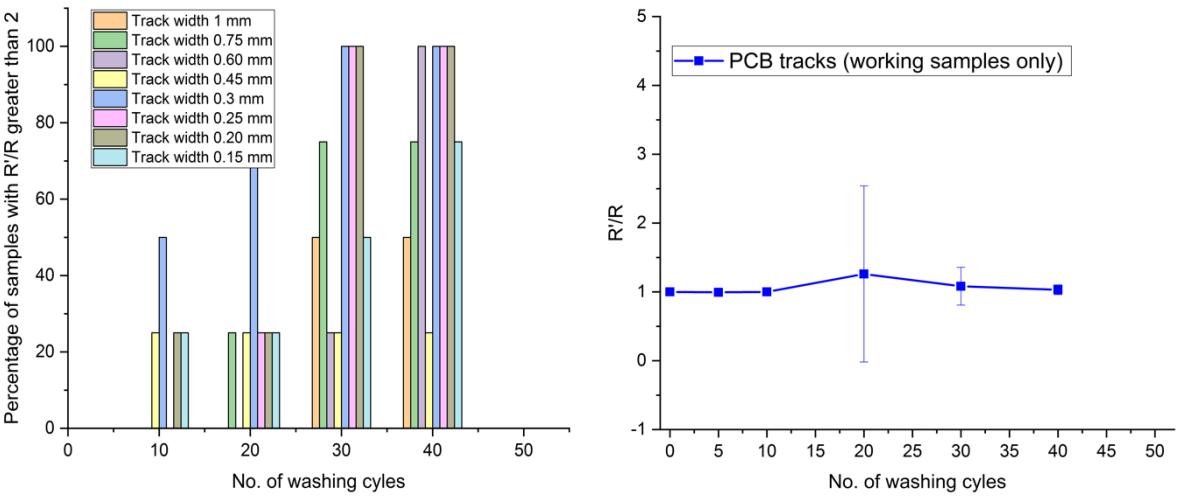
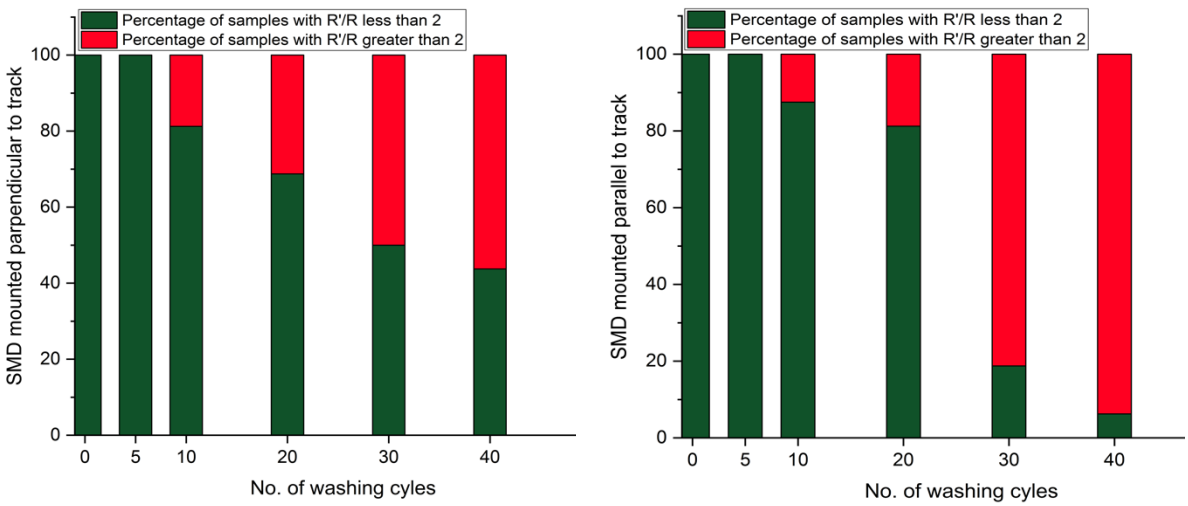
Supplementary File



