

Aircraft *interiors* INTERNATIONAL

NOVEMBER 2011

THE INTERNATIONAL REVIEW OF AIRCRAFT INTERIOR DESIGN AND COMPLETION



livewire

THE DREAM OF DELIVERING LIVE TELEVISION
TO THE CABIN ON A GLOBAL BASIS IS FAST
BECOMING A REALITY

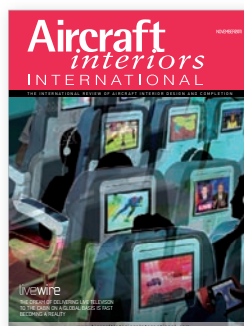
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fightingtalk

I'm not much of a boxing fan, but the recent passing of former heavyweight champion Joe Frazier after a brief battle with liver cancer reminded me of the power of sport to occasionally stop the world in its tracks. Frazier was the first man to beat Muhammad Ali in 'the Fight of the Century' at Madison Square Garden in 1971. His unanimous 15-round defeat of Ali was watched by an estimated global television audience of 300 million, with Frazier's classic left hook to floor Ali in the 15th round sending shockwaves around the globe. (Frazier went on to lose his next two fights with Ali, including the legendary 'Thrilla in Manila' in 1975, also watched by millions.)

Of course the reverberations generated by such great contests have failed to reach the vast majority of airline passengers actually flying at the time, who remain cocooned in the clouds and oblivious to the ensuing drama back on the ground. OK, some US transcontinental flights have offered a satellite-based service for the best part of a decade, but otherwise, passengers have been fed pre-recorded news reels and canned television dramas – live coverage of the World Cup or a Formula 1 finale simply haven't been available. Until now. Both Turkish Airlines and Gulf Air have begun offering inflight global live television, and as our feature on page 54 notes, both are utilising the eXTV component of Panasonic's popular Global Communications Suite.

Panasonic confirms that sport will play a big role, with the IFEC supplier developing its own exclusive channel, Sport24, in a joint venture with global sport and media giant, IMG. In addition to all of Barclays' Premier League matches, it will show live broadcasts of Wimbledon tennis, the US and British Open golf tournaments, UEFA Champions League football and the London 2012 Olympics. "Aircraft equipped with the Panasonic eXTV service will be the only way that these events can be seen live, in flight anywhere in the world," notes Scott Scheer, Panasonic's manager of programming and media services.

Of course sport is as keen as the aviation industry to embrace the huge potential offered by an emerging Chinese middle class. On this note, China Southern's first A380, featured on page 30, may not be the most lavish, but it still sends out a strong signal: "The aircraft and the cabin hardware on it are probably meant to communicate two key messages," suggest Daniel Baron of Lift Strategic Design: "One is to the home market, where the number of wealthy consumers has multiplied exponentially. These people have travelled and now demand an experience on par with the top-rated foreign airlines in the neighbourhood. The other is the market outside China, where brand recognition of China Southern has been low. The A380 instantly gets the airline on the map, and the seat hardware/IFE products are physical ways for China Southern to show they are on par with others in the region."

The delivery saw a media frenzy in China – it won't be long until news and sports events are beamed live into aircraft cabins flying in its vast airspace.

Anthony James, editor

HIS [FRAZIER] UNANIMOUS 15-ROUND DEFEAT OF ALI WAS WATCHED BY AN ESTIMATED GLOBAL TELEVISION AUDIENCE OF 300 MILLION

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features



030 precious pearl

China's first A380 may not be the most luxurious or imaginative, but it nevertheless marks the beginning of an important chapter in aviation

ANTHONY JAMES,
AIRCRAFT INTERIORS INTERNATIONAL



038 ship shape

Passengers judge airlines by their cabins, so it makes sense to keep seats and other elements clean, comfortable and working well

BERNARD FITZSIMONS,
AIRCRAFT INTERIORS INTERNATIONAL



046 purple patch

New seats and IFE are being retrofitted to THAI's 747s as the airline prepares to take delivery of its first A380

ANTHONY JAMES,
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The long-sought ability to offer passengers live television on a global basis is becoming available from multiple sources

BERNARD FITZSIMONS,
AIRCRAFT INTERIORS INTERNATIONAL

televisiontime

The long-sought ability to offer passengers live television on a global basis is becoming available from multiple sources.

These attempts to develop mobile television services have often foundered, either on technical challenges or simply as a result of software support, when the availability of a service has coincided with the availability of the device to use it.

The International Datacote scheme to build programmes to stream onto the 300MHz Euro DVB, service launched in 2001. An TV channel a dedicated constellation of satellites and got on air as commercialising the satellites and the service. The service was originally intended to be supported by the installation of a phoned area antenna on a permanently created landing 747 in order to provide TV reception, had the bandwidth, but what proved to be an unworkable business model, one of the 911 satellite services pulled out on the order of 911.

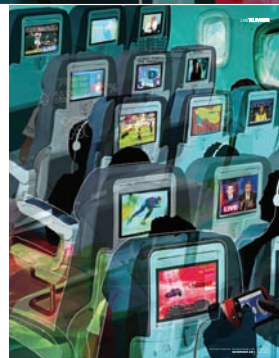
Business has been able to add to add ground-based TV antennas such as the Rediffusion Cellco, Telefonos, Honeywell Onstar and Lufthansa Technik T204, Qatar Airways and Oman Air installed the Telsat 302 satellites with the service. The service is now being used by several airlines. On a commercial basis, see Jaws Aviation and International services via 300MHz World line in Europe and Asia.

CSRC (satellite in the mobile)

The only under-estimated source to reduce use, LooT, introduced by Jyllies in 2000. LooT was originally only used by some users in the Hughes DataTV satellites, but is now available in Canada and America as well as more than 150 other countries by bulk discounts to the National Aeronautics and Space Administration and the European Space Agency. LooT's service, and, the new ones, are by Jyllies brother David Nordenskiöld, but he has been unable to offer the service in Israel. Originally a joint venture between Harris and Thales, LooT was sold to Hughes in 2002. LooT's service is available in 2002. Since then it has augmented the 73 channels with 324 satellite radio and the KaKuise wire, GSM and email service, and increased the number of channels from more than 95. Now it is planning a global offering, starting with the availability of data up to 100 channels to the south Atlantic in 2003. The key elements of the service now to place, the company says are content relationships and access to a global network of bandwidth.

Offering services, offering LooT. Content providers have to negotiate licenses, payments, but changes in economic climate. Frommer-changes LooT for access to 24 channels, but a few to access are beyond Jyllies. The 73rd programme

2.01%
3.78%



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Izzy Kingston, Business Jet Interiors International

branddesigns

GULFSTREAM'S NEW ELITE INTERIOR OPTION FOR THE G550 AND G450 CHERRY-PICKS SOME OF THE BEST FEATURES OF THE G650 TO CREATE A RECOGNISABLE BRAND ACROSS THE MANUFACTURER'S LARGE-CABIN AIRCRAFT

Chris Colvin, Business Jet Interiors International

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THE SUKHOI BUSINESS JET, RUSSIA'S ANSWER TO THE BIG IRON OFFERINGS OF AIRBUS, BOEING AND EMBRAER, SHOULD BENEFIT FROM THE DESIGN INPUT AND MARKET EXPERTISE OF ITS FIRST CUSTOMER, COMLUX

Chris Colvin, Business Jet Interiors International

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green machine 062

Southwest continues to trial a lighter, high-tech interior that could set new sustainability standards for the cabin

CHRISTINE NEGRONI,
AIRCRAFT INTERIORS INTERNATIONAL



greenmachine

Southwest continues to trial a lighter, high-tech interior that could set new sustainability standards for the cabin

by Christine Negroni, Aircraft Interiors International

It's the little things that count when it comes to sustainability. Southwest Airlines is proving that with its new "green machine" interior. The airline is trialing a new cabin design that is lighter, more efficient and more sustainable than the current design. The new design features a lighter fuselage, more efficient seating and a more sustainable interior. The new design is expected to be implemented in 2012.

wap's up 070

Wireless head-end system streaming to both airline-provided screens in a seat-centric architecture and passenger-provided devices is a mash-up that works

MICHAEL CHILDERS,
AIRCRAFT INTERIORS INTERNATIONAL



wap'sup

Wireless head-end system streaming to both airline-provided screens in a seat-centric architecture and passenger-provided devices is a mash-up that works

by Michael Childers, Aircraft Interiors International

The new Wap'sup system is a wireless head-end system that streams content to both airline-provided screens in a seat-centric architecture and passenger-provided devices. The system is a mash-up of two different technologies: a wireless head-end system and a passenger-provided device. The system is expected to be implemented in 2012.



078 soft spot

The latest leathers, carpets, textiles and treatments made for the aircraft cabin

IZZY KINGTON,
AIRCRAFT INTERIORS INTERNATIONAL



084 light it up

LED-based ambient lighting has transformed many cabins but certain pitfalls could see it leapfrogged by even more advanced technology in the future

GUY BIRD,
AIRCRAFT INTERIORS INTERNATIONAL



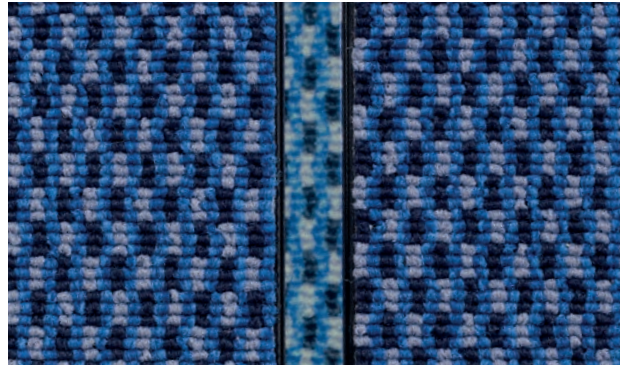


STG Aerospace unveils the latest innovation in photoluminescent (PL) floorpath marking; a unique pattern-matching service.

SafTGlo is the world's leading photoluminescent emergency floorpath marking system and has been at the forefront of all the major innovations in PL for the aerospace sector.

STG has now extended its market-leading SafTGlo range with a unique pattern-matching offer.

SafTGlo PatternMatch is tailor-made to match the actual pattern of even the most intricate carpet design. A translucent overlay, specially printed to match the surrounding carpet's color and design, sits over the PL strip making the system completely discreet when cabin lighting is on but just as effective as other SafTGlo variants if the lights go out.



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PatternMatch has been developed in response to demands from customers for whom interior design is a key feature.

Like all SafTGlo ColorMatch systems the new design is a completely sealed system that is both hard-wearing and low maintenance; making it the perfect, easy-to-fit low cost alternative to electrical floorpath marking systems.

With its inherent ability to drive down the cost of operating aircraft SafTGlo is the preferred choice for Boeing, Embraer and is flying high in over 7000 aircraft worldwide.

For more information on how your airline could benefit from new SafTGlo PatternMatch, visit us online at:

www.stgaerospace.com

onstream 58

CONTENT LICENSING REMAINS THE BIGGEST HURDLE TO THE IMPLEMENTATION OF WIRELESS IFE STREAMING ON BOARD

Ben Frain, Business Jet Interiors International



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DEER JET IS ONE OF THE LARGEST BUSINESS JET CHARTER OPERATORS IN A MARKET PREDICTED TO BECOME THE WORLD'S BIGGEST WITHIN A DECADE – SO WHAT DO ITS LATEST BBJ AND ACJ DELIVERIES SAY ABOUT CHINESE TASTES?

Guy Bird, Business Jet Interiors International



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Izzy Kington, Business Jet Interiors International



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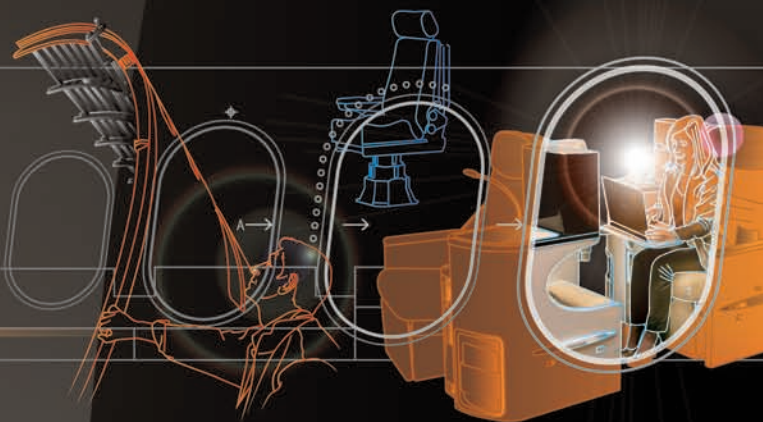
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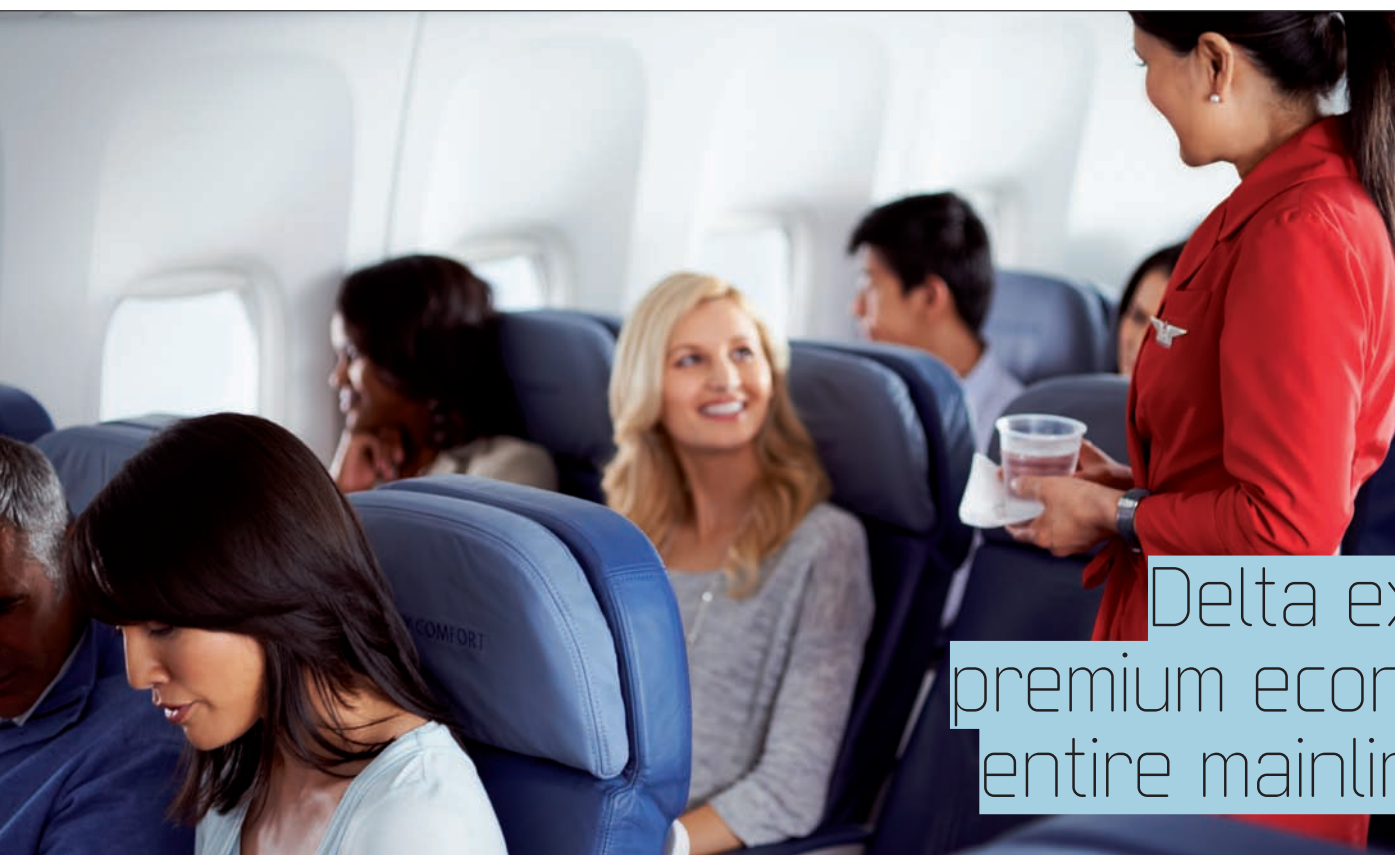
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Delta expands premium economy to entire mainline fleet

Delta Air Lines plans to introduce Economy Comfort, a premium-economy product launched on long-haul flights earlier in 2011, to its entire mainline fleet of more than 550 aircraft, in addition to more than 250 two-class regional jets. The new seats will feature at least 34in pitch. Delta's standard economy seat pitch is currently 31in. In addition to more legroom, customers will enjoy priority boarding. The product will be installed in the first three to five rows of the economy cabin by removing a "negligible" number

of seats from the current cabin configuration on all of Delta's domestic Boeing 767, Boeing 757, Boeing 737, MD88, MD90, DC9, A320 and A319 aircraft, and all two-class regional jets including the CRJ900, CRJ700, E170 and E175 types by summer 2012. The first of these converted aircraft will be a Boeing 757.

