



## **INTERNATIONAL CIVIL AVIATION ORGANIZATION**

### **Third Meeting of the FANS I/A Interoperability Team**

**(SAT/FIT/3)**

**(Montevideo, Uruguay, 5-6 May 2008)**

#### **Agenda Item 5: System performance monitoring and maintenance**

##### **SITA FANS 1/A Performance Reporting in SAT Region**

(Presented by SITA)

###### **Summary**

This working paper presents the status for ATS data link traffic generated in the SAT region by ATM systems operated by Air Navigation Service Providers and connected to SITA AIRCOM network

###### **References:**

- SITA AIRCOM Performance and Quality Plans (APQP) as updated for March 2008

#### **1 Introduction**

1.1 The data link service provider (DSP) enables an Air Navigation Provider to provide the FANS 1/A data link applications to customer aircraft using the DSP communication services such as VHF , VDL , HFDL and Satellite for FANS 1/A such as:

- a) ATS Facilities Notification (AFN);
- b) Automatic Dependent Surveillance (ADS); and
- c) Controller Pilot Data Link Communications (CPDLC).

1.2 The delivery of a FANS data link service comprises different activities such as provision and monitoring of local tail circuits and associated hardware installation, technical support, testing, assisted operation and service management. In accordance with FANS Operation Manual, summary statistical data also is produced periodically showing the performance of the system what is accomplished through FANS-1/A Periodic Status Reports.

1.3 SITA is currently the data link service provider (DSP) in support of all SAT States delivering FANS services or performing FANS trials in that airspace and provides monthly performance reports to each ANSP connected to SITA AIRCOM network.

## 2 **Main considerations**

2.1 The set of statistic data presented in the **Appendix A** to this working paper is related to the SAT Region in general. No reference to a specific ANSP FANS traffic is done.

## 3 **Suggested action**

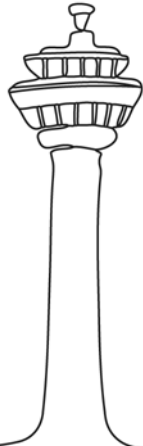
3.1 The meeting is invited to review and comment on the provided data as shown in the **Appendix A** to this working paper.

WP/04-Appendix A  
South Atlantic Group  
FANS Interoperability Team – FIT 3

**FANS 1/A Performance Reporting  
in SAT**

**Montevideo, Uruguay  
5-6 May 2008**

**Adriana Mattos  
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Straightforward aircraft operations

**SITA**

## Agenda

1. SITA FANS service performance reporting system:
  - Description and examples of SITA AIRCOM Performance and Quality Plans (APQP), provided monthly to our FANS ANSP customers.
2. ANSPs and airlines in the SAT region doing FANS
3. Consolidated results of FANS service performance in the SAT trials from a SITA perspective
4. Compared Traffic for ANSPs in the SAT region and NAT ANSP (one provider)



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# APQP – Availability of the service

Processor, VHF and SAT network combined availability

| 3.1 AIRCOM FANS SERVICE AVAILABILITY         |              |                   |                  |                  |                |              |                 |                  |
|--|--------------|-------------------|------------------|------------------|----------------|--------------|-----------------|------------------|
| Service Availability                         | # of outages | Shortest Duration | Average Duration | Longest Duration | Total Duration | Availability | 3-month average | 12-month average |
| VHF FANS AIRCOM Processor Availability       | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,98%          | 99,99%           |
| Satellite FANS AIRCOM Processor Availability | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,98%          | 99,99%           |
| VHF Access Network Availability              |              |                   |                  |                  |                | 99,43%       | 99,65%          | 99,73%           |
| Satellite Access Network Availability        |              |                   |                  |                  |                | 99,94%       | 99,97%          | 99,98%           |
| VHF FANS Service Availability                |              |                   |                  |                  |                | 99,43%       | 99,63%          | 99,72%           |
| Satellite FANS Service Availability          |              |                   |                  |                  |                | 99,94%       | 99,95%          | 99,97%           |