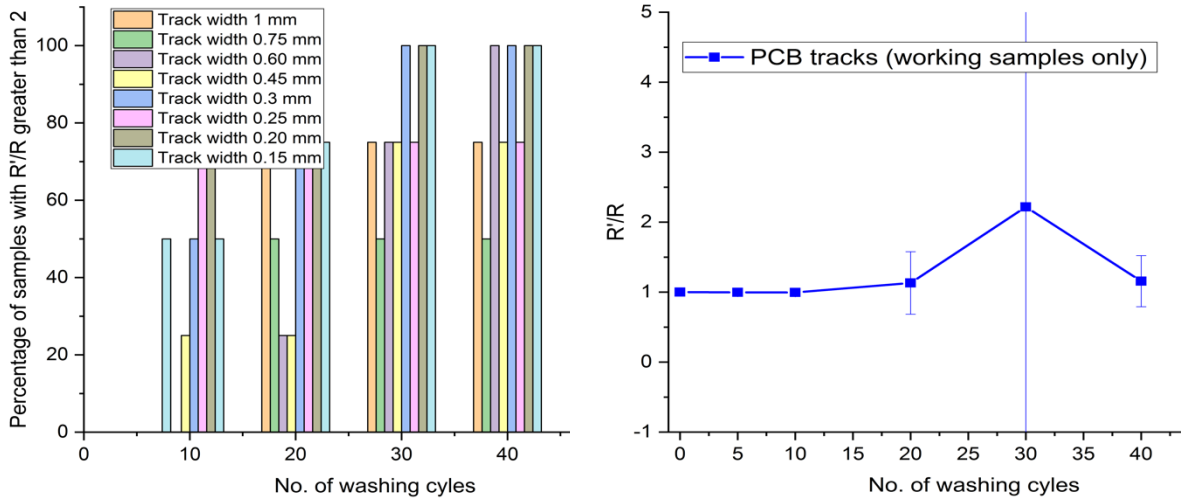
(a) (b)

Figure S1. FPCBs sample (without any protection) analyses after 40 *Express* washing cycles, a total of 32 samples were tested, (a) percentage of samples with R'/R value above 2 described based on track widths, (b) average R'/R value of working samples only.



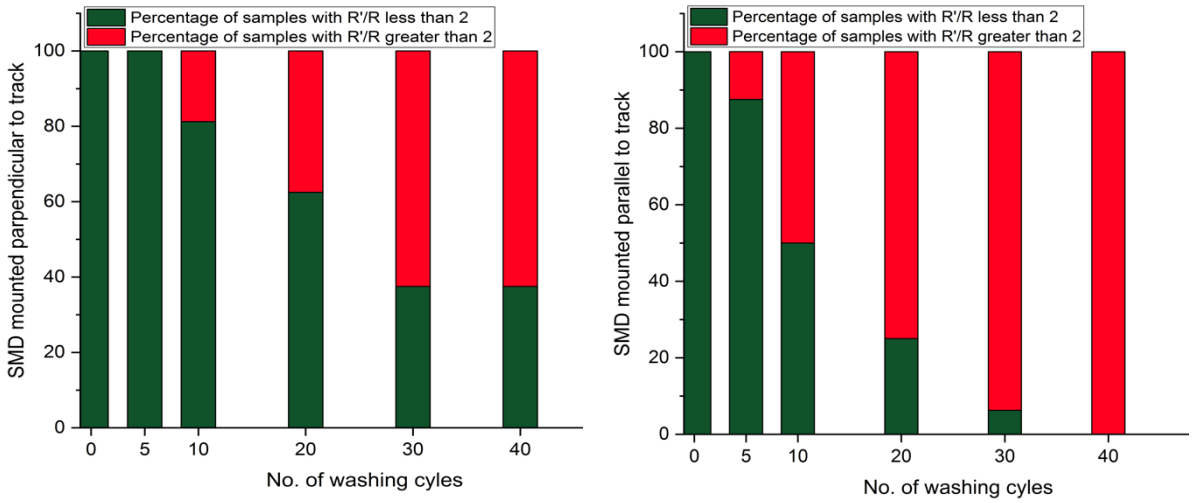
(a) (b)

Figure S2. FPCBs sample (without any protection) analyses after 40 *Express* washing cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.



(a) (b)

Figure S3. FPCBs sample (with silicone protection at SMD joints only) analyses after 40 *Express* washing cycles, a total of 32 samples were tested, (a) percentage of samples with R′/R value above 2 described based on track widths, (b) average R′/R value of working samples only.



(a) (b)

Figure S4. FPCBs sample (with silicone protection at SMD joints only) analyses after 40 *Express* washing cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.

