



16 Typical Sample Test Data – ARW & In Run Bias

Please find below typical 100Hz sample test data for Noise and In-Run Bias from a production LandMark™ 20 IMU eXT “LN Series” for user reference. The sample data depicted below is for a unit that contains standard rate range (150°/sec) gyros and high linear range (10g) accelerometers, so the user should be aware that lower or higher rate and accelerometer range units will have corresponding both lower or higher ARW Noise and peak-to-peak noise in their respective in-run charts. The charts are in run bias plots for the X, Y and Z channel gyros and accelerometers and are representative of typical performance for units with Serial Numbers 100+. The data was taken for 5 minutes after a 5 minute warm-up period at ambient temperature. The test conditions should be similar to what a user should likely have during initial setup. If the user is not obtaining laboratory test data similar to the data plots and charts below please contact the factory for consultation and assistance.

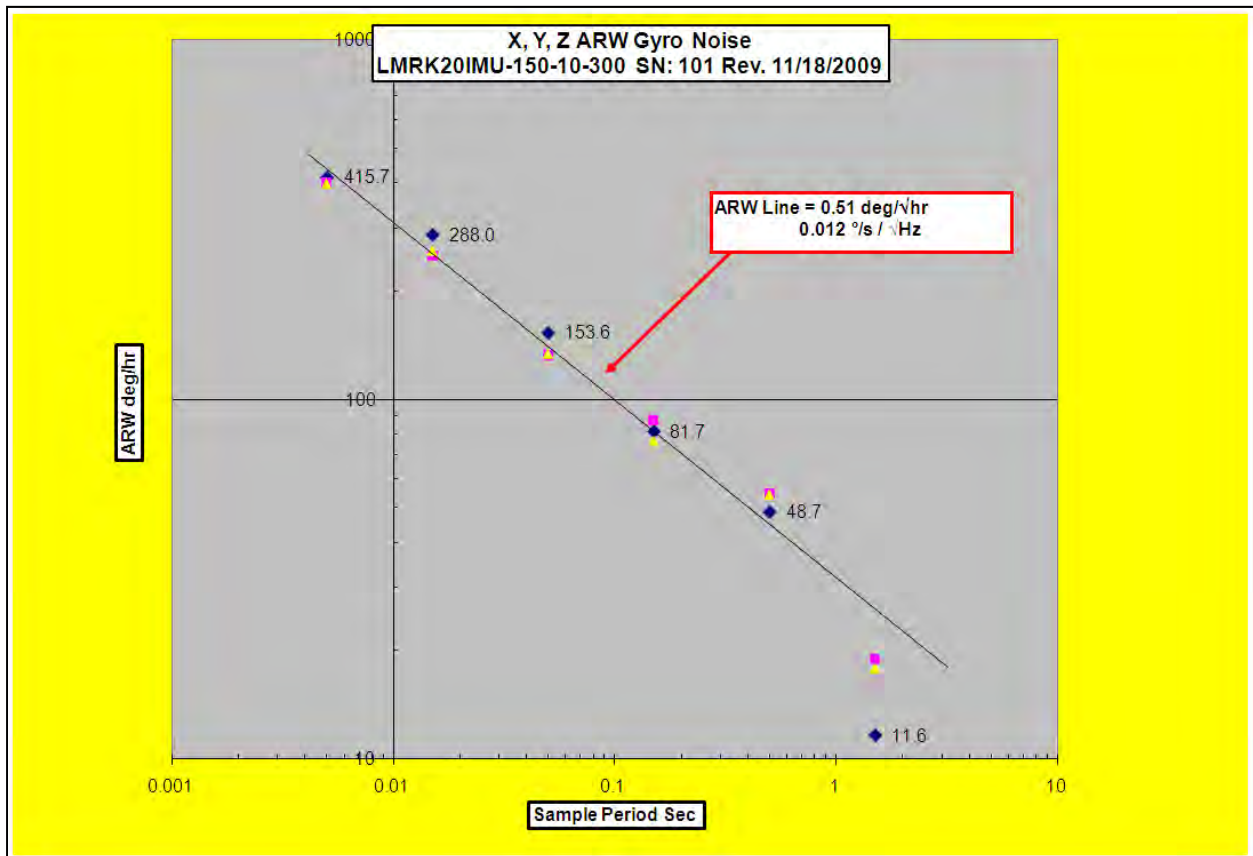


Figure 36: X, Y, Z ARW Gyro Noise

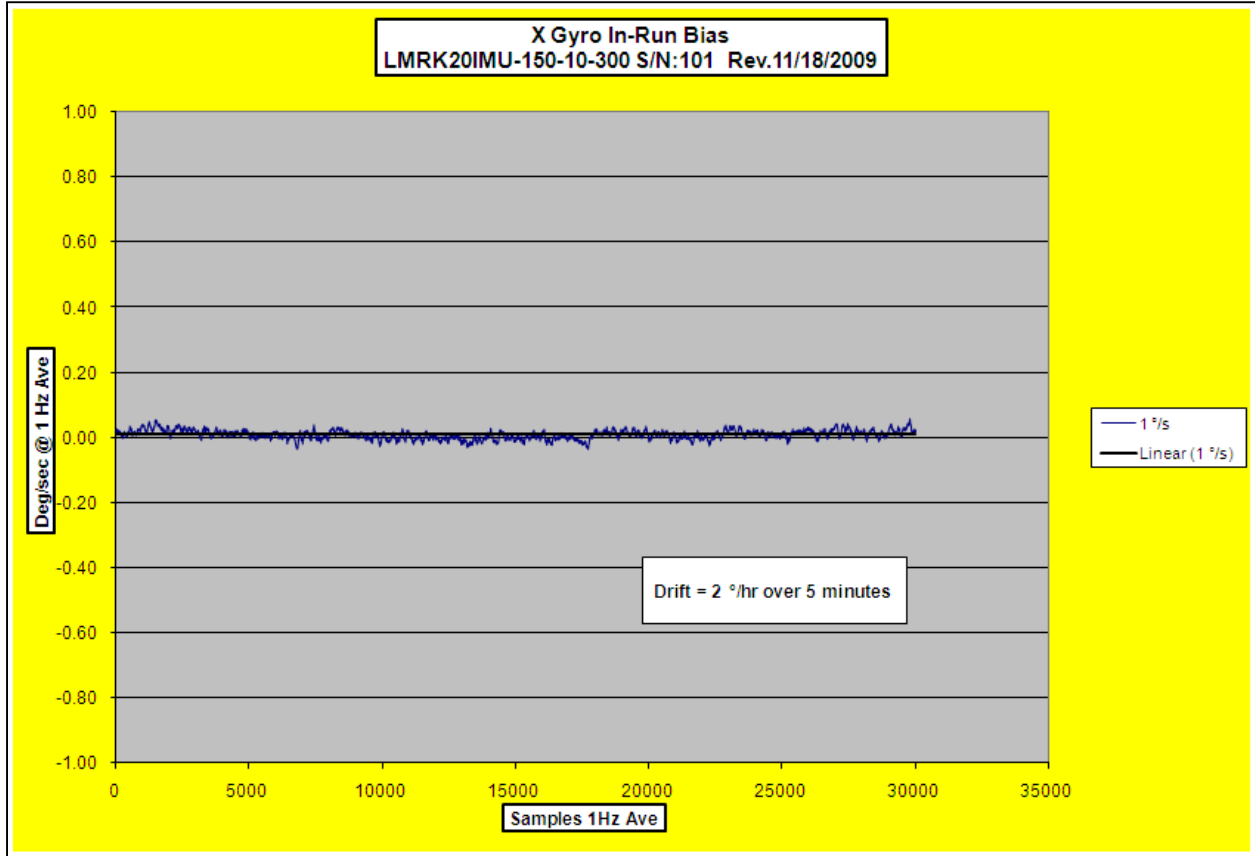


Figure 37: X Gyro In-Run Bias

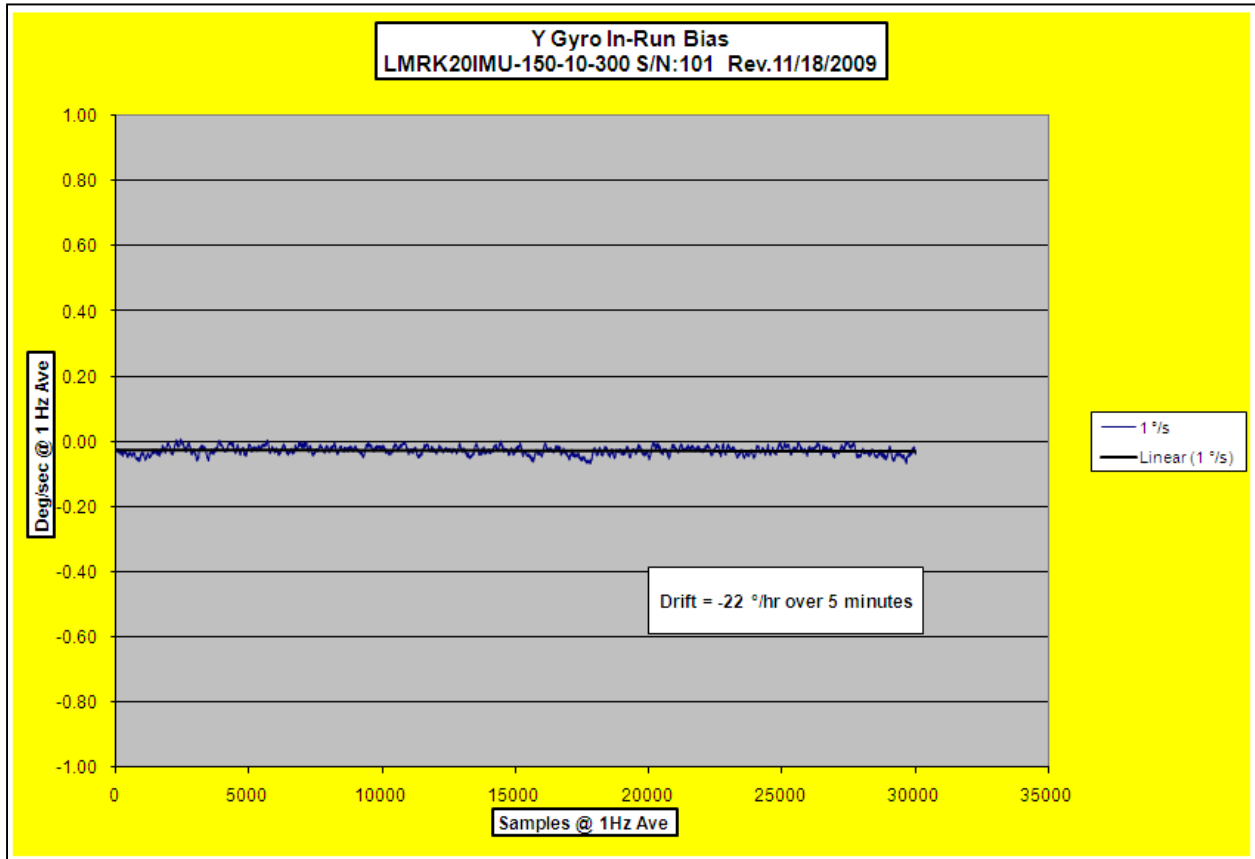


