

OFDM - A LOW FARE PERSPECTIVE



Europe's favourite low fares airline



OFDM - A LOW FARE PERSPECTIVE



1985

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 **RYANAIR**

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81 Million Passengers Per Year



2014

Europe's favourite low fares airline

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Flight Operations

- 30 countries
- 186 airports
- 1,600+ routes
- 3000+ Pilots
- ATO, 6 Simulators
- 440 Initial Type Rating
- 160 Command Upgrade
- 303 Boeing 737-800 NG's
- + 175 Boeing on order
- 1500 flights per day
- 65 Bases



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The Ryanair Base



X5

Base Captain x 1

Base Type Rating Examiner x 1

Base Cabin Crew Supervisor x 1

Local Air Safety Group (LASG)

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OFDM- Flight Data Monitoring 2003



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OFDM- Technical Spec 2003

1. WGL
2. 100 Events
3. 100% Data Capture Rate
4. 48.00hr Production Run

OFDM - April 5th 2004



memorandum

To: All Pilots **From:** Michael O'Leary

Date: 5th April, 2004

Re : Operational Flight Data Monitoring

Ryanair will officially switch on Operational Flight Data Monitoring on 15 April 04. We will be the first operator of the new Teledyne Wireless Ground Link (WGL) Technology.

The Ryanair OFDM System has been configured to monitor 72 in-flight parameters and the information will be automatically downloaded on completion of each days flying.

OFDM will be an essential component of the Ryanair Safety Management System, it will allow us to identify operational trends, which may otherwise have gone unnoticed, and has enormous potential to improve the safety of our operation.

The OFDM System will be introduced in accordance with Ryanair's commitment to safety which continues to be underscored by the principle that the establishment of cause shall always take precedence to apportionment of blame or punitive action.

The safety information gathered through the OFDM process will be de-identified, providing that the flight is not involved in a serious incident and subject to a safety investigation. This policy of de-identification will not be applied where there is a premeditated deviation from SOP and safe practice. The integrity of the OFDM System and the confidentiality of the information gathered will be assured by two Ryanair 'Trustees' Captain Ray Conway and Mr Steve Leech, our newly appointed OFDM data analyst.

As our operation continues to grow and become more geographically dispersed OFDM will provide both you and us with an additional level of safety protection. I encourage you to welcome the arrival of this technology and work closely with our Trustees to ensure that we maintain – and improve wherever possible – the high level of safety of our operation for the years to come.

Best regards, 1

A handwritten signature in dark ink, appearing to read "Michael O'Leary".
Michael O'Leary
Chief Executive

Michael O'Leary
Chief Executive

OFDM - DATA ACCESS

ACCESS DENIED!

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OFDM - DATA ACCESS

Ryanair Trustees

1. PHFO
 2. Deputy Director Safety
 3. Flight Safety Officer
 4. Flight Safety Manager
-

FOQA Ltd.