The expansion of Economy Comfort is the latest in Delta's previously announced plan to invest more than US\$2 billion in global products, services and airport facilities through 2013.

Success of BA's customer service iPads leads to fleet-wide roll-out

British Airways is issuing iPad 2s to 2,000 senior cabin crew from November, after a successful three-month trial involving 100 senior crew responsible for delivering service to customers onboard the airline's 226 aircraft. The iPads feature specially developed software and apps that enable crew to tap into data giving them customer preferences and their previous travel arrangements, allowing them to offer a more personalised service. The iPad discreetly replaces long cumbersome scrolls of paper, which are normally handed to cabin crew, listing up to 337 customers, just before the doors close and the aircraft departs. Instead, the iPad, equipped with apps developed by the airline, is simply refreshed just before departure using 3G technology, to provide cabin crew with an up-to-the-minute passenger and preference list. This also means any customer service issues that arise in the air, can be followed up immediately by ground-based colleagues as soon as the aircraft lands and the iPad reconnects to the network. The iPad also shows cabin crew where each customer is seated, who they are travelling with, their Executive Club status and any special meal requests. The iPads will now be rolled out to crew across the carrier's entire fleet.

Qantas 747s get A380 makeover

Qantas has launched the first of nine reconfigured Boeing 747s fitted with interior products first seen on its A380, on its Brisbane-Los Angeles route. The refit is part of the airline's AU\$250 million investment in its 747 fleet. The second reconfigured 747 is scheduled to enter service by the end of 2011. Each of the aircraft will be fitted with 364 seats – 58 in business, 36 in premium economy and 270 in economy. The economy-class seat now includes a foot net designed to provide extra comfort; premium economy features a larger in-arm IFE screen; and the business cabin is fitted with fully flat Skybeds offering more space.

Hong Kong Airlines' exclusive club

Hong Kong Airlines will premier an 'all Club Class' service flying daily non-stop between London and Hong Kong from March 2012. The service will be operated with a fleet of three new Airbus A330-200s featuring two premium cabins: 'Club Premier' and 'Club Classic'. Club Premier will include 34 suites with 15.4in IFE screens and fully flat 73in beds configured 1-2-1 at the front of the aircraft; fine dining; and a turndown service with duvets, pyjamas and slippers and luxury amenity kits. Club Classic will feature 82 cradle seats configured 2-2-2 at 51in pitch with 10.4in screens. Both cabins feature WiFi and AVOD IFE.



Virgin Atlantic's Gatwick fleet to get a makeover

Virgin Atlantic is investing more than £50 million in the refurbishment of its London Gatwick-based fleet. The first major step in the airline's recently announced £100 million product investment involves the retrofit of Boeing 747-400 aircraft operating out of Gatwick and Manchester, UK. The work is scheduled to begin in May 2012 and be completed by October 2012. Aircraft serving destinations including Orlando, the Caribbean and Las Vegas will include new seats in premium economy and economy, new IFE and a fresh feel throughout all cabins.

The premium-economy cabin will feature leather seats set at 38in pitch. Each offers a dual-position footrest, lumbar

support and an adjustable headrest with wings. The aircraft will also feature Virgin Atlantic's new JAM IFE system (supplied by Panasonic and pictured above) in all cabins. The system offers more than 300 hours of content. A touchscreen handset allows passengers to multi-task – for example, to follow the moving map on the handset and watch a movie on the main screen at the same time. The aircraft will also be fitted with the eXphone system, enabling passengers to make use of their mobile phones for voice, text and email services.

These newly fitted Boeing 747-400s will join new A330 aircraft operating from both Gatwick and Manchester.

United Continental chooses Panasonic's Ku-band connectivity

United Continental Holdings (UAL) has selected Panasonic to provide WiFi connectivity in all cabins on more than 300 United Airlines and Continental Airlines aircraft beginning in mid-2012. Panasonic says its Ku-band satellite technology offers faster speed than air-to-ground technology (ATG) and will provide connectivity on flights worldwide. The system will also enable wireless streaming of video content. "Our customers tell us they value WiFi," said Jim Compton, United's executive vice president and chief revenue officer. "As a global carrier, United is especially pleased that the Ku-band technology will enable customers to stay connected on longer overseas flights, something no other US-based international carrier currently offers." United Continental Holdings expects to install the Panasonic system on Airbus 319 and 320, and Boeing 747, 757, 767, 777 and 787 aircraft. Customers will be able to use their wireless devices such as laptops, smart phones and tablets on board these aircraft to connect with internet service using the inflight hotspot. United Continental Holdings expects the entire mainline fleet will be equipped with WiFi by 2015. Continental Airlines previously announced plans to install WiFi on more than 200 DIRECTV-equipped aircraft beginning in 2012.

Star Alliance selects seat partner

B/E Aerospace has been chosen as the development partner for the Star Alliance's long-haul economy seat programme. Both a base and advanced version of the seat are being developed. Air China, Austrian and Lufthansa will be the initial member carriers to place these seats on their long-haul fleets, with deliveries to begin in 2012. The vendor selection process included market research and joint customer trials conducted in China and Germany. The new seat will offer members, "shortened delivery lead times, reduced development expenses and competitive pricing".

The future's orange for Asiana

Asiana Airlines has appointed UK design firm tangerine to review the offer and design of the first-class, business-class and economy cabins for its new fleet of Airbus A380 aircraft. Design teams in tangerine's London and Seoul studios have already started work on the prestigious project. Delivery of the new fleet is scheduled for 2014 and the airline plans to operate the aircraft with a premium layout on key routes to Europe and the USA. With branches in London, Seoul and Novo Hamburgo, Brazil, tangerine's client portfolio includes Asiana Airlines, British Airways, Huawei, Hyundai, LG Electronics and Nikon.

TECHNOLOGY

mgs



P/N: MR4AA1-01
Model: microwave



P/N: SHF2011-001
Model: vip seat



P/N: HFA2000-10
Model: beverage maker



P/N: HFWF2003-01
Model: trash compactor



P/N: FT048
Model: folding trolley



P/N: HFE2007-01
Model: espresso maker



P/N: MK190
Model: full size trolley

mgs



P/N: R4AD2-01
Model: induction oven

INNOVATION

mgs



P/N: IHP4
Model: induction hot plate



P/N: HFA2007-01
Model: beverage maker

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P/N: HFE95-20D10
Model: Nespresso maker



P/N: HFAWB2005-01
Model: water heater



P/N: MB0000750
Model: trash compactor box



P/N: HFWH2003-02
Model: trash compactor



P/N: 9501D
Model: espresso maker

mgs



P/N: AAD4-07
Model: induction oven



P/N: HFN2007
Model: beverage maker



P/N: HFA28V
Model: beverage maker

CARE



P/N: HFE95-20D
Model: espresso maker



P/N: SHF2010-002
Model: vip seat



P/N: HFWH0028-02
Model: trash compactor



P/N: MK279-00
Model: half-size trolley



P/N: HFESBAA28-0100
Model: espresso maker

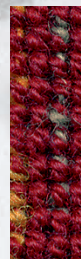
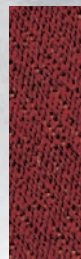
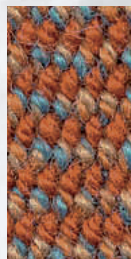
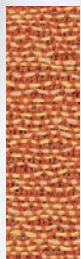
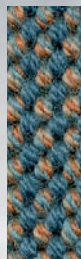
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Model: water heater

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Acro launches Superlight Ultra economy seat

Having previously focused on the low-cost-carrier market, Acro Aircraft Seating has unveiled its new Superlight Ultra seat, designed for the full-service economy cabin. Superlight Ultra seats share a common chassis with other Acro seats, whose mono-spar modular construction won a British Design Week award and a D&AD Pencil Award in 2011. Primera Air has

already placed an order for five 737 NG shipsets of the Ultra seat, with first deliveries expected in December 2011. "Our passenger comfort levels are significantly increased by the Acro Ultra seat, which at 29in pitch gives legroom comparable to a conventional seat at 32in," says Odd Gomsrud, Director Technical Operations, Primera Air Scandinavia A/S.

Marshall Aerospace tapped for A340-312 interior cabin upgrade

Marshall Aerospace has been awarded an interior cabin upgrade contract by Portuguese flag carrier, TAP. The upgrade is to be applied to four Airbus A340-312 aircraft and will include new seating with enhanced IFE systems. Under the contract, Marshall Aerospace will be the aircraft system integrator, responsible for the installation of the upgrades and the provision of all adaptive modification data. The company will also certify the upgrades under its EASA Part 21J DOA privileges, thus enabling an early return to service (upon successful completion of the installation and ground testing). Marshall Aerospace will then work through the regulators to provide EASA and FAA Supplementary Type Certificates (STCs).

Crystal Cabin Awards names new chairman and judges

Professor Peter Vink of Delft University of Technology has taken over from Lufthansa's vice president of product management inflight, Christian Körfgen, as chairman of the Crystal Cabin Awards' judging panel, and will hold the post for the next three years. The judging panel also welcomes new additions Kent Craver, regional director of passenger revenue analysis – sales and marketing at Boeing Commercial Airplanes; David Heath, head of cabin product management at Virgin Atlantic; Alex McGowan, general manager, product at Cathay Pacific; Melissa Raudebaugh, general manager, marketing – aircraft experience at Delta Air Lines; and Martin Sperber, global business field manager aviation at TÜV Rheinland (Technical Surveillance Association).

Reed Exhibitions cooks up new travel catering & onboard services show

The first ever World Travel Catering & Onboard Services Expo will take place in Hamburg, Germany, 27-29 March 2012, alongside the ever popular Aircraft Interiors Expo. LSG Sky Chefs, Gate Gourmet and Servair will join other industry players for the first time in over five years to create a single event for the entire industry. "With the support of the world's market-leading onboard service providers, World Travel Catering & Onboard Services Expo is positioned as the premier tradeshow for the food-on-the-move industry," said Justin Tadman, divisional managing director at Reed Exhibitions. "The exhibition will provide a full service platform for airline, rail and cruise onboard services providers and will connect them with the key decision makers, many of whom have been attending Aircraft Interiors Expo since its inception. With that in mind, World Travel Catering & Onboard Services Expo will take place concurrently and in the same location as Aircraft Interiors Expo, the global exhibition that already attracts senior buyers from over 200 airlines, thus creating the largest one-stop shop for the optimal passenger experience in the world. Our aim is to create an event that brings together the entire spectrum of onboard service providers."

Skycast Solutions has unveiled an IFE system integrated into a tray table. The system incorporates a Samsung Galaxy tablet with an Android Honeycomb 3 platform and includes touchscreen functionality, WiFi compatibility and a point-of-sale credit card reader at every seat. The tablet offers HD resolution on a 8.9in screen.

Content includes movies, TV shows, games, shopping, multiple passenger gaming, destination offers and more. The point of sale function enables passengers to run a tab and order food/drinks on demand, as well as host other family members travelling anywhere in the aircraft.

Skycast Solutions says no seat modifications are necessary and that maintenance is easy – the unit can be swapped with two screws and a plug. The system weighs less than 2lbs per seat.

"Airlines face tough conflicting pressures to lower costs, increase their ancillary revenues, without resorting to higher fees. Today's tech-savvy passengers expect and deserve a better onboard experience," said Bill Boyer, CEO of Skycast Solutions. "The TrayVu IFE system was designed from the ground up to meet those challenges and expectations."



Skycast Solutions develops in-table IFE

Gulf Air and Turkish Airlines debut global live TV services

Turkish Airlines and Gulf Air have both begun offering onboard live TV after taking delivery of aircraft fitted with Panasonic's Global Communications Suite (GCS). Turkish Airlines received its first B777-300ER equipped with the system in September, with a further 11 Boeing 777-300ERs and 10 Airbus A330-300s to follow. Meanwhile, Gulf Air took delivery of its first A330-200 aircraft retrofitted with GCS in October. The system is being installed across Gulf Air's entire fleet of aircraft progressively. The new IFE system is branded 'Sky Hub' on Gulf Air; and 'Planet' on Turkish Airlines. Passengers on both airlines are being offered a global live onboard television service and two-way broadband connectivity at speeds of up to 50Mbps to the aircraft. Both will offer WiFi in the cabin, allowing passengers to go online using their own devices. "Travellers will no longer have to wait in anxiety until they land to find out scores from their favourite sporting events or news from around the world," said a Gulf Air press statement.

Air Arabia chooses dPAVES 3 for its A320 fleet

Air Arabia has specified Rockwell Collins' dPAVES 3 IFE system for 44 new Airbus A320 aircraft. Air Arabia is the first airline in the Middle East to select the system. Rockwell Collins' PAVES family of IFE systems are installed on more than 1,600 single-aisle air transport aircraft. This latest version of dPAVES enhances the passenger experience with new levels of information and entertainment content, while significantly reducing size, weight and power consumption. The system's High Definition Media Server (HDMS) offers 160Gb of solid state digital audio and video storage capability, integrated pre-recorded announcements and music (PRAM) functionality with embedded Airshow Moving Map, all in a single 4 Modular Concept Unit (MCU), electronics bay-mounted box. The large storage capability of the HDMS allows for multiple pre-scripted play periods of entertainment content to be pre-stored on the server, for automatic changeover when the new play period begins.

Lufthansa Technik Malta to retrofit A330s for Brussels Airlines

Lufthansa Technik Malta has been selected by Brussels Airlines to retrofit five A330s, starting in February 2012. The programme includes the installation of a completely new cabin with the latest IFE system in all classes. The company was also awarded the base maintenance contract for the aircraft.

"To win a leading carrier like Brussels Airlines for our wide-body maintenance services is a great success for us. It is proof of the expertise we have been able to build up in the past three years since we opened the first wide-body line," said Stephan Drewes, CEO of Lufthansa Technik Malta. "We have been very successful with the refurbishment programme, 'New Europe Cabin', for Lufthansa in the past months and I am absolutely sure that we will deliver the same quality to Brussels Airlines."

