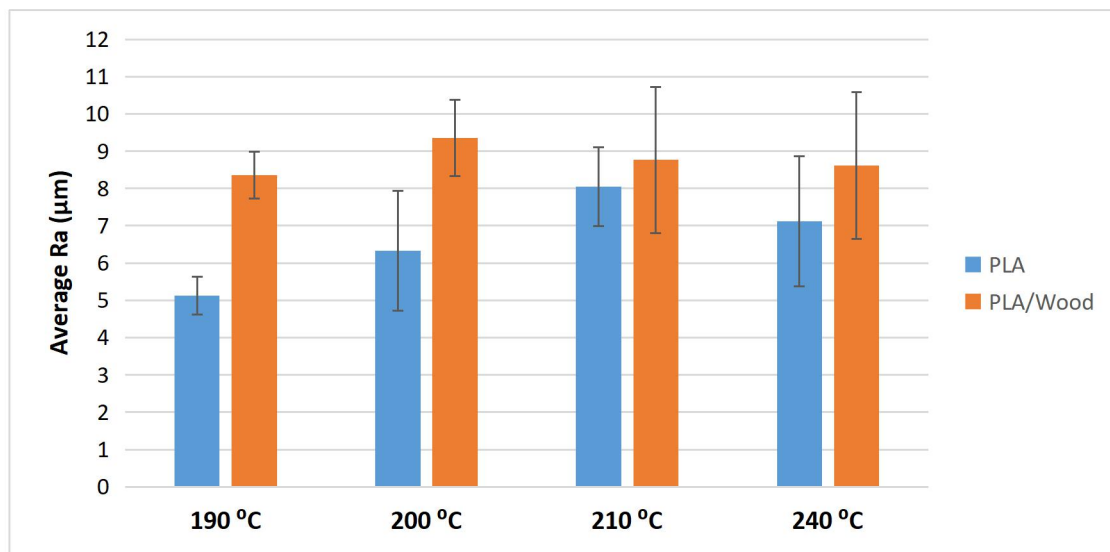


**Raw Data**  
**Surface Roughness Test**

Extruder Temp(°C)	Surface Roughness/Ra (µm)									
	PLA					PLA/Wood				
	P1	P2	P3	<sup>x</sup> P4		P1	P2	P3	<sup>x</sup> P4	
190	4.54	4.89	5.42	5.66	5.13	7.43	8.62	8.59	8.79	8.36
200	8.46	6.30	6.01	4.56	6.33	9.08	8.90	8.57	10.85	9.35
210	7.12	8.56	7.21	9.29	8.05	7.03	7.18	9.94	10.91	8.77
240	8.77	6.93	4.77	8.02	7.12	7.46	7.10	11.32	9.56	8.61

Temp	PLA	PLA/Wood	Stdev	stdev pla wood
190 °C	5.13	8.36	0.51	0.62
200 °C	6.33	9.35	1.61	1.02
210 °C	8.05	8.77	1.06	1.96
240 °C	7.12	8.61	1.74	1.97