Trustees x 2

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EVENT Classification

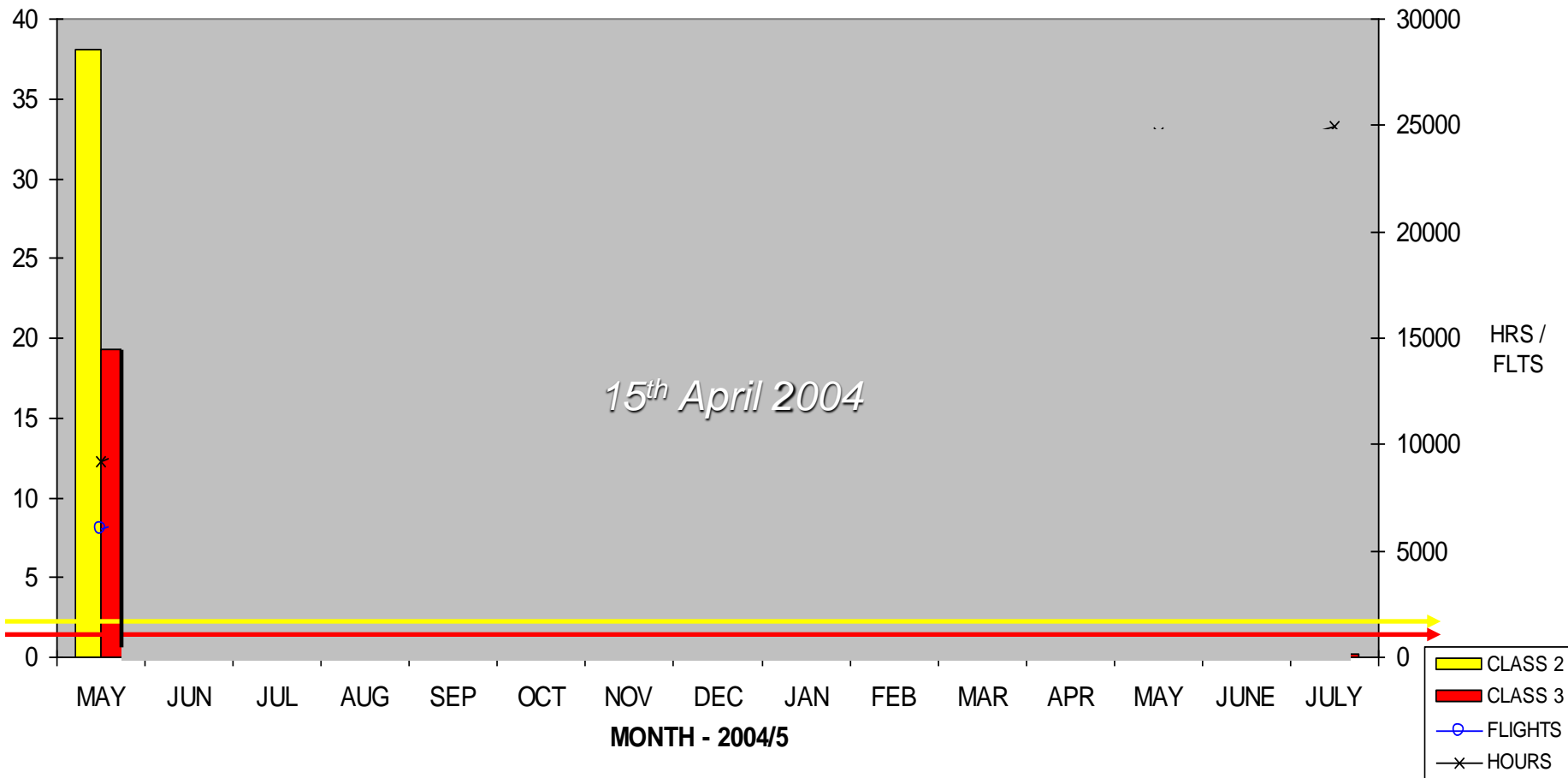
CLASS 1 (minor) – noted by Data Analyst but not included in reports (used as a baseline)

CLASS 2 (Analyst investigation) – analysed & included in weekly report (de-identified)

CLASS 3 (closer Analyst investigation) – investigated by Trustee. May contact Captain.

OFDM- Flight Data Monitoring 2004

OFDM TRENDS



OFDM - Media

Inches from disaster

Official report says Ryanair aircraft 'marginally avoided' crash at Knock as pilots headed for runway too fast and with wheels up

By Gerry Byrne

A RYANAIR flight from Gatwick came close to crashing on its approach to Knock Airport last March because of confusion in the cockpit, it has emerged.

As the plane approached the runway, it was flying too low, too fast, and on a second attempt it had to make an emergency climb to avoid disaster. Records also showed that the undercarriage had not been lowered and the wing-flaps had not been extended.

The drama is revealed in a report by the Irish Air Accident Investigation Unit (AAIU) which said several electronic navigation aids at Knock had been switched off during refuelling that Ryanair management should have told the crew.

