FANS Interoperability Team Meeting (FIT/18) - Honolulu, Hawaii, USA, 22-23 March 2011

FIT 18 Meeting Report

Agenda Item 1 Feedback from Operators

As mentioned last year participation in UPRs and DARP continue be very important especially now that the price of fuel is beginning to rise again. Operators again expressed their appreciation for all the work being undertaken in the region in terms of benefits to operators. However departures and arrivals on both sides of the Pacific continue to be a concern area in terms of efficiency. The Tailored Arrivals program being offered by the FAA is good but it has taken much longer than expected and there continues to be areas for improvement. Arrivals into Australia continue to be a problem and quite frequently all the savings that both the operators and ANSPs have invested in and worked hard to achieve enroute are lost during the arrival phase.

As fuel is anticipated to be the driving cost factor for operators for the foreseeable future anything that can be done to save fuel even if the suggestion had been previously dismissed should be considered. Expansion of the UPR and DARP trials, use of ADS-C climb procedures are examples where the operators would like to work together with the FIT to enable additional fuel saving opportunities. **ISAPCG is strongly urged to re-look into the areas for improvement in terms of efficiency for aircraft departing and arriving from oceanic routes.**

Agenda Item 2 Feedback from ANSPs

The observed performance of FANS1/A aircraft and network availability in the region has improved over the previous period. Network availability, CPDLC and ADS-C performance is measured against the criteria specified in the ICAO Global Operational Data Link Document (GOLD). These measurements provides verification that system safety objectives that rely on the FANS1/A communications and surveillance infrastructure are met, and provide the basis for system performance improvement where deficiencies are found. Over the last year ANSPs in the region have made improvements in their automation systems which are anticipated to provide additional benefits to operators including the expansion of UPR and DARP operational areas.

Agenda Item 3 ARINC and SITA Update

As noted in the ANSP reports both ARINC and SITA had worked hard over the previous year to mitigate some of the performance and availability issues reported in 2009, Both ARINC and SITA continue to seek feedback from regional interoperability teams such as the ISPACG FIT for message and or aircraft traffic forecasts. This information will assist the DSPs in planning and scheduling needed network system upgrades to meet the projected demand.

Agenda Item 4 Working Papers

The FIT recommends that **ISPACG support the development of a performance based framework for communications** and surveillance within the ICAO Asia/Pacific region that will complement the existing performance based navigation framework. The performance based communications and surveillance framework will apply performance specifications to FANS1/A controller-pilot data link communications (CPDLC), automatic dependent surveillance contract (ADS-C), and satellite communications (SATCOM) voice for air traffic control. Currently, performance-based navigation (PBN) has been implemented by reference in appropriate airspace specifications. However, none of these documents invoke the RCP Manual (ICAO Doc 9869), the GOLD, or any guidance material for use of SATCOM voice for ATC communications (SVGM). Adopting a performance based framework will enable ISPACG and other regions to take advantage of new communications systems scheduled to come online over the next several years (i.e. Swift Broadband, Iridium NEXT, INMARSAT Ku/Ka I5 satellites).

Post implementation monitoring provides performance data on the FANS1/A ADS-C and CPDLC applications that can be measured against Required Communications Performance (RCP) and Required Surveillance Performance (RSP). Measurement of availability is based on outages that are notified by the CSP's and outages that are detected by observation of the collected FANS1/A data. These measurements provide verification that system safety objectives that rely on the FANS1/A communications and surveillance infrastructure are met, and are part of the ATSUs overall Safety Management System or SMS requirements as stated by ICAO. **All ISPACG ANSP members are encouraged to support system performance monitoring as outlined in the GOLD and to use this performance monitoring data as an element of their respective SMS programs.**

The FIT reviewed an update on the work being undertaken by the Inter-Regional Satellite Communications (SATCOM) Voice Task Force. And although there are issues that still need to be worked ATSUs were in support this initiative and will participate in completing globally applicable guidance material for using SATCOM voice for air traffic services communication (SVGM) targeted for December 2011. **It is recommended that ISPACG also endorse and actively participate as required to ensure any regional specific requirements are addressed.**

