Supplementary Material

Table S1. Coefficient (slope) values for all control samples using the linear broken stick model. The break was at 100% moisture content for the fabric mesh and 40% moisture content for the pine board samples. Coefficients that varied significantly from the coefficients of 0° are bolded, with level of significance denoted by number of *.

Sample	Moisture	FARO 0°	RIEGL 0°	FARO 45°	RIEGL 45°	FARO 90°	RIEGL 90°
FM 3M	<100%	-0.000464	-0.000580	-0.000410	-0.000513	-0.000434	-0.000517
	>100%	-0.000153	-0.000207	-0.000164	-0.000189	-0.000161	**-0.000180***
FM 6M	<100%	-0.000557	-0.000608	-0.000544	-0.000555	**-0.000502***	-0.000519
	>100%	-0.000086	-0.000158	-0.000130	-0.000169	**-0.000132****	**-0.000164****
FM 9M	<100%	-0.000628	-0.000698	-0.000545	-0.000595	-0.000509	-0.000565
	>100%	0.000023	-0.000165	-0.000048	-0.000181	**-0.000062***	**-0.000172***
FM 12M	<100%	-0.000609	-0.000638	-0.000545	-0.000576	-0.000493	-0.000542
	>100%	-0.000022	-0.000157	-0.000115	-0.000184	-0.000109	**-0.000175***
PB 3M	<40%	-0.000906	-0.000547	-0.000733	-0.000443	-0.000727	-0.000470
	>40%	-0.003306	-0.003258	**-0.003135***	-0.003014	-0.003170	-0.002551
PB 6M	<40%	-0.000649	-0.000375	-0.000736	-0.000495	-0.000596	-0.000436
	>40%	-0.003522	-0.003263	-0.003071	-0.002908	**-0.003883****	**-0.003548***
PB 9M	<40%	-0.001110	-0.000468	-0.001155	-0.000571	-0.000801	-0.000288
	>40%	-0.003409	-0.003337	-0.003388	-0.003330	**-0.003370****	**-0.003665****
PB 12M	<40%	-0.001111	-0.000407	-0.001102	-0.000537	-0.000855	**-0.000342***
	>40%	-0.001716	-0.002437	-0.001739	-0.002306	**-0.002567****	**-0.002776****

Table S2. A comprehensive table of the coefficients and R^2 values for the non-normalized data.