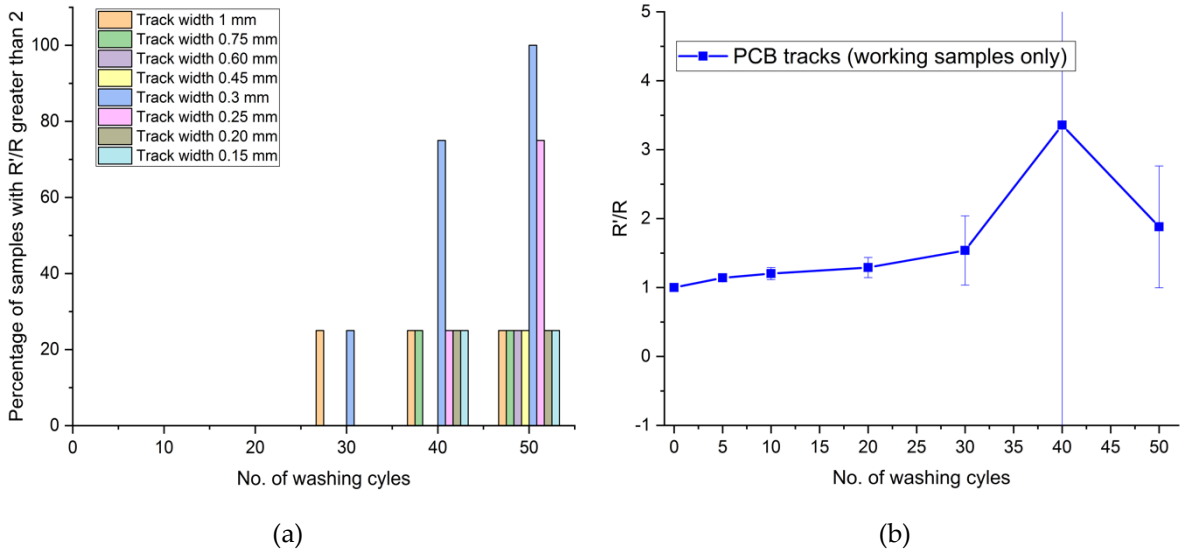


Figure S5. FPCBs sample (with silicone protection completely) analyses after 50 *Express* washing cycles, a total of 32 samples were tested, (a) percentage of samples with R′/R value above 2 described based on track widths (b) average R′/R value of working samples only.

