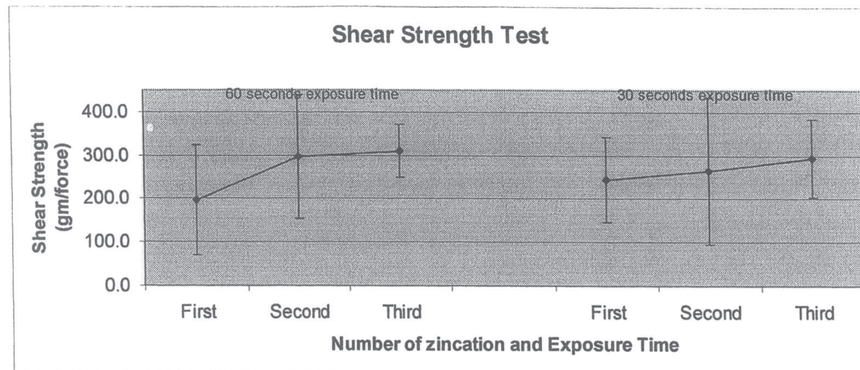

Figure 6: Shear strength results of electroless nickel immersion gold

IV. CONCLUSION

Longer zincation times will produces thick and high population density of zinc seed that caused roughens surface appearance. Third zincation process consistently produces smooth and continuous zinc film on the surface regardless of exposure time and consecutively transfers to nickel surface appearance. Ball shear test also shows third zincation provide better adhesion between UBM and solder ball interfaces. However, third zincation will cause some deterioration in aluminum thickness that may lead to reliability failure.

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