Brussels Airlines operates its A330-300 fleet on a network of 19 African destinations. The two companies are currently in negotiations about further maintenance services for A319 and A320 aircraft.

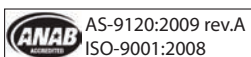
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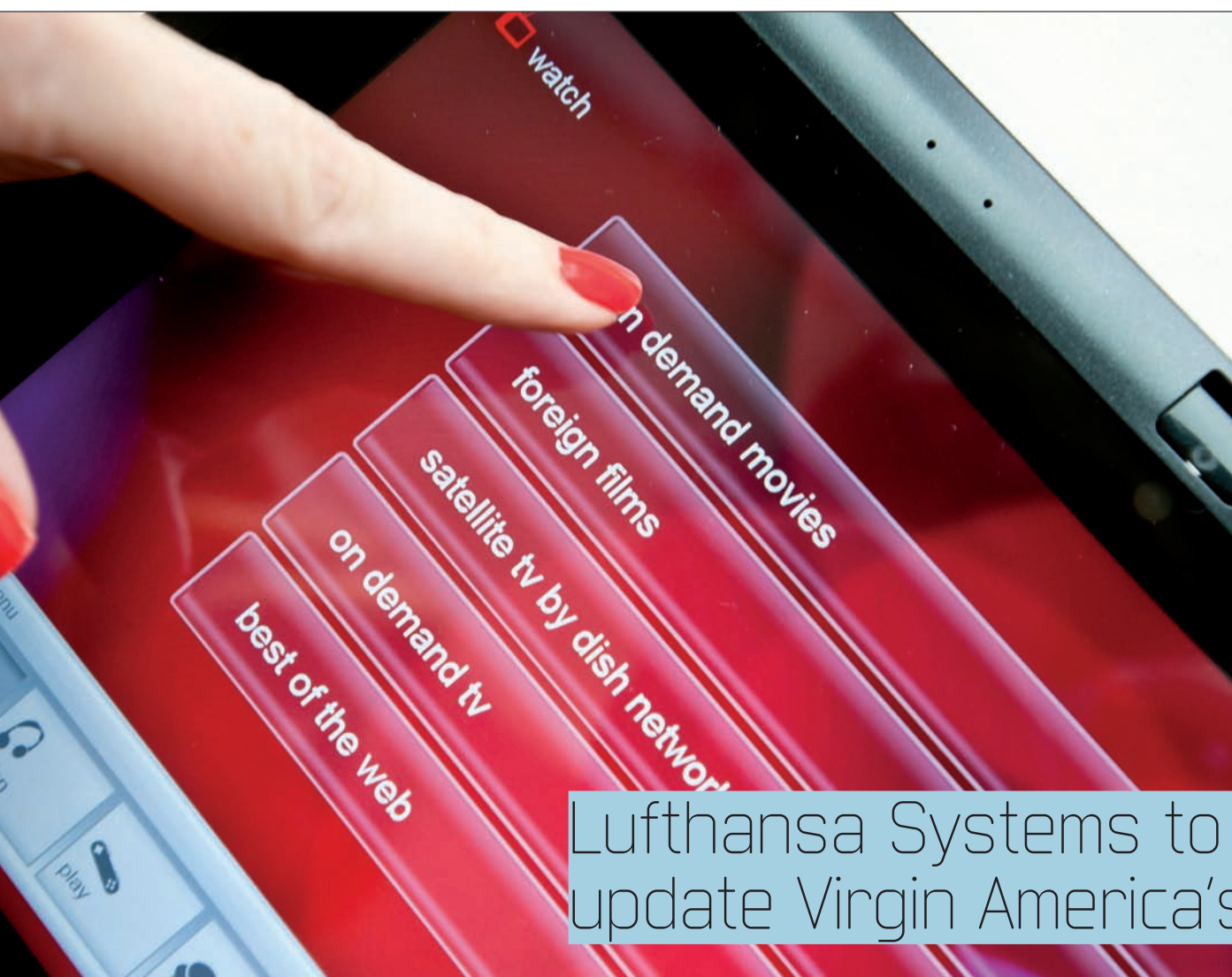
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Lufthansa Systems to update Virgin America's IFEC

Virgin America has selected Lufthansa Systems' BoardConnect platform for the next iteration of its Red IFEC system. The companies will cooperate to develop the new solution, which is scheduled for launch in late 2012. BoardConnect replaces legacy IFEC solutions via an onboard WiFi network. The new version of Red will offer a larger, high-definition touchscreen seatback monitor with full WiFi connectivity and curated content. It will also enable passengers to use their own personal electronic devices to connect to the system. Virgin America is testing the new platform on a new A320, named 'nerdbird'.

"We want to give our travellers more options instead of fewer, including the ability to multi-task across platforms – just as they do in their lives on the ground," said David Cush, president and CEO of Virgin America. "Offering both connectivity to personal devices and accessible dynamic

content will allow us to deliver the best of both worlds."

Virgin America's decision to switch suppliers has raised eyebrows – the carrier is considered an IFEC innovator, capturing top honours for best ground experience, best IFE in the Americas, best inflight video and best overall passenger experience at this year's APEX awards. For more on the latest IFE architecture trends, see page 70.

In other news, Virgin America will be the first airline to offer Gogo's ATG-4 service, which is designed to improve WiFi capacity on the aircraft by approximately four times the current performance through the addition of directional antenna, dual-modem and EV-DO Rev. B technologies. The ATG-4 service is scheduled for delivery on aircraft from the first half of 2012. The new platform is backwards compatible and allows for upgrades to existing ATG systems through retrofit.

EADS Sogerma confirms Iberia A330 and A340 seat order

EADS Sogerma has confirmed an order from Iberia for its premium business-class seat Solstys. The seat will be retrofitted on the carrier's A340 fleet and linefitted on the new A330s that Iberia has on order from Airbus. Deliveries should begin in late 2012 to support linefit activity on the new A330 fleet at the Airbus final assembly line in Toulouse.

Etihad and Panasonic ink deal

Etihad Airways and Panasonic have signed a 10-year agreement whereby Panasonic will provide the airline with IFE, broadband internet and live TV, as well as mobile phone service in conjunction with AeroMobile, for Etihad's entire long-haul fleet. The deal, valued at more than US\$1 billion, includes a full service maintenance contract. As a result, Panasonic's eX2 and eX3 systems will be deployed on 100 new aircraft, in addition to the 16 Etihad aircraft already equipped with eX2.

Cessna has unveiled a new mid-size business jet – the Citation Latitude. With space for a crew of two plus up to eight passengers, the Citation Latitude features Garmin G5000 avionics and an 84in fuselage for a 6ft-high, flat floor cabin.

The Citation Latitude offers a range of 2,000 nautical miles and is priced at US\$14.9 million (2011). First flight of the prototype is expected to be mid-2014, with entry into service expected in 2015.

A flat floor provides stand-up access throughout the passenger cabin, which is over 16ft long, 77in wide (1.95m) and 72in (1.83m) high. The standard layout comprises a single-club with a forward, dual side-facing couch. Six pedestal seats track forward and aft 7in (18cm) and laterally 4in (10cm) on the seat base with 180° swivelling and unlimited recline positions. Indirect LED lighting is provided overhead in the PSUs with variable adjustment for direct reading lights. The aircraft will also feature the new Clarity CMS, developed in partnership with Heads Up Technologies. It integrates electrical systems, data and communication sharing through a fibre optic backbone controlled via seat touchscreens or passengers' PEDs.



Cessna widens its offering with Citation Latitude

Comlux is launch customer for the Sukhoi Business Jet

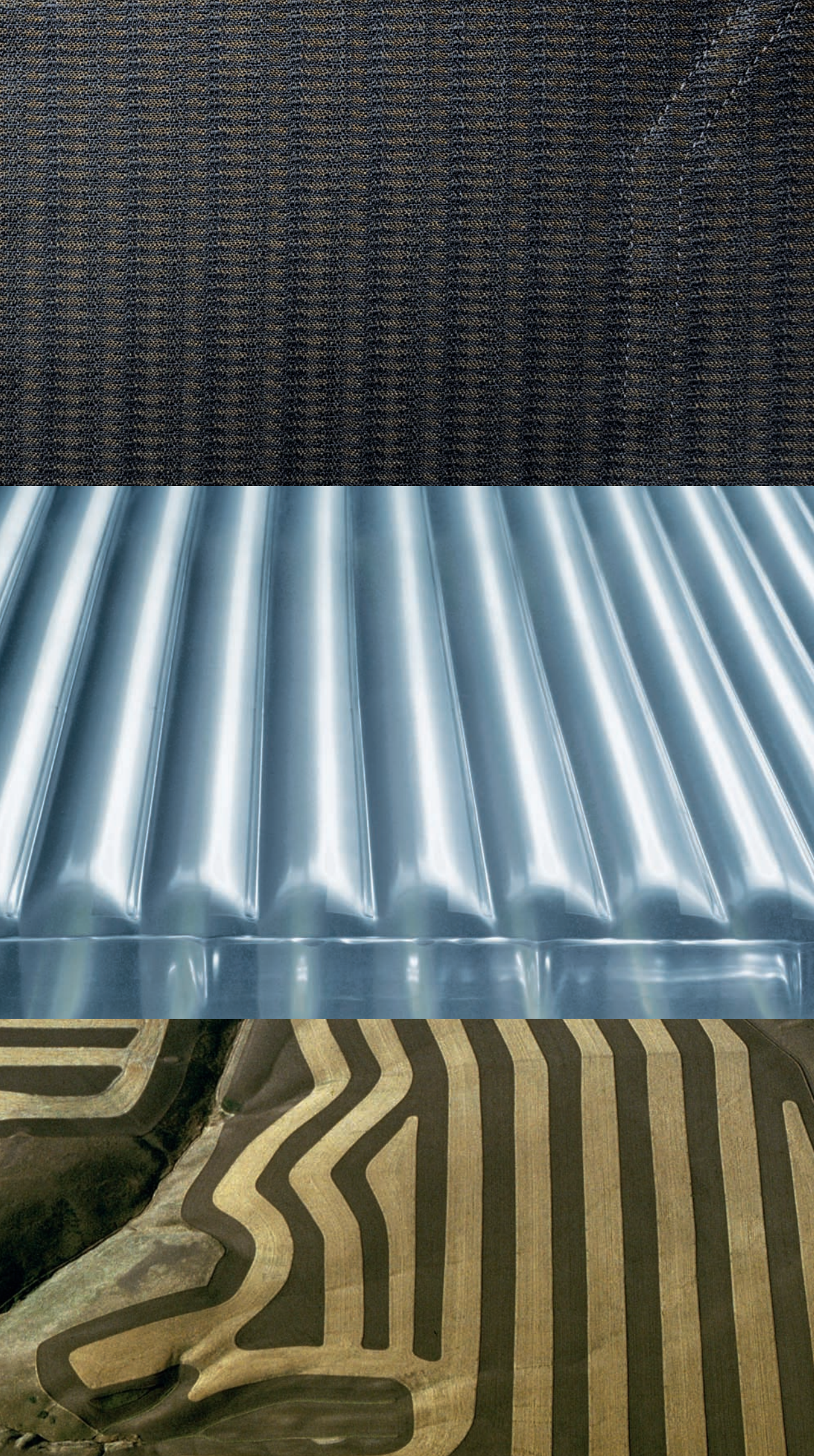
SuperJet International – the joint venture between Alenia Aeronautica, a Finmeccanica Company, and Sukhoi Holding – has announced that Comlux The Aviation Group has agreed to purchase two Sukhoi Business Jet (SBJ) aircraft plus two additional options, making it the launch customer for this new type of VIP aircraft. Deliveries are planned for 2014. The order has an estimated value of US\$200 million, including options. The VIP cabins will be designed and outfitted by Comlux America, the completion centre of the Comlux Group, based in Indianapolis, Indiana, USA. Comlux America is appointed as the first approved Sukhoi Business Jet completion Centre.

Gulfstream introduces 'Elite' large-cabin interior option

Gulfstream has unveiled its new Elite interior, an optional package for the G550 and G450 featuring elements from the G650. Highlights include the signature Gulfstream CMS; LED lighting; a cleverly designed galley; electrically operated tables; and new club seating, including optional powered seats. Seat functions include full-flat berthing, electric lumbar controls and a powered track-and-swivel release. The powered seats offer electric controls for the leg rest, backrest, back-cushion massage and back- and base-cushion heat. They also provide single-position memory preset and press-and-hold controls for full-upright and full-flat positions.

Lufthansa Technik develops virtual fitting technology

Lufthansa Technik has developed a new method to shorten the fit check process. The new procedure is based on virtual 3D modelling of the airframe, cabin and systems. Most of the components can be designed and checked prior to the start of production so that they fit into the aircraft without a test fitting. Virtual reality is also used – designers enter a 12m² glass cube known as the Cave Automatic Virtual Environment (CAVE). With the aid of special glasses and infrared cameras on the ceiling, the system creates a 3D reproduction of the cabin in which the technicians can move freely. The company plans to fit the first complete interior in this way in two years.



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BRIEF: AIDA Development has developed a new barrier-free lavatory, which can be adjusted in size during flight to provide more room for air travellers requiring special assistance. The design features interface points that ensure it is fully compatible with the system architecture of existing twin-aisle aircraft, where it is ideal for installation in any of the central cross aisle sections.

DESCRIPTION: The size, equipment and location of the lavatory have been informed by the characteristic movement, behavioural patterns and space requirements of the elderly, visually impaired or those in wheelchairs. Both an autonomous as well as an assisted use of the facility had to be taken into account, without compromising payload. To this end, variability in size had to be ensured. Particular attention was therefore placed on allowing for a transformation into a much larger compartment in next to no time. If passengers requiring a wheelchair are on board, then the lavatory is deployed into 'Maxi' configuration by the flight attendant, once the fasten-seat-belts-signs are switched off. For this purpose, the curved sidewall element, guided by rails, is unlocked and pulled forward. Additional floor and ceiling elements automatically unfold from the inside of the lavatory and lock into their designated end position. Sliding wall and door elements complete the enlarged compartment. This simple yet effective mechanism allows for the enlarged lavatory to remain soundproof and watertight. The sliding side door gives the passenger in the wheelchair, as well as an assisting person, comfortable access, without the need for complicated manoeuvres in the gangway. The door is ergonomically positioned for full access to toilet seat and sink, avoiding the need to turn inside the lavatory.



VERDICT: The lavatory can comfortably house a 95th percentile male in a wheelchair, along with a 95th percentile male assistant and allows for transfer angles between 0° and 90°. It's also a call to arms: "We would like to think that our work will further inspire politicians, OEMs and airlines to jointly and actively propel cabin standards for disabled air travellers from the 20th into the 21st century," says Enrique Geck, managing director at AIDA Development. ☒



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wallflower

BRIEF: Edése Doret of Edése Doret Industrial Design (EDID) has created a truly unique VIP interior for Boeing's new 787-9 Dreamliner. The bulkheads in the entryway, master bedroom, master lavatory and office feature 'living walls' of variegated evergreens. "The carefully selected foliage is non-allergenic, insect-free and won't shed," says Doret. "It acts as an air scrubber, enhancing the air quality in the aircraft."

