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Version	Description of Change	Name	Date
1.0	Initial	Nitin Khule	21-09-2023
2.0	ValP #5 and #6 added	Rao, Parul Vivek Sunder	25-09-2023
3.0	ValP #7, #8 and #9 added	Pandaraboyana, Dheeraj Kumar	28-09-2023
4.0	ValP #10 and #11 added	Gangiredla, Varun Kumar	02-10-2023

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1   Subject

Test item: XY Pen Plotter, Doc: # XYPP_29_-Dossier

> **Report refers to Technical Specification doc:** **Group_29_Technical Specification.xlsb**

A pen plotter is a computer-controlled device that utilizes pens or markers to create accurate drawings on paper. This project seeks to construct a fully operational pen plotter by employing specific components and technologies, demonstrating the seamless integration of hardware, software, and mechanical elements to accomplish a defined task.

This document articulates the validation test protocols for assessing the pen plotter's performance.

The validation test protocols detailed in this document will establish a comprehensive framework for appraising the pen plotter's functionality, accuracy, and dependability.

Through the execution of these tests, our goal is to confirm the device's functionality and pinpoint any areas that may necessitate enhancement or optimization. The results derived from these tests will inform subsequent refinements to ensure the pen plotter aligns with the specified standards and serves as a dependable and precise drawing tool for users.

Name:	Parul Vivek Sunder Rao	**Signature:**	Pandaraboyana, Dheeraj Kumar	**Signature:**
Function:	Testing Engineer		Manager Validation	
Dep.:	MERO_Validation	....	MERO_Validation	....
Date:		...		

2 Validation Protocol

Validation Protocol					
ValP #	**ref. to UR #**	**Validation procedure (description of routine)**	**ref. # (i.e. validation protocol, customer test, etc..)**	**Validation criterion, target value**	
ValP1	UR1, UR2,	Install the pen plotter in the university lab, initiate the pen plotter under the student's supervision, and proceed to create a drawing of Nikolaus Haus.	Group 29_Technical Specification.xlsb	Plotter must draw Nikolaus Haus in one run.	
ValP2	UR3	Put the pen plotter into a box of 56x39x42 cm provided by Uni Lab.	Group 29_Technical Specification.xlsb	Fits perfectly	
ValP3	UR4	Place the pen plotter assembly on a measuring scale with an accuracy of ± 1gm	Group 29_Technical Specification.xlsb	Total weight <= 3.5kg	
ValP4	UR3	Continuous drawing up to 30 min at a time.	Group 29_Technical Specification.xlsb	30 min.	
ValP5	UR4	Compare the calculated mean value with expected results or specifications to ensure the accuracy of the timing measurements.	Group 29_Technical Specification.xlsb	Average error <= ±0.25mm	
ValP6	UR4	Start the pen plotter and take noise level measurement by sound level meter.	Group 29_Technical Specification.xlsb	Average noise measure <=60 dBA	

Validation Report
XY-Pen Plotter

ValP #	ref. to UR #	Validation procedure (description of routine)	ref. # (i.e. validation protocol, customer test, etc..)	Validation criterion, target value
ValP7	UR4	Validate the switch functionality through ten tests, ensuring the successful interruption of the plotter's movement upon contact with the levers. This verification process aims to prevent overtravel and guarantee precise, safe plotting.	Group 29_Technical Specification.xlsb	All the switches work properly.
ValP8	UR3	Maximum pen diameter of 15mm	Group 29_Technical Specification.xlsb	Pen diameter <=15mm
ValP9	UR4	Maximum thickness of drawing media = 3cm.	Group 29_Technical Specification.xlsb	Maximum thickness of drawing media >= 5mm.
ValP10	UR4	Conduct a sequence of tests, encompassing initiation, calibration (repeated five times), emergency stop evaluation, determination of the starting point, alignment of the X and Y axes, movement to a designated point, and thorough error checking.	Group 29_Technical Specification.xlsb	All the functions are working properly.

3   Validation Test Report

Validation Report			
ValR #	**ref. to ValP #**	**Criteria (passed/failed)**	**ref. # (i.e. test report, etc..)**
ValR1	ValP1	Passed	Group 29_Technical Specification.xlsb
ValR2	ValP2	Passed	Group 29_Technical Specification.xlsb
ValR3	ValP3	Passed	Group 29_Technical Specification.xlsb
ValR4	ValP4	Passed	Group 29_Technical Specification.xlsb
ValR5	ValP5	Passed	Group 29_Technical Specification.xlsb
ValR6	ValP6	Passed	Group 29_Technical Specification.xlsb
ValR7	ValP7	Passed	Group 29_Technical Specification.xlsb
ValR8	ValP9	Passed	Group 29_Technical Specification.xlsb
ValR9	ValP10	Passed	Group 29_Technical Specification.xlsb

4   Validation Test

The protocols provided in Section 2 (Validation Protocol) have undergone successful testing.

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