Figure 38: Y Gyro In-Run Bias

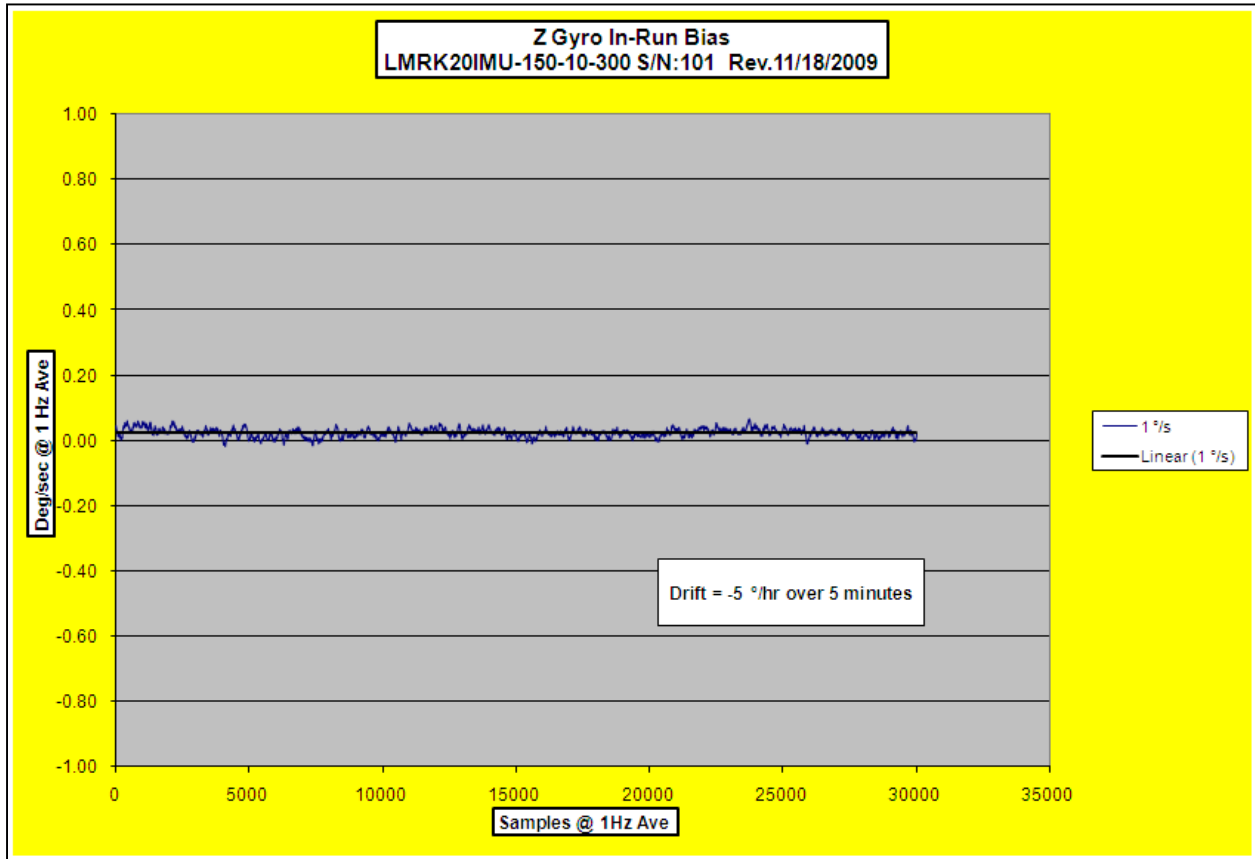


Figure 39: Z Gyro In-Run Bias

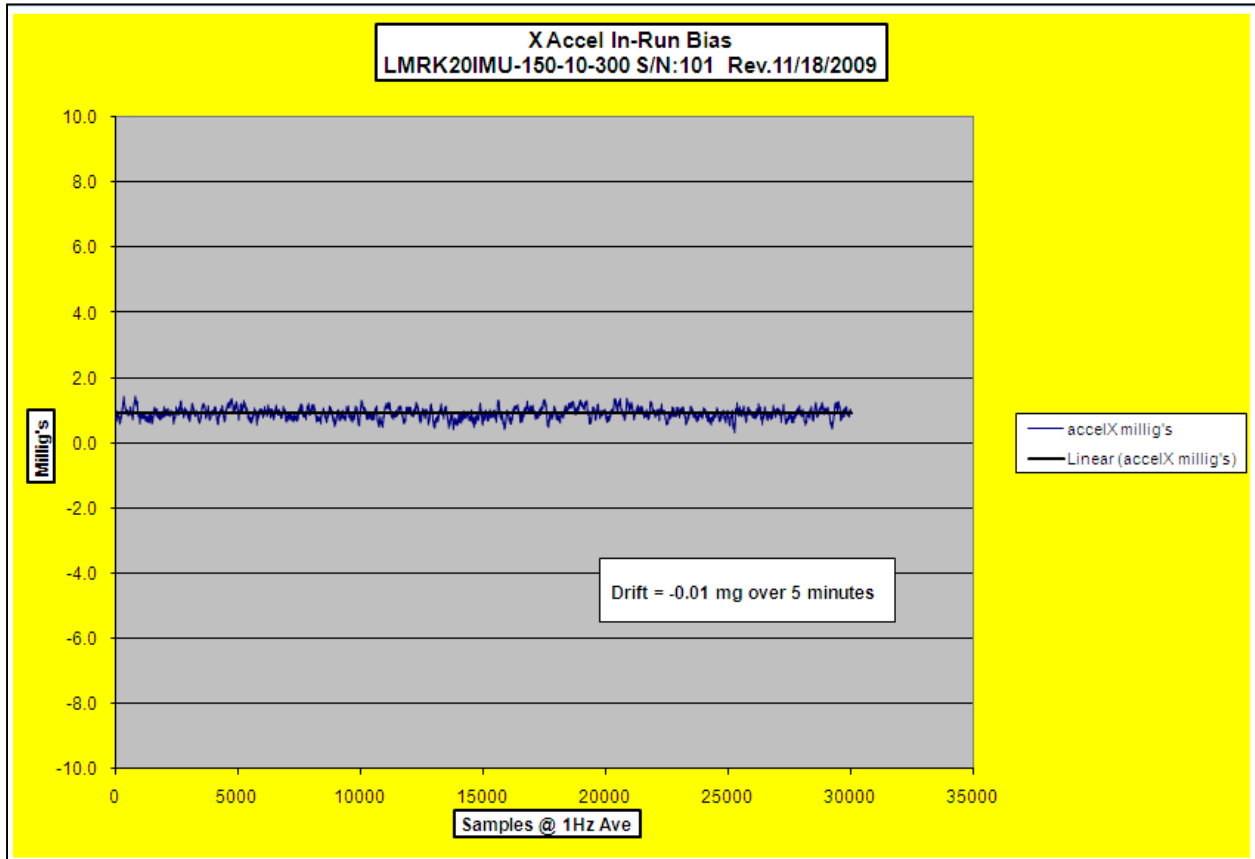


Figure 40: X Accel In-Run Bias

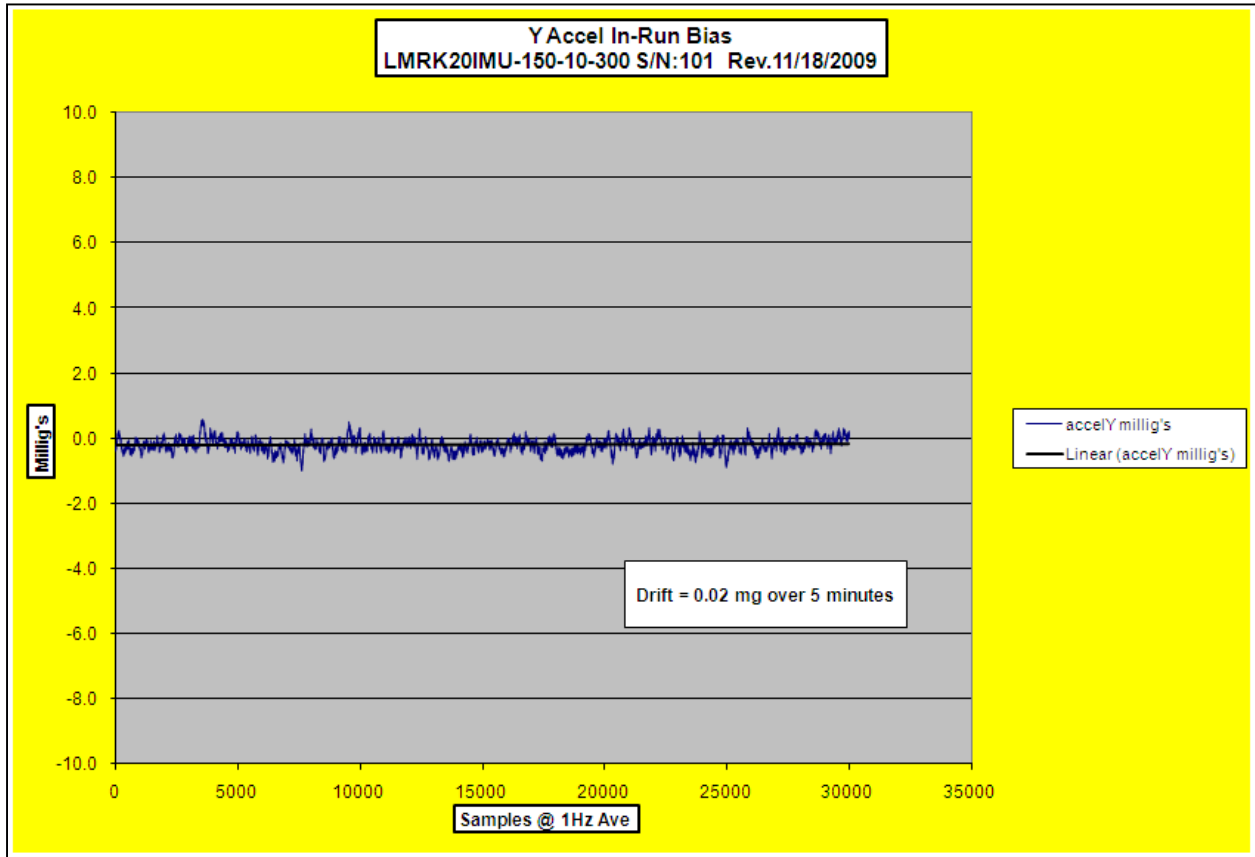


Figure 41: Y Accel In-Run Bias

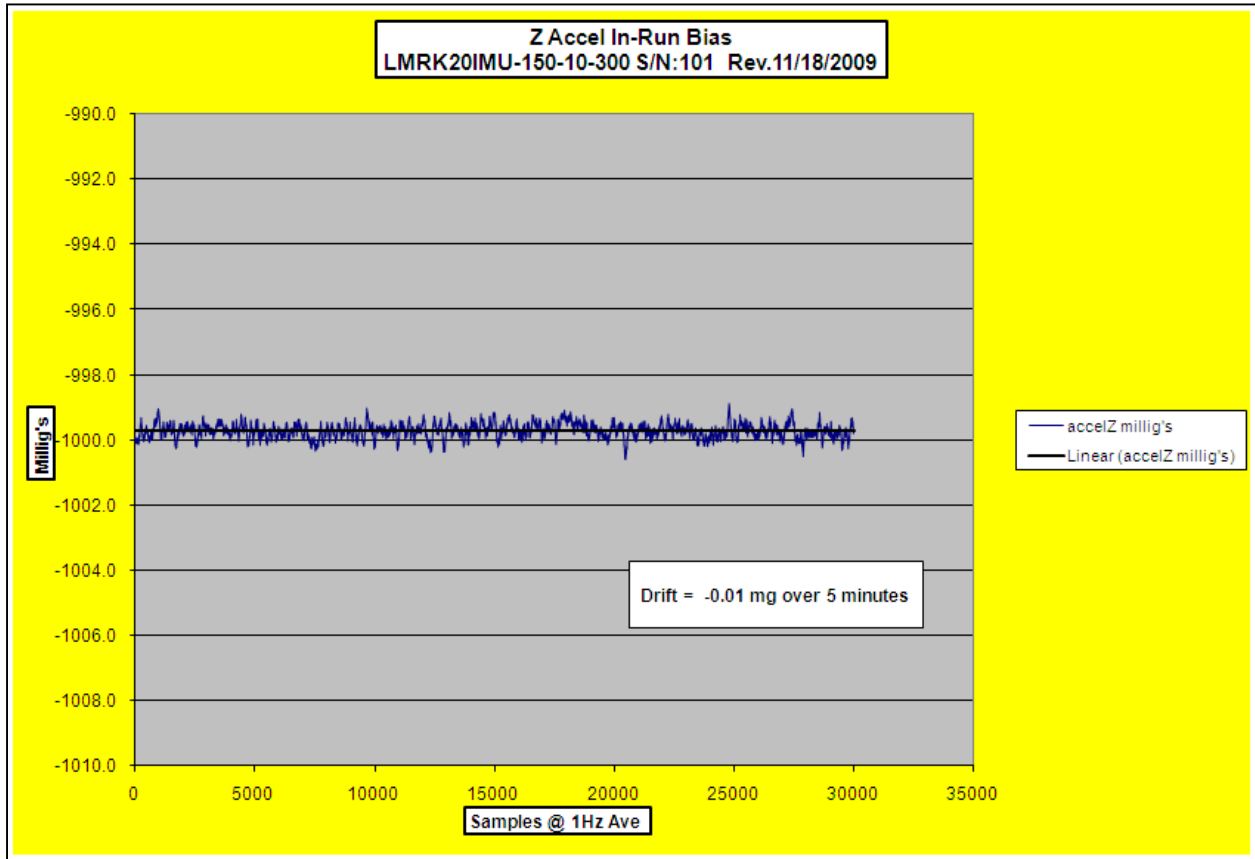


Figure 42: Z Accel In-Run Bias



17 Typical Test Data – Gyro Bias and Scale Factor over Temperature

Please find below typical 100Hz sample test data for Gyro Bias and Scale Factor Over Temperature from a production LandMark™ 20 IMU eXT “LN Series”. The charts are representative of typical performance for units with Serial Numbers 100+.