DESCRIPTION: The living walls will have a dedicated irrigation and light system. Overall, Doret says he has designed his "private dream jet" to create a tranquil and calm atmosphere for passengers, to help them forget they are even in an aircraft: "Typical design boundaries are removed in rooms that invite adventure and include an unlimited supply of imagery," he says. "This will be the first aircraft to feature a living wall." The interior will be supported by a long list of specialist vendors, including: Aeristo, Aerospace Technologies Group, AeroQuest, Air Cabin Engineering, Air Cabin Trading, Atlantic Aviation, B/E Aerospace, Custom Control Concepts, EMTEQ, Kydex, L3-Com Platform Integration, STG Aerospace, Tai Ping, Tapis and Techno Coating, who will supply various components to the cabin. L-3 Platform Integration in Waco, Texas has been chosen as the completion centre to apply the final touches to the aircraft. Boeing will deliver its first VIP designated (787-8) Dreamliner in 2015; and EDID projects delivering such a cabin scheme would take approximately 24 months.



VERDICT: This interior certainly stops you in your tracks – but is it deliverable? EDID says two engineering firms and a Designated Engineering Representative (DER) were consulted to ensure that the living wall will comply with current FAA regulations. But how will it survive? "Natural and artificial daylight will provide photosynthesis to the wall," says Doret, before adding it will require minimum maintenance by a specialist and that a patent has been filed. ☒



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bondscheme

BRIEF: New UK-based aircraft asset manager Falko and UK design consultancy Design Q unveiled their final concept for the Avro Business Jet (ABJ) during October's NBAA show in Las Vegas. Dubbed the 'ABJ Q', it is the fifth interior commissioned by Falko from Design Q to appeal to different VIP aircraft market segments.

DESCRIPTION: The forward lounge has a principle seat with state-of-the-art control centre allowing the owner to change all aspects of the cabin environment through intuitive movements of the hand. The sofas combine a light structural shell with a visually separate backrest cushion, emphasising the deconstructed nature of the interior. There are concealed monitors and a refreshment centre embedded in the bulkheads that magically present themselves adding a sense of theatre to the journey. The centre of the cabin is dedicated to an open plan office allowing the owner to efficiently continue working whilst on the move. The 'barrelled' ceiling features mood and accent lighting, as well as large flat panel lights designed to deliver a full 'daylight' working environment. The 'active' desk is equipped with an array of technical equipment including printers, computers, and additional pop-up monitors. A finger print recognition system is used to gain access to these items and in addition unlocks safe storage for confidential documents and data storage devices. Visible composite structures are used to emphasise the technical qualities of the furniture construction and the weight efficiencies that are achieved by these materials. A stripped down structural approach combined with luxurious soft leather seats delivers a sporty tone within a luxury palette. The informal layout of the seats provides an eclectic and exciting space that Design Q says challenges the traditional approach to aircraft interiors.



VERDICT: Grown men never seem to tire of imagining life as a secret agent – and this aircraft certainly wouldn't look out of place in a Bond movie: "We called this version the ABJ Q in homage to 'Q' the fictional research and development character made famous in many James Bond films and who specialised in creating devices that were hidden away in everyday objects", admits Gary Doy, director of Design Q. Just watch what buttons you press – in case you trip the ejector seat. ☒



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preciouspearl

China's first A380 may not be the most luxurious or imaginative, but it nevertheless marks the beginning of an important chapter in aviation

ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL



A veteran of A380 delivery ceremonies, having attended events for Singapore Airlines, Emirates, Qantas and Lufthansa, I had a good idea of what to expect back in October during the official handover of China Southern Airlines' first A380, held at the impressive Airbus Delivery Centre in Toulouse, France. The facility doubles as both auditorium and aircraft docking station. It provides the perfect venue for the inevitable finale of such events, when the curtains suddenly part to reveal a glistening A380 resplendent in the appropriate airline's livery, to polite applause. However, what comes before this moment is limited only by the imagination of the carrier's marketing department.

China Southern certainly didn't disappoint in this respect – some traditional 'shadow play' and a child compere injected some freshness and fun into what can be quite a dry affair. However, what struck me most of all was the dancing that followed – the choreography was interesting enough, but what really grabbed my attention was the sheer size of one of the troupe. A giant among men, this particular fellow somehow managed to still look graceful and in step with his far more slight counterparts. The defining moment came when he hoisted a child aloft – symbolic perhaps of the A380 carrying the hopes of a new generation of Chinese travellers, while also underscoring the huge growth potential of China from an aerospace perspective. "China will eventually fly, operate and need over 200 A380s by the year 2030," noted Airbus's CEO, Tom Enders, during the ceremony.

DREAM TICKET The airline, which has ordered five A380-800s, is the seventh A380 operator so far. It has opted to install 506 seats in total in a three-class configuration. Eight first-class suites (pictured) feature at the front on the main deck in a 1-2-1 layout, followed by 352 economy seats in a 3-4-3 configuration. The upper deck sees a further 76 economy seats (2-4-2) to the rear, followed by 70 lie-flat business-class seats in a staggered 1-2-1 configuration.





- 01. China Southern's Platinum suite is based on Contour's Venus platform
- 02. Full sliding doors ensure the utmost privacy

Named the 'Pearl of the Sky' and described during the ceremony as a 'dream machine', the A380's interior was sadly less inspiring than the build up to its arrival. More practical than pearlescent, the rather drab, sterile cabin lacks a certain sheen and warmth – it's functional rather than fanciful, especially when compared with some of the luxury interiors installed on A380s operated by previous customers.

First class, branded 'Platinum', features eight individual Contour-supplied suites installed at 82in pitch, complete with sliding doors, individual mini-bars, luggage cabinets with password locks, 23in HD LCD monitors and 61x48cm tables. Each purple seat converts into a fully flat 80in-long, 32in-wide bed and includes a massage function. The 1.52m-high walls ensure a peaceful flight, blocking outside disturbances while a privacy divider between central pairs can be raised or lowered by the crew according to passenger wishes. China Southern is the third A380 operator to specify and customise Contour's Venus suite in first class.

Business class sees Sicma's Skylounge units in a staggered 1-2-1 configuration, allowing the fully extended bed to unfold into the space underneath the side console of the seat in front. As a result of this arrangement, non-aisle seats offer greater seat pitch and bed length than aisle-side seats, similar to business class on Emirates' A380s. Non-aisle seats are installed at 87in pitch and convert into 85in-long flat beds, while aisle seats are fitted at 77in pitch and offer 75in beds. Both versions are 24in wide and feature a 15.4in monitor, shoe storage and mini-bar. A memory function recalls the passenger's preferred angle of recline at the press of a button.

The airline has chosen Sicma's Airgonomic seating in economy, at 32in pitch. Each unit features a four-way adjustable headrest, articulated seat pan with 6in of recline, a rear footrest and a 9in IFE screen. China Southern has opted for a classic recline function rather than a fixed backshell.

IFE in all classes is provided by Panasonic's AVOD eX2 system, which features interactive touchscreens and 1,000Gb of storage, translating into roughly 600 hours of non-stop entertainment. Passengers can enjoy films, TV programmes, music, games, books, moving maps and view an online duty-free catalogue.

In addition, the system also provides a full set of office application software, allowing passengers to work in the air and store files via a USB drive.



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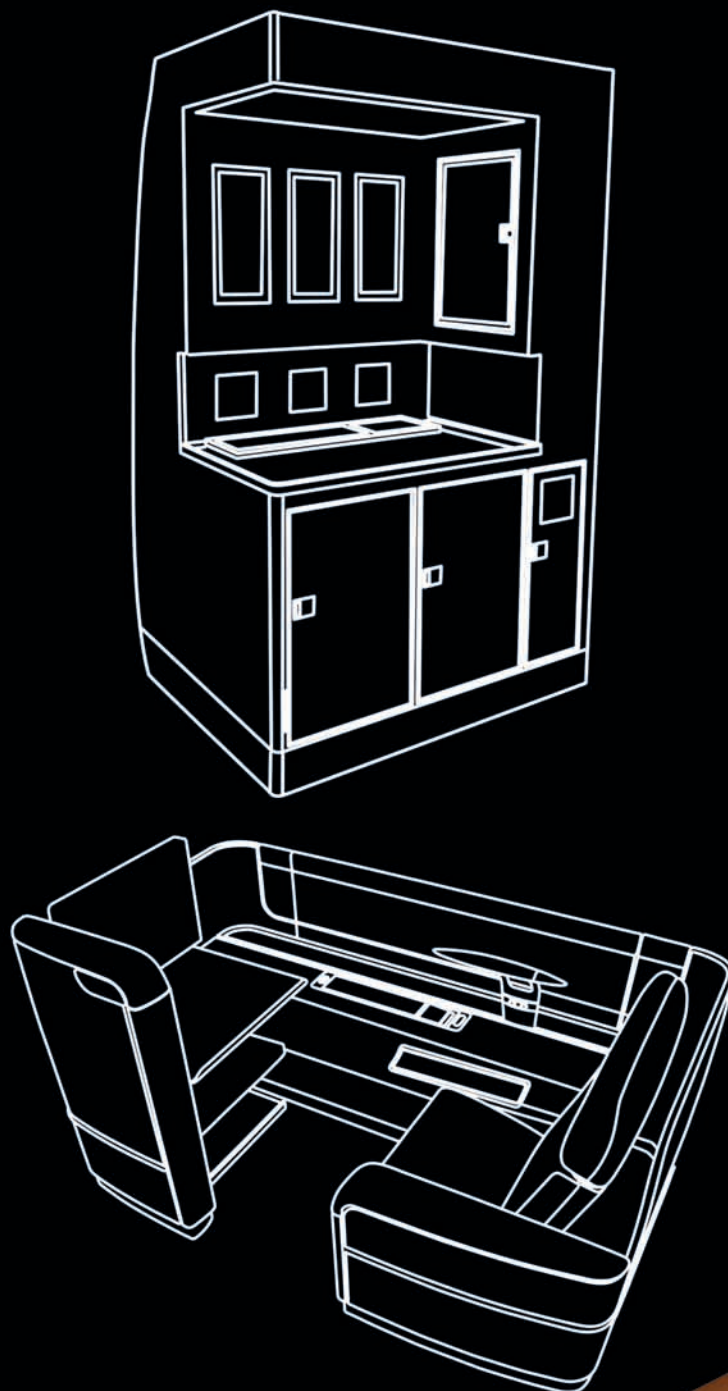


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Panasonic will also supply its eX2 system to China Southern for its forthcoming Boeing 787s; and it has provided its S3000i system for its A330-300s since 1993.

Mood lighting in combination with the A380's signature low cabin noise levels will help improve passenger well-being. Six different scenarios imitate natural light cycles, while a fibre-optic 'starry night sky' is integrated into the ceiling.

The cabin also offers seats and lavatories that are easily accessible to disabled passengers. All aisle-side seat armrests in business and economy have been designed to stow in such a way to allow disabled passengers to move directly from wheelchair to seat. A barrier-free bathroom can be rapidly transformed into a 2m² space with storage for personal or mechanical wheelchairs.

Onboard bars are installed at the front of the first-class cabin, as well as at the front and rear of the business-class cabin, providing ideal spaces for passengers to socialise and enjoy a few drinks.

All passengers will benefit from a state-of-the-art meal service delivered from no less than 19 galleys, including the world's largest independent galley, GU3R, which itself can accommodate 10 catering carts. This infrastructure supports a wide range of traditional and contemporary Chinese cuisine, including such delicacies as Kong Fu soup, soy sauce braised crackling pork, Chaozhou Style pastries and Big-Bowl noodles, delivered by 21 cabin attendants. First and business-class galleys include wine chillers and espresso makers, while first-class passengers can also enjoy traditional Chinese tea ceremonies conducted by professional tea specialists.

Finally, China Southern says the cabin "offers passengers creative surprises in the least expected places by integrating art into its plan". I struggled to find much evidence to support this, apart from an unusual pattern integrated into some of its sidewall laminates. "The decorative film used on the sidewalls in the first and business cabins was designed

on the move

Named the World's Most Improved Airline at the 2011 World Airline Awards conducted by Skytrax Research, China Southern Airlines is based in Guangzhou, China. It is the world's third largest airline measured by passengers carried, and Asia's largest airline in terms of both fleet size and passengers carried. From its main hubs at Guangzhou Baiyun International Airport and Beijing Capital International Airport, the airline flies to 150 destinations using a fleet of over 430 aircraft. In January 2005, it inked a pact with Airbus for five A380 superjumbo aircraft, quickly followed by a deal with Boeing in August 2005 for 10 Boeing 787-800s – making CSN the first purchaser of this type of aircraft in China.

especially for China Southern," confirms an engineer who worked on the project. "The design concept is inspired by our logo – the kapok flower – and other luxury elements like diamond and crystal." The airline worked with Airbus's own design studio on the overall cabin scheme, but did not work with any third-party design agency.

03. Sicma's Skylounge seating in business class features a staggered layout

POPULAR CHOICE China Southern's first A380 went straight into domestic service between Guangzhou and Beijing. Its second A380, which will be delivered in December, is expected to fly international routes, possibly starting with Paris. The airline will receive two more A380s in 2012 and the fifth it has on order in 2013.

As China's first A380 operator, China Southern is well placed to take advantage of the country's predicted explosion in air travel. China's domestic air travel market alone is predicted to grow 13.9% annually by 2014, responsible for carrying 379 million domestic passengers, making it the world's second largest air travel market after the USA, according to IATA.



03



04



05



CHINA SOUTHERN A380 DOMESTIC FLIGHTS ARE CONSTANTLY OVERSUBSCRIBED



- 04. Aisle-side business-class seats offer a smaller bed than their non-aisle counterparts
- 05. Bar unit with flower-inspired laminate pattern



Airbus estimates that in terms of passenger traffic in domestic markets, only India at 9.8% will grow faster than China (7.2%) over the next 20 years.

So far the signs look good for the airline – tickets for the A380's scheduled flights in October all sold out and the airline says the aircraft is the most sought-after it operates, with the highest load factor. China's new wealth also saw first-class tickets sell out faster than those for economy.

Edward Plaisted of Skytrax Research puts some of this popularity down to the aircraft's novelty factor: "China Southern A380 domestic flights PEK-CAN are constantly oversubscribed versus their many A333/B777 alternatives an hour or so later," he notes.

And despite not being as iconic as some A380 interiors offered by rival carriers – there's nothing to match Emirates' luxurious showers or even Korean Air's duty-free shop – China Southern's delivery is still of huge significance: "CSN's deployment of the A380 should be considered as a really important iconic moment in the region – it represents this millennium's equivalent of Concorde," suggests Peter Knapp, creative director at strategic branding and design firm, Landor. "It represents a new era in air travel for China and all the optimism that comes with that. As the country rapidly becomes a true super power, the A380 is symbolic of that new epoch." ☒

CONTACTS

www.csair.com; www.contour.aero; www.sicma.zodiacaerospace.com



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shipshape

Passengers judge airlines by their cabins, so it makes sense to keep seats and other elements clean, comfortable and working well

BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL



Support for aircraft cabins comes in many forms. Airlines have their own procedures to identify and remedy damage or deterioration, and they can call on a wide range of specialist services to help restore furnishings and equipment.

Monarch Aircraft Engineering Ltd (MAEL) supports a range of aircraft types for Monarch Airlines and other operators. Paul Godfrey, design services manager (head of design organisation), says that ensuring the cabin is maintained to a high standard entails significant costs and resources, particularly as the age of the aircraft increases. Sidewalls and laminates suffer, he says, “but a lot of the hard wear really is on the seats”. Monarch contracts out routine care of seat covers and replacement of cushions, but there is a lot of wear and tear on seat tray tables, seatback pockets and armrests, particularly in the aisle where passengers are apt to stand on them to reach the overhead bins. Toilet modules, which see high utilisation in flight, also “take a fair battering,” he notes.

