

PREFACE

The third Spacecraft Charging Technology Conference was held at the U.S. Air Force Academy from November 12-14, 1980, continuing the trend of having such meetings every two years. The objectives of this conference series are to summarize the status of environmental interaction technology and to present information for use by satellite designers.

This conference was planned as an overview of both space flight and ground technology studies directed toward controlling satellite interactions with the space environment. Flight data from P78-2, SCATHA, satellite instruments were stressed since, for the first time, simultaneous measurements of the environment and satellite system response were made. These data can meld with the ongoing analytical modeling and ground simulation studies both in this country and Europe to validate concepts. The investigation is not yet complete: There are still serious questions to be resolved, not the least of which is the question of how stringent a standard should be imposed on the industry for design and testing of future satellites. The panel discussion on this topic allowed a forum for various opinions to be expressed.

The spacecraft charging technology investigation is in its final phases and a new Air Force-NASA cooperative program to investigate environmental interactions with future large satellites operating in all orbits has been established. This program was outlined at the conference and a brief summary of current work presented.

This proceedings includes all 66 papers presented, along with a scheduled paper that was not given. The panel discussion was recorded, transcribed, and edited for inclusion. The proceedings follows the conference session format.

Col. Thomas R. Ferguson, Assistant Director of Science and Technology, Headquarters, Air Force Systems Command, and Walter Olstad, Acting Associate Administrator for Aeronautics and Space Technology, NASA, approved and endorsed the conference. Col. James E. Baker, Commander of the Air Force Geophysics Laboratory, USAF Systems Command, and Dr. John F. McCarthy, Jr., Director of the NASA Lewis Research Center encouraged and supported the conference. Lt. Gen. K. L. Tallman, Superintendent of the Air Force Academy approved our use of the Academy. Ms. Janet Shea, Directorate of Plans and Programs, Air Force Academy, provided outstanding support at the conference including arrangements for accommodations, transportation, meals, and facilities. The members of the Conference Program Committee were Dr. A. R. Frederickson, Dr. W. L. Lehn, C. K. Purvis, Major J. L. Roberts, and R. Broussard.

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