On its first approach to the Knock runway, the aircraft was flying too fast and in too steep a descent as the pilots attempted to lose height rapidly.

Instead, air traffic control told them to use the remaining navigation aids to approach the east end of the runway in low cloud, take sightings, and then circle back around to the other end of the runway for a second approach.

But, as they descended, both pilots were concentrating on reprogramming the flight management computer and, when they emerged from low cloud, they were too far along the approach. Unable to make a safe landing, they executed an emergency climb.

Automatic crash-avoidance warnings went off in the cockpit, warning the men that they were flying too close to the ground and too fast.

According to Shannon radar records, the aircraft was flying at speeds of up to 265 knots

(about 480kph), whereas it should have been well below 200 knots at that stage.

The plane was also losing altitude at a rate of more than 2,000 feet per minute.

The investigation criticised the pilots for failing to brief each other. The captain

became involved in the reprogramming of the computer - the co-pilot's job - when he should have been concentrating on flying the aircraft.

'This serious incident is defined in ICAO (International Civil Aviation Organisation) Annex 13 as controlled flight avoided,' the report bluntly states.

Although they had clocked up thousands of hours in the Boeing 737-200, the pilots lacked experience on the more advanced Boeing 737-800 they were flying that day and this contributed to the confusion in the cockpit, the report said.

Ryanair was also criticised for failing to alert the AAIU to the incident for almost two weeks. By this stage, the cockpit voice recordings had been erased.

The report concluded that the Irish Aviation Authority should set up regular meetings with airlines to improve the exchange of safety information.

It is the latest in a series of incidents involving controversy over landing approaches by Ryanair aircraft.

In September 2003, a co-pilot had to take emergency control of a plane approaching Rome because the pilot could not cope. In another incident a Ryanair captain on his last day with the airline overflew the point at which he should have started to make a shallow descent, and, instead of going back and starting a fresh approach, put the aircraft into a steeper descent.

that a widely used manual contain

He landed at 200mph (320kph) when the normal safe landing speed should have been no more than about 180mph (240kph).

In another failed approach, this time to Beauvais Airport near Paris, a Ryanair aircraft had to abort its landing.

According to the AAIU report, Ryanair has agreed to all of the procedural improvements it recommended.

Meanwhile, four Irish planes have suffered near-catastrophic cabin pressure problems similar to the one that downed a Cypriot airliner last year.

An investigation was launched after the crew of the Helios Airlines Boeing 737 passed out, causing the plane to crash into a Greek mountain in August 2005, with the loss of 121 lives.

However, when aviation experts went to investigate Dublin's AAIU told them of four similar incidents, three involving Ryanair airliners and one on an Aer Lingus jet.

Fortunately, in all four incidents, flight crew were able to avert disaster and arrive safely.

Cockpit tapes were erased



Ry

ELAINE

A Ryanair flight almost it "overcame" a series of problems yesterday.

Ry

Gerry Byrne

A RYANAIR flight from Gatwick avoided a crash last March because of confusion in the cockpit, it has emerged.

The

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MEMO FROM THE BOARD

MEMORANDUM FROM THE BOARD TO PILOTS

25th September 2006

The Board of Directors of Ryanair has considered our recent experience in the area of high energy approach incidents over the past two years and has now adopted a new disciplinary procedure which will apply from today's date as follows:-

From 25th September 2006, any event involving any of our aircraft passing the 500 foot landing-gate incorrectly configured or at excessive speed, which triggers a GPWS hard warning – and which does not perform a go-around – will automatically lead to both crew members being demoted in the case of their first transgression of this policy. In the event of a second transgression of this policy, the relevant crew member will be automatically dismissed. This policy will not apply in exceptional circumstances; however it will be up to the crew members involved to persuade the Board as to the nature of these exceptional circumstances.

