

FANS 1/A over Iridium (FOI)

Status

Presented to: ISPACG/27 FIT/20
Auckland, New Zealand

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Federal Aviation
Administration



Update from ISPACG/26 FIT/19 (Fiji)

- **Jun 2011 – FAA declares that FANS 1/A over Iridium (FOI) is viable for CPDLC RCP 240 and ADS-C RSP 180 operations in oceanic and remote airspace**
- **Declaration is conditional on implementing performance-based concept for communication and surveillance**
- **Jun 2012 – Similar in North Atlantic (NAT) Region**
- **Sep 2012 – Similar in Asia-Pacific (A-PAC) Regions**
- **2012 – JCAB begins evaluation of FOI for Fukuoka FIR, final results pending**



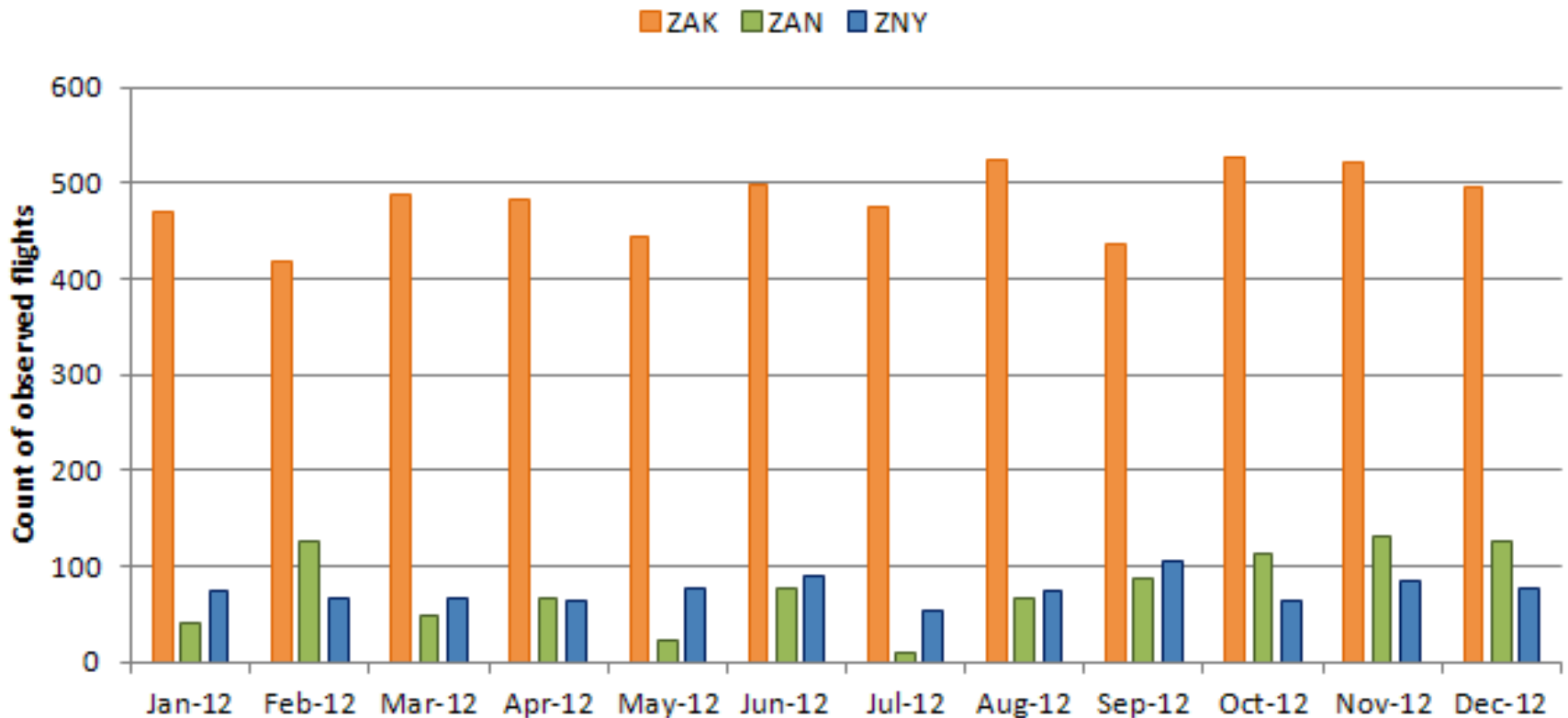
FANS 1/A over Iridium applications

- **North Atlantic Region data link mandate**
- **Improved communications in Polar Region**
- **Increased FANS 1/A equipage rates (e.g. Pacific Organized Track System (PACOTS))**
- **...**
- **Also, SATVOICE capability for ATS communications – via safety service switch**

