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Test Report

Qi ID: 13772

Report No.: MTi220713010-01Q1

Date of issue: August 28, 2022

Applicant: Shenzhen Injoinic Technology Co.,Ltd

Product name: Qi Wireless Charging TX Module
(Subsystem)

Model(s): LZX01025

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>



Test Report

Report No......: MTi220713010-01Q1

Test engineer.....: Carlton Che

Carlton
Reviewer.....: Micro Liang

MICRO
Approver.....: Tom Xue

Tom Xue
Date of issue.....: August 28, 2022

Test laboratory.....: **Shenzhen Microtest Co., Ltd.**
Address.....: 101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Applicant.....: **Shenzhen Injoinic Technology Co.,Ltd**
Address.....: Room 3104, block A, building 8, Shenzhen International Innovation Valley (block 8, block C, Wanke Yuncheng phase III)Dashi Road

PPDE test specification.....: **Samsung Proprietary Extension Specification 1.1.0**
Standard(s).....: The Qi Wireless Power Transfer System Power Class 0 Samsung Proprietary Extension Specification Compliance Tests and Test Equipment Version 1.1.0 November 2020

Description of DUT (Device Under Test)
Brand.....: LongZiXin

Manufacture.....: SHENZHEN LONGZIXIN ELECTRONICS CO.,LTD

Address.....: B1306, 13th floor, Baolong building, No. 2, Longguan West Road, Dalang street, Longhua District, Shenzhen

Product category.....: Samsung PPDE Transmitter

Coil design.....: A11a

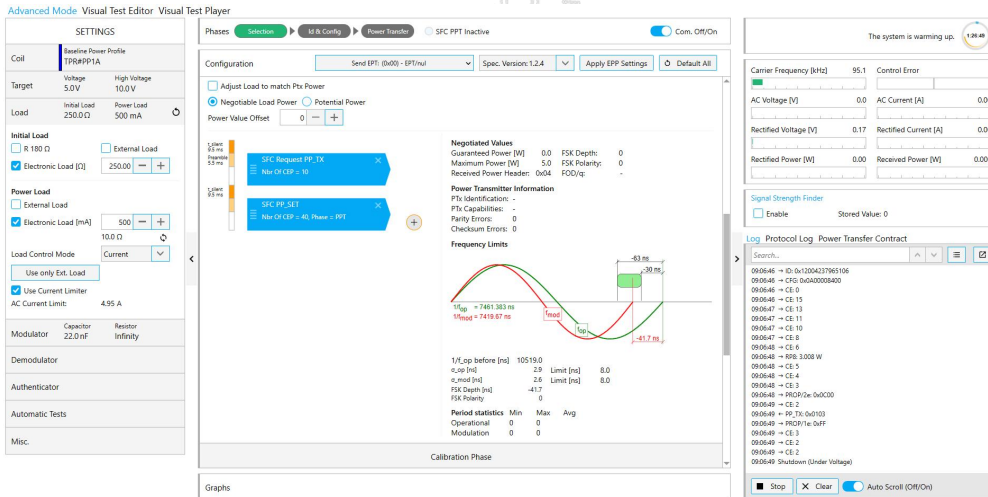
Product name.....: Qi Wireless Charging TX Module (Subsystem)

Model(s).....: LZX01025

Summary of test					
Power source:		Lab Power Supply			
		Rating: 9V/2A			
PRMC Code (PPDE Test)		0*0042			
Date(s) of test:		August 27, 2022			
Test result:		See the test results			
Test Conditions					
Ambient temperature:		22 °C - 25 °C			
Relative humidity:		20 % - 75 %			
Test equipment list					
No.	Equipment	Manufacturer	Model	S/N	Next Cal. date
1	CATS II BST	NOK9	CATS II BST	200147-1836	2022-12-15
2	Oscilloscope	Tektronix	MDO 3054	C016335	2023-06-06
General remarks:					
<p>This test report shall not be partially reproduced without the written consent of the laboratory.</p> <p>The test results of this test report are only responsible for the samples submitted.</p> <p>This test report is invalid without the seal and signature of the laboratory.</p> <p>This test report is invalid if transferred, altered, or tampered with in any form without authorization.</p> <p>Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.</p>					