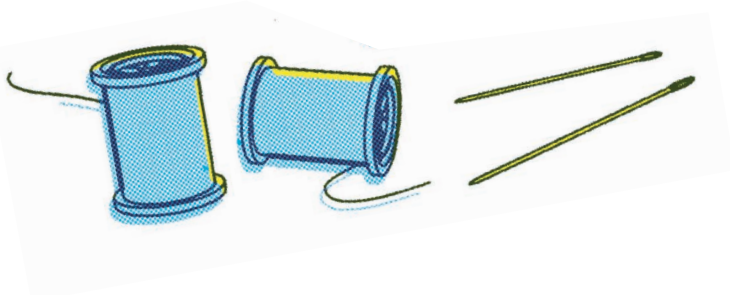
Laminates are normally changed every 18-20 months during the heavier C checks. “When the aircraft comes in, the cabin sidewalls and the toilet laminates and the toilet

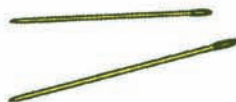
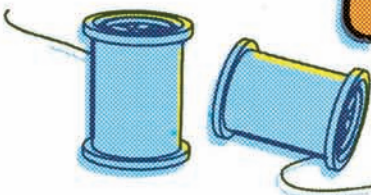
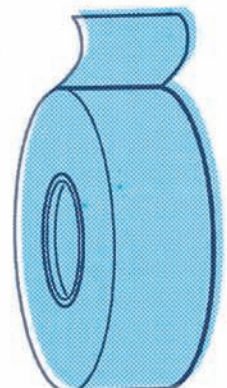
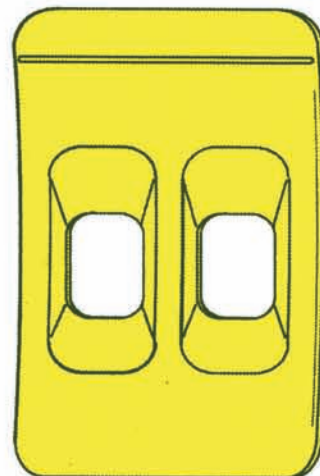
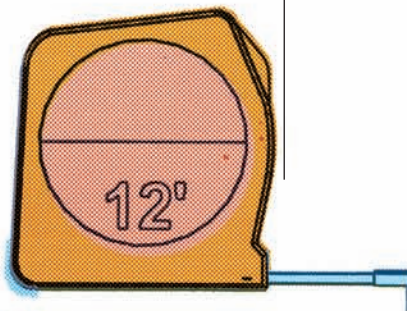
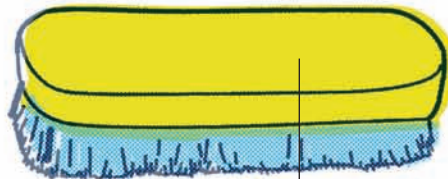
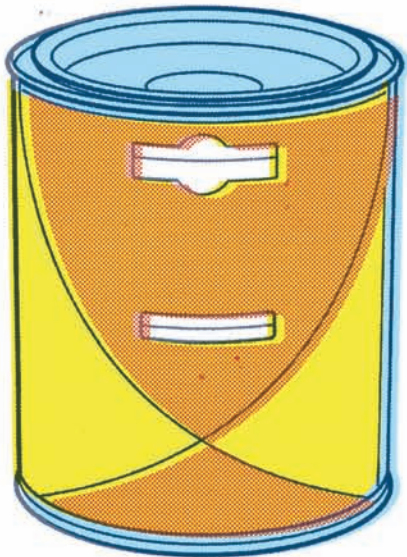
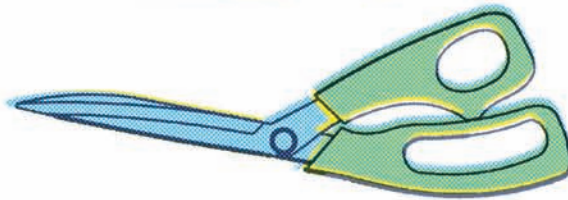
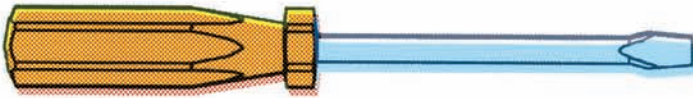
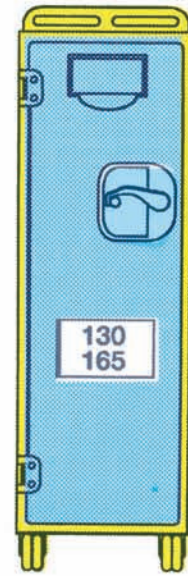
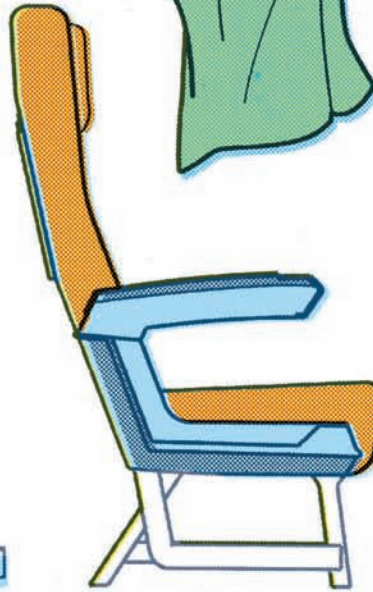
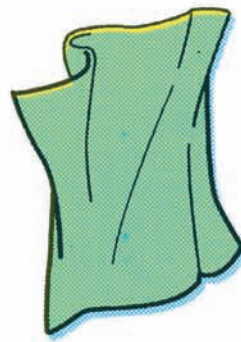
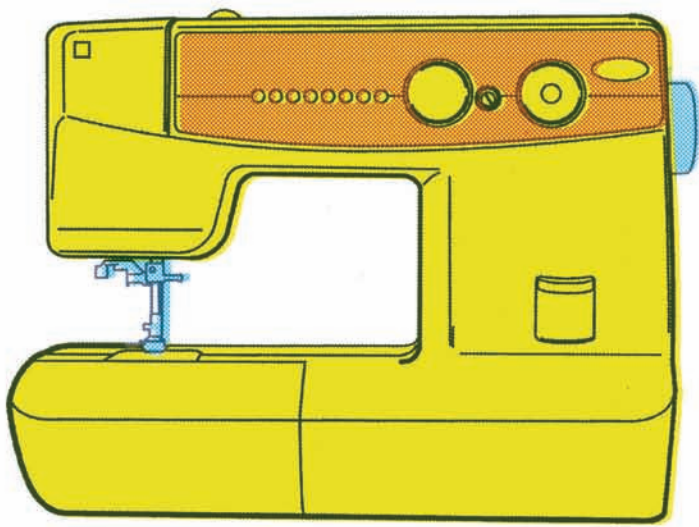
modules and galley sidewalls are all inspected and checked for wear and tear,” says Godfrey. Wear and tear is also monitored between checks: “Defects are recorded in the cabin defect log after every flight, so if a laminate has been scratched or chipped on a toilet module it would be replaced.”

ON THE LINE Airline Services provides nose-to-tail interior support, covering galleys, seats, soft furnishings, carpets, sidewalls, overhead bins, ceiling panels, floorboards and cargo bay liners. One of its biggest activities is seat maintenance, both on and off wing.

Cabin and seat line maintenance is one speciality: “We provide that service for several companies,” says regional sales manager Glyn Wall. “It keeps their aircraft in tip-top condition, which is what everybody wants at the moment. Obviously being in a recession companies want to come out fighting on the other side with a decent product. The best way to do that is with a good looking cabin that attracts people to their airline.”

Under the normal maintenance cycle the cabin shows a steady decline from one C check until everything is restored







IF WE SEE SOMETHING A BIT LOOSE, WE
TIGHTEN IT UP BEFORE IT FALLS OFF

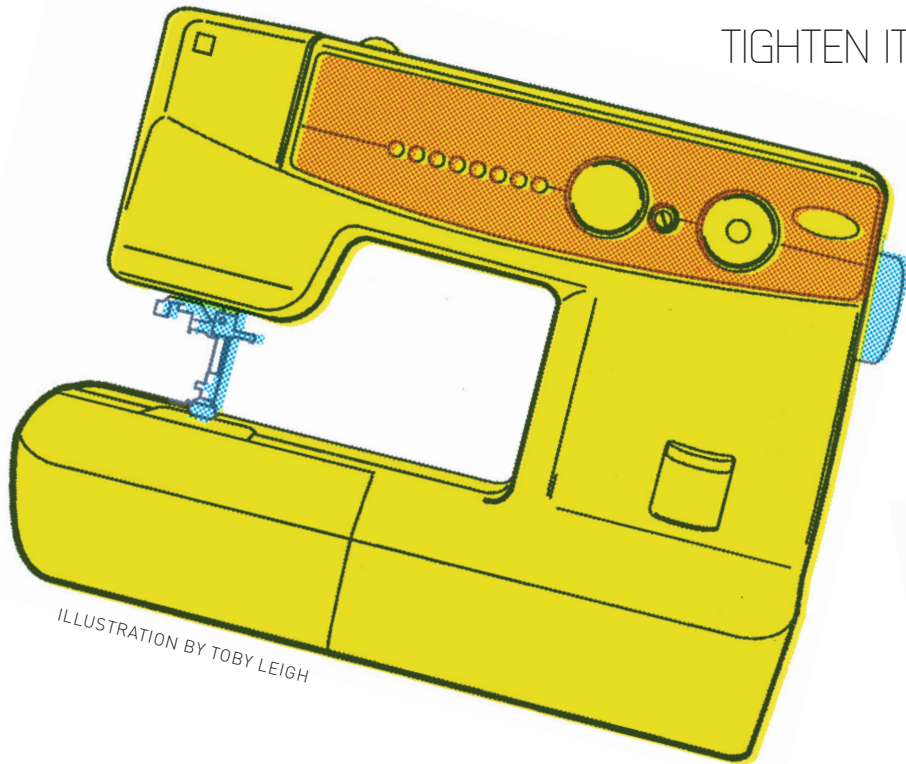
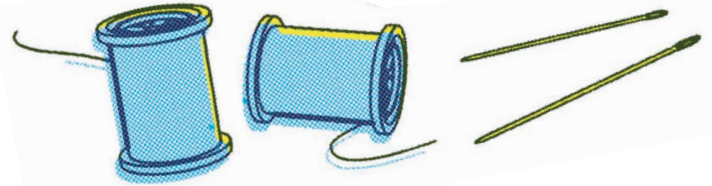


ILLUSTRATION BY TOBY LEIGH



at the next. "What we're doing with our line maintenance is trying to eliminate that sort of degradation," says Wall. "We visit the aircraft on the line every day, every week or every A check, whatever the customer specifies."

Frequent inspection and servicing reduces the number of spares required to keep the seat serviceable, says Wall. "If we see something a bit loose, we tighten it up before it falls off or before it gets so loose that it wears all the bushings on the seat." The same applies to a mark on the cabin wall, for example: "You just get rid of it before it gets any bigger."

As cabin specialists, he says, "we know where to look, what the issues are going to be, regardless of the seat manufacturer. We'll know where the problems are probably going to lie and tackle them as they arise, before the seat fails. The extra cost for the labour in the maintenance is probably a fraction of what the overall cost of the spares would be."

The 5-star service that Airline Services also offers, Wall says, was the result of an airline customer's desire for "a cabin that is basically defect free and perfect from an aesthetic point of view. A lot of the airlines we've dealt with really want to push their cabin, because that's what the passenger sees and it's what they judge the airline on. Obviously there's a premium to be paid for that but it really does pay off for certain carriers."

Airline Services has tried to push the envelope in terms of technology, adds Wall: "We have 3D design packages at our Manchester and Stansted facilities. When an airline wants to change the look of a cabin, we can design it right in front of them. Rather than go through a lengthy service bulletin

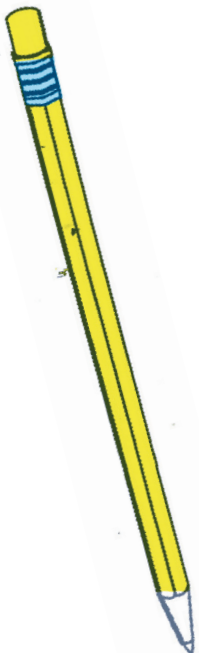
process, we can reduce the timeframes by at least 25%, and obviously keep the cost down to a bare minimum."

Another product line is a range of replacement IFE equipment, including AeroStream head-end server and AeroScreen LCD monitors. The server is a low-cost alternative to tape- and DVD-based systems. "Everything is designed and maintained by us in-house, and we provide the designs to fit the items onto the aircraft," Wall says. "It's a low-cost solution to what could be a very expensive problem for people down the line."

COVER CYCLE The appearance of seat covers is a function of design as well as maintenance. Cabin support specialist Airbase Interiors maintains, overhauls and repairs all types of cabin equipment, manufactures seat covers and curtains and manages the complete supply chain for cabin textiles.

The seat cover lifecycle, says Penny Martin, Airbase's sales and marketing director, starts with a design concept and finishes with a fully serviceable production cover. The objective is a product that makes a strong and pleasing design statement, provides a clean and comfortable environment for the passenger, conforms to all industry regulations and approvals and, most importantly, maintains those features over the lifetime of the cabin.

Selecting fabrics for curtains and seat covers is the first step. "The fabric, particularly the colour and any pattern, will reflect and enhance the brand, but ideally should not show stains and marks too readily," says Martin. The trend is toward lighter weight fabrics, but going too low in weight is a false economy as the fabric may fall short of its expected lifespan.



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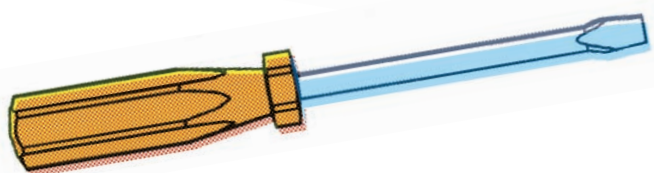
Designers and manufacturers of Aircraft Seat Covers, specializing in solutions to seating for airlines and seating manufacturers.

Products include laminated leather and fabric seat covers, curtains, arm-caps, life jacket pockets, seat supports, crew-rest acoustic panels and many more.



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The fabric must meet all regulatory requirements in terms of fire retardation, both when new and after dry cleaning as a made up seat cover. For long life it is important that the seat cover is changed and dry cleaned regularly: too long a period between seat cover changes and dry clean cycles not only compromises the appearance of the cover and, by extension, the whole cabin, but can also increase the probability of burn test failure and fibre degradation, increasing the incidence of scrapped covers and necessitating costly replacements.

In-service conditions affect its life and also its cost of ownership. Ideally these conditions are evaluated during the seat cover development and patterning process so that inherent design features of the seat, which may have a negative impact on the seat cover, can be considered and worked around.

Airbase has developed a unique stain testing process that can be used during the fabric selection process to predict the likely performance of the fabric in use. It also has its own UKAS-approved test house for fire testing new fabrics and uses it to batch test covers after dry cleaning. Pre-production dry cleaning trials on fabrics and seat covers assess likely in-service performance.