Details: VHF stations (RGS/VGS) and SAT stations (GES)

| 3.2 FANS CRITICAL RGS AVAILABILITY |              |                   |                  |                  |                |              |                  |
|------------------------------------|--------------|-------------------|------------------|------------------|----------------|--------------|------------------|
| Critical RGS Outages               | # of outages | Shortest Duration | Average Duration | Longest Duration | Total Duration | Availability | 12-month average |
| AGP-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,98%           |
| BCN-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 100,00%          |
| BCN-F2                             | 4            | 10                | 21               | 51               | 85             | 99,81%       | 99,48%           |
| BCN-F3                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 100,00%          |
| BIO-F1                             | 1            | 56                | 56               | 56               | 56             | 99,98%       | 99,99%           |
| BIO-F2                             | 1            | 25                | 25               | 25               | 25             | 99,94%       | 99,59%           |
| FAO-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,76%           |
| FLW-F1                             | 2            | 4                 | 5                | 5                | 9              | 99,98%       | 99,50%           |
| GRX-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 98,15%           |
| LIS-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 100,00%          |
| MAD-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,99%           |
| MAD-F2                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,86%           |
| MAD-F3                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 100,00%          |
| OPO-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,82%           |
| PMI-F1                             | 0            | 0                 | 0                | 0                | 0              | 100,00%      | 99,79%           |

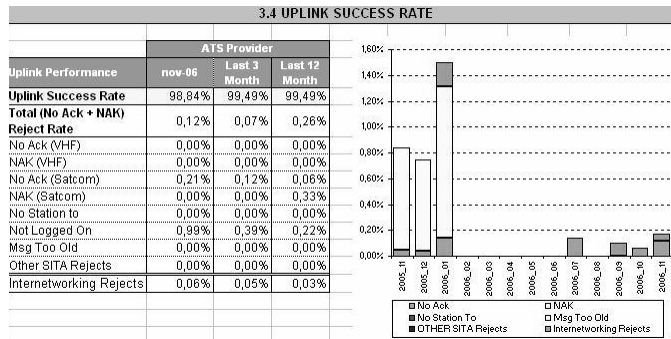
| 3.3 FANS CRITICAL GES AVAILABILITY |         |                  |
|------------------------------------|---------|------------------|
| Satellite Access                   | janv-07 | 12-month average |
| Network Availability               | 99,94%  | 99,98%           |
| A0E2                               | 99,94%  | 99,97%           |
| A0W2                               |         |                  |
| I0R2                               |         |                  |
| P0R1                               |         |                  |
| Average Availability               | 99,94%  | 99,98%           |

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# APQP – Reliability of the service

Messages delivered and reject causes



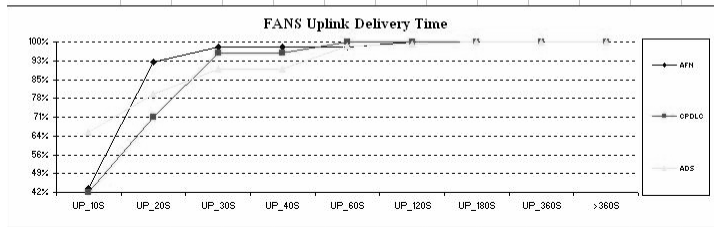
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# APQP – Response time performance (1)

## Uplink Delivery Time

| 1.4 FANS SERVICE PERFORMANCE (VHF+SAT) |        |        |        |        |         |         |         |         |         |
|--|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| Uplink Message Delivery Time           | 10 s   | 20 s   | 30 s   | 40 s   | 60 s    | 120 s   | 180 s   | 360 s   | >360 s  |
| ATS Provider                           | 60,37% | 80,85% | 90,96% | 90,96% | 98,40%  | 99,47%  | 100,00% | 100,00% | 100,00% |
| AFN (Log-on)                           | 43,14% | 92,16% | 98,04% | 98,04% | 98,04%  | 100,00% | 100,00% | 100,00% | 100,00% |
| CPDLC                                  | 41,67% | 70,83% | 95,83% | 95,83% | 100,00% | 100,00% | 100,00% | 100,00% | 100,00% |
| ADS                                    | 64,78% | 79,73% | 89,37% | 89,37% | 98,34%  | 99,34%  | 100,00% | 100,00% | 100,00% |