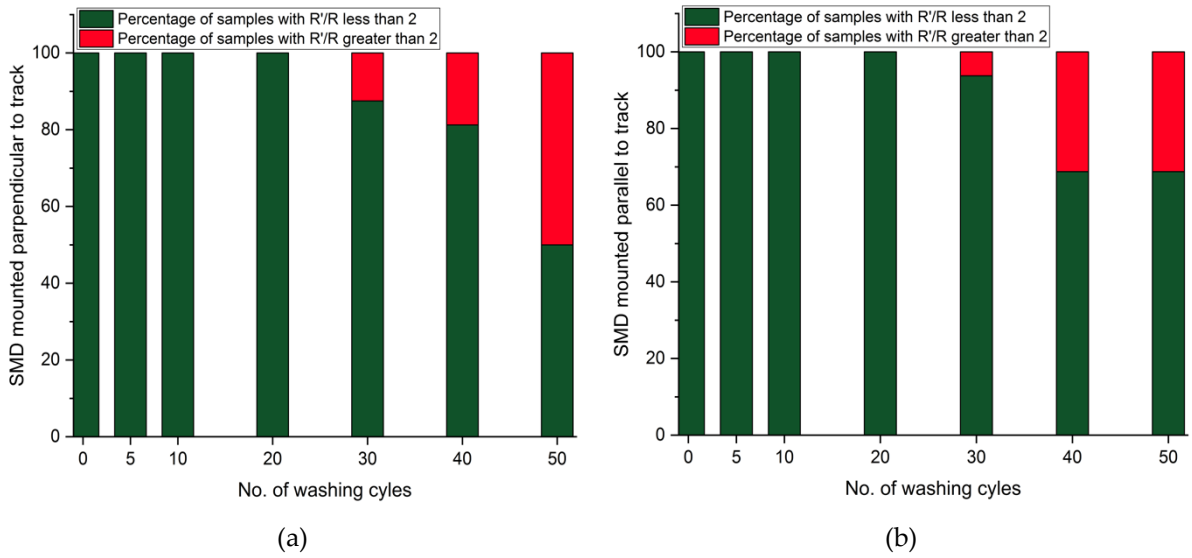
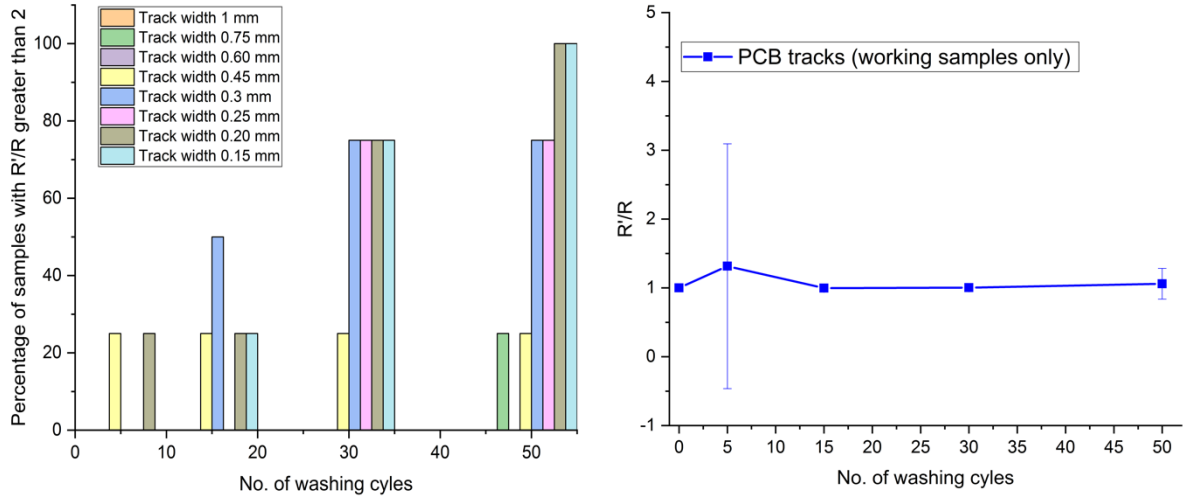
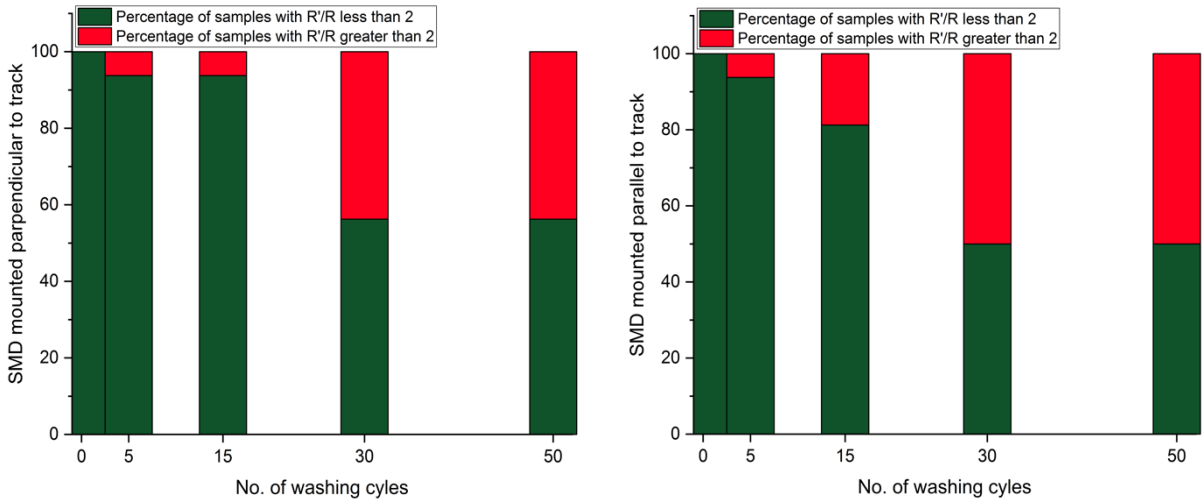


Figure S6. FPCBs sample (with silicone protection completely) analyses after 40 *Express* washing cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.



