



AEROSPACE INFORMATION REPORT

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Inlet Airflow Ramps for Gas Turbine Engine Test Cells

RATIONALE

This document has been determined to contain stable technology which is not dynamic in nature.

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1. SCOPE:

This SAE Aerospace Information Report (AIR) has been written for individuals associated with the ground-level testing of gas turbine engines and particularly for those who might be interested in upgrading their existing engine test facility to meet the airflow requirements for higher thrust engine models. The intellectual property rights on the material contained in this document are protected by US Patent Number 5,293,775 dated March 15, 1994 assigned to United Technologies Corporation, Hartford, Connecticut, USA. Any individual, or organization, attempting to use the system described in this document should get a clearance from United Technologies Corporation, to avoid any potential liability arising from patent infringement.

1.1 Purpose:

To provide guidelines for inlet airflow ramps for gas turbine engine test cells.

2. REFERENCES:

2.1 Applicable Documents:

The following is a list of some applicable references and documents used in the preparation of this report:

- 2.1.1 Freuler, R.J., Dickman, R.A., Current Techniques for Jet Engine Test Cell Modeling. AIAA-82-1272, Presented at the 18th Joint Propulsion Conference, June 21-23, 1982, Cleveland, Ohio.
- 2.1.2 De Siervi, F., Viguier, H.C., Greitzer, E.M., Tan, C.S., Mechanisms of Inlet-Vortex Formation, Journal of Fluid Mechanics, 1982, volume 124, pp. 173-207.
- 2.1.3 Glenny, D.E., Pyestock, N.G.T.E., Ingestion of Debris into Intakes by Vortex Action, Ministry of Technology, 1970, Aeronautical Research Council, C.P. no. 1114.
- 2.1.4 Clark, T., Peszko, M., Roberts, J., Muller, G., Nikkanen, J., United States Patent, Patent Number 5,293,775, March 15, 1994, Assignee: United Technologies Corporation, Hartford, Conn.
- 2.1.5 "Design Considerations for Enclosed Turbofan/Turbojet Engine Test Cell", SAE Aerospace Information Report AIR4869, Society of Automotive Engineers, Warrendale, Pennsylvania, Issued October 1995.
- 2.1.6 "Modeling Techniques for Jet Engine Test Cell Aerodynamics", SAE Aerospace Information Report AIR4827, Society of Automotive Engineers, Warrendale, Pennsylvania, Issued May 1993.
- 2.1.7 "Test Cell Instrumentation", SAE Aerospace Information Report AIR5026, Society of Automotive Engineers, Warrendale, Pennsylvania, Issued November 1996.