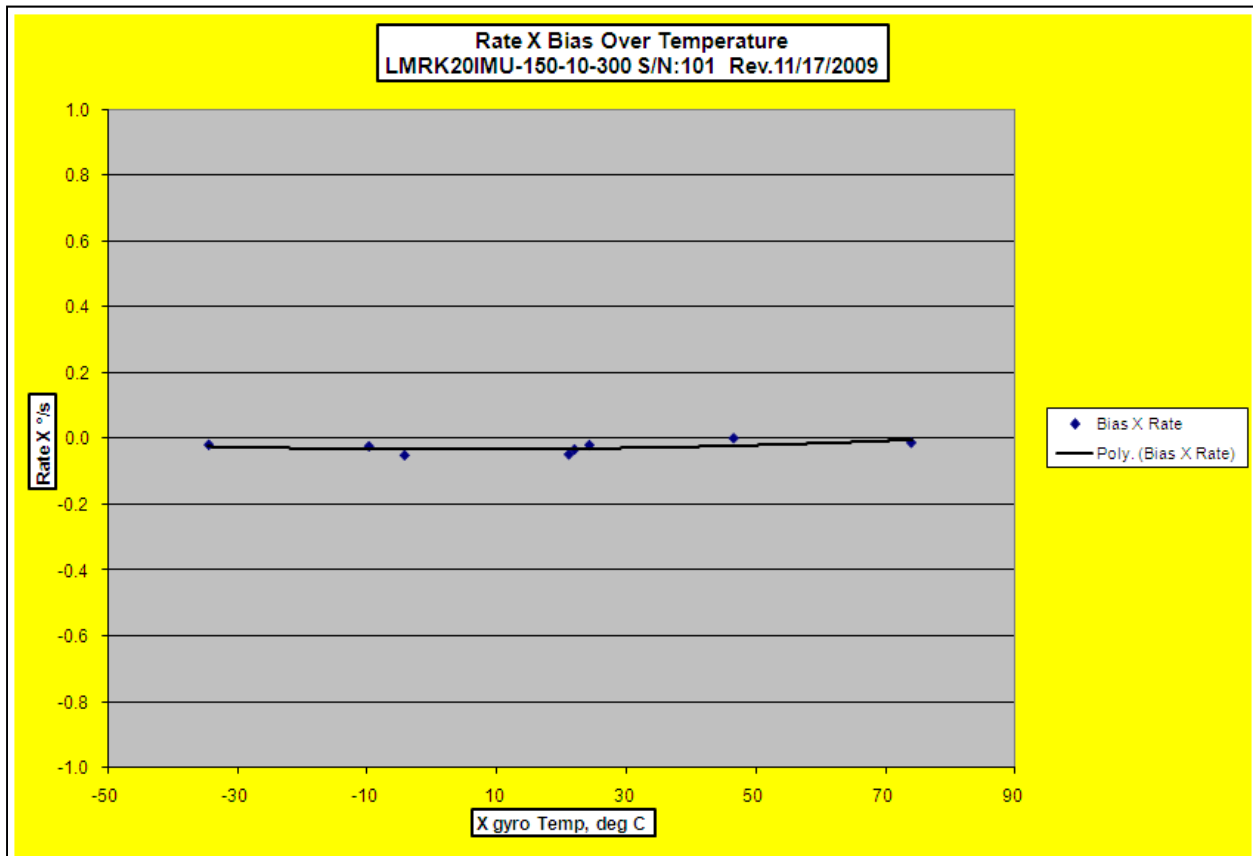


Figure 43: Rate X Bias Over Temperature

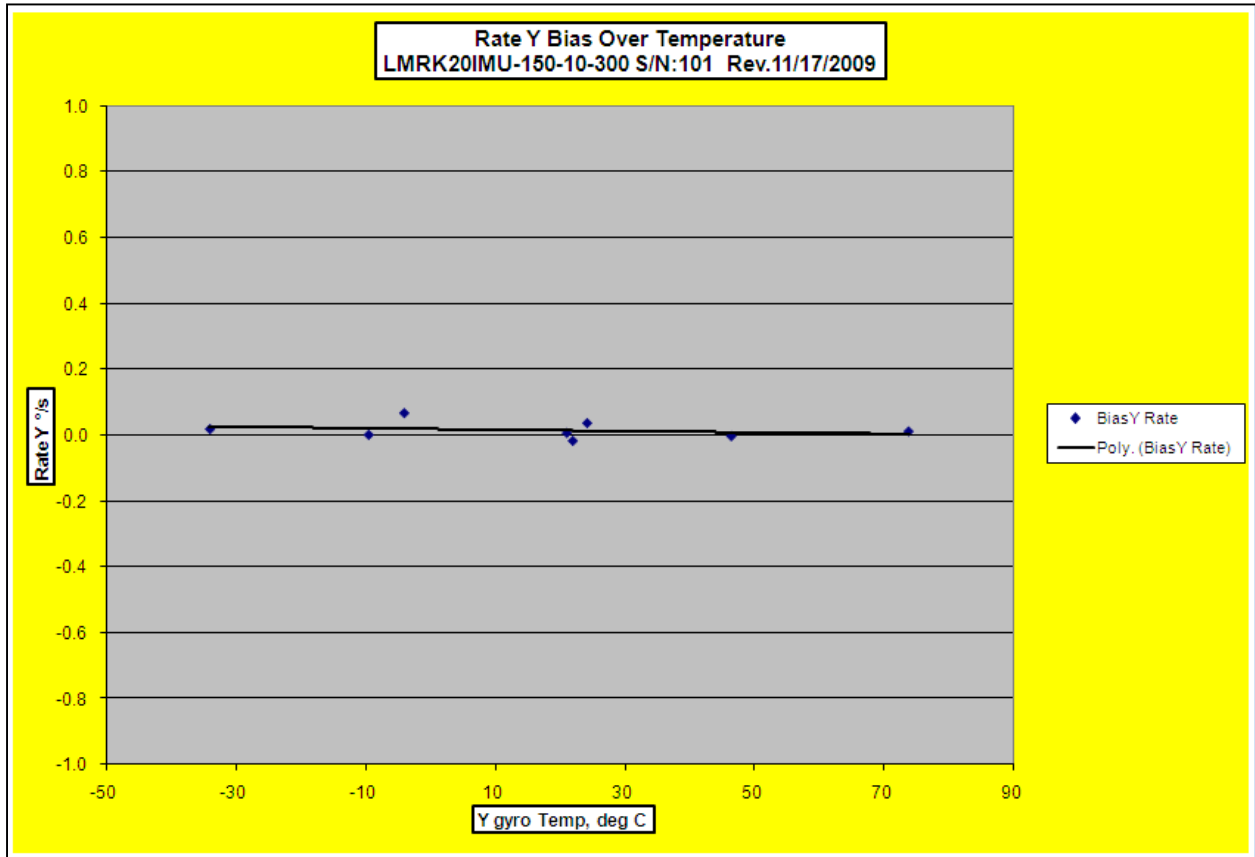


Figure 44: Rate Y Bias Over Temperature

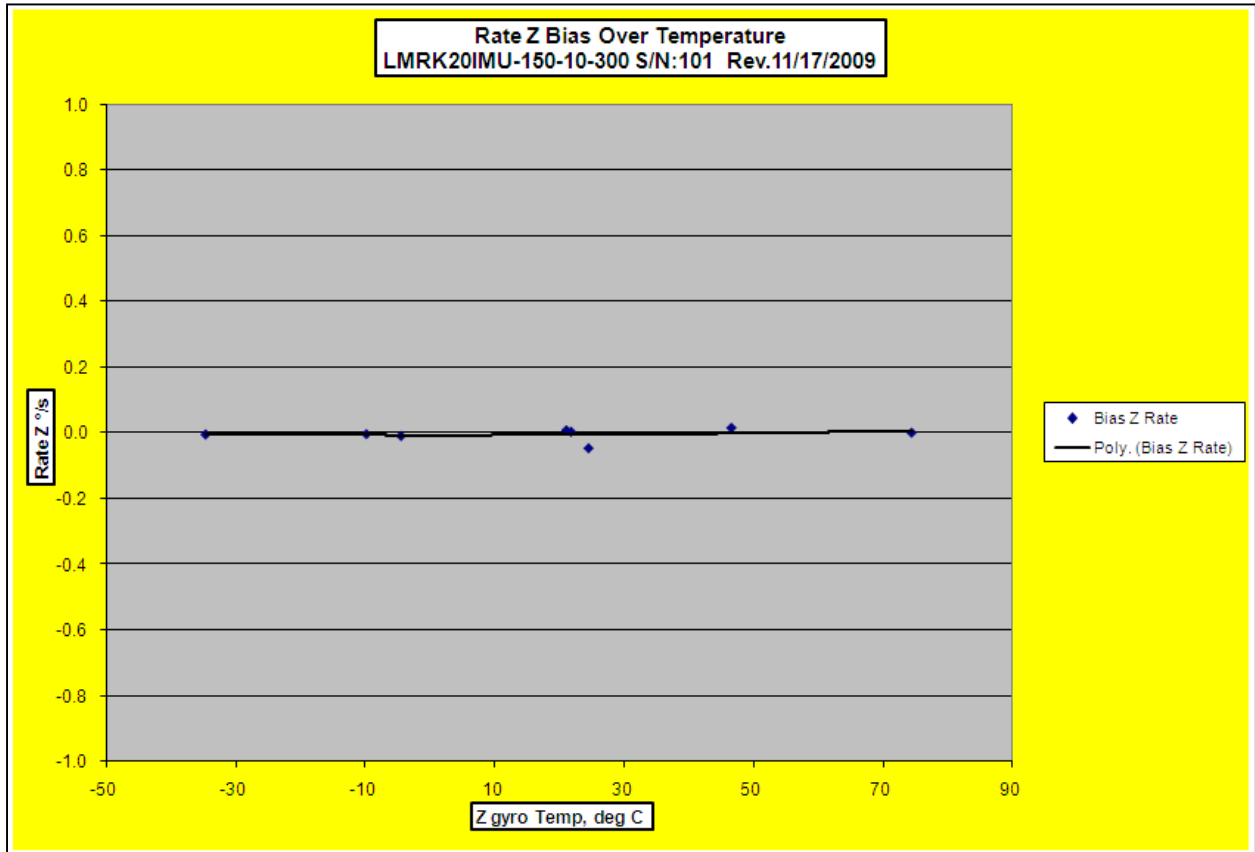


Figure 45: Rate Z Bias Over Temperature

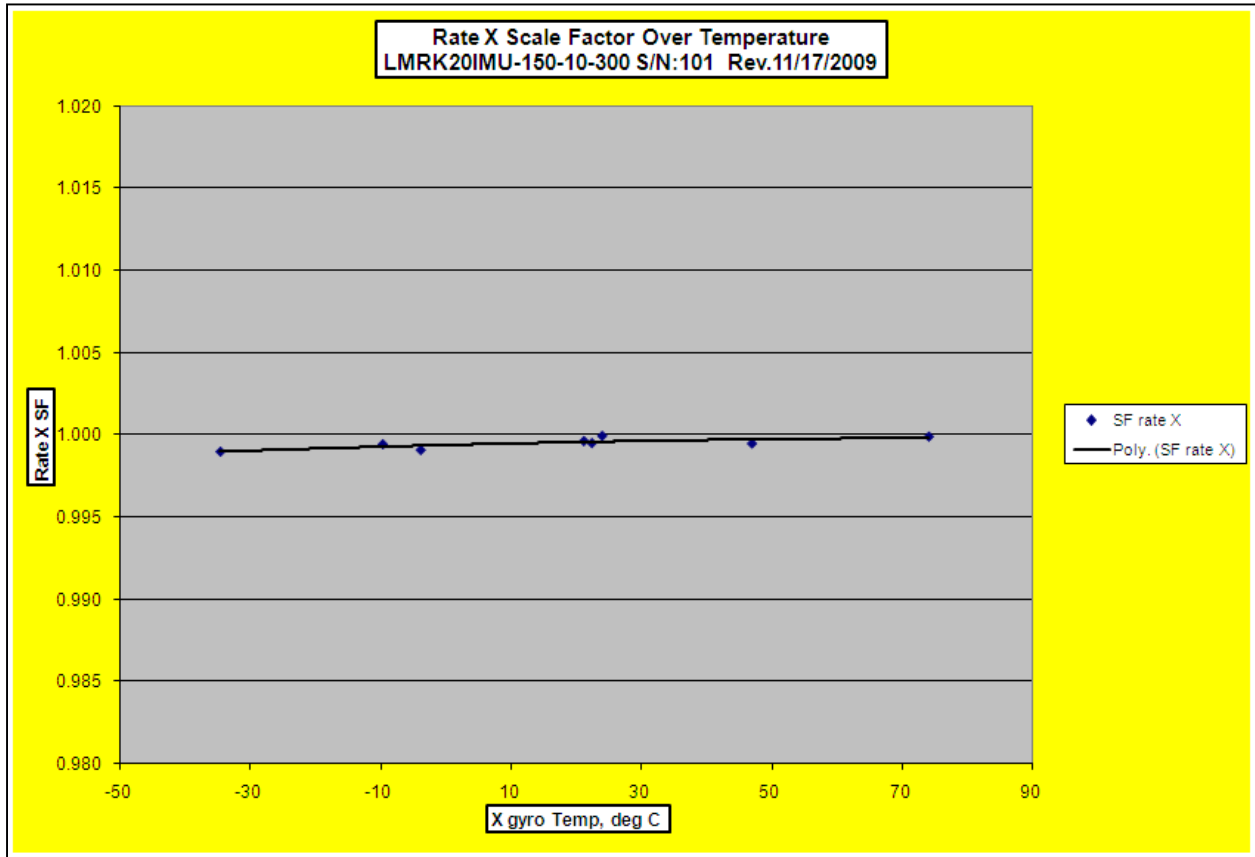


Figure 46: Rate X Scale Factor Over Temperature

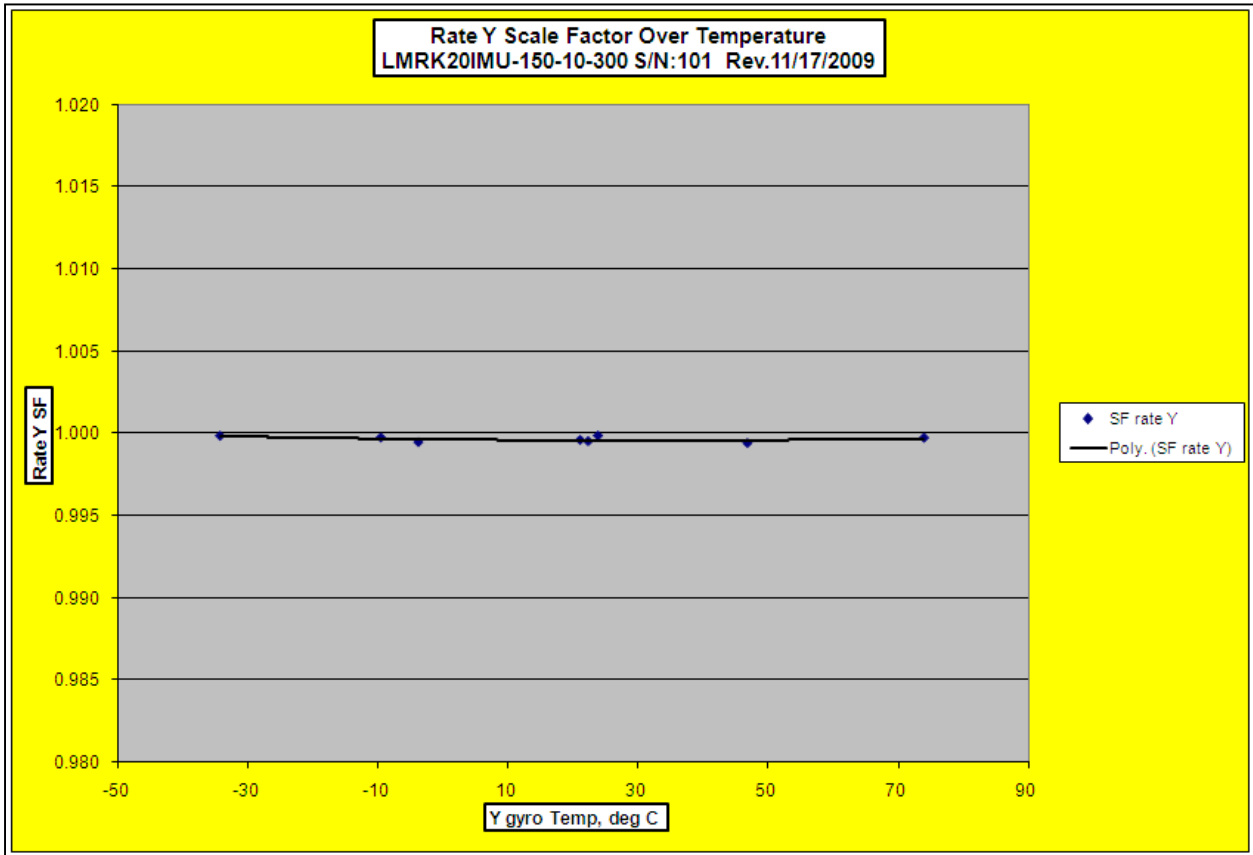


Figure 47: Rate Y Scale Factor Over Temperature