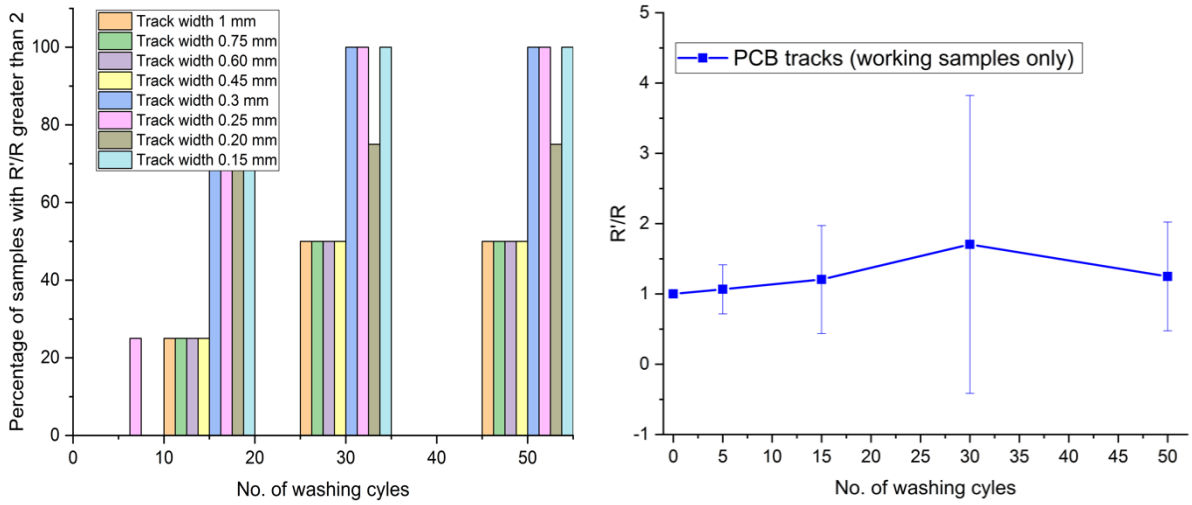
(a) (b)

Figure S7. FPCBs sample (without any protection) analyses after 50 *Silk* washing cycles, a total of 32 samples were tested, (a) percentage of samples with R′/R value above 2 described based on track widths, (b) average R′/R value of working samples only.



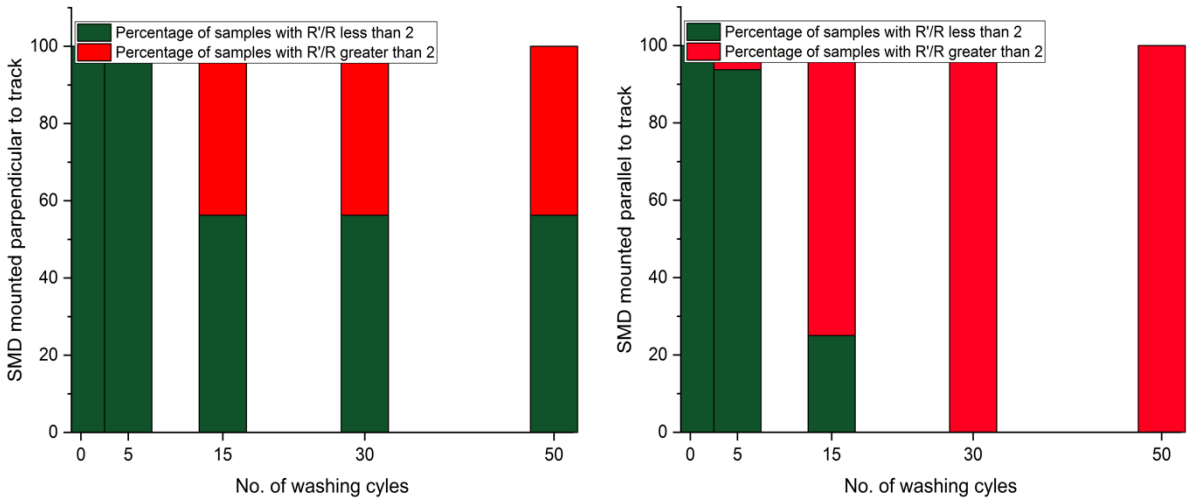
(a) (b)

Figure S8. FPCBs sample (without any protection) analyses after 50 *Silk* washing cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.



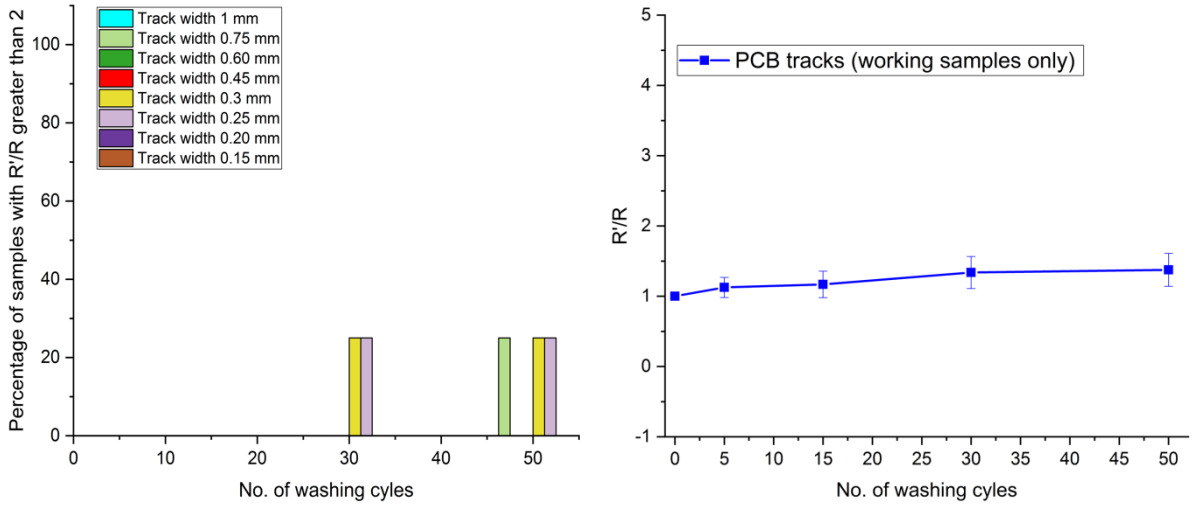
(a) (b)