The compliance test results for Samsung Proprietary Extension Transmitter

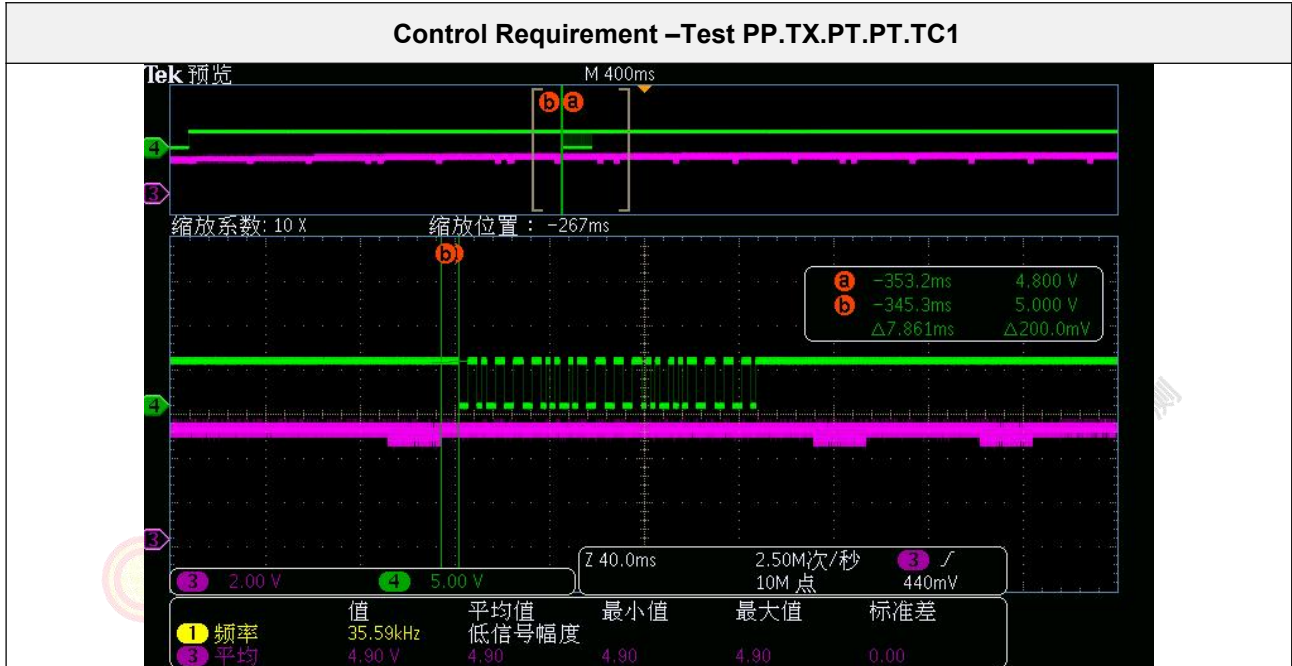
Test item	Requirement	Result
Samsung Proprietary Extension Safety Tests (Normative)		
Frequency modulation-PP.TX.COM.MOD - Test P.TX.COM.MOD.TC1	The difference of the average lengths satisfies the relation $-63.25 \text{ ns} \leq T1-T2 \leq -30.25 \text{ ns}$	Pass
System Control Requirement - Test PP.TX.PT.PT.TC1	The BSUT responds with an FSK Packet (PP_TX) within $3.0 \leq t_{fsk_delay} \leq 10.0 \text{ ms}$ from the end of the Control Error Packet	Pass
System Control Requirement - Test PP.TX.PT.PC.TC1	Fails if the BSUT responds with Proprietary Packet (PP_TX) before PRx sends PRx Proprietary Packet (Request PP_TX) Passes if the BSUT responds with an FSK Packet consisting of 0x02: 0x01: 0x03 (checksum) Fails if the BSUT responds with BSUT Proprietary Packet (PP_TX or TX_Type) after receiving PRx Proprietary Packet (Request TX Type), except for Samsung wireless charger	Pass
System Control Requirement - Test PP.TX.PT.PCONTROL.TC1	The measured rectified voltage complies with the values specified in Table 3 of the standard	Pass
System Control Requirement - Test PP.TX.PT.PCONTROL.TC2	The measured rectified voltage complies with the values specified in Table 3 of the standard	Pass
Base Station compliance tests for the Samsung Proprietary Extension (Normative)		
Foreign Object Detection - Test PP.TX.PERF.FOD.PP.TC1(a)	The temperature of representative Foreign Object #1 remains below 60°C throughout the test	Pass
Foreign Object Detection - Test PP.TX.PERF.FOD.PP.TC1(b)	The temperature of representative Foreign Object #1 remains below 60°C throughout the test	Pass
Foreign Object Detection - Test PP.TX.PERF.FOD.PP.TC1(c)	The temperature of representative Foreign Object #2 remains below 60°C throughout the test	Pass
Foreign Object Detection - Test PP.TX.PERF.FOD.PP.TC1(d)	The temperature of representative Foreign Object #3 remains below 80°C throughout the test	Pass
Foreign Object Detection - Test PP.TX.PERF.FOD.PP.TC1(e)	Passes, if the BSUT completes the load ramp from 100 mA to 1000 mA without terminating the power transfer. Fails, if the BSUT terminates the power transfer at a load current below 1000 mA.	Pass
Oversvoltage Protection Test - Test ptx-pow-ovp-pp-1	The recorded rectified voltage does not exceed 20.0 V at any time, and Does not exceed 16.00 V in between Packets from 500 ms after the load step until the end of the recording	Pass
Thermal Performance - Test PP.TX.POW.TEMP	The top-surface temperature of TPR-THERMAL-PP (as measured by the thermocouple of TPR-THERMAL-PP) is less than 12.0°C above the ambient temperature throughout the measurement	Pass

Test Result: Frequency modulation
Frequency modulation – Test PP.TX.COM.MOD.TC1


Test PP.TX.COM.MOD.TC1: The difference of the average lengths T1 - T2 = -41.7 ns.