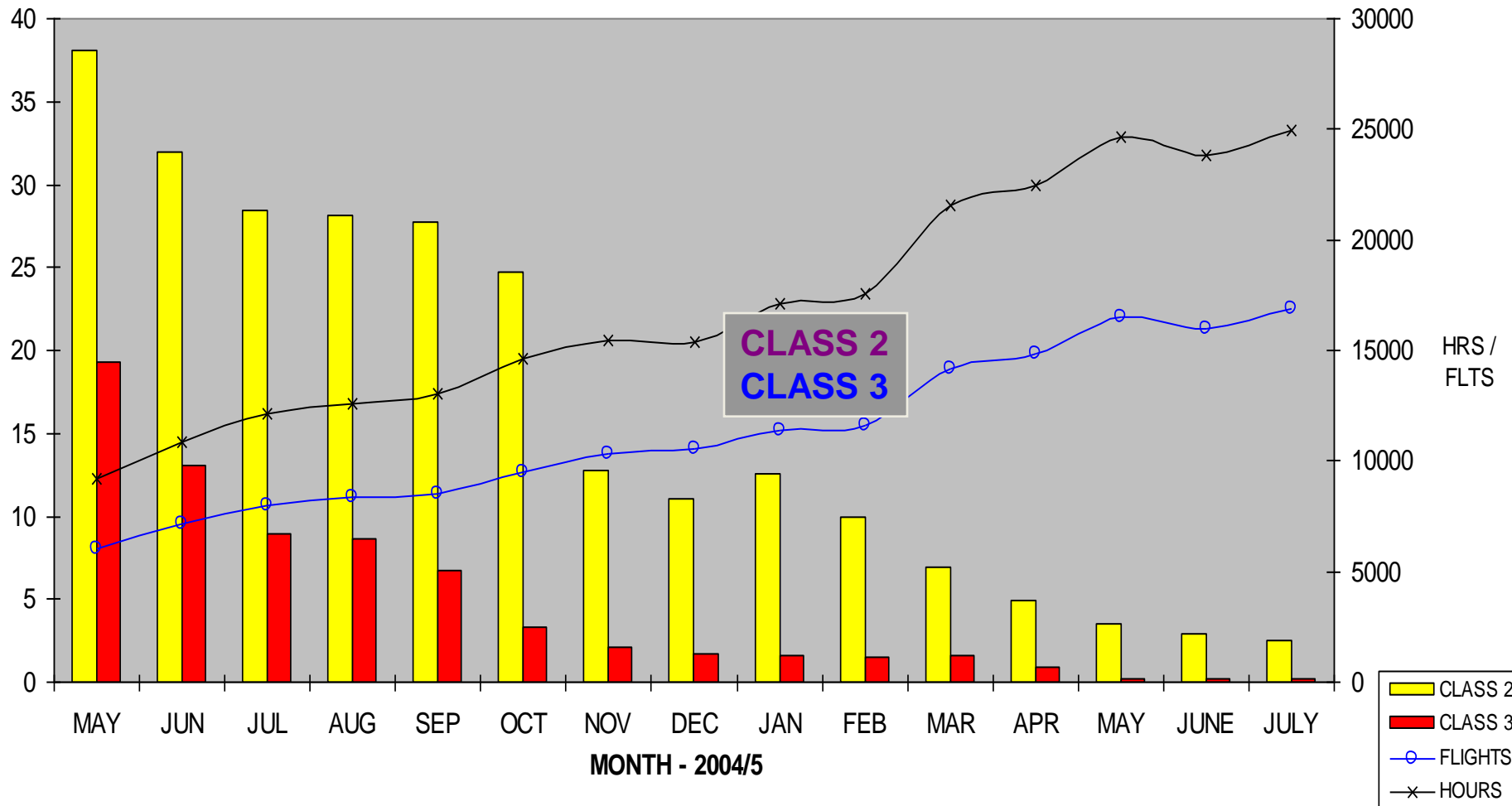
I trust that you will all join me to ensure that we never ever have cause to invoke this new policy. If you are in any doubt default to the safer option and perform a go-around. As you all know, we operate a “no blame” policy for go-arounds. This policy is clearly communicated and I would re-emphasise to each and every one of you that your safety and the safety of our passengers, crew and aircraft will always be our number one priority.