A dedicated repair programme helps minimise scrapping and disposal, Martin adds, enabling the company to re-use covers that would normally be scrapped, and offering significant savings in labour and materials. Airbase has rolled up all these elements into cost-saving initiatives to improve the service life of the cover, reducing the number that need to be replaced and offering added benefits to both the airline and the passenger.

hassle-free IFEC upgrade

Panasonic's new eXK platform offers an upgrade path to improve the passenger experience on the manufacturer's K Series IFEC systems, without expensive seat recertification costs. "With eXK, we can offer our K Series customers substantial improvements to the passenger experience with only a minimal impact on their aircraft," explains CEO Paul Margis. The upgrade includes new LRUs and modified seat boxes, providing the power to deliver the same Android apps as the IFE supplier's latest X series systems. Seat screens remain the same while the seat boxes fit the same footprint as existing units, ensuring no recertification.

More than 1,000 K Series systems are still flying, according to Panasonic. By using eXK, airlines will be able to upgrade them to an X Series-based solution. The result should be a significantly enhanced passenger experience, with an all digital head-end, faster response times, interactive design flexibility and new application possibilities. For airlines, it offers optional head-end redundancy, commonality to architecture and media for airlines with X Series, with minimal seat recertification costs.



A DEDICATED REPAIR PROGRAMME HELPS MINIMISE SCRAPPING AND DISPOSAL



DESIGN AND PRODUCTION Percival Aviation specialises in the design, engineering and manufacture of aircraft interior products. Commercial manager Tim Harrison says that as an EASA-authorized design and production organisation (DOA/POA), it can reverse engineer and improve products, rapidly and cost-effectively, as well as making entirely new ones.

Small but growing fast, and with a new sales office in Dubai, Percival produces both new and replacement parts of every description: "Our customers tell us what the problem is," says Harrison. "It can be anything. And it can be made of any material, any kind of plastic forming, foams, leathers, fabrics, aluminium extrusions, machined parts. If we can't make it in-house, we just get a good vendor to make them for us."

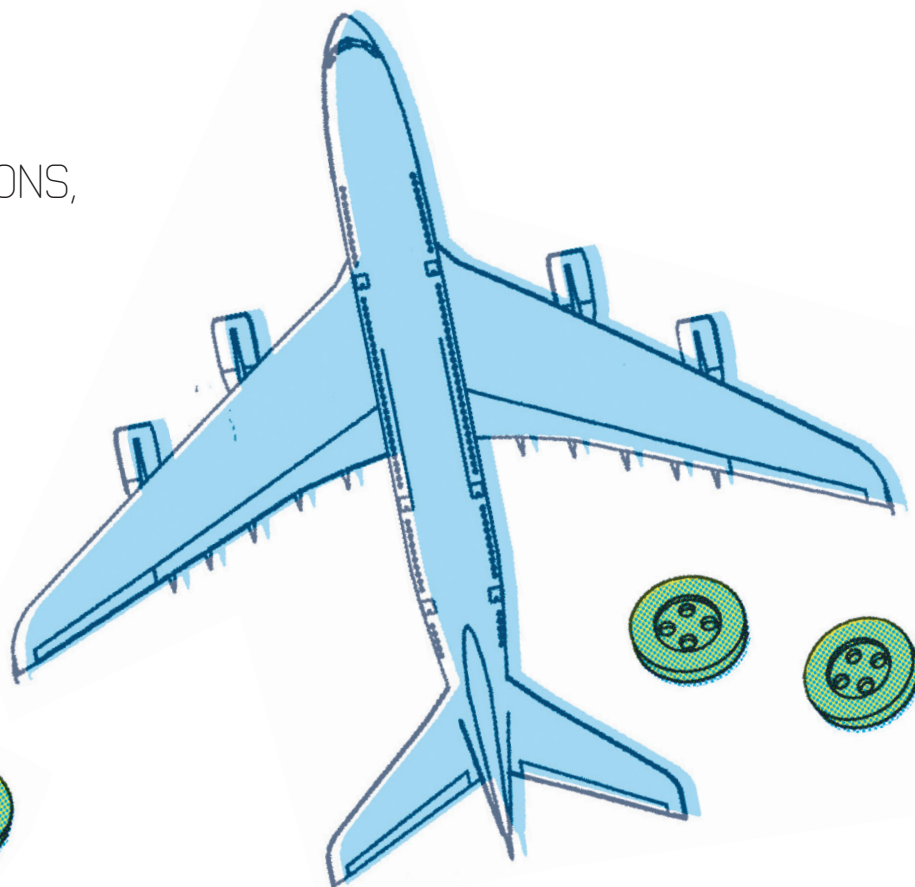
Percival's custom-designed products constitute an alternative to both OEM and PMA parts, he says. Where PMA parts are substitutes for the original product, the new designs Percival produces have their own part number and are fitted on a minor modification basis to specific tail numbers operated by the airline that commissioned them. "We can take an existing product, improve it, give it our part number and deliver it back to the aircraft with an EASA Form 1," he says. "And we can do that in a week, where it can take up to 12 months to go through the PMA process."

As a DOA/POA company, Percival makes both brand new and replacement parts. For one airline in the Middle East,





DO YOU WANT TO CHANGE THE CUSHIONS,
DO YOU WANT TO PUT SOME MORE
COMFORT INTO THE SEAT OR MAKE
THE SEAT LIGHTER? ”



for example, it has recently manufactured a golden vase to adorn premium class cabins. More mundanely, the same airline has commissioned plastic replacements for the glass mirrors in its lavatories. “So we’re enhancing the design of a product that is flying around the world,” Harrison says.

“Sometimes better materials come along,” he adds. One example is a current project for replacing lavatory floors and kick strips: “Originally they were made from a composite and now we’re using a much stronger material that’s lighter and will last longer and is cheaper.” Producing a ship set of lavatory floors for the Boeing 747 meant making 14 tools, because each lavatory position is different. Mattresses for crew rests on the 747 and 777 are other recent additions to an extensive range.

UPGRADE OPTIONS Beyond routine maintenance there is the consideration of when to refresh the various areas of the cabin and to what extent. “You can go with a reasonably cost-effective method or you can give it the full 5-star treatment,” says MAEL’s Godfrey. “And then of course you’ve got to work out how to get your investment back.”

The minimum treatment would involve replacing or changing the colour specs of the toilet modules to a lighter, brighter, harder wearing finish using paint or laminate. “The next stage would be to replace light lenses and light lens covers, and the 5-star treatment would be to change the type of light completely to LED mood lighting, new laminate coverings and different types of mirrors.”

A refresh would typically be done in stages – the walk, crawl, run approach, as Godfrey terms it. “You’d have a

review every five or ten years. You weigh up the feasibility, whether something needs re-doing, or what we might do the year after next.”

Galleys, similarly, have an annual maintenance programme, plus the occasional refresh. “If there’s nothing wrong with it structurally and it operates perfectly you wouldn’t change it, but maybe there is a way of brightening it up, modernising it, making it easier to use or changing the colour schemes.” A similar approach would be followed with IFE systems, with elements replaced progressively in an evolutionary process.

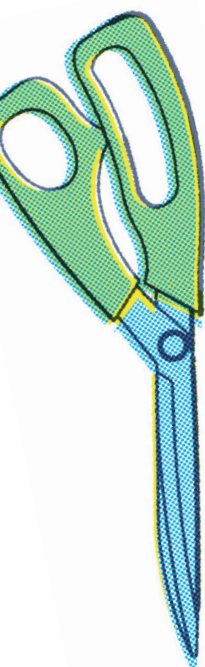
A change of corporate branding involves more comprehensive changes. “When you do corporate branding where you’re changing the carpet colour and the carpet material, you’re looking at the seat covers and possibly the cushions – do you want to change the cushions, do you want to put some more comfort into the seat or make the seat lighter? Then you would maybe look at doing the toilet modules at the same time, externally and internally, changing the sidewall laminates.”

Passenger feedback on faults is also taken into account, Godfrey says. “Customer satisfaction is massively important, of course, because we need the customer back.” The airline receives numerous complimentary letters, “but if there’s a less positive one, we react to it accordingly. We want that passenger to come back and say yes, it has improved.” ☒

CONTACTS

www.airbase.co.uk; www.airline-services.com;

www.monarchaircraftengineering.com; www.percival-aviation.co.uk





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01. Cabin rendering of THAI's new first class, which will be retrofitted in Zone A of its second batch of 747s to be delivered in 2012
02. The suite is based on B/E Aerospace's Oasis platform

delivered to THAI next year, business class will feature a staggered fully flat seat. And the first-class cabin will see individual suites. So we needed to have something complimentary, so when we deploy our aircraft on different routes the gap between product will not be so huge."

THAI will configure its A380s with 507 seats in total: 12 Venus suites from Contour in Royal First at 82in pitch; 60 EADS Sogerma Solstys seats in a staggered 1-2-1 configuration at 74in pitch in Royal Silk (business); and 435 Spectrum seats from B/E Aerospace at 32in pitch in economy. First class features 23in IFE screens, while business-class sees 15in monitors, and economy boasts 10.6in screens.

Before the retrofit project began, THAI had two distinctive cabin offerings on its 747s: "We have two different configurations: the original one with twin first-class seats; and a more recent one with single full-flat seats in first class," explains Chantalitanon. The six 747s featuring the single first-class seats will only see the introduction of new seating and AVOD IFE in economy, while those featuring the twin first-class seats will be completely refurbished.

Hence THAI's first batch of retrofitted 747s will continue to offer B/E Aerospace's Oasis unit in first class at 80in pitch.

interesting times

2011 is likely to prove a very important year for THAI as it marks the beginning of one of its most dynamic periods of expansion and innovation. Over the next six years a massive fleet expansion and upgrading will take place including delivery of up to 63 new jetliners of the latest and most fuel-efficient types – Boeing 777-300ER, Airbus A330-300 and six A380-800s.

The first A380 is scheduled to enter THAI's fleet in September 2012. Meanwhile the airline began working with design firm Priestmangoode in May this year on a new cabin scheme for its next-generation 777-300ERs – the new look may also be introduced on later A380s.

Each seat is 21in wide and converts into a 27in-wide fully flat bed, and features a 10.4in personal IFE screen. EADS Sogerma's Evolys units will continue in business class on the main deck at 60in pitch, converting into angled beds, with a 10.4in monitor.

The existing Recaro-supplied economy seats will be removed and replaced with new units from ZIM Flugsitz, installed at 34in pitch. Each seat is 18in wide and has a 9in IFE screen. Despite being a relatively new supplier, Chantalitanon believes THAI's selection of ZIM does not represent a risk: "At the end of the day, you look at their specifications – they have to pass the test," he says. "We are confident in their product."

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purplepatch

THAI is investing in new seating and IFE across its 747 fleet to ensure it will better match the inflight product available on its new A380s

ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL



With the excitement building in anticipation of receiving its first A380 next autumn, Thai Airways International (THAI) continues to revamp its existing long-haul fleet of Boeing 747-400s. The airline's first retrofitted 747-400 – registration TGR – will be introduced on the twice-daily London-Bangkok service from 1 December 2011. Its second retrofitted 747 will come on line on 15 December.

THAI currently operates 18 747-400s in total but only plans to upgrade 12 747-400s in two phases – the first six will be complete by December 2011; with work on the remaining half dozen finished by mid-2012. The other six 747-400s will be gradually phased from service. The first batch of retrofitted aircraft will see new economy seating installed and an IFE upgrade, while the second batch will see new seating throughout, as well as a new IFE system.

The airline's very first retrofitted 747-400 was completed by SIA Engineering Company. However, THAI announced in August that its MRO division, THAI Technical Department, is taking over responsibility for carrying out the work for the 11 remaining 747s at its Don Muang Airport facility in Bangkok.

"We have the ways and the means and the capacity to do it," explains Kittaphon C. Chantalitanon, THAI's vice president of product and service development. "There were also some delays and cost escalations with the first aircraft," he continues. "After some consultation, we decided our own MRO people can do this – and they have proved that they can do it very well – we have done a lot of work for other carriers, so why not us?"

THAI was due to receive its sixth retrofitted 747 in November, but the recent flooding that has swept across the country has forced Don Muang Airport to close, putting the schedule back: "The programme has been slightly delayed because of the flood," confirms Chantalitanon. "The sixth 747 was supposed to be delivered by the end of November, but now it will be ready by the end of the year."

The work for the first six aircraft costs approximately THB200 million (£4 million) per aircraft and takes 40 days. The second batch, which sees new seats installed in all three classes, will push the cost up to THB480 million (£9.5 million) per aircraft and take 60 days to complete.

ALL CHANGE The decision to install new interiors was prompted by the imminent arrival of the carrier's first A380. "We took delivery of the first 747-400 almost 20 years ago," says Chantalitanon. "With the new flagship A380 being



01



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01. Cabin rendering of THAI's new first class, which will be retrofitted in Zone A of its second batch of 747s to be delivered in 2012
02. The suite is based on B/E Aerospace's Oasis platform – B/E will also supply its Mini Suites for the carrier's A380s

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interesting times

2011 is likely to prove a very important year for THAI as it marks the beginning of one of its most dynamic periods of expansion and innovation. Over the next six years a massive fleet expansion and upgrading will take place including delivery of up to 63 new jetliners of the latest and most fuel-efficient types – Boeing 777-300ER, Airbus A330-300 and six A380-800s.

The first A380 is scheduled to enter THAI's fleet in September 2012. Meanwhile the airline began working with design firm Priestmangoode in May this year on a new cabin scheme for its next-generation 777-300ERs – the new look may also be introduced on later A380s.

Each seat is 21in wide and converts into a 27in-wide fully flat bed, and features a 10.4in personal IFE screen. EADS Sogerma's Evolys units will continue in business class on the main deck at 60in pitch, converting into angled beds, with a 10.4in monitor.

The existing Recaro-supplied economy seats will be removed and replaced with new units from ZIM Flugsitz, installed at 34in pitch. Each seat is 18in wide and has a 9in IFE screen. Despite being a relatively new supplier, Chantalitanon believes THAI's selection of ZIM does not represent a risk: "At the end of the day, you look at their specifications – they have to pass the test," he says. "We are confident in their product."



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03



Economy passengers will also now be able to enjoy access to Panasonic's AVOD 3000i IFE system, having previously been limited to a broadcast-only system.

Once complete, seat count and configuration across the first batch of retrofitted 747s will remain the same: 10 full-flat seats in Royal First; 40 in Royal Silk (business); and 325 in economy.

SECOND SHIPSET THAI's second raft of 747s to be delivered in 2012 will see the existing 14 Weber-supplied first-class seats replaced with nine Oasis suites from B/E Aerospace, as well as a new bar unit, all in Zone A.

Priestmangoode, which worked with the airline on the new suites, says the inspiration behind the design was to create a contemporary cabin whilst reflecting the key elements important throughout Thai culture: "These include privacy, reflected in the high-level screens with louver panels that allow passengers to see out but not for others to see in," explains Jo Rowan, head of brand and strategy at Priestmangoode. "Indirect lighting is used wherever possible; from wash lighting through to illuminated recesses and stowage compartments, creating an atmospheric cabin and reflecting the ambience created throughout contemporary Thai interiors," she continues.

Individual wardrobes are incorporated and there are also individual orchid displays, a gesture that is seen throughout Thailand. "Silk and teak finishes are used throughout and the colours are a muted interpretation of THAI's brand colours, creating a calm and sophisticated impression to the cabin."