In support of SATCOM voice Iridium is installing a new digital voice switch to support the requirements being finalized in the SATCOM Voice Task Force. These requirements apply to both INMARSAT and Iridium systems. Traditionally INMARSAT systems have been used in support of SATCOM voice trials conducted in the North Atlantic and the Pacific. Some operators have been using Iridium voice for ATC communications however this use has been on an as needed basis and does not comply with requirements being developed. With the installation of their new voice switch Iridium stated they will be capable of providing all the security and access requirements provided by INMARSAT today which is being used as baseline for SATCOM voice guidance material. Iridium said the switch would be ready for initial testing in July of this year. Airways New Zealand expressed interest in testing with Iridium voice capability as some operators in their area have Iridium voice systems installed on their aircraft.

Action: ARINC / SITA and Iridium to ensure all ATSUs that currently receive INMARSAT and or DSP system degradation notifications also receive Iridium service degradation notifications.

DARPs have long been on the ISPACG list of agenda items, but are currently only available for flights between the NZZO and KZAK FIRs. The FIT will be coordinating a more widespread DARPs trial for flights operating between Australia and the United States. To this end, Airservices Australia proposes a DARPs trial for aircraft operating between YSSY/YBBN and KLAX/KSFO. The ATSUs supporting the trial will publish a NOTAM listing any constraints as well as guidance for operators when flight planning UPR or DARP routes and or reroutes. The meeting agreed to develop regional UPR guidance material that would be posted on the ISPACG CRA website. **The FIT recommends that ISPACG support expansion of UPR and DARP trials between Australia and the United States.**

Agenda Item 5 Problem Reports

ATSUs indicated there were a number of interoperability issues relating to route downlinks they receive from airplanes that can result in the inability to create a corresponding uplink clearance. One particular issue was that airplanes can transmit latitude/longitude fixes where either the latitude or longitude is in whole degrees, while the other part includes minutes (and even tenths of minutes). This is a feature of the way the message set is defined (with minutes and tenths as optional), and neither the crew nor the airline sending a company flight plan uplink can control this (without moving the waypoint locations). Another issue was that some airplanes send multiple airways without the intersection fix between them. This is a result of an error in the airborne implementations, **and manufacturers should be encouraged to fix those avionics systems that exhibit this deficiency in support of enhanced operational benefits.**

The FAA Technical Center has looked at system performance data and determined that airplanes in the Pacific using either the AOR-W or AOR-E satellite have exhibited worse performance than the other satellites. One possible/probable reason is that where this happens, both the Pacific and Atlantic satellites are at low elevation angles, so that some switching of satellites (and consequent delays) can be expected in those regions. The FAA Tech Center will continue their analysis of the data.

Action: INMARSAT, satcom system manufactures, and OEMs to see if there is a way to improve the performance in this region.

There was major concern from the ATSU's at the meeting about several problem reports related to the 777. The latest block point intended to fix other problems identified by the FIT has resulted in even poorer performance. The latest issue introduced is particularly disturbing to ATSUs as it looks to ATS like a message is delivered to the airplane normally but in fact it is discarded and never displayed to the pilot. So if the controller needed to move the airplane he would send the message to the airplane and then wait until a non response timer times out within the ground system and then try and contact the aircraft again either via data link or via voice. **Boeing is strongly encouraged to find a solution to this problem.**

The ATSUs were also concerned about the ADS wind data coming from FANS equipped Gulfstream aircraft. The wind vector in the ADS down links can sometimes be 180 degrees out of phase. Aircraft exhibiting this problem with have their ADS contract terminated for the rest of the flight and the crew will be instructed to provide CPDLC position reports. **The manufacturer is encouraged to fix this deficiency.**

A problem report was identified in the North Atlantic relating to a crew reminder function on an Airbus airplane. The reminder function is armed when a conditional clearance is received by CPDLC and accepted by the crew. In this case the conditional clearance was superseded by a subsequent clearance. Sometime later the airplane automation reminded the crew to descend. After some discussion the crew descended and were questioned by ATC why they descended without a clearance. In the current configuration the flight crew cannot cancel or modify the crew reminder and erroneous reminders must be ignored. This feature is on all FANS equipped Airbus aircraft. **The ANSPs in the region strongly urged the manufacturer to provide a means to cancel reminders that are superseded by subsequent clearances.**