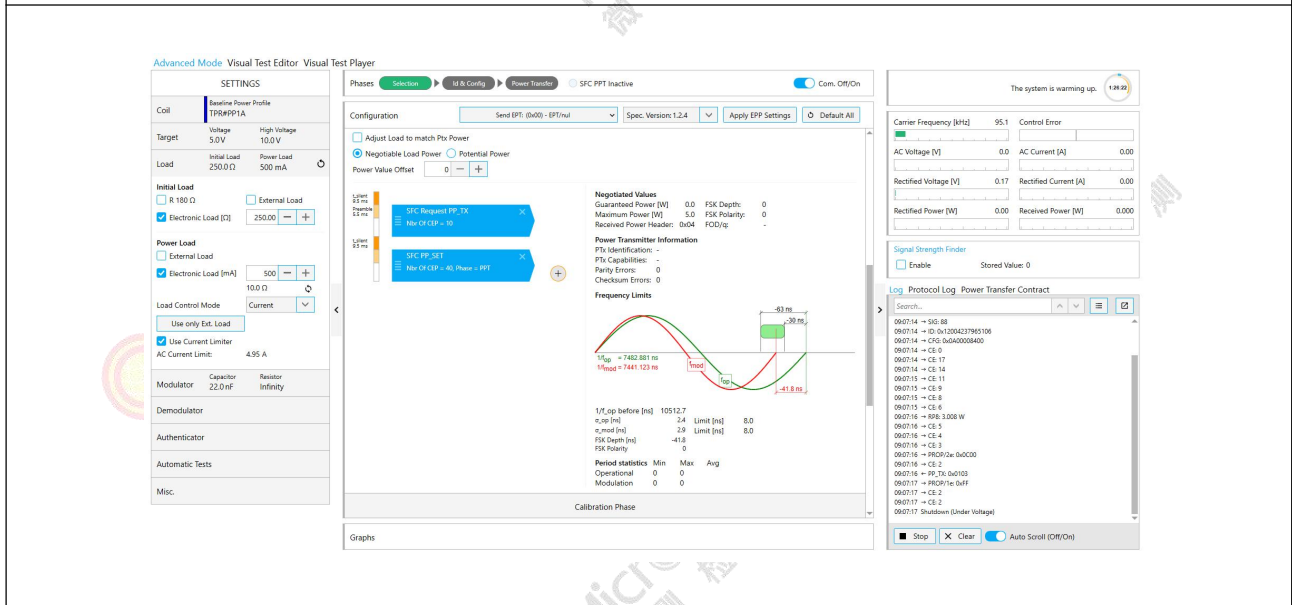
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Test Result: System Control Requirement



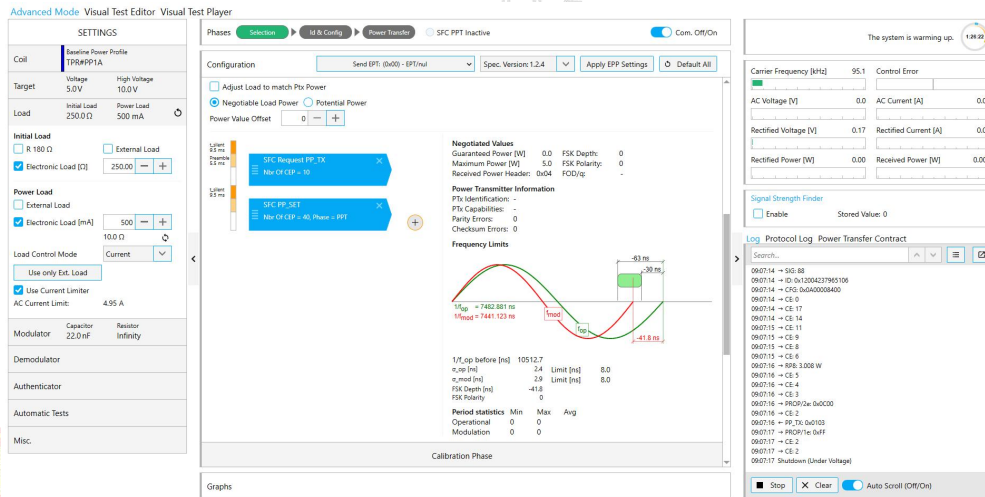
Test PP.TX.PT.PT.TC1: The time that BSUT responds with an FSK Packet (PP_TX) from the end of the Control Error Packet was 7.86 ms.