FOI aircraft – More than 100 by 2013

Operator	September 2010	February 2012
Cargolux	13 Boeing 747-400s to over 60 flight destinations worldwide	10 B747s worldwide (+3 Inmarsat)
Continental	6 Boeing 737-800s and 4 Boeing 737-700s in and out of Guam	18 B757s in North Atlantic
Hawaiian		8 B767s in the Pacific
UPS	participating in pre-FOI data collection and are planning to participate in FOI in the near future	4 B747s, 39 B767s active 42 B767s by October 2011, Crew training has begun, Significant use by May 2012 +17 B767s by November 2013
Delta	participating in pre-FOI data collection and are planning to participate in FOI in the near future	8 B757s and 15 B747s planned for significant use in 2012-2013. Currently, 23 B757s, 15 B747s and 3 B737s do Iridium voice/AOC data
Qantas		1 B737 in the Tasman
Totals	23 FOI aircraft	80 FOI aircraft

Iridium usage – 2012 by flights / FIR



	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
ZAK	470	418	489	482	444	498	475	524	437	526	521	496
ZAN	39	125	47	67	22	77	8	67	87	112	130	125
ZNY	75	67	66	64	77	89	54	75	105	64	85	76

Iridium usage – 2010 through 2012

Year	Unique Flight Totals			Total airframes observed
	Oakland (ZAK)	Anchorage (ZAN)	New York (ZNY)	
2010	4,650	98	227	27
2011	1,863	500	600	70
2012	5,780	906	897	110

What has FAA done?

- **FAA has removed airspace restrictions – it now will apply reduced separations to eligible FOI aircraft in Oakland Flight Information Region (FIR)**
 - FAA has advocated removal of any restrictions imposed by other air navigation service providers
- **FAA has approved FOI installations and operations**
 - Design approval of FOI installations per FAA Advisory Circular (AC) 20140B
 - Data link operational authorizations via A056 Ops Spec per FAA AC 12070B & FAA Order N8900.66

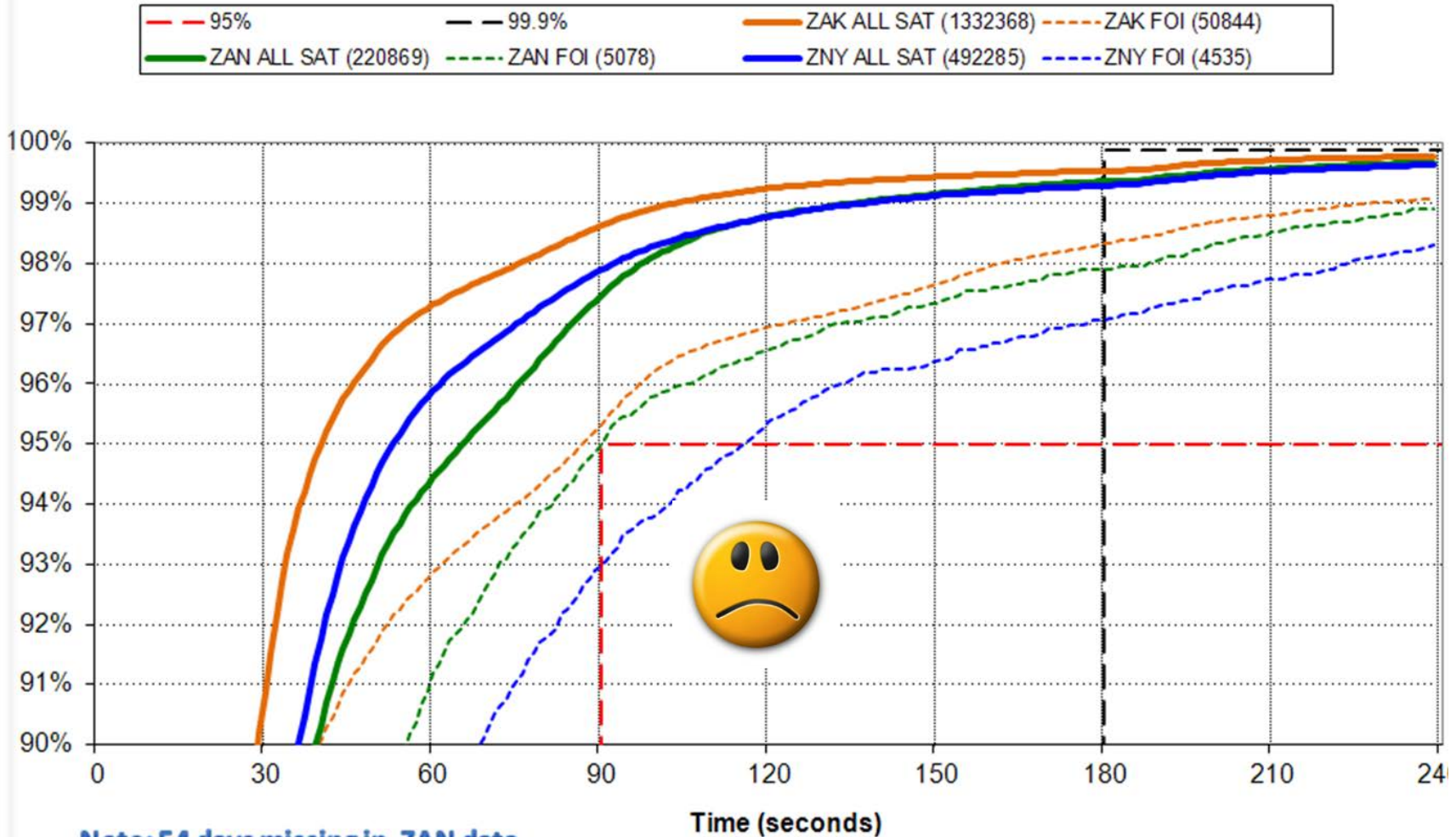
What is FAA doing?

