



**Office of Spectrum Policy and
Management, ASR-1
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Wide Area Augmentation System

(WAAS) Ground Station License - ASR was made aware that the Federal Communication Commission (FCC) had a problem with the communications Satellite Corporation's (COMSAT) frequency application for two FAA WAAS ground stations. ASR immediately contacted COMSAT concerning the problem and discovered that COMSAT had inadvertently included a wrong frequency band in their license application. COMSAT is correcting that error and the FCC is proceeding with the WAAS frequency authorization process. There is no impact on the WAAS program.

**Update on Radio Frequency
Interference Affecting the New York,
Air Route Traffic Control Center** - The

FCC was contacted on May 24, and indicated that there has been no activity on the Cuban frequencies that affected HF communication frequency 13,330 kHz and 11330 kHz in use at ZNY. These frequencies experienced HOAX and jamming prior to May 17, but have been free of interference since that date. This case involved the coordination of the Department of State, the FCC, and the FAA. The FCC and the FAA closed this RFI case on May 24.

**ASR Provides Assistance to the
American Radio Relay League
(ARRL) in Resolving Radio**

Frequency Interference - A member of the ARRL contacted ASR about RFI that amateur radio operators were receiving in the San Francisco, California, area. The source of interference was determined to be a FAA ARSR-4 long-range radar system. Through a cooperative effort between ASR and the ARRL, an exchange of technical data was made to assist the amateur radio operators in developing a notch filter to eliminate the RFI. The amateur radio service operates in the ARSR-4 frequency band on a secondary basis, and therefore, cannot claim protection from the FAA's radars. However, in the spirit of cooperation the FAA tries to help the amateurs whenever possible.

**Meeting with the National
Telecommunications and Information
Administration (NTIA) regarding
waiver requests for ultra-wideband**

devices - ASR has been involved with the development of regulatory and operational conditions for ultra-wideband (UWB). UWB devices may have bandwidths that exceed 1 GHz. These ultra-wide bandwidths overlap frequency bands that are used by aeronautical systems (such as the Global Positioning System) and could cause harmful interference. The Federal Communications Commission (FCC) identifies these aeronautical bands as restricted bands. That is, fundamental emissions are not allowed in these bands. Since UWB devices are designed to operate with ultra-wide bandwidths that cross many allocation bands including restricted bands, the manufacturers requested waivers of this rule. On June 15, the FCC granted waivers for three manufacturers of UWB devices, Time Domain Corporation, U.S. Radar Incorporated, and Zircon Corporation. The waivers incorporated the conditions specified by the National Telecommunications and Information Administration. These conditions developed by Federal Government agencies (primarily FAA) included the following:

The waivers would be granted for four years, but new FCC rules could shorten that duration.

Manufacturers must be granted FCC certification (formally type acceptance).

The FCC will coordinate UWB operations through the NTIA Frequency Assignment Subcommittee, which will record them in the Government Master File if approved.

All petitioners must equip their devices with “deadman” and “proximity” switches.

Furthermore, Time Domain must limit the number of devices marketed to 2500 units to public safety departments (e.g., police and fire departments) as requested in their waiver. They must also take steps, as soon as practical, to shift their center frequency and add filters to reduce energy in critical aeronautical radionavigation bands. U.S. Radar must limit their sales to 25 units per year as requested in their waiver and incorporate radio-frequency shielding. Zircon may sell up to 5000 units.



ASR Protects Air Traffic Control Operations at Dallas/Fort Worth From Radio Frequency Interference During Tests of the Airport Target Identification System (ATIDS) - The

ATIDS is an experimental system that is part of the Runway Incursion Reduction Program. ASR worked with the PT lead for Terminal Surveillance, AND-410, Lincoln Laboratory, and Trios Associates to ensure that proper controls and limitations were put in place to protect existing air traffic control operations during testing. Consequently, ATIDS was successfully tested without incident. After reviewing the final test results, ASR agreed to continue testing while detailing specific future tests to be conducted. These future tests will ensure that the proposed system will be compatible with the existing operational environment.



Office of Spectrum Policy and Management Participates in Meeting on Global Hawk Mishap - On June 2 and

3, a representative from ASR attended a special joint meeting of the DOD's Range Commanders Council at Edwards Air Force Base, California. In particular, the Council's Range Safety and Frequency Management Groups (FMG) and a representative from the FAA's Office of

Commercial Space Transportation participated in this meeting. The meeting was called to review the events that led up to the inadvertent flight termination and loss of the sub-orbital pilot-less airborne vehicle (UAV), Global Hawk, and to determine how a similar event can be avoided. Global Hawk is similar in construction to the U-2 aircraft and is a prototype of aircraft that will one day become piloted. While the aircraft is still a prototype, it employs a flight termination system similar to that employed on commercial space launch vehicles. ASR took the opportunity to inform the group that many of the issues surrounding UAV flight termination systems also apply to commercial space launches. The group was informed that there are other spectrum issues that need to be resolved as well as additional coordination procedures which need to be put in place for the safe operation of planned commercial spaceports. The chair agreed that a briefing by the FAA at the next FMG meeting, scheduled for August 1999 in Baltimore, on spectrum aspects of commercial space launch operations would be beneficial. The FMG's membership includes all the DOD's Area Frequency Coordinators. The proposed FAA briefing will include a discussion on tracking and telemetry as well as flight termination system radio spectrum support.



