and aircraft DSI configuration. At Mach 1.5, a prominent difference is observed between modeled bumps pressure recovery and aircraft configuration. This deviation is due to the fact that aircraft DSI configuration is optimally designed for supersonic speeds. This design includes bump geometry, positioning, forward swept angle of intake duct cowl lip and many other factors [10]. Hence, it is quite obvious that aircraft configuration is optimized and would yield highest pressure recovery than modeled bump geometries. Furthermore, the length of intake duct which was chosen for this analysis is not similar to actual length of aircraft duct which is subjected for comparison. Also, mass flow rate is not controlled in present analysis whereas pressure recovery at design mass flow rate is plotted for aircraft configuration. However, comparative analysis helped in verifying the variation of pressure recovery with the change in Mach No.

V. CONCLUSION

In this paper different bump surfaces were modeled and analyzed to evaluate their performance. Four 04 different bump configurations are modeled in MATALB® based on their maximum amplitude, location of maximum amplitude, and initial / final bump angles. At subsonic and transonic speeds, Config 1 and 2 gave much similar pressure recovery to DSI configuration of aircraft, however, a significant difference in pressure recovery was observed at supersonic speeds. The deviation is due to the fact that aircraft DSI configuration is optimally designed for supersonic speeds.

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