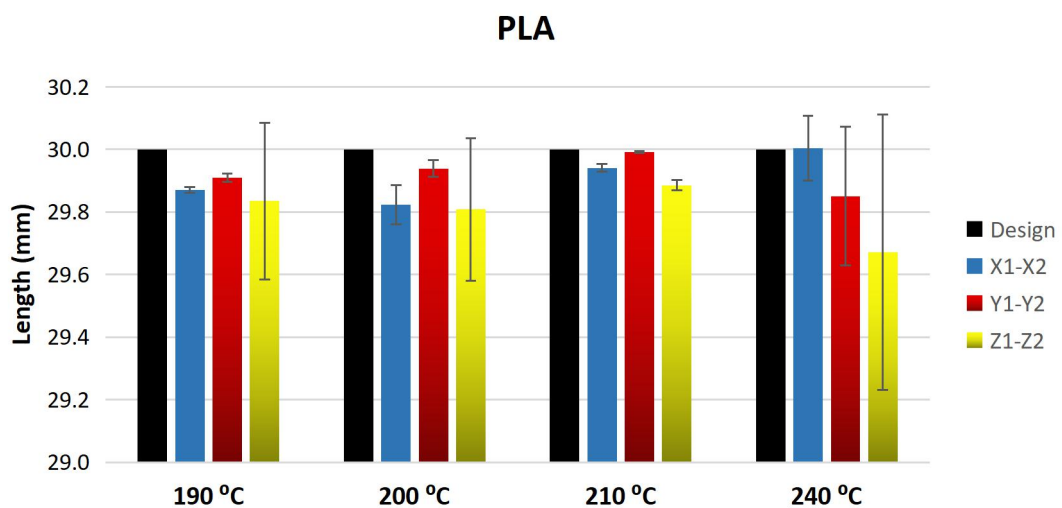
**Raw Data**  
**CMM Measurement**

Material	Temp (°C)	Length / Surface to surface (mm)		
		X	Y	Z
PLA and PLA/Wood	Design	30	30	30
PLA	190	29.8612	29.915	29.9799
		29.8705	29.9203	29.9786
		29.8808	29.8957	29.5467
<b>Average</b>		<b>29.8708</b>	<b>29.9103</b>	<b>29.8351</b>
<b>Deviation</b>		<b>0.00980</b>	<b>0.01295</b>	<b>0.24973</b>
PLA	200	29.8948	29.9664	29.9763
		29.7891	29.9378	29.5491
		29.7865	29.913	29.8993
<b>Average</b>		<b>29.8235</b>	<b>29.9391</b>	<b>29.8082</b>
<b>Deviation</b>		<b>0.06179</b>	<b>0.02672</b>	<b>0.22769</b>
PLA	210	29.9346	29.991	29.867
		29.9349	29.9956	29.9002
		29.9547	29.9897	29.8906
<b>Average</b>		<b>29.9414</b>	<b>29.9921</b>	<b>29.8859</b>
<b>Deviation</b>		<b>0.01152</b>	<b>0.00310</b>	<b>0.01708</b>
PLA	240	29.9546	29.971	29.643
		30.124	29.5956	30.124
		29.9347	29.9865	29.245
<b>Average</b>		<b>30.0044</b>	<b>29.851</b>	<b>29.6707</b>
<b>Deviation</b>		<b>0.10402</b>	<b>0.22135</b>	<b>0.44015</b>
PLA/Wood	190	30.6593	30.2027	30.2114
		30.5891	30.2067	30.3012
		30.6078	30.1989	30.3008
<b>Average</b>		<b>30.6187</b>	<b>30.2028</b>	<b>30.2711</b>
<b>Deviation</b>		<b>0.03635</b>	<b>0.00390</b>	<b>0.05173</b>
PLA/Wood	200	30.2402	30.2807	30.2226
		30.2454	30.2789	30.2251
		30.2503	30.2805	30.1989
<b>Average</b>		<b>30.2453</b>	<b>30.28</b>	<b>30.2155</b>
<b>Deviation</b>		<b>0.00505</b>	<b>0.00099</b>	<b>0.01446</b>
PLA/Wood	210	30.1779	30.313	30.3012
		30.2065	30.3189	30.3034
		30.1987	30.2789	30.6754

<b>Average</b>		<b>30.1944</b>	<b>30.3036</b>	<b>30.4267</b>
<b>Deviation</b>		<b>0.01478</b>	<b>0.02159</b>	<b>0.21541</b>
PLA/Wood	240	30.356	30.6057	30.319
		30.2025	30.6189	30.2031
		30.2987	30.438	30.5714
<b>Average</b>		<b>30.2857</b>	<b>30.5542</b>	<b>30.3645</b>
<b>Deviation</b>		<b>0.07757</b>	<b>0.10085</b>	<b>0.18832</b>

PLA							
Temp	Design	X1-X2	Dev	Y1-Y2	Dev	Z1-Z2	Dev
190 °C	30	29.8708	0.0098	29.9103	0.0129	29.8351	0.2497
200 °C	30	29.8235	0.0618	29.9391	0.0267	29.8082	0.2277
210 °C	30	29.9414	0.0115	29.9921	0.0031	29.8859	0.0171
240 °C	30	30.0044	0.1040	29.8510	0.2213	29.6707	0.4402

PLA/Wood							
Temp	Design	X1-X2	Dev	Y1-Y2	Dev	Z1-Z2	Dev
190 °C	30	30.6187	0.0364	30.2028	0.0039	30.2711	0.0517
200 °C	30	30.2453	0.0051	30.2800	0.0010	30.2155	0.0145
210 °C	30	30.1944	0.0148	30.3036	0.0216	30.4267	0.2154
240 °C	30	30.2857	0.0776	30.5542	0.1008	30.3645	0.1883



## PLA/Wood