Control Requirement – Test PP.TX.PT.PC.TC1

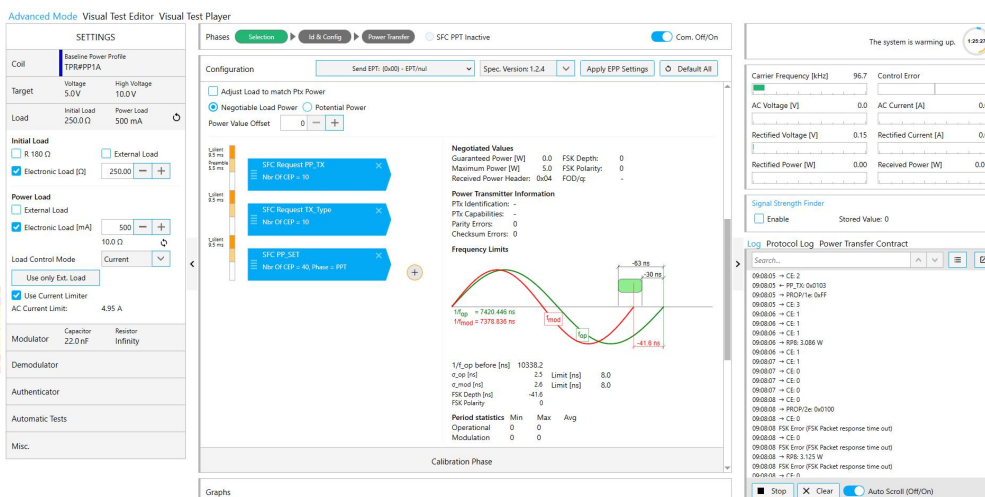


Test PP.TX.PT.PC.TC1: The BSUT responds with an FSK Packet consisting of 0x02: 0x01: 0x03 (checksum).

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Test Result: System Control Requirement
Control Requirement – Test PP.TX.PT.PC.TC1


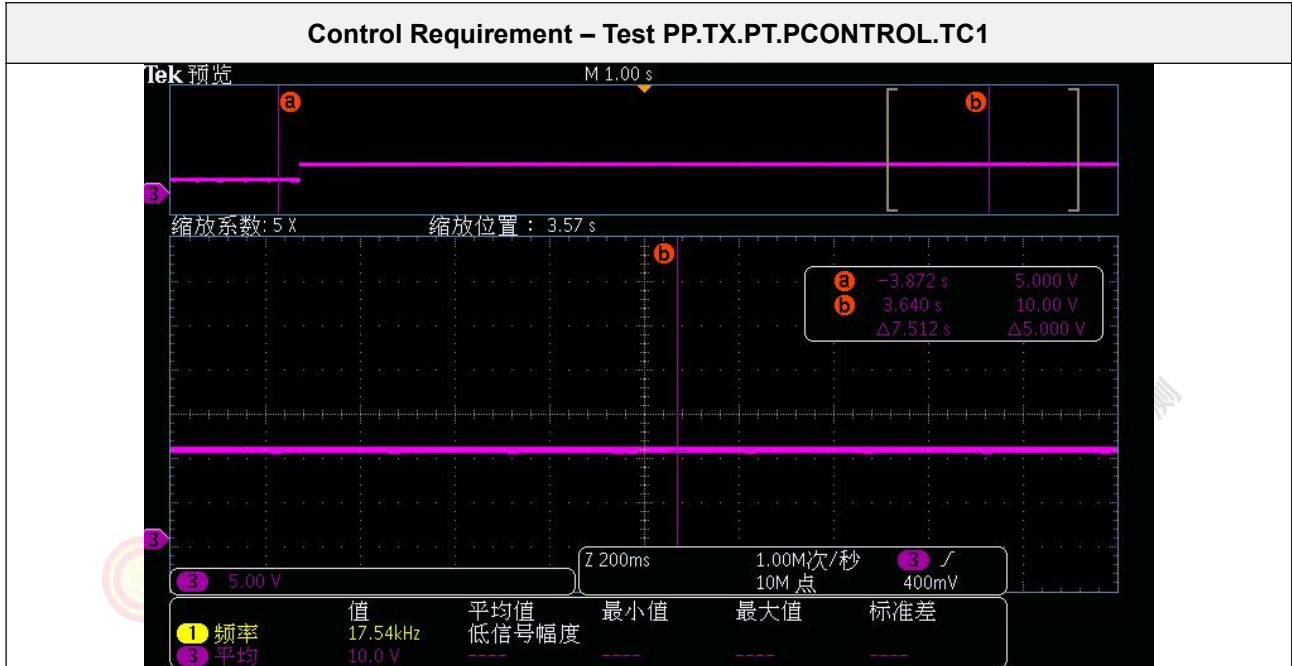
Test PP.TX.PT.PC.TC1: The BSUT does not responds with Proprietary Packet (PP_TX) before PRx sends PRx Proprietary Packet (Request PP_TX).