- **Continue to issue installation and operational approvals and advocate performance-based application**
- **Continue to monitor FANS 1/A over Iridium performance against RCP 240 and RSP 180 specifications**
- **Work with operators usually through the PARC CWG or Central Reporting Agencies / NAT Data Link Monitoring Agency to resolve any issues**

Some challenges to overcome

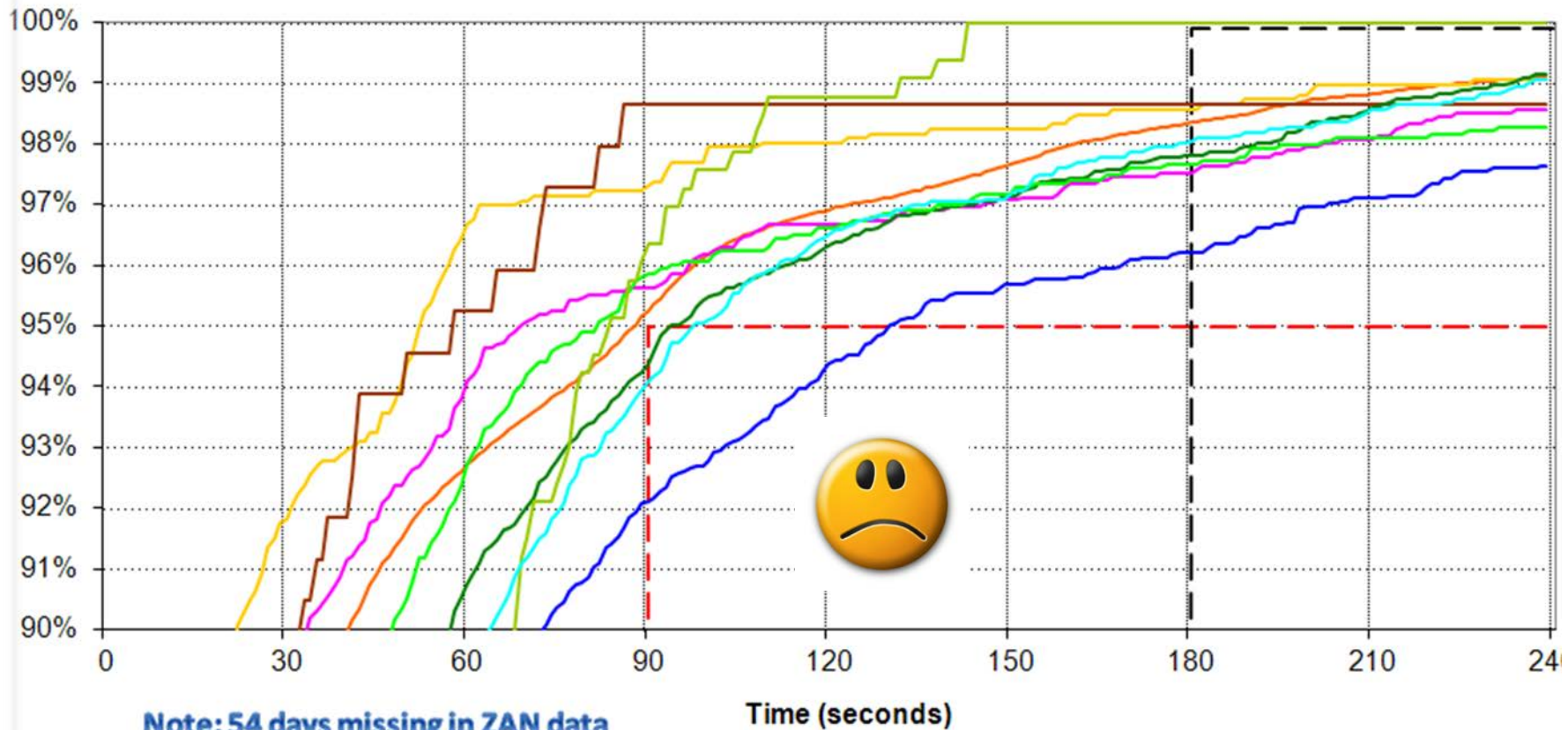
- **Availability**
 - Effects of rain fade on availability
 - Notifications do not provide clear indication of service outages
 - Not expected to be resolved before Iridium Next
- **ADS-C report delivery times are marginal and sometimes not meeting 95% criteria**
- **Global recognition of FOI still pending implementation of performance-based communication and surveillance framework**