Figure S9. FPCBs sample (with silicone protection at SMD joints only) analyses after 50 *Silk* washing cycles, a total of 32 samples were tested, (a) percentage of samples with R′/R value above 2 described based on track widths, (b) average R′/R value of working samples only.



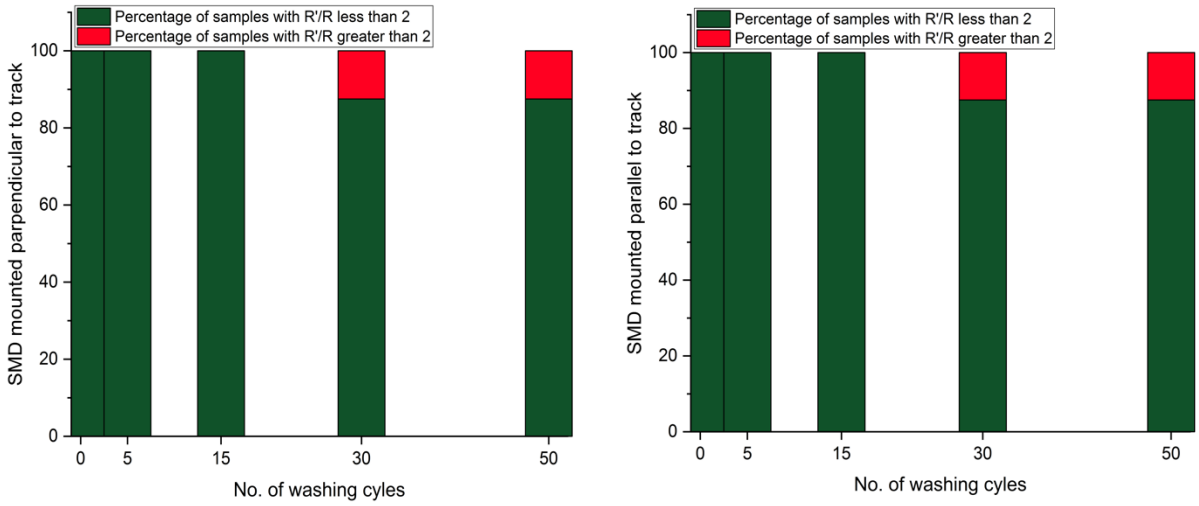
(a) (b)

Figure S10. FPCBs sample (with silicone protection at SMD joints only) analyses after 50 *Silk* washing cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.



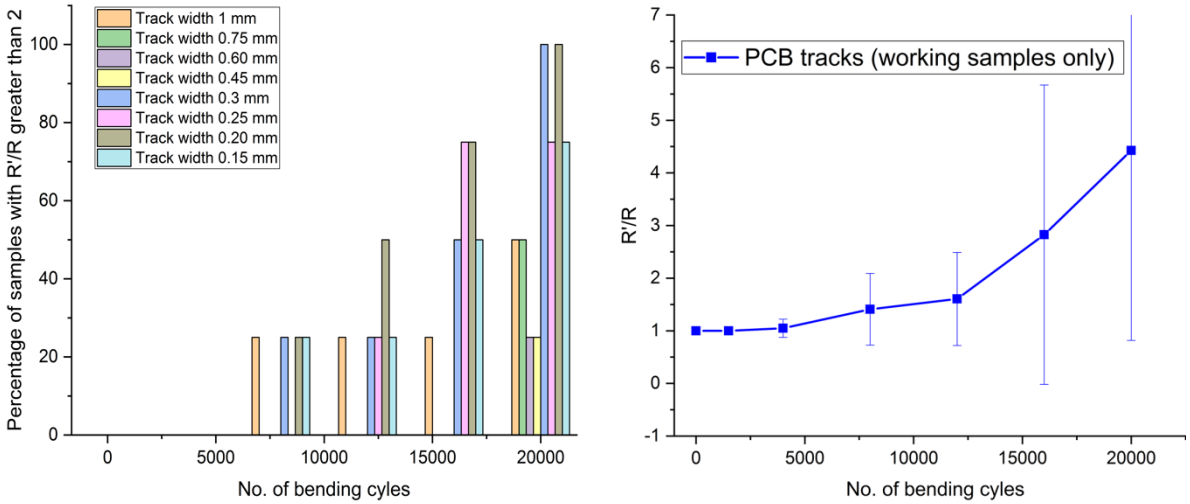
(a) (b)

