

Appendix: Tables of experimental data

Table 1: Experimental data. Left substrate.

Laser power (W)	40	50	60	70	80	90	100	110	120	130	140
Energy density (J/mm ³)											
83.33	Ra (μm)	31.6464	13.3731	6.9884	7.2252	6.2783	4.935	3.9482	4.4343	4.8306	3.8086
	Sa (μm)	13.4173	8.2501	5.384	5.1762	3.6948	3.6515	3.4832	3.4209	3.6713	3.1918
	Scanning speed (mm/s)	200.0	250.0	300.0	350.0	400.0	450.0	500.0	550.0	600.0	650.0
87.5	Ra (μm)	18.8311	16.6594	6.9029	7.9917	6.162	3.6944	4.5223	4.2831	5.2231	6.0017
	Sa (μm)	12.4876	8.7568	5.5059	5.1601	4.2229	3.4062	3.7172	3.517	3.5138	3.8794
	Scanning speed (mm/s)	190.0	240.0	285.0	335.0	380.0	430.0	475.0	525.0	570.0	620.0
91.67	Ra (μm)	28.0147	13.4552	7.7104	6.3181	5.1304	4.1063	5.789	4.6768	3.9438	4.4426
	Sa (μm)	13.7372	7.8719	5.637	4.832	3.9885	3.1374	3.7615	3.4992	3.4459	3.6353
	Scanning speed (mm/s)	180.0	225.0	275.0	320.0	365.0	410.0	455.0	500.0	545.0	590.0
95.83	Ra (μm)	25.813	9.4494	7.9015	6.7874	5.7234	4.559	4.0784	5.264	4.4215	4.1402
	Sa (μm)	12.9239	7.0126	5.8188	4.731	3.7994	3.6939	3.3186	3.8868	3.5719	3.4751
	Scanning speed (mm/s)	175.0	215.0	260.0	305.0	350.0	390.0	435.0	480.0	520.0	565.0
100	Ra (μm)	31.6646	12.9897	8.2953	5.5546	5.3979	4.5166	4.239	6.0845	4.1821	4.896
	Sa (μm)	14.7332	7.3477	6.342	4.2982	3.9532	3.4168	3.5932	3.9224	3.4313	3.8002
	Scanning speed (mm/s)	165.0	210.0	250.0	290.0	335.0	375.0	415.0	460.0	500.0	540.0
104.17	Ra (μm)	27.5433	12.9997	7.248	6.2943	4.458	4.6008	5.4552	3.82	5.4727	4.323
	Sa (μm)	15.2157	7.8578	5.8981	4.8951	3.3551	3.5701	3.6054	3.6509	3.6577	3.4563
	Scanning speed (mm/s)	160.0	200.0	240.0	280.0	320.0	360.0	400.0	440.0	480.0	520.0
108.33	Ra (μm)	27.5885	11.3835	8.6548	5.7837	4.2652	4.3166	4.8323	4.7484	5.1724	4.9024
	Sa (μm)	13.2123	6.9381	6.0219	4.484	2.9425	3.269	3.4603	3.4419	3.671	3.4937
	Scanning speed (mm/s)	155.0	190.0	230.0	270.0	310.0	345.0	385.0	425.0	460.0	500.0
112.5	Ra (μm)	27.8993	10.9233	8.9488	5.8937	5.8411	3.8367	6.036	4.5284	4.6089	5.395
	Sa (μm)	13.878	7.7675	5.8495	4.3559	3.6056	3.1034	3.5983	3.2232	3.438	3.8171
	Scanning speed (mm/s)	150.0	185.0	220.0	260.0	295.0	335.0	370.0	405.0	445.0	480.0
116.67	Ra (μm)	28.2185	12.2849	7.2414	5.6562	5.157	4.3874	5.7781	4.5474	4.5247	4.5757
	Sa (μm)	12.6594	7.5562	5.6585	4.328	3.3322	3.3104	3.7702	3.3956	3.5521	3.4788
	Scanning speed (mm/s)	145.0	180.0	215.0	250.0	285.0	320.0	355.0	395.0	430.0	465.0
120.83	Ra (μm)	25.5725	9.5631	8.2054	5.2676	4.6138	4.7223	4.4284	5.1117	3.4629	4.3147
	Sa (μm)	11.4649	6.5901	6.0397	3.742	3.5903	3.5747	3.6329	3.4639	3.3596	3.4893
	Scanning speed (mm/s)	140.0	170.0	205.0	240.0	275.0	310.0	345.0	380.0	415.0	450.0
125	Ra (μm)	25.464	13.6565	9.7196	4.4201	4.9868	4.941	4.2398	6.6098	4.2244	5.1318
	Sa (μm)	11.8472	7.6175	6.6448	3.5824	3.8254	3.2789	3.4643	3.5769	3.2326	3.7821
	Scanning speed (mm/s)	135.0	165.0	200.0	235.0	265.0	300.0	335.0	365.0	400.0	435.0

Table 2: Experimental data. Right substrate.

