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, UR3, UR4	Set-up pen plotter at the university's lab, start pen plotter by student, draw Nikolaus haus.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Plotter must draw Nikolaus house in one run.
ValP2	UR5	Put the pen plotter into a box of 56x39x42 cm provided by Uni Lab.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Fits perfectly
ValP3	UR7	Place the pen plotter assembly on a measuring scale with an accuracy of ± 1gm	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Total weight <= 3.5kg
ValP4	UR9	Continuous drawing upto 30 min at a time.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	30 min.
ValP5	UR10	Compare the calculated mean value with expected results or specifications to ensure the accuracy of the timing measurements.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Average error <= ± 0.25 mm
ValP 6	UR11	Start the pen plotter and take noise level measurement by sound level meter.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Average noise measure <=60 dBA
ValP 7	UR27	Verify switch functionality by testing 10 times, ensuring successful halting of plotter movement upon contact with levers, preventing overtravel and ensuring accurate and safe plotting.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	All the switches work properly.
ValP 8	UR41	Maximum pen diameter of 15mm	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Pen diameter <=15mm
ValP 9	UR45	Maximum thickness of drawing media = 3cm.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Maximum thickness of drawing media >= 5mm.
ValP 10	UR50	Perform a series of tests including starting, calibrating (5 times), testing emergency stop, establishing starting point, aligning X and Y axis, moving to a specific point, and checking for any errors.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	All the functions are working properly.
ValP 11	UR52	Verify the display by confirming real-time distance lag updates, accurate emergency stop status representation, and clear visibility for effective monitoring.	Team14 Doc# 005-MERO_XY_Pen_plotter_Validation.pdf	Display shows the detailed status on OLED/LCD Display.

ValP #	ref. to UR #	Validation procedure(description of routine)	ref. # (i.e. validation protocol, customer test, etc..)	validation criterion, target value

Validation Report			
ValR #	ref. to ValP #	criteria (passed/failed)	ref. # (i.e. test report, etc..)
ValR1	ValP1	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR2	ValP2	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR3	ValP3	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR4	ValP4	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR5	ValP5	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR6	ValP 6	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR7	ValP 7	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR9	ValP9	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR10	ValP10	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR11	ValP11	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf
ValR12	ValP12	Passed	Team14 Doc# 005- MERO_XY_Pen_plotter_Validation.pdf