Control Requirement – Test PP.TX.PT.PC.TC1


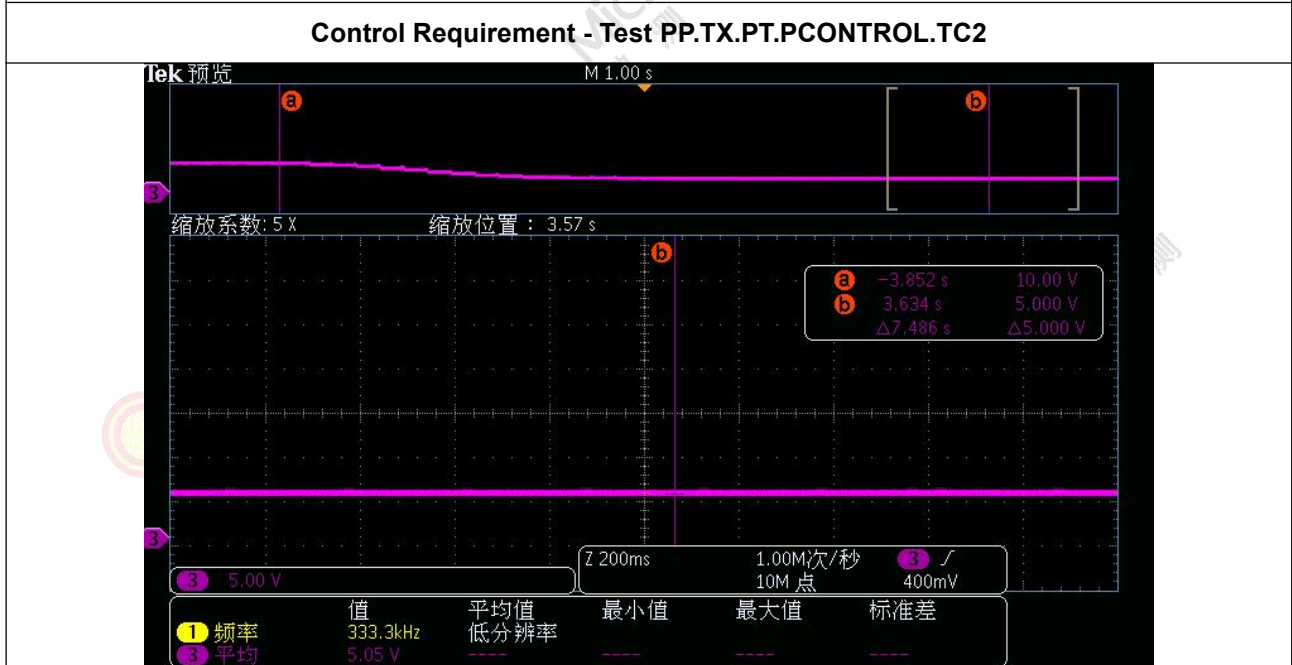
Test PP.TX.PT.PC.TC1: The BSUT does not responds with BSUT Proprietary Packet (PP_TX or TX_Type) after receiving PRx Proprietary Packet (Request TX Type).

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Test Result: System Control Requirement

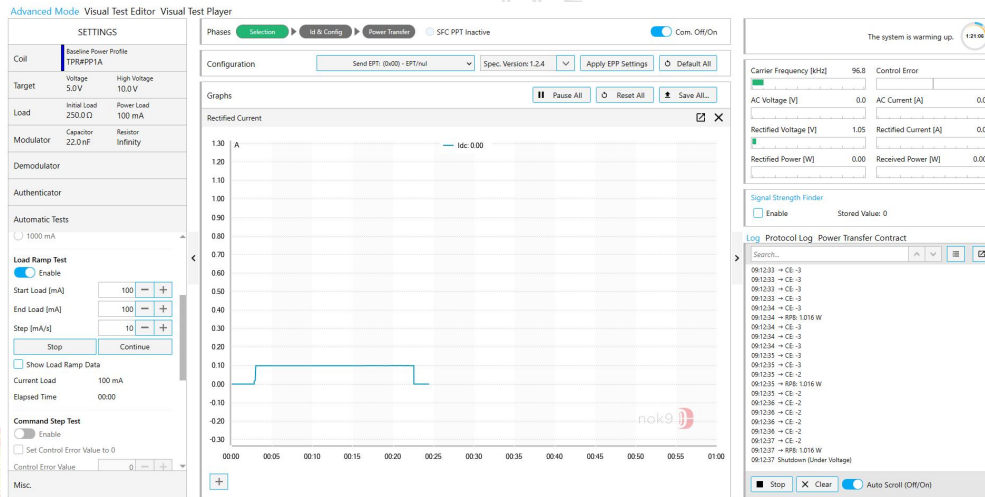


Test PP.TX.PT.PCONTROL.TC1: The measured rectified voltage was 10.00 V.