Distance	Scanner	Moisture Content	Intensity	DF	PP	LLP	SRO	FM 0	FM 45	FM 90	PB 0*	PB 45*	PB 90*
ALL	FARO	< 100%	Mean	-328.04	121.897	29.99583	-190.408	-68.0624	-69.9728	-159.384	-35.4124	-65.7588	219.5456
			SD	9683.698	1745.224	1726.546	4527.125	4666.219	4790.478	4481.968	137.1439	485.7037	684.8512
			R^2	0.2968	0.07787	0.03368	0.3939	0.5646	0.5785	0.6744	0.2761	0.08249	0.179
		>100%	Mean	-226.853	-166.625	-227.312	-476.774	-205.586	-397.64	-864.387	-18.858	-27.9871	-64.317
			SD	2517.893	339.8042	487.424	-1214.55	1654.981	6068.273	6165.594	321.785	275.6903	231.696
			R^2	0.2488	0.1454	0.1545	0.3904	0.01365	0.328	0.419	0.4251	0.4344	0.4466
	RIEGL	< 100%	Mean	-1482.1	-146.65	-485.4	-1181	-1001	-775.64	-362.525	-83.965	-194.285	-81.53
			SD	8969.6	444.35	-43.06	1885.7	1508.35	3225.215	4534.335	330.445	1118.495	777.17
			R^2	0.4424	0.2287	0.03945	0.3237	0.7867	0.784	0.7576	0.03519	0.1675	0.09777
		>100%	Mean	-595.305	-537.35	-557.57	-1156.85	-2745.5	-2669.2	-1709.1	-32.1	-41.3765	-43.06
			SD	1921.575	-297.65	-146.75	101.51	3279.5	4817.8	5075.1	360.36	318.1845	301.295
			R^2	0.5995	0.5743	0.5605	0.7887	0.4777	0.6476	0.5165	0.4546	0.4797	0.4241
3M	FARO	< 100%	Mean	-1419.31	177.537	165.2163	-337.969	-372.605	-110.592	-170.328	-240.681	-261.063	-178.749
			SD	14743.37	4797.235	9433.907	6387.827	5138.907	4998.693	4803.265	1122.533	922.3864	508.3628
			R^2	0.7544	0.2556	0.5304	0.8111	0.7414	0.5703	0.656	0.1703	0.2145	0.0994
		>100%	Mean	-816.022	-549.945	-740.524	-1171.46	-2316.37	-2342.58	-2357.99	-316.867	-60.7519	-57.3145
			SD	2062.057	546.9962	-1534.26	-296.419	6075.187	6979.584	7215.514	272.4921	239.7635	253.7587
			R^2	0.6844	0.4953	0.5866	0.7819	0.3872	0.6764	0.7345	0.4319	0.4736	0.4426
	RIEGL	< 100%	Mean	-3390.55	-204.05	7441.3	-1419.9	-1368.7	-1284.95	-1426.35	-185.6	-406.7	-259.65
			SD	5222.2	3120.15	7651.1	5392.05	1084.3	1977.7	1380.35	845.45	1894.15	1406.35
			R^2	0.798	0.1274	0.3581	0.7817	0.9076	0.8687	0.906	0.0778	0.2531	0.1245
		>100%	Mean	-901.6	-776.9	-825.55	-1287	-3649.9	-3746.65	-3811.67	-42.005	-63.685	-55.06
			SD	1890.8	-1356.15	-1431.95	-642.45	4701	4439.85	4337.25	316.19	301.46	359.635
			R^2	0.7797	0.7731	0.7575	0.877	0.7644	0.8346	0.8594	0.458	0.5231	0.4917
6M	FARO	< 100%	Mean	-667.288	67.86253	-465.338	-411.959	-354.976	-236.323	-428.311	-187.498	-324.567	-274.235
			SD	14022.05	1679.36	3923.608	4823.613	4279.632	4229.792	3911.811	725.7457	1348.272	859.4391
			R^2	0.508	0.05564	0.1344	0.5169	0.8106	0.6948	0.8232	0.09245	0.3064	0.2087
		>100%	Mean	-687.505	-504.889	-622.264	-1003.88	-1657.41	-2240.02	-2865.56	-34.7275	-52.2486	-80.4782
			SD	953.9748	-470.057	-989.626	-366.674	4842.783	6412.698	6039.142	328.0404	306.2923	265.9779