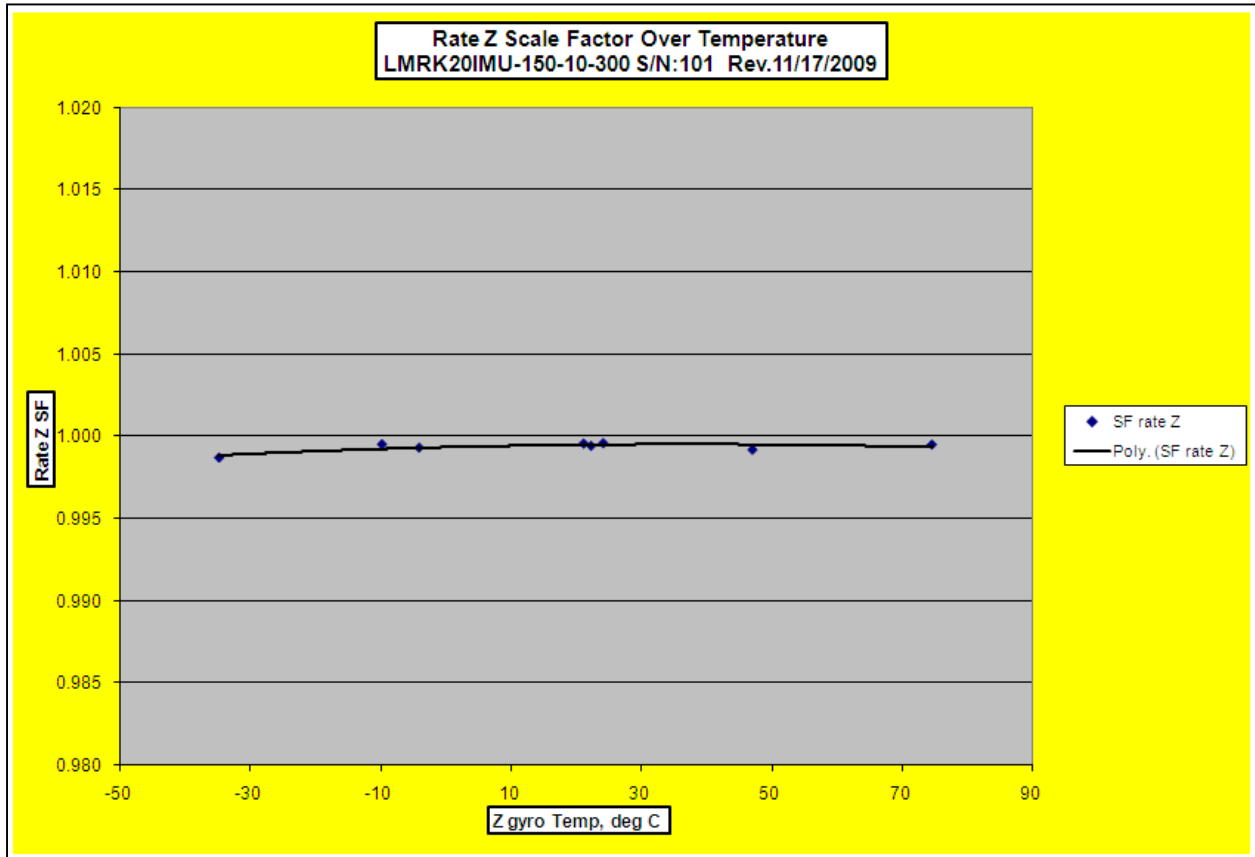


Figure 48: Rate Z Scale Factor Over Temperature



18 Typical Test Data – Accelerometer Bias and Scale Factor over Temperature

Please find below typical 100Hz sample test data for Accelerometer Bias and Scale Factor Over Temperature from a production LandMark™ 20 IMU eXT “LN Series”. The charts are representative of typical performance for units with Serial Numbers 100+.