Currently typing errors in logon requests will result in the flight crew waiting 10 minutes before the airplane function times out and informs the crew of an unsuccessful logon attempt. However the crew is not given any feedback why the logon attempt failed. Currently the DSP must perform a 4-character ICAO ID to 7-character address translation similar to what they do today for D-ATIS. For that service DSPs provide “NO PARTICIPATING AIRPORT” message. In a similar way, DSPs could provide a “INCORRECT LOGON ID” uplink if the logon ID in the logon request did not match any logon ID in their respective FANS servers.

Agenda Item 6 Updates to the GOLD

The GOLD ad-hoc working group agreed to assist the ICAO Planning and Regional Implementation Groups (PIRGs) and the ICAO Secretariat in coordinating amendments to the GOLD among concerned PIRGs until such time that ICAO established a global configuration management process.

The GOLD Ad Hoc Working Group will process amendments to the First Edition of the GOLD using processes and forum similar to change processes used prior to the First Edition. For example, the GOLD coordinator will continue to use a master comment matrix to track candidates for proposed amendments. The matrix will be distributed for coordination and comment via email. Teleconferences/WebEx sessions and meetings will be arranged, as needed. A final meeting of the GOLD Ad Hoc Working Group amendment team is currently scheduled for September this year in Seattle. **ISPACG is encouraged to support the GOLD amendment team by providing their inputs to the team and supporting the upcoming meeting.**

Agenda Item 7 INMARSAT, Iridium

INMARSAT expressed their regret for being unable to attend the meeting in person due to prior commitments. However they did provide a presentation for the group and offered to work late and support a WebEx presentation to the group. Due to the room setup and equipment available at the time we could not accommodate a WebEx session.

The FIT has been monitoring the use of Iridium satcom for provision of FANS communications supporting CPDLC and ADS-C communications since 2007. In conjunction with the FAA sponsored Communication Working Group (CWG) ATSUs in the region have been participated in trials and have applied the same system performance monitoring criteria as is used with traditional INMARSAT systems. *As a result of the efforts undertaken by the FIT and CWG, the FAA stated that is drafting a letter agreeing with the assessment of the CWG, that Iridium systems that meet the appropriate requirements be allowed for use with FANS CPDLC and ADS-C without restriction and on an equivalent basis as traditional INMARSAT systems.* The ISPACG should note the pending approval of Iridium satcom for use with FANS based CPDLC and ADS-C systems.

Airbus informed the FIT that they are currently evaluating use of Iridium satcom for both voice and data link services and the early results of these tests look promising. An A320 flight test a/c has been fitted with an Iridium based satcom system providing both voice and data link communications over the Iridium network. No interference was noted with GPS the system. However some interference was experienced with Inmarsat satcom have been noticed, but not measured. Voice calls were established with a good quality during up to 30 min, including flight maneuvers, with successful recording on CVR. Simultaneously, FANS A+ over Iridium capability (using SITA service) has also been successfully assessed, as well as AOC messages exchange and F-PLN uplink.

Iridium SATCOM provide the FIT with an update on its plans to support FANS based data link communications as well as SATCOM voice services. Iridium is working with both DSP's and internally to ensure timely notification of any outages. It was noted by at least one ATSU in the meeting that they are still not getting service notifications.

Iridium also provided an update to the group on their plans to replenish the existing satellite constellation. Iridium "NEXT" is a funded program to the tune of three billion dollars US. Both satellite manufacture and launch partners are under contract and working on the program. Initial launch is targeted for 2015. Eighty one space vehicles will be built and seventy one will be launched. The new constellation is expected to be fully operational in 2017. The new constellation will be backward compatible with existing aircraft equipment and for newer transceiver it is being designed to provide 1.4 Mbps throughput to the aircraft. The Iridium Next implementation will also provide additional ground earth station access points to mitigate the "rain fade" issue which has been identified as a concern area.

Agenda Item 8 Any Other Business

No other business was identified.