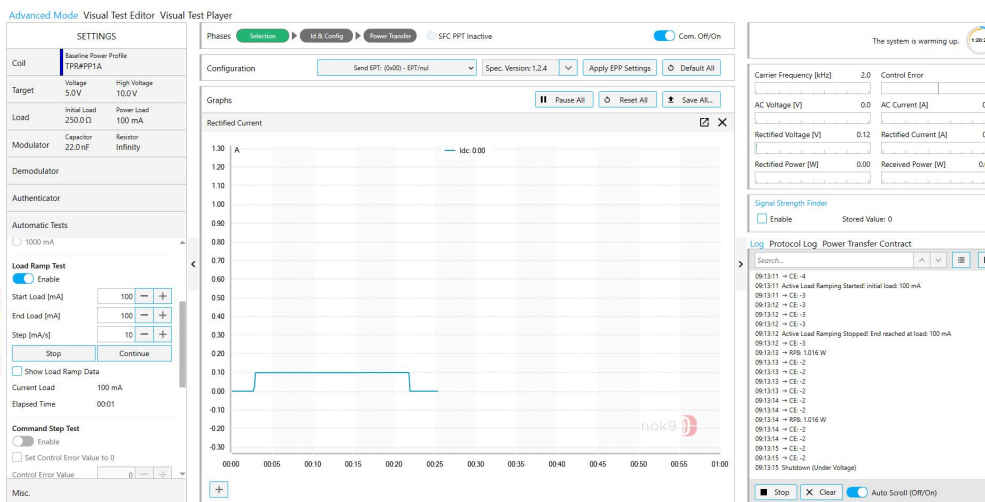


Test PP.TX.PT.PCONTROL.TC2: The measured rectified voltage was 5.05 V.

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Test Result: Foreign Object Detection
Foreign Object Detection – Test PP.TX.PERF.FOD.PP.TC1(a)


Test PP.TX.PERF.FOD.PP.TC1(a) (Foreign Object #1): The BSUT does not initiate power transfer.

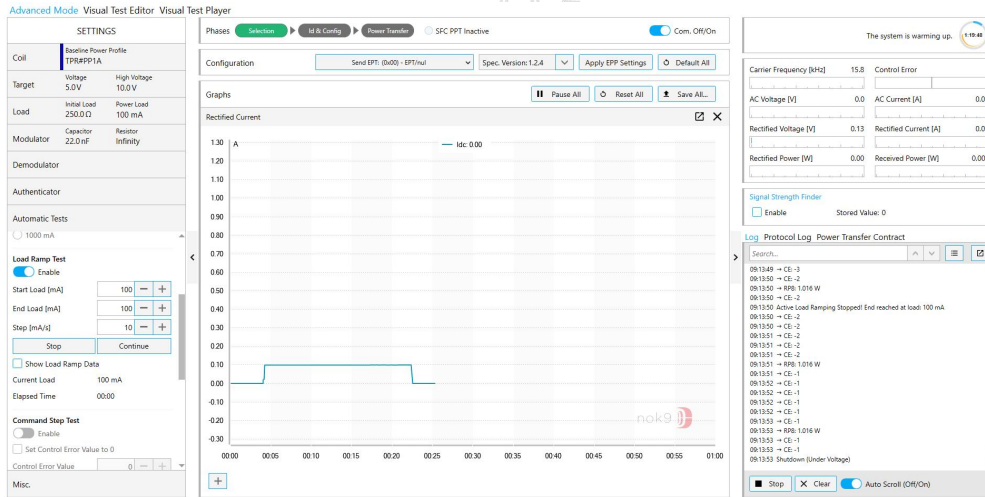
Foreign Object Detection – Test PP.TX.PERF.FOD.PP.TC1(b)


Test PP.TX.PERF.FOD.PP.TC1(b) (Foreign Object #1 in the off center position): The BSUT does not initiate power transfer.