Figure S11. FPCBs sample (with silicone protection completely) analyses after 50 *Silk* washing cycles, a total of 32 samples were tested, (a) percentage of samples with R'/R value above 2 described based on track widths, (b) average R'/R value of working samples only.



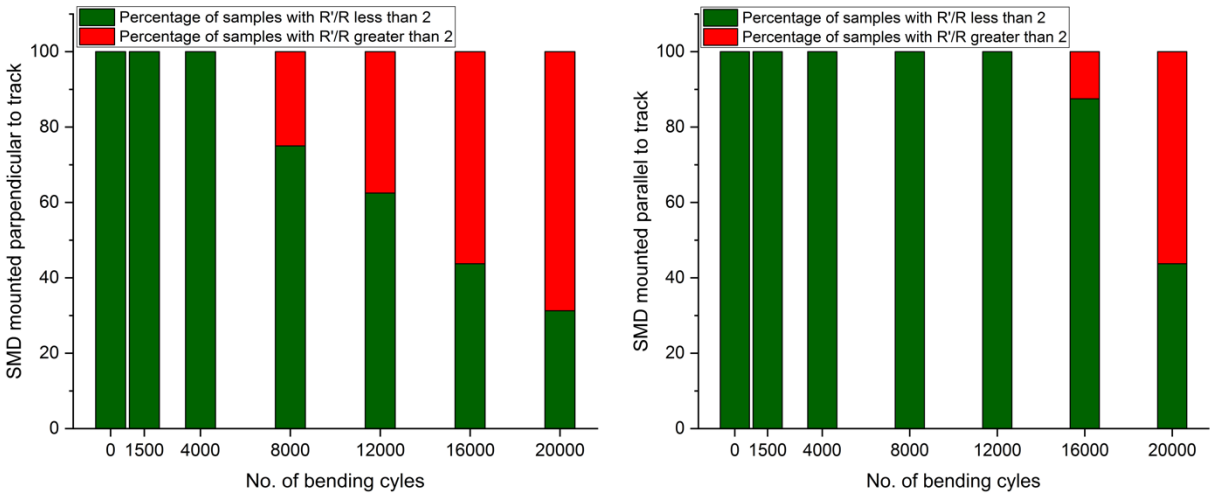
(a) (b)

Figure S12. FPCBs sample (with silicone protection completely) analyses after 50 *Silk* washing cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.



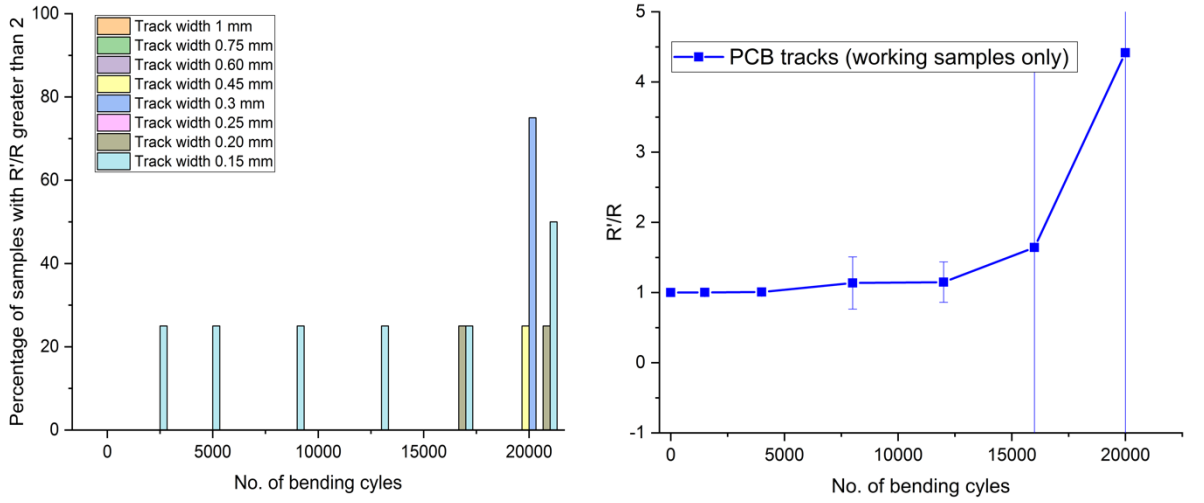
(a) (b)