The 40 Recaro-supplied business-class seats currently installed will be ripped out and replaced with the same

“

IF WE WERE TO GO FULLY FLAT,
OUR SEAT COUNT WOULD HAVE
BEEN REDUCED BY HALF ”

seat shortage

THAI's decision to go for ZIM Flugsitz, a relatively new seat manufacturer, as the supplier of economy seating on board its first six retrofitted 747s underlines the current shortage in manufacturing capacity: "It's a supplier's market right now," says Krittaphon C. Chantalitanon, THAI's vice president of product and service development. "No doubt Recaro [the original supplier of THAI's economy seats on its 747s] make very good seats, but because of the demand, they would have trouble delivering anything in the next two to three years – they can't supply anything to us at all. Eventually we decided to go with ZIM because they can meet the supply deadline, the price is affordable, and they meet our requirements." Chantalitanon adds: "Unlike other suppliers, ZIM does not charge airlines for making design changes."

number of Evolys units. New Spectrum economy seats from B/E Aerospace are also being fitted, along with Panasonic's AVOD eX2 IFE system. As a result of having one less first-class seat, overall seat count reduces slightly to 324 seats in total.

LEVEL BEST? Despite the overhaul, THAI will still not be able to offer full-flat beds in business class on its 747s – with the seat reclining only 170°. Chantalitanon explains why: "We are one of the few carriers that has a galley on the main deck in Zone B," he says. "If we were to do that [go fully flat], our seat count would have been reduced by half. Our commercial department doesn't agree with that and preferred to have angled flat. And when the A380 enters service, there will be aircraft with full-flat seating serving our primary trunk routes on our European routes anyway, so the non-flat seats can still serve on our other routes within our network."

- 03. ZIM Flugsitz is supplying its ECO-01 NG economy seat for THAI's first six retrofitted 747s
- 04. EADS Sogerma's Evolys seats feature in business class – it will supply its Solstys units for THAI's A380s



04



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05. Economy seat pitch is a generous 34in
06. Business class sees 60in pitch and lie-flat-at-an-angle beds

In fact it will take until 2016, by which time THAI will have retired its 747s, before it can say it offers fully flat beds in business class across its entire long-haul fleet, which at that point will consist of A380-800s, 777-300ERs and 787s. “Our goal is to offer full flat beds on all long-haul intercontinental flights by 2016 – this is a must for business travellers.”

POPULAR DISTRACTION The fact that the airline is upgrading its IFE across all its retrofitted 747s emphasises the importance passengers now place on being entertained in flight. With the removal of its old broadcast system in economy, passengers in every class can now play, rewind and pause films and programmes as they please. Overall, content is being increased from 48 to 100 movies, from 45 to 150 TV features and short documentaries, and from 80 to 500 music CDs. There will also be 17 music channels in addition to passenger information such as airport and destination-related information. THAI is also installing a telephone with credit card reader to make calls to ground networks and a 115V power outlet in every seat.

“The old IFE system was one of our weaknesses compared to our competitors,” admits Chantalitanon. “We believe we have a very good software product – the service, the food, the network, the frequency – but we have lacked in IFE.” However, with the new system, Chantalitanon believes “only one or two other carriers offer more hours of



06

entertainment,” before adding that these carriers provide “features geared more towards their ethnic markets, rather than international content.”

The new system also weighs less – and Chantalitanon says weight is never far from the airline’s thoughts – the carrier has just introduced an inflight ‘e-magazine’ on its A330HGW aircraft and plans to roll it out across its long-haul fleet.

The first batch of 747s will not offer passengers any connectivity, although Chantalitanon says its second batch will include a paid-for service, to ensure they are more consistent with its A380s: “We are working with OnAir to offer onboard internet and connectivity on our new A380s,” he says. “From a passenger point of view, the rate will have to be competitive enough to encourage them to use it – we are still working on agreeing the correct price point.”

FEEL THE DIFFERENCE With huge investment in new aircraft and interiors, THAI hopes to stand out in the highly competitive Asian carrier market. By 2016 the airline will be transformed. Until then, it will continue to offer its retrofitted 747s – but will passengers be happy with the product once they’ve flown the A380? “For first class, the difference will not be so much, because both will offer suites – obviously the A380 will be a little bit more spacious than the 747,” says Chantalitanon. “The real difference between the two aircraft will be in business class – the A380s will feature staggered seats, whereas the 747s will remain the conventional twin seating. Economy class will be quite similar across platforms, in that both will feature full AVOD IFE with more than 1,000 hours of non-stop entertainment.” ☒

CONTACTS

www.priestmangoode.com; www.thaiairways.com;
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WEAKNESSES COMPARED TO OUR
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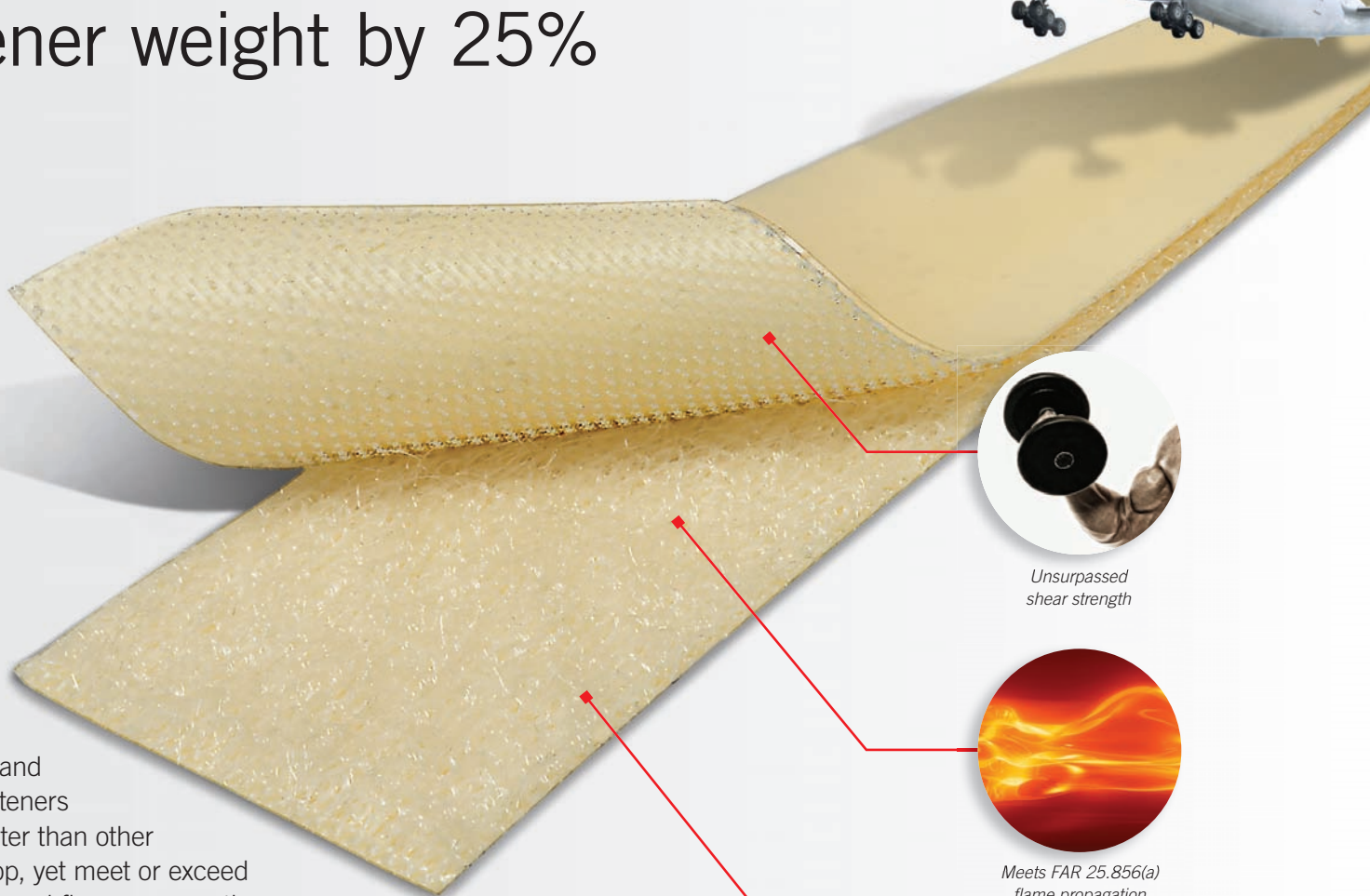




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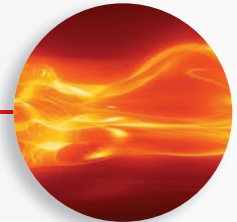
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televisiontime

The long-sought ability to offer passengers live television on a global basis is becoming available from multiple sources

BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL



Past attempts to develop inflight television services have often foundered, either on technical obstacles or simply as a result of unfortunate timing, when the availability of a service has coincided with one of the periodic downturns in the airlines' fortunes.

The Inmarsat-backed Airia scheme to feed programmes to aircraft using the 10.5kbps Aero H/H+ service folded post-9/11. Air TV planned a dedicated constellation of satellites and got as far as commissioning the satellites and launches, but no further. Boeing's Connexion, originally inspired by the installation of a phased array antenna on a privately owned Boeing 767 in order to provide TV reception, had the bandwidth, but what proved to be an unsustainable business model once its original US airline customers pulled out in the wake of 9/11.

Business jets have been able to add tail-mounted satellite TV antennas such as the Rockwell Collins Tailwind, Honeywell Ovation and Lufthansa Technik TIOS. Qatar Airways and Oman Air installed the Tailwind 560 variant with its fuselage-mounted antenna on their long-haul aircraft: Oman Air currently offers Al Jazeera Arabic and International news plus BBC World live in Europe and adds CNBC Arabia in the Middle East.

The only airline-oriented service to endure was LiveTV. Introduced by JetBlue in 2000, LiveTV was originally a US-only service using the Hughes DirecTV satellites, but is now available in Canada and Australia as well: more than 500 aircraft operated by half a dozen airlines in North America and Virgin in Australia are equipped to receive the LiveTV service; and Azul, the latest start-up by JetBlue founder David Neeleman, has been working to offer the service in Brazil.

Originally a joint venture between Harris and Thales predecessor Sextant, LiveTV was acquired by its launch customer in 2002. Since then it has augmented the TV channels with XM satellite radio and the Kiteline text, SMS and email service, and increased the number of channels available to more than 95. Now it is planning a global offering, starting with the availability of three to five channels over the north Atlantic from late 2012. The two key elements of the service now in place, the company says, are content relationships and access to a global network of bandwidth.

Among airlines offering LiveTV, Continental provides it free to premium-class passengers but charges in economy class. Frontier charges US\$6 for access to 24 channels, but it is free to upper-tier frequent flyers. The Foxtel programming

2.01%
3.78%



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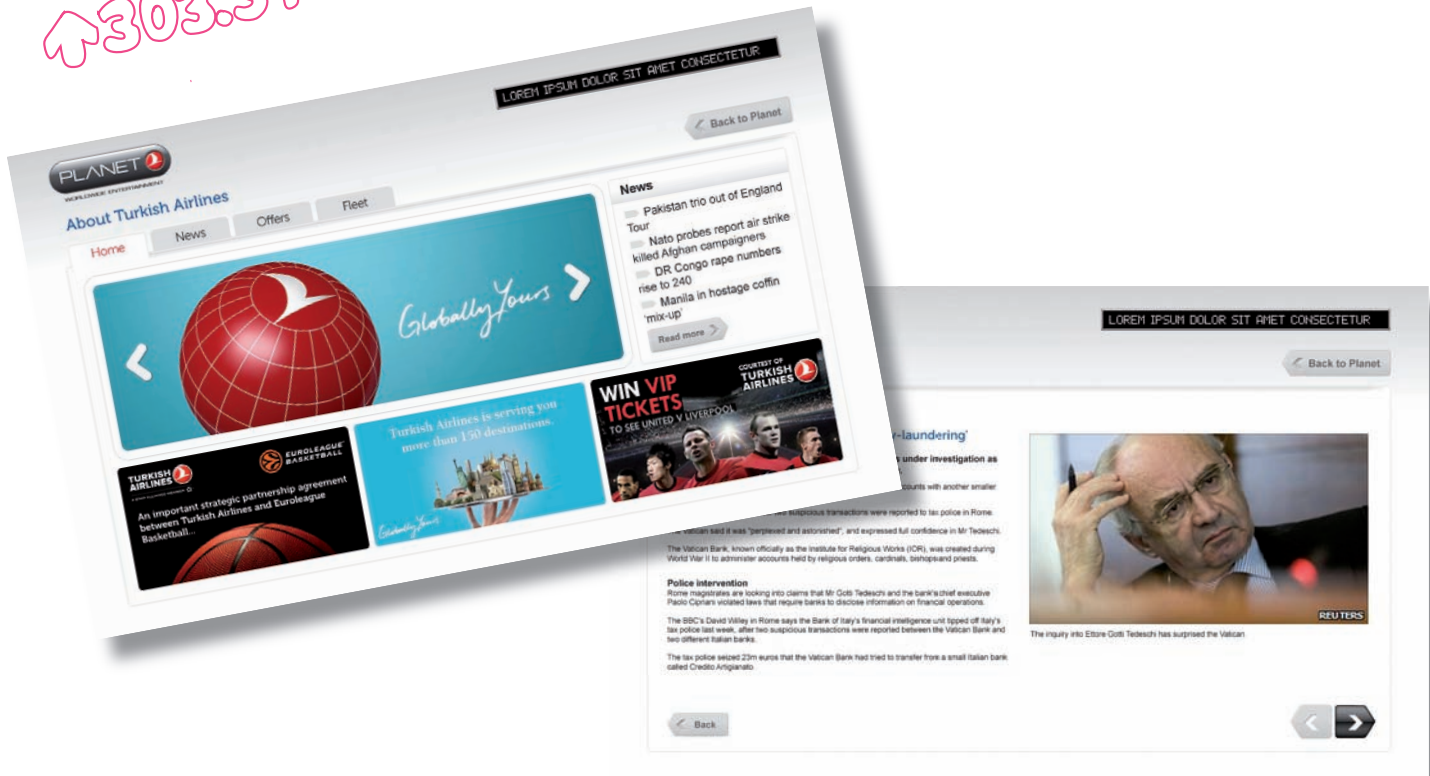
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THERE ARE REVENUE OPPORTUNITIES IN THE FORM OF DIRECT PASSENGER PAID ACCESS TO THE PROGRAMMING

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01. Turkish Airlines' 'Planet' branded live TV offering on its new 777-300ER

delivered via Austar satellite to Virgin Australia aircraft is free on short flights and AU\$10 on longer sectors. The Bell TV programming on Canada's WestJet is augmented by pay-per-view movies.

GLOBAL AMBITIONS Panasonic Avionics has been developing its own TV service, now the eXTV component of a Global Communications Suite that also includes eXPhone and eXConnect broadband, for the best part of 10 years. Song, the short-lived low-cost subsidiary of Delta Air Lines launched in 2003, included satellite TV from the Dish network in its eFX entertainment suite. The 18-channel service is currently available over the US on Delta's domestic 737, 757 and 767 fleets.

In 2009 Panasonic launched its Airline Television Network, differentiated by its use of specifically licensed television channels and Panasonic-managed encryption format rather than existing direct-to-home feeds. Initial channels were Al Jazeera, BBC World, Bloomberg, Euronews and France 24; subsequent additions include Japan's NHK World Premium and English Premier League and Sport24 live sporting events from IMG Media.

The television service, now branded eXTV, uses the same antenna as the Ku-band eXConnect two-way

broadband service. It was tested for the first time in January 2011 and is already available on some Turkish Airlines and Gulf Air aircraft.