			R^2	0.5231	0.4723	0.5205	0.7381	0.1843	0.592	0.7069	0.5401	0.5609	0.5887
	RIEGL	< 100%	Mean	-2563.45	-138.05	-747	-1744.3	-1180.35	-1007.45	-1102.1	-168.4	-282.65	-252.95
			SD	10253.65	1034.75	1626.5	3590	1598.7	2581.6	2320.7	784.9	1410.65	1146
			R^2	0.6858	0.03539	0.1171	0.5534	0.925	0.8919	0.8908	0.04901	0.2155	0.1836
		>100%	Mean	-665.25	-655.4	-763.7	-1202.35	-3088.5	-3358.3	-3757.85	-45.205	-52.555	-84.495
			SD	1255.4	-961.95	-1231.2	-166.1	4613	5382.65	4335.65	381.54	336.855	321.83
			R^2	0.6365	0.6653	0.7048	0.8325	0.5157	0.7892	0.8282	0.559	0.5322	0.5931
9M	FARO	< 100%	Mean	-345.833	490.8646	-50.6921	-409.928	-10.4464	20.73887	52.10112	-104.33	-132.874	-190.546
			SD	7636.943	2325.217	640.8438	4211.999	4957.798	5527.962	5322.473	599.022	722.8621	738.263
			R^2	0.2048	0.09837	0.009978	0.3417	0.6161	0.5598	0.6588	0.1015	0.1657	0.2007
		>100%	Mean	-119.341	-215.843	-437.708	-1008.76	214.9908	-578.028	-749.404	-172.36	-38.6662	-72.1224
			SD	2104.001	68.97664	-222.102	1250.918	-296.092	6398.542	5283.185	369.5575	286.7528	204.8
			R^2	0.1366	0.1239	0.2259	0.5474	-0.02204	0.3258	0.2996	0.4879	0.5093	0.426
	RIEGL	< 100%	Mean	62.7	187.7	-704.5	-1468.6	-1160.05	-2518.9	-1121.5	-185.95	-214.685	-417.25
			SD	16086.2	1173.3	-412.25	3703.55	467.15	6701.4	1672.1	884.25	1317.53	1300.15
			R^2	0.3354	0.004904	0.02348	0.3944	0.8527	0.645	0.829	0.07544	0.2004	0.2837
		>100%	Mean	-640.4	-623.45	-715.95	-1150.45	-3216.55	-3356	-3730.15	-29.57	-44.005	-83.35
			SD	468.35	-1016.8	-919.85	-110.7	3975.85	5185	4320.1	397.485	323.915	197.01
			R^2	0.6647	0.6093	0.7434	0.8205	0.5285	0.7729	0.8196	0.4864	0.5027	0.4415
12M	FARO	< 100%	Mean	-227.574	330.3014	12.22574	-197.755	-171.803	-51.5768	-32.0799	-58.5433	-122.946	-188.58
			SD	6751.027	1829.11	-288.234	2615.837	3165.618	5062.263	5510.726	237.5287	847.0528	663.5848
			R^2	0.1452	0.07803	0.00146	0.1662	0.3025	0.5128	0.6545	0.04119	0.162	0.1779
		>100%	Mean	12.77624	-108.298	-358.908	-903.774	-168.002	-929.595	-827.49	-9.73537	-19.8738	-64.1794
			SD	3522.56	407.8305	-348.258	781.6151	343.212	5987.238	5437.26	340.6037	257.2124	210.4492
			R^2	0.2153	0.06623	0.159	0.5263	0.003819	0.3821	0.3579	0.2815	0.3296	0.3628
	RIEGL	< 100%	Mean	-3019	-3.24	-481.75	-1272	-1274.3	-1085.15	-1232.65	-124.05	-209.225	-578.85
			SD	7687.5	509.365	-281.6	647.05	966.95	2449.85	1708.8	524.95	1345.46	1273.8
			R^2	0.5518	0.01399	0.00388	0.19	0.8831	0.8381	0.8492	0.02969	0.1826	0.3304
		>100%	Mean	-738	-600.6	-597.05	-1140.7	-3379.1	-3468.95	-3815.4	-22.13	-26.655	-65.28
			SD	312.75	-779.55	-719.6	-499.2	2577.1	5150.2	4027.5	357.935	302.87	232.7
			R^2	0.728	0.5829	0.7502	0.8099	0.4946	0.7935	0.8226	0.3176	0.3805	0.4197