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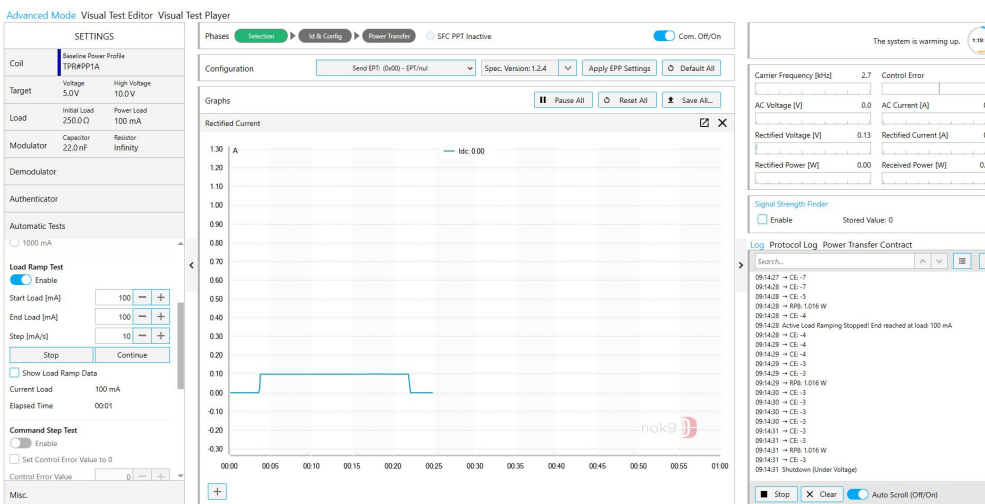
Test Result: Foreign Object Detection

Foreign Object Detection – Test PP.TX.PERF.FOD.PP.TC1(c)



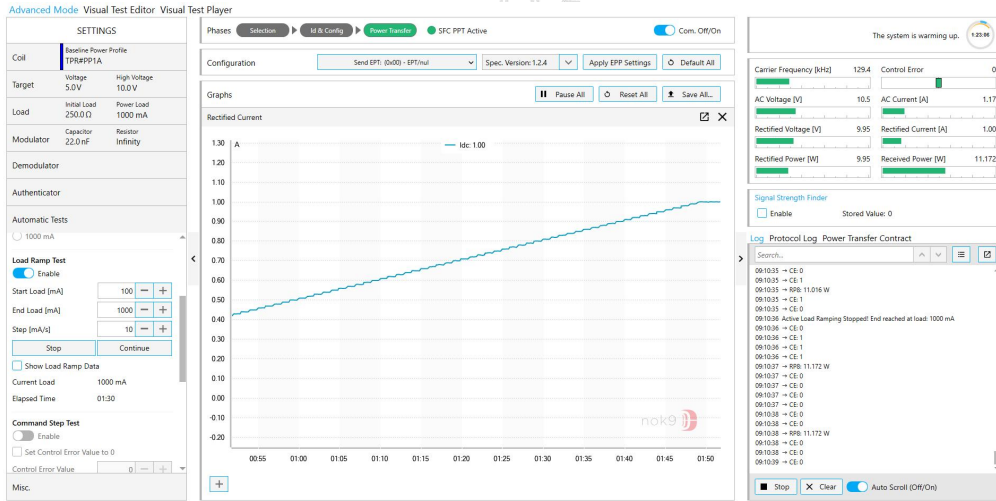
Test PP.TX.PERF.FOD.PP.TC1(c) (Foreign Object #2): The BSUT does not initiate power transfer.

Foreign Object Detection – Test PP.TX.PERF.FOD.PP.TC1(d)



Test PP.TX.PERF.FOD.PP.TC1(d) (Foreign Object #3): The BSUT does not initiate power transfer.

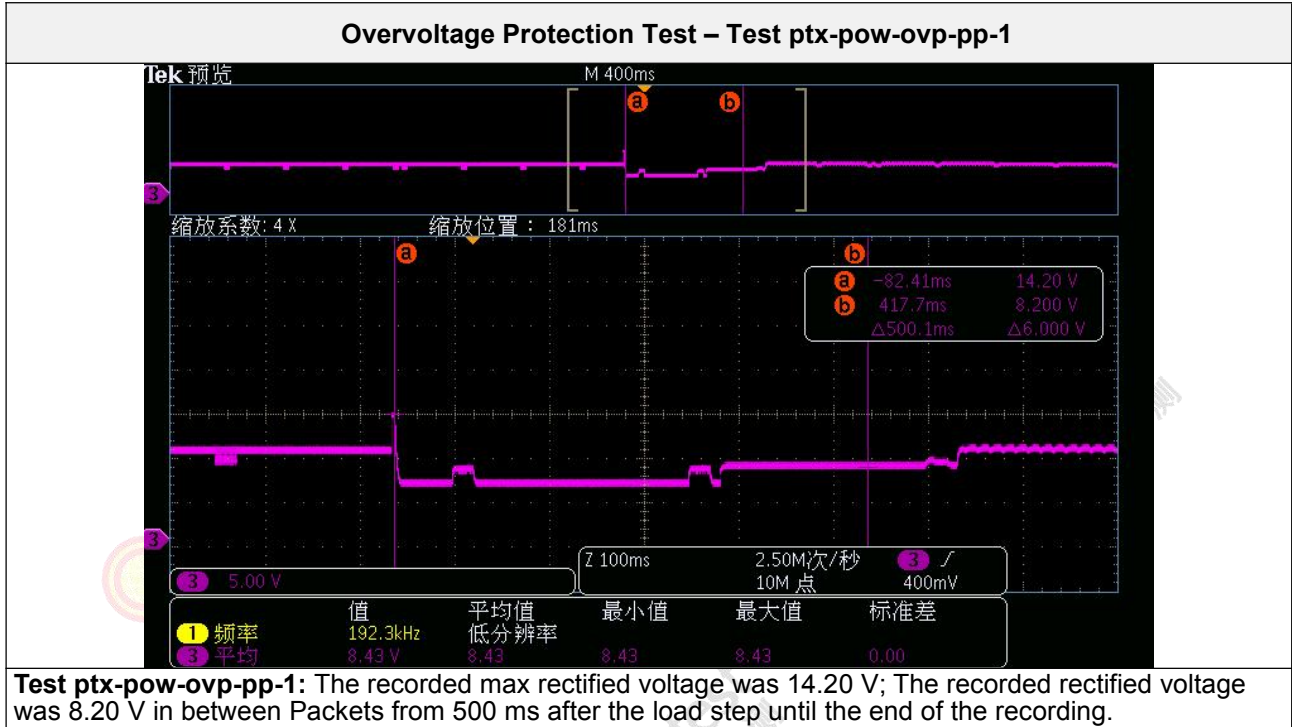
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Test Result: Foreign Object Detection
Foreign Object Detection – Test PP.TX.PERF.FOD.PP.TC1(e)