Laser power (W)		150	160	170	180	190	200	210	220	230	240	250
Energy density (J/mm ³)												
83.33	Ra (μm)	4.0197	4.1851	5.1024	5.3573	5.096	6.3302	4.8332	6.7482	7.2936	12.8474	19.7883
	Sa (μm)	3.1154	3.5366	3.4748	3.2972	3.8352	4.2412	4.3925	5.3004	5.5891	6.2262	5.8989
	Scanning speed (mm/s)	750.0	800.0	850.0	900.0	950.0	1000.0	1050.0	1100.0	1150.0	1200.0	1250.0
87.5	Ra (μm)	4.4664	4.1354	4.3819	4.2546	6.0978	5.8337	4.9107	5.5141	5.9979	6.4688	20.9976
	Sa (μm)	3.5736	3.3506	3.5194	3.3077	3.8269	3.7452	4.4518	4.8487	4.5523	5.1028	5.1386
	Scanning speed (mm/s)	715.0	760.0	810.0	855.0	905.0	950.0	1000.0	1050.0	1095.0	1145.0	1190.0
91.67	Ra (μm)	5.2997	4.6293	6.5052	4.6622	5.3992	6.1908	6.0603	5.8001	7.73313	6.3258	8.7401
	Sa (μm)	3.8079	3.0942	3.7329	2.9504	3.391	3.6922	3.8583	3.849	4.3971	4.6502	4.8339
	Scanning speed (mm/s)	680.0	725.0	775.0	820.0	865.0	910.0	955.0	1000.0	1045.0	1090.0	1135.0
95.83	Ra (μm)	5.1104	4.6418	6.6897	5.5811	4.4596	6.4561	6.6763	5.8791	4.766	5.8344	6.0494
	Sa (μm)	3.7715	3.3412	3.8694	3.5602	2.8576	4.4173	3.7605	3.9738	3.5021	3.9521	4.5908
	Scanning speed (mm/s)	650.0	695.0	740.0	785.0	825.0	870.0	915.0	955.0	1000.0	1045.0	1085.0
100	Ra (μm)	4.2268	5.1474	5.485	5.1004	4.6776	4.5263	5.7054	7.1159	6.8815	6.1795	6.1187
	Sa (μm)	3.226	3.3093	3.5792	3.8183	3.4834	2.938	4.0049	4.1346	4.2979	3.8346	4.4587
	Scanning speed (mm/s)	625.0	665.0	710.0	750.0	790.0	835.0	875.0	915.0	960.0	1000.0	1040.0
104.17	Ra (μm)	4.9059	5.0745	4.8903	6.2647	6.0087	5.2768	5.1838	4.873	6.6988	7.4298	6.487
	Sa (μm)	3.5382	3.55	3.5857	3.8728	3.1469	3.4975	4.17	3.1922	4.0092	3.9148	4.2423
	Scanning speed (mm/s)	600.0	640.0	680.0	720.0	760.0	800.0	840.0	880.0	920.0	960.0	1000.0
108.33	Ra (μm)	3.8466	4.9078	5.3564	5.2837	6.12	7.2947	4.9829	6.1051	6.2917	7.0366	7.1516
	Sa (μm)	3.1275	3.7534	3.5658	3.1559	3.8748	3.5126	3.6067	3.9385	3.1959	4.1852	3.9597
	Scanning speed (mm/s)	575.0	615.0	655.0	690.0	730.0	770.0	810.0	845.0	885.0	925.0	960.0
112.5	Ra (μm)	4.5387	4.7351	5.5411	5.327	6.3035	6.4048	5.42	5.5648	6.9537	6.8292	6.3659
	Sa (μm)	3.0496	3.2662	3.5391	3.3641	3.6789	3.3128	3.4706	4.0979	3.4918	4.1611	3.4401
	Scanning speed (mm/s)	555.0	595.0	630.0	665.0	705.0	740.0	780.0	815.0	850.0	890.0	925.0
116.67	Ra (μm)	5.6739	3.9022	4.6797	5.5533	5.284	6.1817	4.4127	6.2373	6.2941	6.8353	6.8902
	Sa (μm)	3.7258	2.6696	3.0035	3.7027	3.6402	3.6801	2.9038	3.7529	3.6279	3.4693	4.5559
	Scanning speed (mm/s)	535.0	570.0	605.0	645.0	680.0	715.0	750.0	785.0	820.0	855.0	895.0
120.83	Ra (μm)	4.5126	5.3064	5.1479	6.4052	4.1398	6.1546	6.5696	4.914	5.326	7.1105	8.1522
	Sa (μm)	3.0761	2.8713	3.3248	3.2846	2.5257	3.4269	3.6922	3.4325	3.2629	3.4898	4.308
	Scanning speed (mm/s)	515.0	550.0	585.0	620.0	655.0	690.0	725.0	760.0	795.0	830.0	860.0
125	Ra (μm)	3.7671	4.2855	4.8651	6.1085	3.6666	4.8884	6.0659	5.1411	6.6285	5.8584	7.4334
	Sa (μm)	3.0326	3.2575	3.0201	3.1537	2.325	2.5939	3.6069	3.6516	3.8482	3.5808	3.4152
	Scanning speed (mm/s)	500.0	535.0	565.0	600.0	635.0	665.0	700.0	735.0	765.0	800.0	835.0