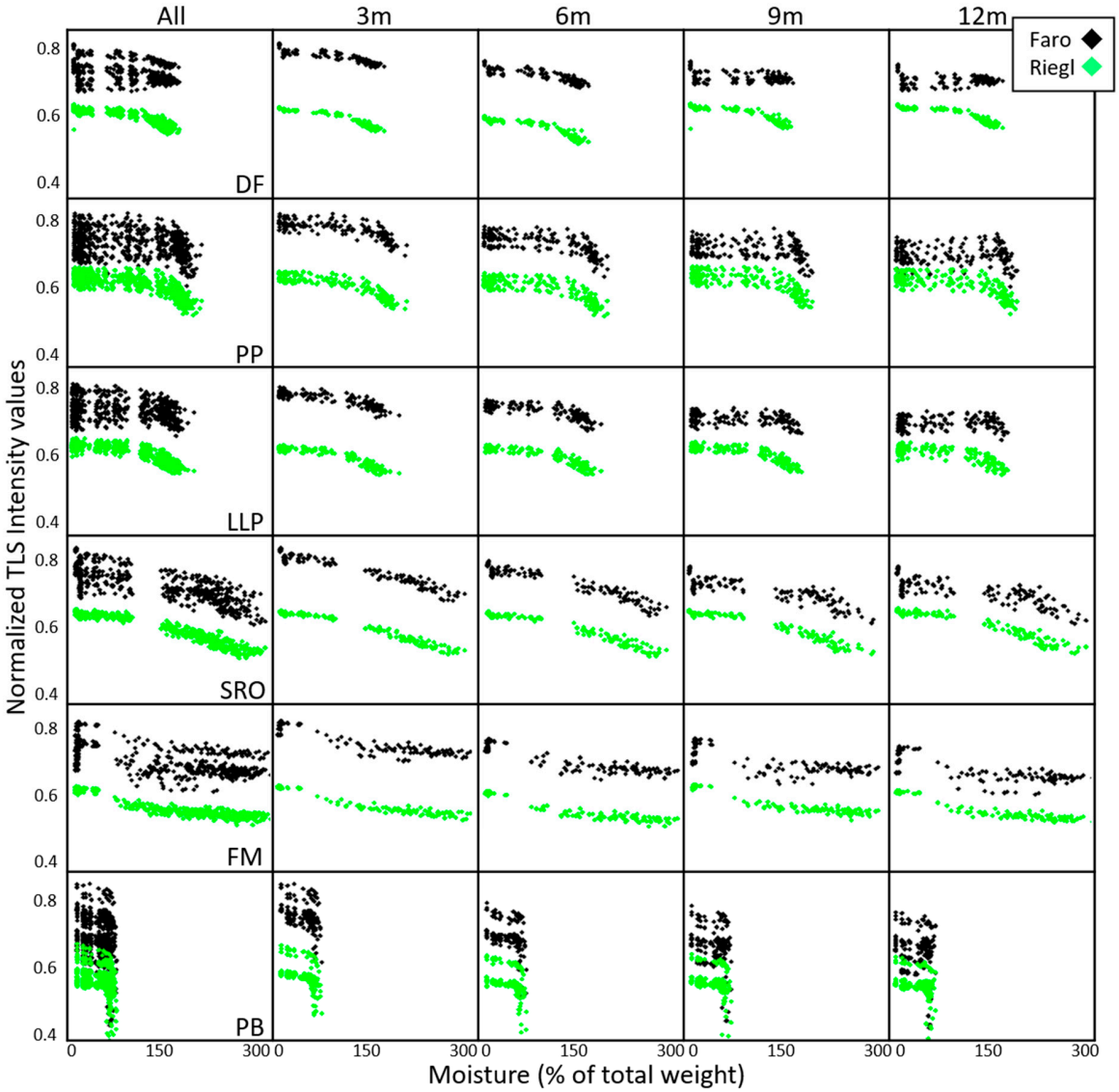

Figure S1. Mean intensity values of all samples across all distances. There wasmore variability in the intensity returns at different distances with the FARO PS compared to the RIEGL TOF.

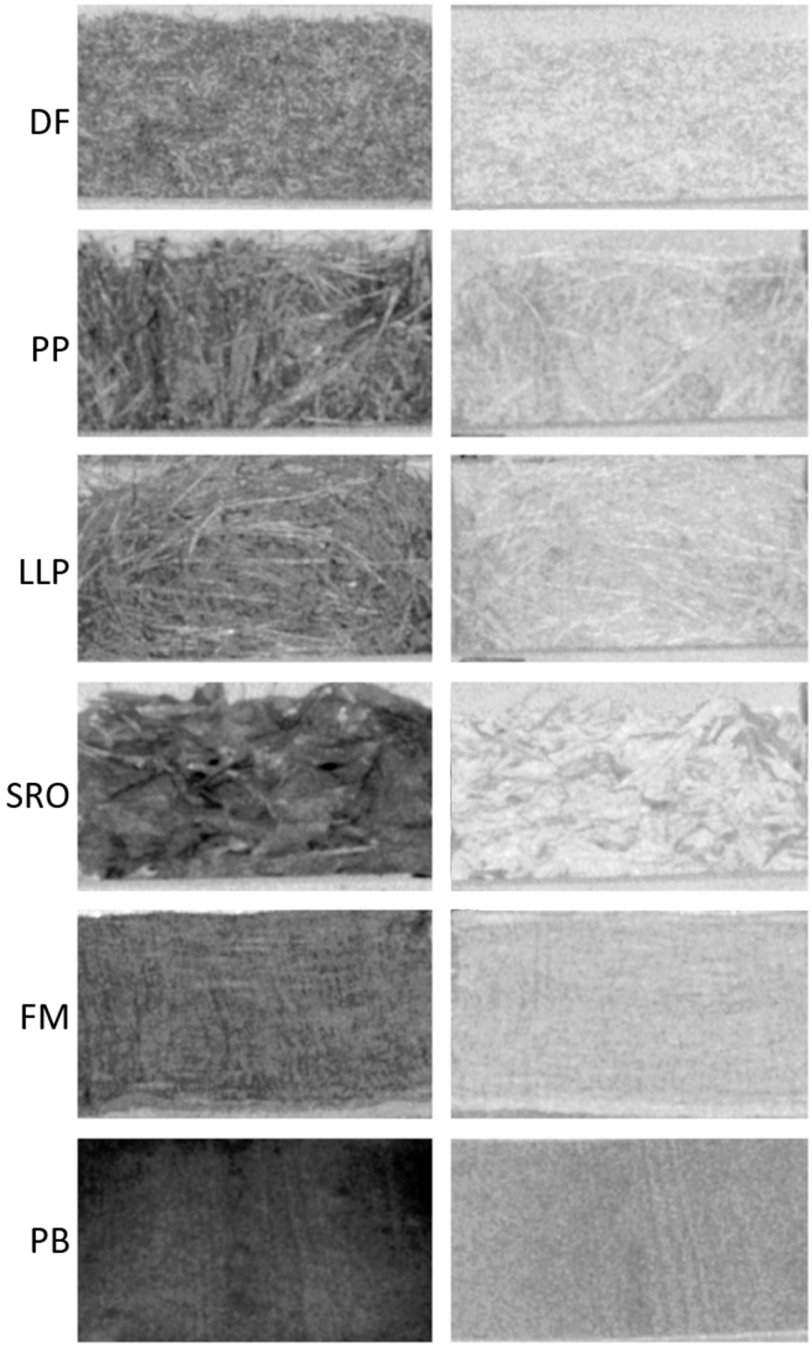

Figure S2. Images produced from the FARO laser scanner of a representitive of each sample type fully saturated and after having been oven dried. Samples reflected more energy when dry and were more homogenious in reflectance values.

