on the time of failure. The graph zooms in on the upper peak of the sign wave. This peak level should remain fairly constant over time; however, some variation is expected due to thermal effects on the test fixture itself.

Sensor S/N: DEV012
 Sensor Model: os3510
 Test Start Date: 9/3/2015
 Test End Date: 1/27/2016
 Instrument S/N: SIA9AY
 Frequency: 500 Cycle/minute
 Strain Range: +/-1550 microstrain
 Total Cycles: 105,000,000



Conclusion: No failures were found during fatigue testing. The test was concluded when the test fixture was needed for another product test.