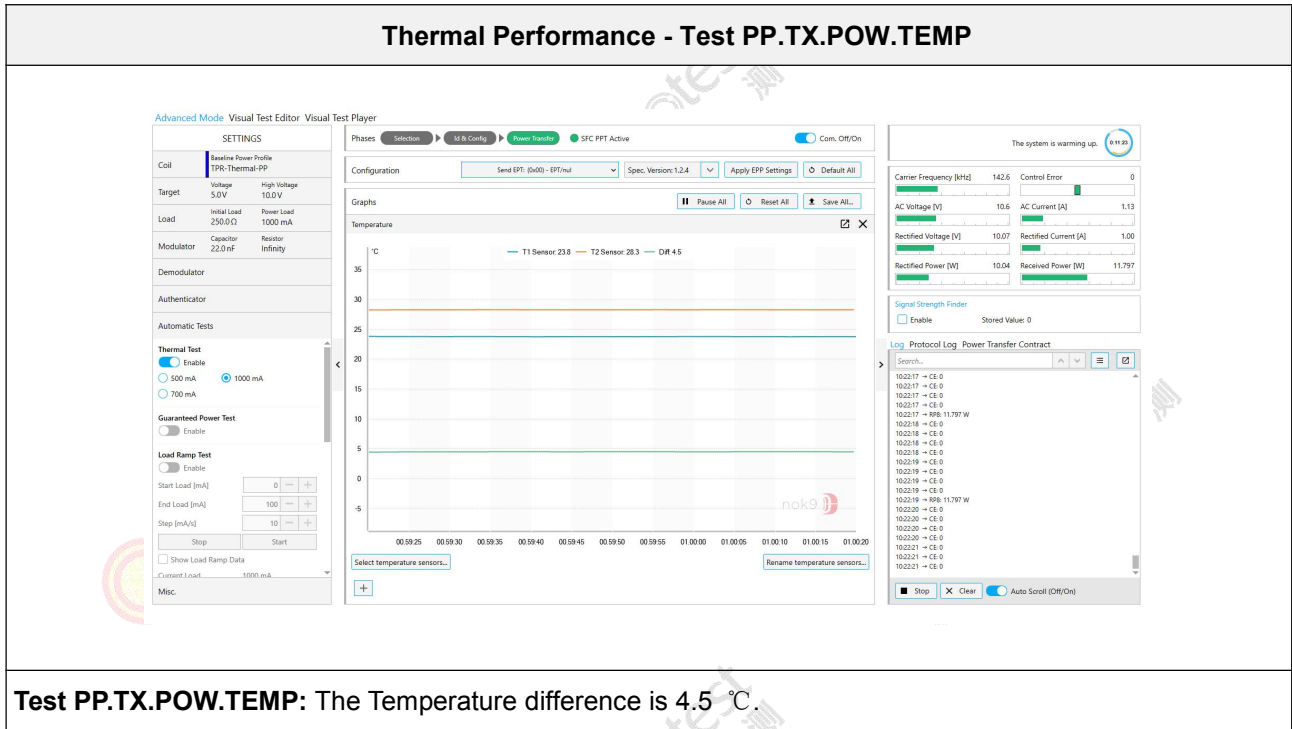
Test PP.TX.PERF.FOD.PP.TC1(e) - No Foreign Object: The BSUT completes the load ramp from 100 mA to 1000 mA without terminating the power transfer.

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Test Result: Overvoltage Protection Test



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Test Result: Thermal Performance


Test PP.TX.POW.TEMP: The Temperature difference is 4.5 °C.

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