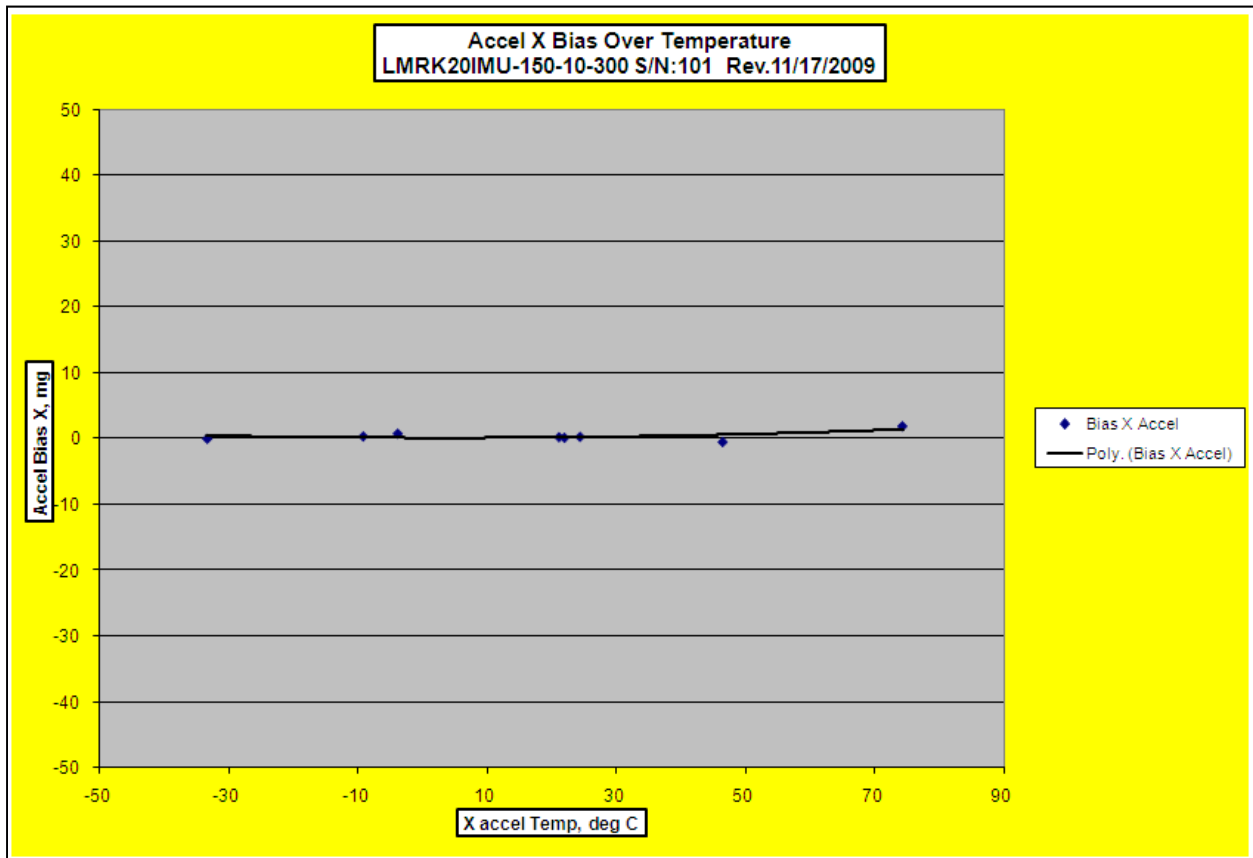


Figure 49: Accel Bias X Over Temperature

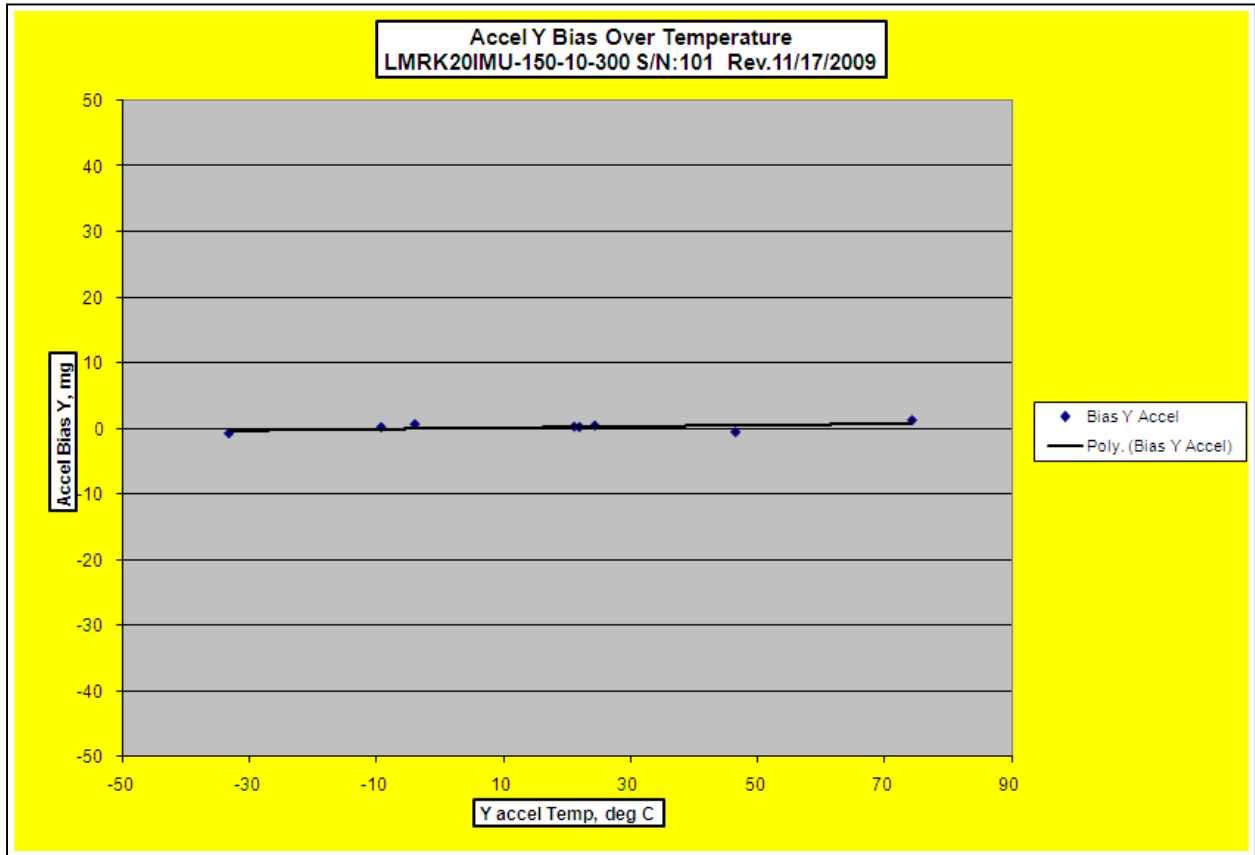


Figure 50: Accel Bias Y Over Temperature

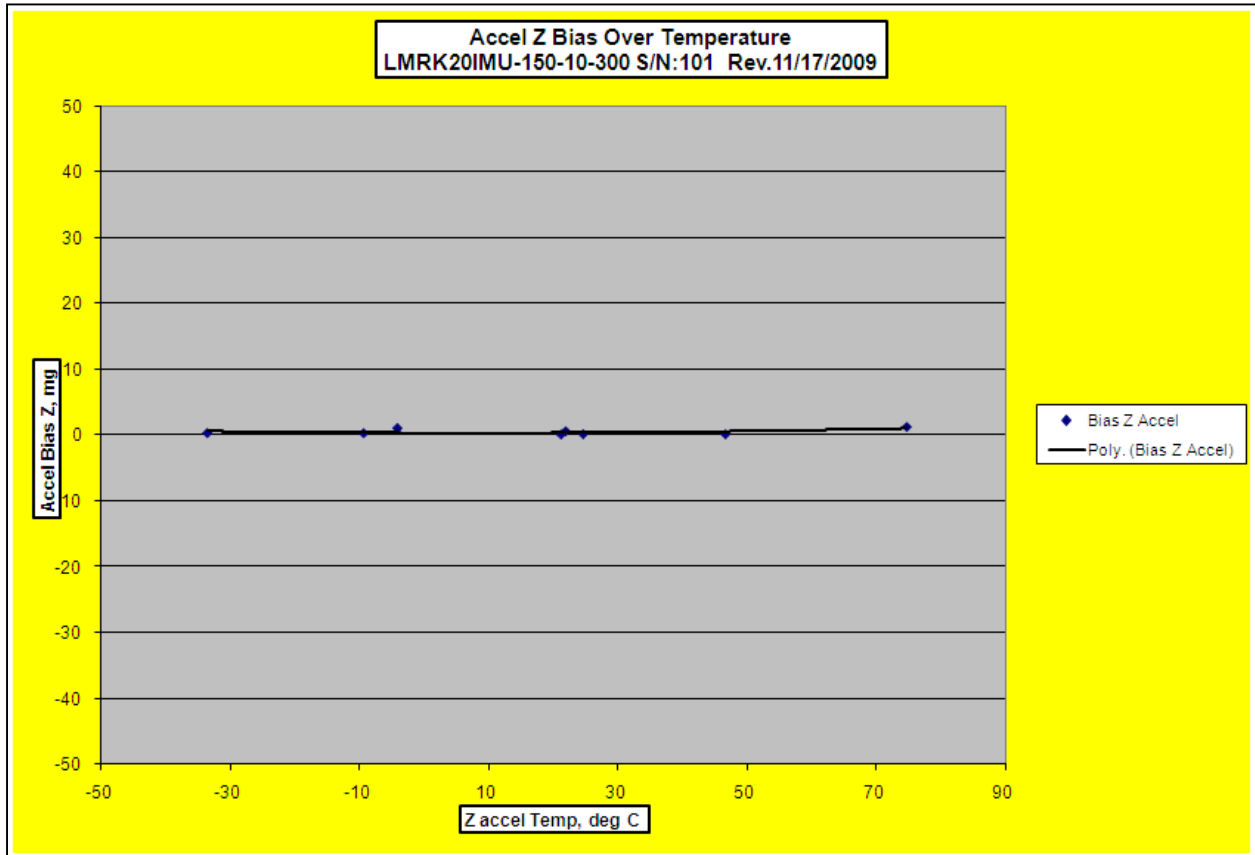


Figure 51: Accel Bias Z Over Temperature

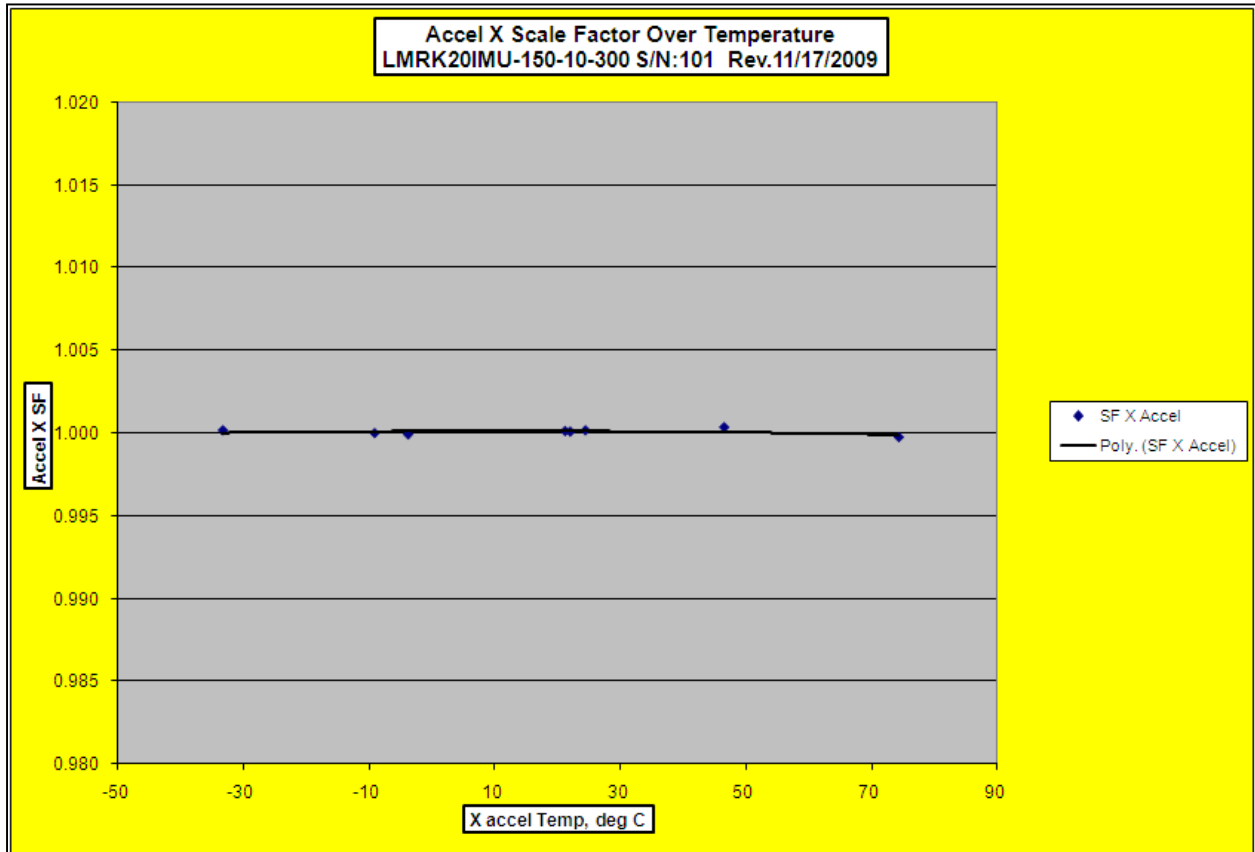


Figure 52: Accel Scale Factor X Over Temperature

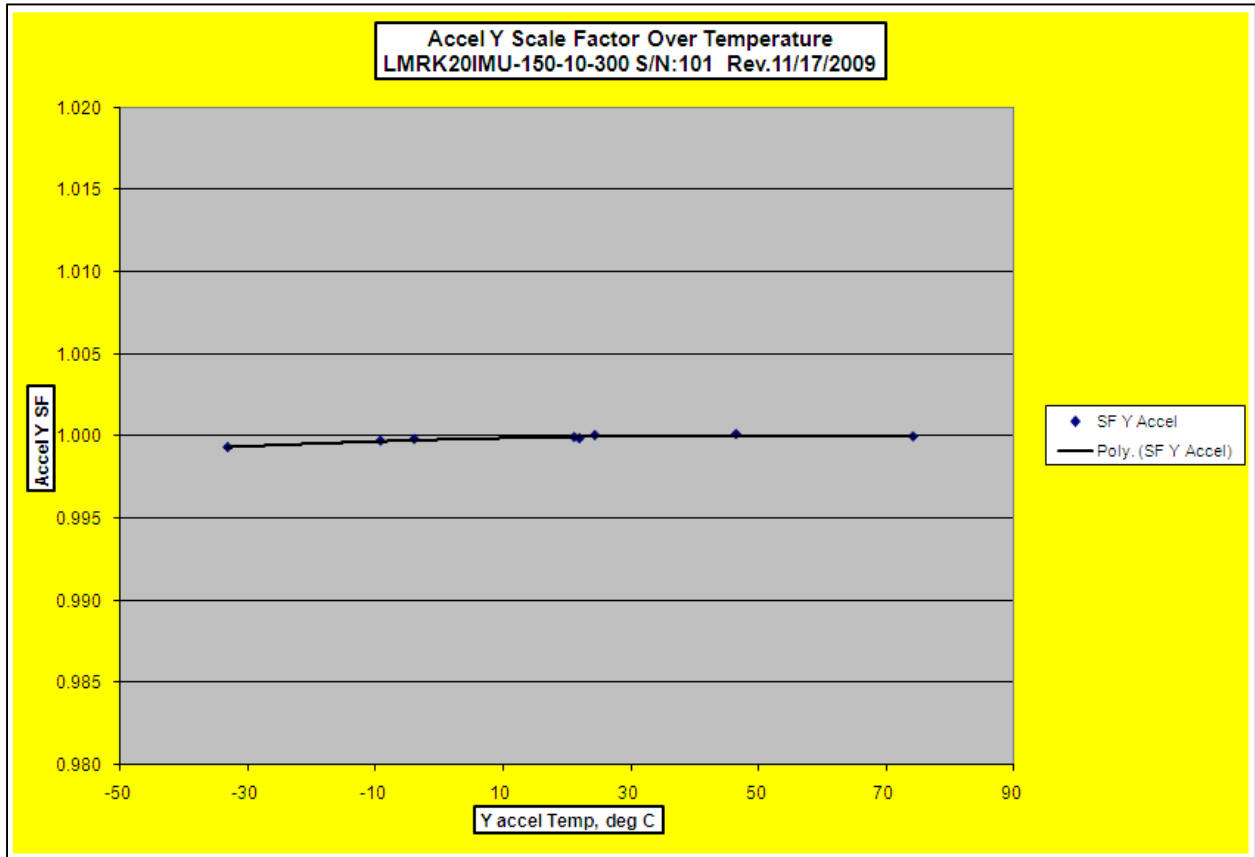


Figure 53: Accel Scale Factor Y Over Temperature

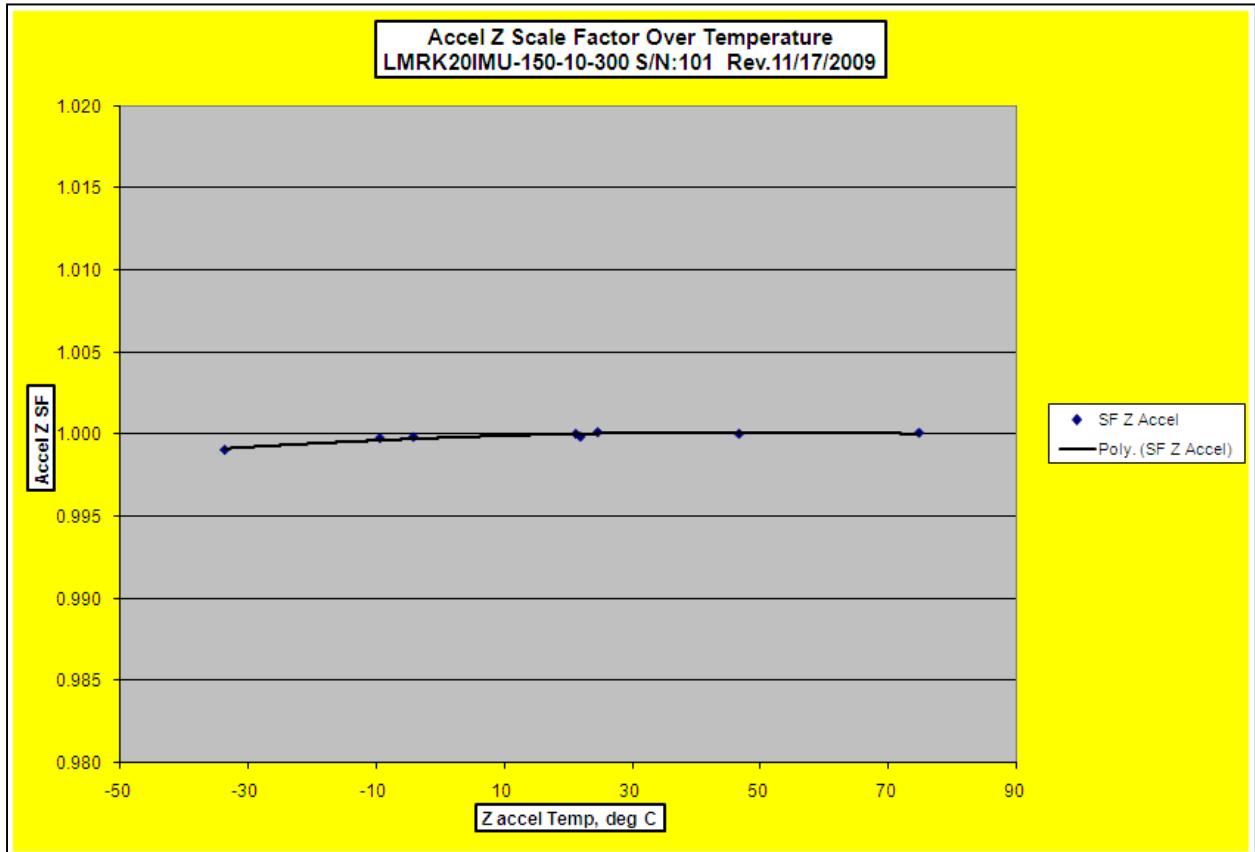


Figure 54: Accel Scale Factor Z Over Temperature



