

OWNER: Test Engineer

APPROVAL: Test Manager

1. PURPOSE, SCOPE AND APPLICABILITY

- **1.1. Purpose:** It is the purpose of this document to outline the steps taken to perform the Tennant 1269799 Functional Test.
- **1.2. Scope and Applicability:** This document provides instructions for performing the Tennant 1269799 Functional Test.

2. PROCESS OWNER AND RESPONSIBILITIES

- **2.1.** Minnesota Test Department is the owner of this procedure.
- **2.2.** It is the responsibility of anyone performing the Tennant 1269799 Functional Test to follow this work instruction.

3. REFERENCES AND DEFINITIONS

3.1. References:

3.1.1. MS-101MN - Management System Manual
3.1.2. ISO 9001
3.1.3. AS9100
3.1.4. ISO 13485
3.1.5. 21 CFR 820 – US Code of Federal Regulations, Quality Management Systems

3.2. Definitions:

3.2.1. UUT: Unit Under Test

4. PROCEDURE

4.1. PROGRAMMING

4.1.1. Open the "Einstein Power Control" application.



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4.1.2. Open the "LM Flash Programmer" application.



4.1.3. In the LM Flash application, select the firmware for whichever assembly is being ran by selecting "Browse".

Configura	ation Program Flash Utilities	Other Utilities			Help
- Select .	bin file				
	birriic				
C:\Te	ennant\1259268 & 1259269\10	00_IRIS_TM4_Slave_Pr	roduction_Ima	Browse	
Options					
Erase	Method:				
Ö	Erase Entire Flash - (faster) Frase Necessary Pages - (slov	ver)			
Ve	erify After Program				
Re Re	eset MCU After Program				
Progra	am Address Offset: 0x 0				
	1				
P	rogram			Hardware Res	et
	🦆 Texas	6 Instr	UMI	ENTS	5
Verify Co	TEXAS	5 Instr	UMI	ENTS	5
Verify Co Figure	mplete - Passed	6 Instr	UMI	ENTS	5
Verify Co Figure	TEXAS	5 Instr	UMI	ENTS	5
Verify Co Figure	mplete - Passed 3 r + Local Disk (C:) + Tennant +	6 Instr	CUMI	ENTS Search Tennant	5
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Verify Co Figure Figure New fold wnloads inies iccuments usic tures leos iputer cal Disk (C;)	TEXAS	Date modified 2/17/2016 5:57 AM 12/2/2016 5:44 AM 2/11/2021 9:47 AM 3/14/2023 9:50 AM	VUMI v (*) Type File folder File folder File folder File folder	Search Tennant	5
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- 4.1.4. Select the appropriate file as shown below.
 - If testing the **1269799**, select the 1000_IRIS_TM4_Slave_Production_Image_0632.bin file.
- 4.1.5. Once the correct file is selected, insert the unit onto the fixture and plug the cable into J3.





4.1.6. Click the "Power On" button of the Einstein Power Control application.





4.1.7. Click the Program button. The application will automate the programming for about 20 seconds.

UM Flash Programmer - Build 1381	
Configuration Program Flash Utilities Other Utilities	Help
Select .bin file	
C:\Tennant\1259268 & 1259269\1000_IRIS_TM4_Slave_Produ	iction_Imag Browse
Options	
Erase Method:	
C Erase Necessary Pages - (slower)	
Verify After Program	
Reset MCU After Program	
Program Address Offset: 0x 0	
Program	Hardware Reset
🕂 🕂 Texas Instru	JMENTS
Verify Complete - Passed	
Figure 8	

4.1.8. Once "Verify Complete – Passed" is shown, click Power Off of the Einstein Power Control application.

Programming78%	

Figure 9



Figure 10

💀 Einstein Power Control	x
Power On	
Power Off	
The Power is C)ff



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4.2. FUNCTIONAL TESTING

4.2.1. Open the "AMII Functional Test" application.



4.2.2. Scan the barcode and click button shown below.

TENNANT AMII Functional Test with Zigbee retry Bar Code 26909463_0102 Scan Bar Code and click here to Start Test	UUT Serial Port B
Measurement Computing USB-1208LS found.	slave Serial Port B

Figure 13



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4.2.3. The application will ask for LEDs being on / flashing.



Figure 14



Figure 15



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4.2.4. If LEDs work properly, click PASS.

4.2.5. The test will finish automatically.

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TENNANT AMII Functional Test	UUT Serial Port B
with Zigbee retry Bar Code	>ARM_12345678_042582_112210_0000000.txt >Engparam
Scan Bar Code and click here	>300000.81=0000.84=6.31, 89=1.91=40.92=20.93=40.94=150.95=2.98=0 >Functiontest1
Test Passed	>FRAM PASS RTC PASS FLOSH PASS ZIGBEE PASS MODEM PASS CANI PASS SHUNT 1085 E
Bar Code 26909463_0102 AMII start test at 3/22/2023 12:23:58 PM OK. UUT response to the first serial port B command (Infof) was >Infof	ANALOS PASS DIGITAL PASS VOLTS 1199 DONE
>ARM_12345678_042582_112210_0000000 bt > OK Stave response to the first serial port B command (Infof) was "ARM_12345678_00000_000044_80013106904030099769.csv" OK The Engparam board firmware is 84=631 The Operator accepted the LED states.	>CANZ PASS ANALOG PASS DIGITAL PASS DONE >
The test has passed.	Slave Serial Port B
Saving the results as C\TestResults\26909463_0102_20230322_122358_Passed bt	Infof "ARM_12345678_000000_000044_89013106904030099769.csv"



4.2.6. Repeat from step 4.1.5 for additional units.

5. RECORDS

N/A

6. REVISION HISTORY

Revision History			
Revision	Description	Approval	Date
А	Initial Release	Toby Threm	1/24/2017
В	Updated Format + Additional Assemblies	Aaron Lounsbrough	3/22/2023
С	Added 1269799 assembly to Header , Section 1 & Section 2 Updated firmware selection in Section 4.1.4 Removed references for obsolete assemblies in Header , Section 1 & Section 2	Andy Benson	03/04/2025