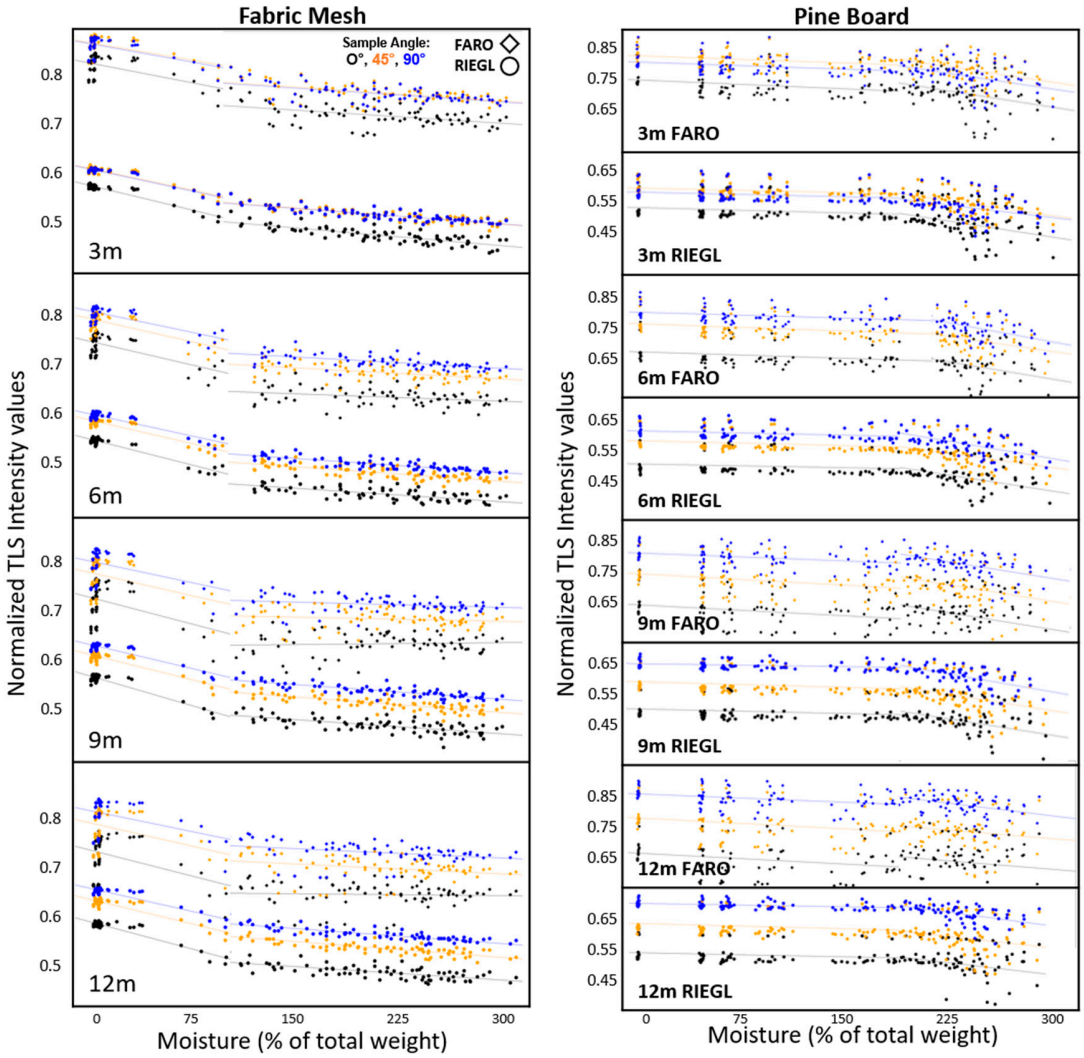

Figure S3. Scatter plot of all control samples at the three different angles relative to the ground. General data trends held for all data with the samples placed at 45° and 90° even though samples at these angles returned a greater amount of energy compared to the samples at 0°. REIGL and FARO fabric mesh samples are plotted on the same y axis as there was a visible separation of the data, while the pine board values were separated due to a large overlap in the points.