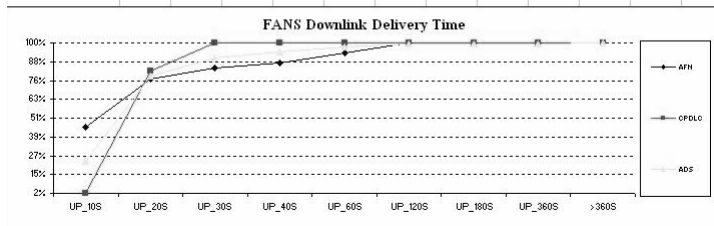
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# APQP – Response time performance (2)

## Downlink Delivery Time

| Downlink Message Delivery Time | 10 s   | 20 s   | 30 s    | 40 s    | 60 s    | 120 s   | 180 s   | 360 s   | >360 s  |
|--------------------------------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| ATS Provider                   | 23,84% | 78,26% | 89,94%  | 94,08%  | 97,15%  | 99,43%  | 99,49%  | 99,55%  | 100,00% |
| AFN (Log-on)                   | 45,16% | 76,61% | 83,87%  | 87,10%  | 93,55%  | 100,00% | 100,00% | 100,00% | 100,00% |
| CPDLC                          | 2,56%  | 82,05% | 100,00% | 100,00% | 100,00% | 100,00% | 100,00% | 100,00% | 100,00% |
| ADS                            | 23,27% | 78,26% | 90,05%  | 94,26%  | 97,25%  | 99,40%  | 99,46%  | 99,53%  | 100,00% |



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## ANSPs in the SAT region doing FANS

- Spain: AENA (Canarias)
- Cabo Verde : ASA
- Brazil : DECEA (Recife)
- South Africa : ATNS (Johannesburg)
- Portugal : Nav Portugal (Açores)
- Dakar: ASECNA
- All connected to SITA



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## Airlines in the SAT region doing FANS

- Air Europa
- Air France
- Alitalia
- British Airways
- Iberia
- KLM
- Lan Chile
- LTU
- Lufthansa
- TAM
- QFA
- Singapore Airlines
- South African Airways
- Swiss
- Virgin
- Corsair
- Continental
- Malaysian Airlines
- LTU Luftransport
- Lauda Air
- TAP
- Qantas Airways
- US Air Force



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## Consolidated performance data in the SAT region from SITA's perspective (1)

- Traffic for ANSPs in the SAT region

| ATS Provider | Ground Traffic in Messages (Uplink + Downlink) |                  |
|--------------|--|------------------|
|              | mar/08   | 12-month average |
| ATS Provider | 86.325   | 65.759           |
| AFN (Log-On) | 15.101   | 11.089           |
| CPDLC        | 28.137   | 20.605           |
| ADS          | 43.087   | 35.982           |

Note:

- Recife, Dakar and Cape Verde are not currently full operational
- NAV Portugal and South Africa are operational



## Consolidated performance data in the SAT region from SITA's perspective (2)

Uplink Delivery Time for ANSPs in the SAT region

| Uplink Message Delivery Time | 60 s   | 120 s  | 180 s   |
|------------------------------|--------|--------|---------|
| ATS Provider                 | 97,79% | 99,15% | 99,86%  |
| AFN (Log-on)                 | 98,92% | 99,54% | 100,00% |
| CPDLC                        | 98,67% | 99,69% | 99,80%  |
| ADS                          | 96,95% | 98,74% | 99,84%  |

Downlink Delivery Time for ANSPs in the SAT region

| Downlink Message Delivery Time | 60 s   | 120 s  | 180 s  |
|--------------------------------|--------|--------|--------|
| ATS Provider                   | 98,38% | 98,98% | 99,24% |
| AFN (Log-on)                   | 98,32% | 99,08% | 99,39% |
| CPDLC                          | 98,70% | 99,13% | 99,22% |
| ADS                            | 98,28% | 98,90% | 99,22% |



Compared Traffic for ANSPs in the SAT region and NAT ANSP (one provider\*)

| Ground Traffic Msg (Uplink+Downlink) |         |                  |
|--------------------------------------|---------|------------------|
| ATS provider                         | March08 | 12-month average |
| SAT ANSPs                            | 86325   | 65759            |
| NAT ANSP*                            | 110003  | 112464           |



Thanks for your attention!

For any question, you can contact

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