Yours sincerely A

c.c. Michael Horgan, Director of Safety
Barry Gorman, Chief Pilot

THE EARLY DAYS

OFDM TRENDS

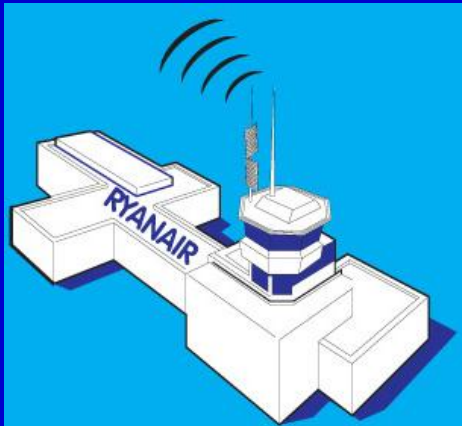


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The Ryanair Base



X5

Base Captain x 1

Base Type Rating Examiner x 1

Base Cabin Crew Supervisor x 1

Local Air Safety Group (LASG) + OFDM



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Get The Message Out

OFDM UPDATE January 2014

2013 - Statistics

Well, the end of another year marked by a few events to remember: tail scrapes, an unexpected pitch-up late in the approach and go-arounds galore after shortcuts.

Top 5 Class 2 & 3 Exceedances - 2013

Event	Exceedance Count
High speed turn	417
High speed turn	222
High speed turn	171
High speed turn	75
High speed turn	61

Figure 1 - Top 5 Class 2 & 3 Events - 2013

The top 5 of both Class 2 and 3 events are shown in figure 1.

The focus on exceedances is shifting slightly in the coming months and the 'individual' event will, of course, be reviewed and action taken where necessary, but a broader view of the operational environment will see us looking for multiple events and the circumstances leading to them in order to take an holistic view of the operational safety and risk to the airline. This development will be transparent to you as a pilot but you may wish to reflect on the way you plan, and execute the plan, from TOD to touchdown.

A previous study of all descent profiles showed that there was a maximum saving of no more than 2 minutes when speed was kept high until the last minute. It also showed, borne out by Safety Reports, that ATC 'shortcuts', while cutting the track miles to touchdown, almost invariably added a go-around, unnecessary extra minutes of flight time and of course an extra fuel burn. Ask yourself 'is the shortcut worth it?' and think about staying with 'the plan' - it's much less stressful!

The top Class 2 and bottom Class 3 events account for just 0.0956% and 0.0051% respectively of the total flights in the period; a grand effort by any standard.

Fly Safely, the staff at FOQA bid you Season's Greetings and Best Wishes for a safe New Year.

Steve Leech

I learnt about flying from that...

Your experiences may help others to avoid subtle traps or pitfalls.

Why not share an event with your colleagues - it will be published anonymously, if you wish, so don't hold back!

Send your contribution to the editor at foqa@ryanair.com

Chris King

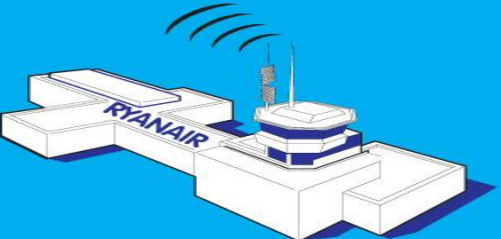
RCRS - the Ryanair Confidential Reporting System



