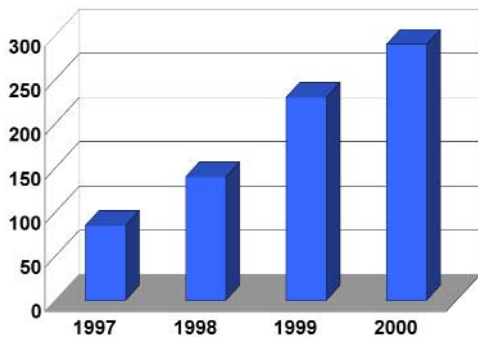


Editor's Note: The Aerospace Corporation hosted a two-day forum on Radio Frequency Interference (RFI) in March 2002. Over 50 attendees, including visitors from six nations, represented the satellite operation community at this meeting. They shared experiences in 22 presentations and five panel discussions. Key findings are summarized below.

RFI Issues in Space Operations

Community Concerns

As the spectrum gets more crowded, RFI problems worsen. Sources of interference abound: faulty terminals, unlicensed equipment, sidebands from users of other frequencies, and even mobile emitters create many problems for the space operations community.



DOD experienced over 600 significant interference events in the last three years, mostly related to space. DOD is therefore dramatically expanding its RFI coordination efforts.

There is no industry-wide data clearinghouse for RFI problems. In tackling RFI issues, such as coordination during orbit transfers or station relocation, operators largely rely on personal networking. But e-mails may not be answered, foreign owners might not respond, and government contacts can be difficult to establish—hardly a satisfactory approach.

Government Support Sought

With many different tools and databases in use, operators are concerned with file incompatibility, omissions and errors—problems not readily solved.

The government has the capability to greatly facilitate RFI resolution, but there are legal and security barriers. The Aerospace Corporation and the Joint Spectrum Center are trying to find a way to answer industry problems without disclosing the underlying technical information. The Aerospace Corporation presently supports some commercial operators in collision avoidance in an arrangement that may lend itself to RFI mitigation.

RFI Prevention

Several operators have had to expend considerable resources to track down leaky VSATs (Very Small Aperture Terminals used by banks and other businesses to transfer credit card information) that appeared to operate properly to the end users.

Clearly, it is much better to design for RFI prevention than to fix systems after they are deployed. Equipment designers, manufacturers, and installers need to be made more aware of their responsibilities in preventing RFI. The attendees at the forum agreed that economic incentives should be provided to accomplish this goal.

The Way Forward

Now that a venue to foster information exchange has been established, the community is eager for more dialogue. A second forum is planned for in Washington, D.C. in spring 2003.

Terrestrial interferer (a) could be located interferometrically: Since the stray signals also pass through an adjacent spacecraft, comparing the times and frequencies of arrival via the two satellites (b) makes it possible to find the radiator. The locator's resolution depends on accurate knowledge of the second satellite's ephemeris.