19 ATP – Rate & Accelerometer Bias, Scale Factor, Misalignment and Gyro g-Sensitivity

Please find below typical ATP test data from a production LandMark™ 20 AHRS eXT “LN Series” for user reference with 150°/sec rate range gyros and 10g linear range accelerometers.

Test	gyroX	gyroY	gyroZ	accelX	accelY	accelZ	temp X
Bias °/s,mg	0.02	-0.01	0.01	0.52	-0.79	-0.09	21.73
ASF Norm				1.0001	1.0002	0.9999	Temp °C
				Input g = Accel In			
Gyro °/s /g				g's			
x	0.00	0.00	-0.01	x			
y	0.01	0.00	0.00	y			
z	0.00	0.00	0.00	z			
					Accel		
					Mis-Align	mrads	Accel In
					0.83	-0.02	x
				-0.56		-0.54	y
				-0.55	-0.09		z

Figure 55: Gyro & Accel Bias, Accel SF, Gyro g-Sensitivity & Accel Misalignment

Test	gyroX	gyroY	gyroZ	accelX	accelY	accelZ	temp X
RSF Norm	0.999718	0.999655	1.000087				Temp °C
							21.64
Gyro				Input Rate			
Mis-Align				deg/sec			
x		0.04	0.03	x			
y	-0.08		0.01	y			
z	0.01	0.02		z			
Gyro				Input Rate			
Mis-align				mrad			
x		0.55	0.38	x			
y	-1.08		0.13	y			
z	0.18	0.21		z			

Figure 56: Gyro SF, Gyro Misalignment



20 Power Supply Sensitivity

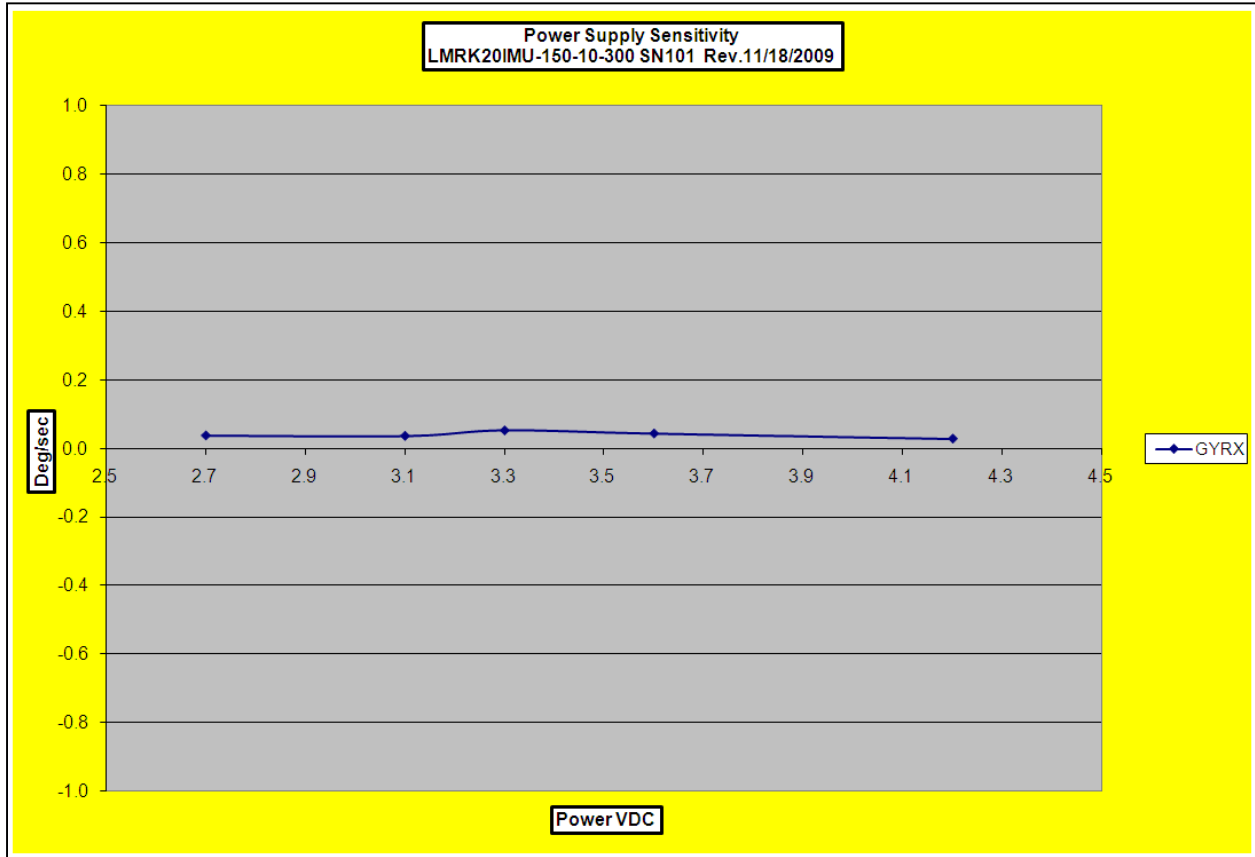


Figure 57: Power Supply Sensitivity