



Reliability Report

Report Title:	ADIS16488 at IMI with Magnetometer Revision
Report Number:	16131
Revision:	A
Date:	8 October 2020

Summary

This report documents the successful completion of the reliability qualification requirements for the release of the ADIS16488 with IMI as an assembly site and a magnetometer change. The magnetometer change is from a 3-axis magnetometer chip to one single-axis and one dual-axis component. The reason for change is obsolescence of 3-axis magnetometer chip by the component manufacturer. There was a minor layout change to printed circuit boards to accommodate components. The ADIS16488 is a precision, microelectric mechanical system (MEMS), inertial measurement unit (IMU) that includes a triaxial gyroscope, triaxial accelerometer, triaxial magnetometer, and pressure sensor. This qualification report is applicable to the following products that share the same product characteristics shown in Table 1 (note - the magnetometer change is not applicable to the ADIS16485 and ADIS16489).

- ADIS16480BMLZ
- ADIS16485BMLZ
- ADIS16488BMLZ
- ADIS16488CMLZ
- ADIS16489BMLZ-P
- CLX-120816-100

Table 1: ADIS16488 Product Characteristics

Package	24-MCML
Body Size (mm)	44.00 x 47.00 x 14.00
Assembly Location	IMI
SMD Solder	SAC305
Underfill	Hysol FP4545FC
Adhesives	Loctite 3563
Lead Finish	Gold
Gyro and Accelerometer Core	Process codes: IMEM2WL1M24.A0 Fab Site: I_WILM1B06

Description / Results of Tests Performed

Tables 2 and 3 provides a description of the qualification tests conducted and the associated test results for products manufactured on the same technologies as described in Table 1. All devices were electrically tested before and after each stress. Any device that did not meet all electrical data sheet limits following stressing would be considered a valid (stress-attributable) failure unless there was conclusive evidence to indicate otherwise.

Table 2: Qualification Test Results for ADIS16488.

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
High Temperature Operating Life (HTOL)	JESD22-A108	+110 Ta, 1000 Hrs.	ADIS16488	Q16131.1	16	0
Temperature Cycling (TC)	JESD22-A104	-40°C/+105°C, 1000 Cycles	ADIS16488	Q16131.2	16	0

Table 3: Qualification Extension Data

Test Name	Specification	Conditions	Device	Sample Size	Qty. Failures
High Temp Operating Life (HTOL)	JESD22-A108	500 Hrs. +110°C Ta	CLX-130818-100 ADIS16485 variant with 18g accelerometer, Parylene @ SCS USA	16	0
Temperature Cycle	JESD22-A104	1000 Cycles -55 to +85°C	CLX-130818-000 ADIS16485 variant (5g accelerometer, Parylene)	15	0
HTOL	JESD22-A108	500 Hrs.,+110°C Ta		15	0
Mechanical Shock	MIL-STD-883, TM 2002	2000 g's		5	0
HTOL	JESD22-A108	500 Hrs.+85°C Ta		15	0
Temperature Cycle	JESD22-A104	500 Cycles, -40 to +85°C	ADIS16485 Non-Parylene Variant	10	0
Mechanical Shock	MIL-STD-883, TM 2002	2000 g's		10	0
Random Vibration	MIL-STD-202, TM 214A	Condition C		3	0
Temperature Cycle	JESD22-A104	1000 Cycles, -55 to +85°C		6	0
Mechanical Shock	MIL-STD-883, TM 2002	2000 g's	ADIS16489 (Parylene)	16	0
HTOL	JESD22-A108	500 Hrs.,+110°C Ta		5	0
				16	0

Samples of the ADI internal component technologies contained herein are continuously undergoing reliability evaluation as part of the ADI Reliability Monitor Program. Additional qualification data is available on [Analog Devices' web site](#).

Approvals

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Additional Information

Data sheets and other additional information are available on [Analog Devices' web site](#)