ADS-C report delivery times



Note: 54 days missing in ZAN data

FOI ADS-C report delivery times



JCAB is evaluating FOI

- **Some restrictions still apply**
- **However, similar to FAA systems, JCAB systems have no operational means to determine the type of media the aircraft is using for FANS 1/A operations in the Fukuoka FIR**
- **Reduced separations can be applied (or mis-applied) to FOI aircraft that indicate RNP4 in their flight plan**
- **Use of flight plan (e.g. P2 indicator in Item 10) would resolve the issue**

AIRAC AIP SUP NR117/12 - 20 SEP 12

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NR117/12

2. Period

From 1500UTC 17 OCT 2012 to 1500UTC 16 OCT 2013

117/12

イリジウム衛星を使用したATSデータリンクにかかるときの運用方法について
(航空路誌 GEN3.3.3.7 福岡 FIR における航空交通業務データリンク運用関連)

イリジウム衛星を使用した航空交通業務（以下、「ATS」という）データリンクを行う航空機は、航空路誌 GEN3.3.3.7 とともに、以下の運用方式に従うこと。

Aircraft which conducts Air Traffic Service (ATS) data link by using Iridium satellite shall comply with the following operational procedures in addition to GEN3.3.3.7.

1. 適用空域

福岡 FIR の太平洋上のデータリンク空域

2. 期間

平成24年10月18日0000JSTから平成25年10月17日0000

3. 対象航空機

イリジウム衛星を使用してデータリンクを行っている航空機

4. 運用方式

対象航空機は、以下の方式に従うこと。

- (1) 航空交通管理センター(ATMC)にAFN ログオンするパイロットはCPDLCのフリーテキストで「FOI」(OVER IRIDIUM)をダウンリンク送信すること。
- (2) パイロットは第一手段として、ADS又はCPDLCを優先して通報を行うこと。

注: イリジウム衛星を使用する航空機には、ENR3.5.3.13 AIC018/08 記載のATSデータリンクサービスは適用されない。

5. 問い合わせ窓口

航空交通管理センター(ATMC)

- ・管理管制官事務室 TEL: 092-608-8869
- ・洋上管理統括席 TEL: 092-608-8890

注: 運用上の質問については洋上管理統括席へ問い合わせること。

4. Operational procedures

Aircraft concerned shall comply with the following procedures.

- (1) The pilot shall send downlink free text "FOI" (FANS1/A over Iridium) when logging on to The Air Traffic Management Center (ATMC).
- (2) The pilot shall make a position report via ADS or CPDLC as primary means.

Note: The longitudinal separations using ATS data link services prescribed in ENR3.5.3.13 and AIC018/08 will not be applied to aircraft using Iridium satellite.

Summary

- **FOI is accepted as a viable means to conduct CPDLC RCP 240 and ADS-C RSP 180 operations in oceanic and remote airspace**
- **Some challenges to overcome**
- **We need to advocate and support a global a performance-based communication and surveillance framework**





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