Figure S13. FPCBs sample (without any protection) analyses after 20,000 bending cycles, a total of 32 samples were tested, (a) percentage of samples with R′/R value above 2 described based on track widths, (b) average R′/R value of working samples only.



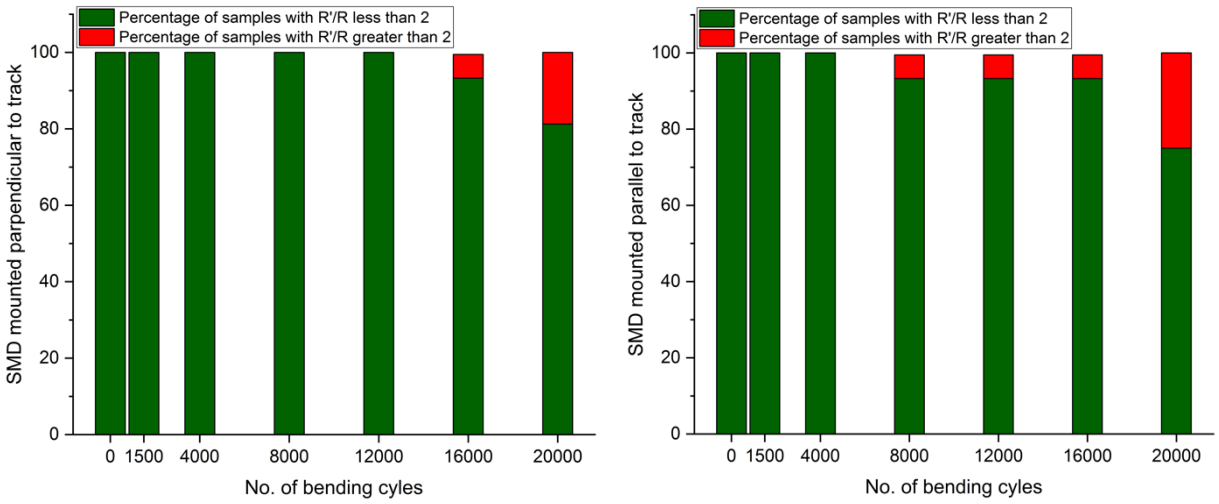
(a) (b)

Figure S14. FPCBs sample (without any protection) analyses after 20,000 bending cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.



(a) (b)

Figure S15. FPCBs sample (with silicone protection) analyses after 20,000 bending cycles, a total of 32 samples were tested, (a) percentage of samples with R'/R value above 2 described based on track widths, (b) average R'/R value of working samples only.



(a) (b)

Figure S16. FPCBs sample (with silicone protection) analyses after 20,000 bending cycles, a total of 32 samples were tested, (a) samples with SMDs mounted perpendicular to tracks, (b) samples with SMDs mounted parallel to tracks.

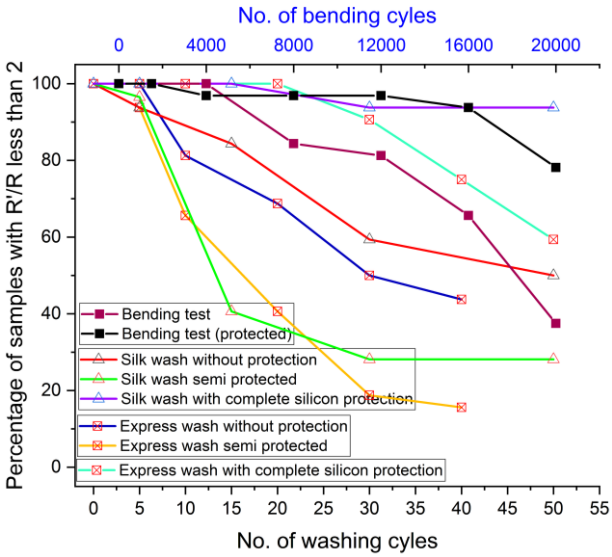


Figure S17. The comparison of all washed and bending test samples