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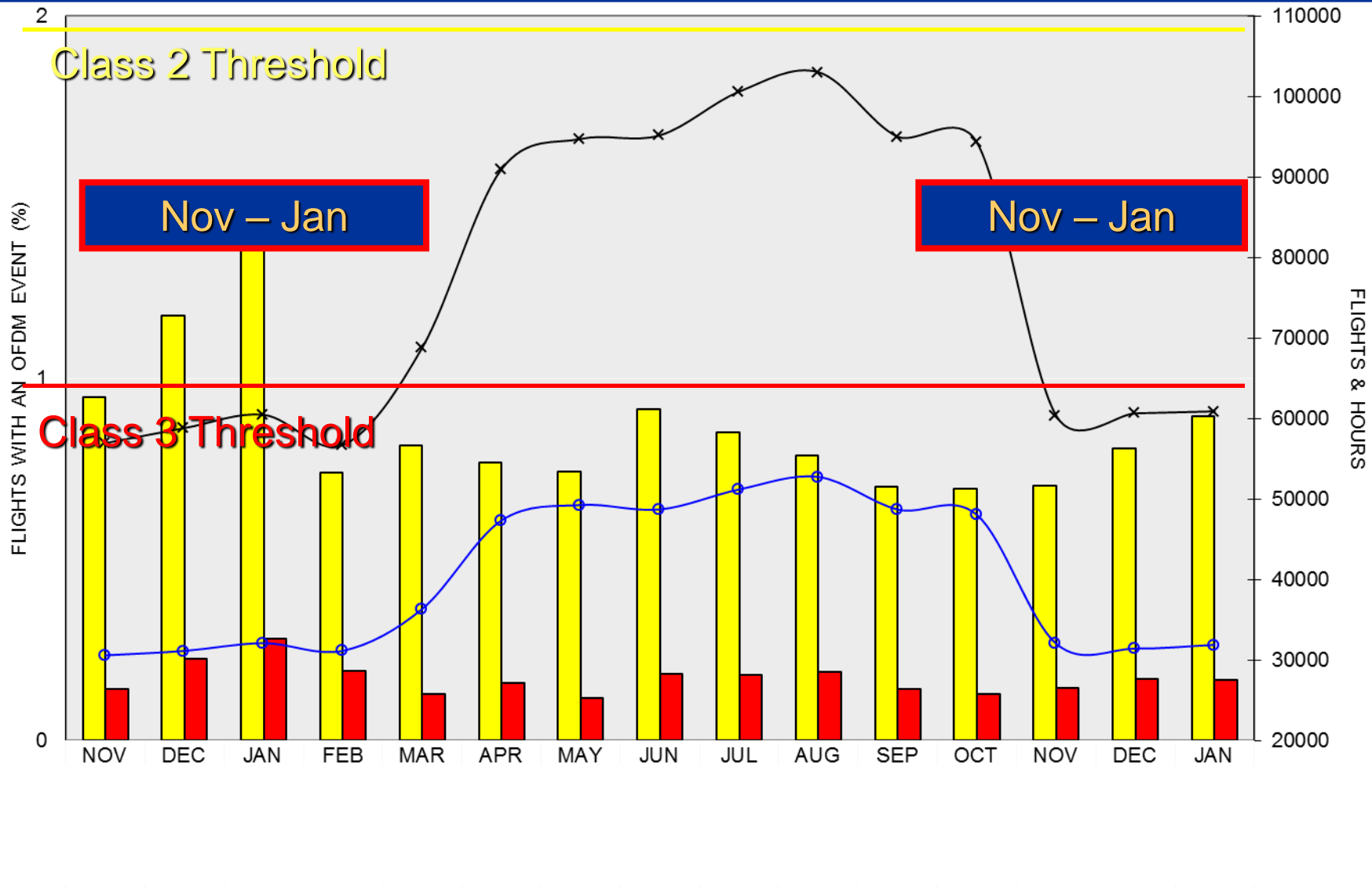
Base Video Replay



Frame Rate: 8, Refresh Interval: 125 ms.

29/10/2009 09:19

OFDM 2014



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Lessons Learned

- Vital component of SMS.
- Never take comfort on low event rates.
- Get the message out.
- Landing Gate Compliance- F/O Advocacy.
- Provide absolute clarity to crew on the line between acceptable and unacceptable operating practices.
- The primary task of OFDM programme is to protect the safety of our passengers and crew.

Summary

Keep it simple !

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