Enhanced Traffic Alert and Collision Avoidance System (E-TCAS)

Approved for Air Force. The Spectrum Assignment and Engineering Division, ASR-100, completed the coordination of E-TCAS system with the Air Force. The E-TCAS system will be used by the Air Force for maintaining separation during formation flying and for refueling operations. The E-TCAS has extended range to the sides and rear of the aircraft. E-TCAS also allows the Air Force to track aircraft equipped with Mode A only transponders which are not tracked by civil TCAS systems. The E-TCAS system does all of these tasks while adhering to the power and interference limiting requirements of civil TCAS II systems. ASR coordinated with the TCAS Program Office and the Air Traffic Procedures Office to assure the E-TCAS system will not impact the civil TCAS operations or Air Traffic Procedures. From the data provided by the Air Force, E-TCAS should not impact the National Airspace System.



Protecting Aeronautical Use of Global Positioning System (GPS) from Radio Frequency Interference -

The Office of Spectrum Policy and Management is playing a key role in protecting GPS spectrum 1559-1610 MHz from radio frequency interference. The Federal Communications Commission (FCC) has several rulemaking dockets out for public comment, which could impact the utility of the GPS for use by civil aviation. One rulemaking seeks to establish emission limits for a new public safety communications service, which would include police, ambulance, and fire protection. A major issue is the transmitter signal emission limit needed to protect global navigation satellite system for precision approaches when these devices are used in the proximity or on the airports. Motorola, for instance, has stated that their future radios will not meet the emission limits being requested by the Federal Aviation Administration (FAA). On another front, several manufacturers of digital television transmitters are requesting that the FCC waive the transmitter signal emission limits for existing equipment, which have already been adopted to protect GPS operations. The FAA cannot allow consideration of such waivers if GPS is to be a viable aid to aeronautical radionavigation. Finally, the FCC is requesting comments on emission limits for the new Global Personal Communications equipment. The FAA is proposing limits designed to protect critical NAS systems such as GPS. Spectrum management is becoming a major factor in any new communications or navigation system. ASR will continue to provide strong FAA leadership to ensure that the spectrum requirements of civil aviation can continue to be satisfied and protected.



Phase I of Los Angeles, California, Basin Radar Beacon Survey

Completed - ASR-100, in conjunction with the Western Pacific Region Frequency Managers conducted and completed phase I of the Southern California Radar Beacon Survey between June 19 and July 1. The scope of the entire project includes a survey of all radar beacons within a 150 NM circle of LAX. Phase I covered a subset of that circle, and the geographical area is defined by a trapezoidal

shaped boundary using Vandenberg Air Force Base (AFB), China Lake Naval Air Station, Edwards AFB, and Naval Air Weapons Station Point Mugu as the four corners. The survey was initiated because the Los Angeles Basin has been experiencing increasing incidents of beacon interference and coasting, due to loss of targets, because of over interrogation of aircraft transponders. Past experience has shown that the only way to solve this type of problem is to survey each piece of equipment that is capable of radiating an interrogation pulse. When problem system elements are found, the necessary steps can be taken to correct their operation.

Phase I produced three discoveries that have validated the necessity for completing the Radar Beacon Survey: (1) two of the registered radar beacons were not operating on their assigned frequency or pulse repetition frequency, (2) there were 15 unregistered Multiple Threat Emitter Systems (MUTES) and Mini-MUTES pedestals using radar beacons at Edwards AFB, and (3) there were 33 unregistered portable beacon interrogator test sets located at the four military facilities.



Progress on Response to Recommendation 2.6 of the White House Commission on Aviation Safety and Security - ASR-1 was

assigned the task of preparing the response to Recommendation 2.6 of the White House Commission on Aviation Safety and Security. This recommendation directed the Federal Aviation Administration (FAA) to identify and justify the spectrum requirements for the modernized air traffic control system. ASR-1 established a joint working group, with the Office of System Architecture and Program Evaluation, ASD-1, to progress this study. ASR is now in the final stages of reconciling comments from other FAA offices. Our intention is to forward the coordinated document to ATS-1 on July 17 for processing to the Assistant Administrator for Policy, Planning, and International Aviation, API-1. API-1 will then prepare it for final disposition to the Commission.

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