Scott Scheer, manager of programming and media services for Panasonic's Global Communications Services group, says there are no longer any challenges or risks for the airlines, but plenty of potential upside: "There are revenue opportunities in the form of direct passenger paid access to the programming, if the airline elects to offer it under such a model, competitive differentiation relative to other airlines, and ultimately as an additional advertising venue and a means to reach the highly valuable inflight demographic."

The challenges to Panasonic in offering the service are primarily commercial. "The technology is essentially the same as is used for terrestrial distribution of satellite and IP-based TV services," Scheer says. "Making the business case is where the challenge lies. Satellite space and content licensing is very expensive – we have taken a long-term perspective in justifying the investment in offering the eXTV service." Panasonic is offering the eXTV service on a subscription basis to the airlines, who can then offer it to their passengers as they see fit, he says. "Our business model does not rely on passenger paid access."



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02

BREAKING NEWS One constant throughout the development of inflight TV has been the emphasis on news and sports. Scheer agrees that live sports and other special events remains the most appealing content. “Programming with a short shelf life – or none at all – such as news and financials is also very compelling,” he says. “And that is only well served with a real-time connection to the aircraft. We have focused our licensing and programming efforts on this type of programming. More traditional IFE programming can be readily stored on board the aircraft and the expense of satellite distribution is simply not justified at present.”

The eXTV service multicasts the live television channels to all authorised aircraft. “Serving one aircraft requires the same amount of satellite capacity as serving 1,000 aircraft,” Scheer says. “This is the most effective and efficient way to provide live video programming simultaneously to a large inflight audience.” And unlike internet browsing, there is no need for the airlines to impose restrictions on what passengers can watch: “The channels that are currently

early adopters

Turkish Airlines claimed an inflight TV first in September with the delivery of the first Boeing 777-300ER equipped with its ‘Planet’ branded Panasonic Global communications Suite IFE platform.

The airline says it will be the first to offer live, inflight television on transatlantic flights. Planned for activation on a further 11 777s and 10 Airbus A330-300s, the initial offering includes BBC World, BBC Arabic and Euronews channels, with sport channels due to be added in the near future.

October saw the delivery of Gulf Air’s first GCS-retrofitted A330-200. As well as the three news channels, the Gulf Air service includes IMG Media’s Barclays Premier League channel. Passengers will be able to use their own devices to access the internet via WiFi and communicate via AeroMobile’s mobile phone technology at the same time as watching television programmes.

“I am sure this cutting-edge technology will fundamentally change our passengers’ communications and entertainment experience,” says Gulf Air CEO Samer Majali. SR Technics in Zurich is due to equip another 29 Gulf Air A320s and A330s with the GCS over the next 18 months.

Cathay Pacific is due to deploy the GCS from early next year. It will include an entertainment portal accessible through both passenger devices and seatback screens that includes live television with a pay-per-view capability for special events.

offered in the eXTV line up – BBC World News, BBC Arabic, EuroNews, NHK World Premium, Bloomberg Television, France24, and the Barclays’ Premier League Channel – are world class brands on their own and adhere to strict broadcast and editorial standards.”

Inflight access to the Sport24 channel, which is expected to launch in February 2012, will be exclusive to Panasonic. “We have entered an exclusive relationship with IMG,” Scheer says. “Sport24 will essentially be an evolution of the Barclays’ [English] Premier League channel.”

In addition to all Barclays’ Premier League matches it will show live broadcasts of other premium events such as Wimbledon tennis, Formula 1 motor racing, the US and British Open golf tournaments, UEFA Champions League football and the London 2012 Olympic Games. Under the terms of this agreement, he adds, “aircraft equipped with the Panasonic eXTV service will be the only way that these premium events can be seen live, in flight anywhere in the world.”

02. Gulf Air’s ‘Sky Hub’ offers passengers full broadband connectivity to access internet, mobile phone services and a global, live television service

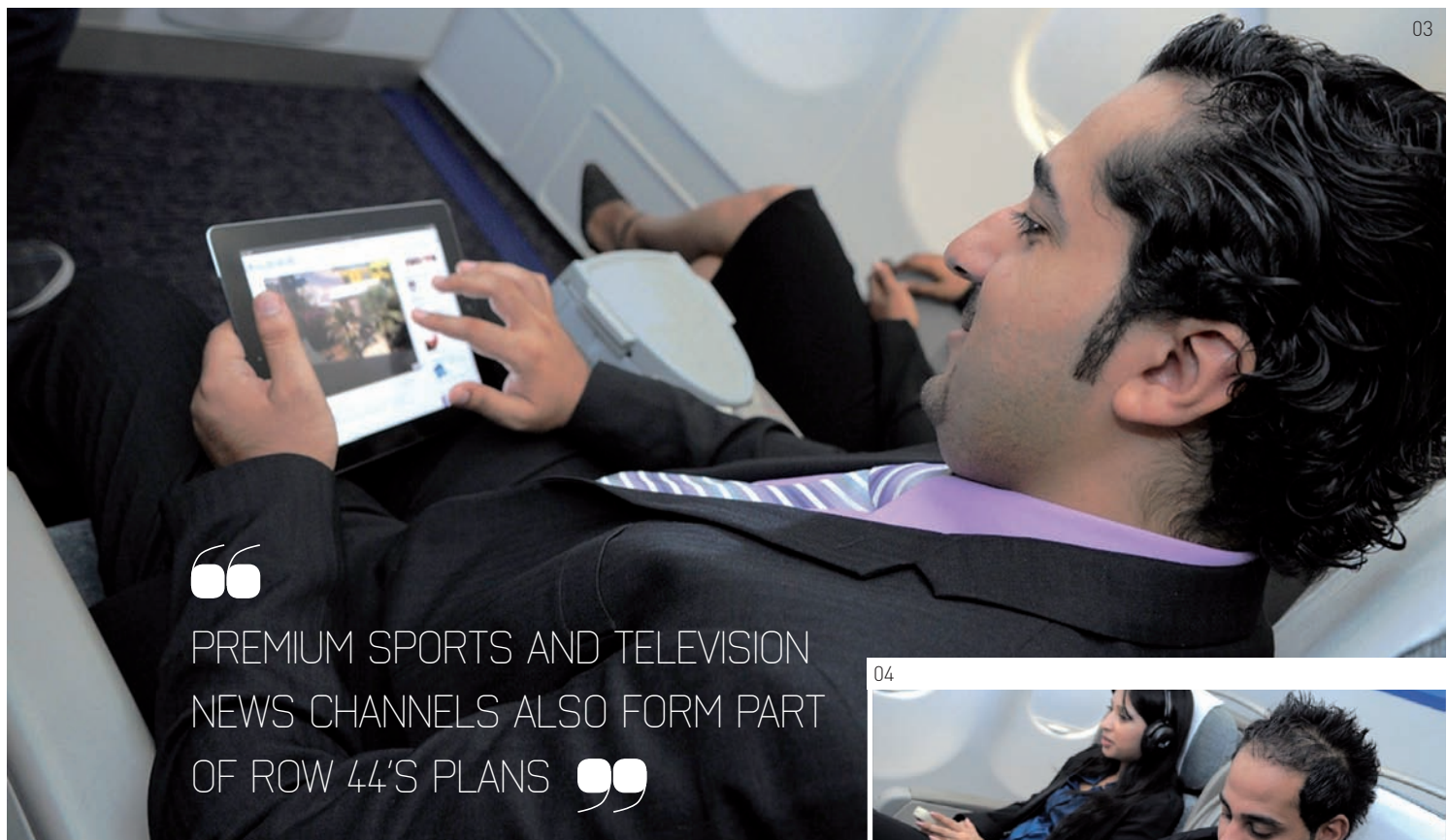
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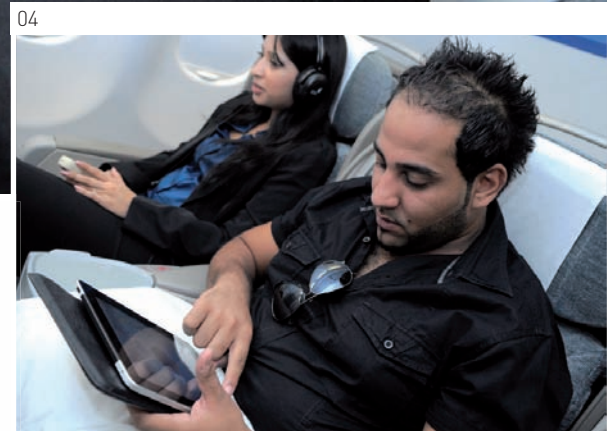


PROGRAMMING WITH A SHORT SHELF LIFE
– OR NONE AT ALL – SUCH AS NEWS AND
FINANCIALS IS ALSO VERY COMPELLING





“PREMIUM SPORTS AND TELEVISION NEWS CHANNELS ALSO FORM PART OF ROW 44'S PLANS”



03-04. Using Panasonic's GCS, Gulf Air will offer two-way broadband connectivity at speeds of up to 50 Mbps to the aircraft



MAKING WAVES Premium sports and television news channels also form part of Row 44's plans for its Ku-band satellite broadband service, which already covers North America, Europe and the Middle East and is being extended globally. Both Southwest Airlines and Norwegian Air Shuttle, the US and European launch customers for the service, leave passengers to rely on their own WiFi devices to access the service while attempting to filter out inappropriate content and VoIP voice services.

In recent months Row 44 has announced a series of content enhancements, including Major League Baseball; live television from BBC World, Bloomberg, CNBC, MSNBC, Fox News and NBC Sports Network; and on-demand movies and TV episodes from Fox, Universal, Warner Brothers and Disney. The baseball offering includes streaming video and audio of more than 2,400 games. Southwest, which is charging US\$5 per flight for internet access as an introductory offer, says it plans to unveil the additional content later this year. ☒

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www.livetv.net; www.panasonic.aero; www.row44.com



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Photo: RC French



greenmachine

Southwest continues to trial a lighter, high-tech interior that could set new sustainability standards for the cabin

CHRISTINE NEGRONI, AIRCRAFT INTERIORS INTERNATIONAL



In the decades-long search to save fuel, every part of the aircraft has been re-examined and every pound re-evaluated. Now, with a two-year trial coming to a close, Southwest Airlines is ready to make changes to the interiors of its Boeing 737s having found weight-saving technology for seats and carpeting that's worth the price, and onboard internet technology that's worth the weight. From seat covers to carpet tiles, the changes could set new sustainability standards for aircraft interiors.

Southwest Airline's 'green plane' (tail number WN222) started in 2009 when the four-year-old aircraft lost 226kg (500 lbs) with the installation of cutting-edge materials that are lighter, easier to maintain and in some cases reusable. WN222 has the same single-class 137-seat cabin configuration as the rest of the Southwest fleet. The weight savings are expected to provide a 10,000 gallon-per-aircraft fuel saving each year.

"The direction we are going in the cabin is revolutionary," says Marilee McInnis a spokeswoman for Southwest. "It takes a long time and it's not something that happens easily but we wanted to eliminate waste and get weight and fuel savings. We think it is the way of the future and we are excited with the results."

As part of the Southwest challenge, several materials manufacturers agreed to redesign existing products for airline application. Izit Leather (a textile-backed, polyurethane-coated artificial leather) was being used on walls, headliners and some seating on business jets as long ago as 2002, explains Drew Clabough of Izit Leather based in Illinois. This toe in the water piqued the company's interest in creating a product certified for use on airliners that was light but able to hold up under heavy passenger use.

01. Southwest's 'green plane' features Izit Leather on seats on one side of the aisle and E-Leather on the other; and InterfaceFLOR's innovative carpet tiles on the floor



02

02. The 737-700 seats 137 passengers in total in a single-class layout
03. Exterior of Southwest's green plane, WN222, showing unique logo livery scheme

"We had never considered putting the product on commercial airline seating," says Clabough. "So we went back to square one and looked at developing a new product that would perform better across the board in all areas. That's what we have now."

SIDE-BY-SIDE COMPARISON Whether Izit Leather is as durable, washable and impervious to stains and abrasion as Clabough claims will be determined by Southwest, which did a literal side-by-side test – with Izit on one side of the aisle and E-Leather seats on the other. E-Leather, based in the UK, is one step ahead of Izit in that it has a faux leather already in use on two airlines – North American in the US and Jet2.com in the UK according to the company's website.

"We are surveying customers on the comfort," McInnis says of the seat covers. How well they withstand the grit and wear of 100 million travellers each year, how easily they clean and how long before they wear out are also factors in the analysis. Southwest replaces covers about every four years according to McInnis. "We can extrapolate how long

03



the seat covers will last based on the wear we're seeing in the two years they've been on the plane."

Southwest is not tinkering with the composition of the seat pan padding as are some other airlines, however it is using a lighter weight fill from Greiner PURtec in the back of the seat to reduce weight. There are two other seat-based revisions: the plastic rub strips have been replaced with lighter, recyclable aluminium and the rigid plastic life vest containers have given way to equally environmentally friendly canvas pouches. But the most sweeping change on the Southwest green plane is on the floor.

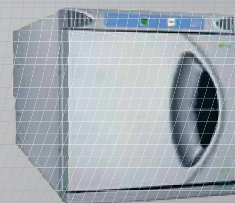
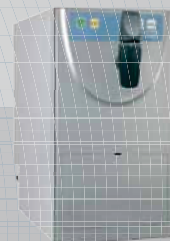
SQUARE DEAL Nearly five years ago, at the Payload Concept Center in Everett, Washington, USA, Boeing installed eco-friendly carpet tiles from InterfaceFLOR, a Georgia-based manufacturer of industrial carpet squares. Boeing executives were so pleased with the product, they approached



THE MOST SWEEPING CHANGE ON THE GREEN PLANE IS ON THE FLOOR



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04

InterfaceFLOR to see if it was interested in modifying the tiles for aircraft cabins. Jeanne Yu director for environmental performance at Boeing, recalls the engineers saying: “This went in pretty nicely, why don’t we consider it for aircraft? And InterfaceFLOR was excited about doing that.”

Now in what Yu considers a radical change for sustainable interiors, Southwest has installed the carpet tiles on its test aircraft. There are several advantages to the tiles over rolled carpet. The squares are lighter than traditional carpet and when damaged only the affected tiles need to be replaced.

Initially, it was difficult to keep the appearance of old and new squares consistent: “When you remove and replace tiles, you have to make sure the new carpet tile meshes with a carpet that has aged,” explains Yu. InterfaceFLOR resolved the problem by incorporating a variety of shades in each tile to create the illusion of a uniform colour. Another benefit to modular carpet is that it can be installed and removed with the seats in place.

“This is a unique product,” says Steve Arbaugh vice president for brand marketing alignment and experience for InterfaceFLOR of the SKY-TILES, recalling that the company won the Crystal Cabin Award in the ‘greener cabin, health and safety’ category at the Aircraft Interiors Expo in Hamburg back in 2008. Modular carpeting is not a new concept; it has been the raison d’être of InterfaceFLOR for 40 years and is sold in 110 countries.

Still, producing a durable, recyclable, removable carpet tile for home or office was not the same as producing one for an airliner. In addition to strict flammability regulations,

custom carpet

Having first come together about five years ago, InterfaceFLOR and Boeing have since worked with industrial design firm Teague to create a carpet tile that meets both Boeing and FAA requirements and certification approval. InterfaceFLOR says its carpet tiles weigh less than the broadloom used in other aircraft, which saves on jet fuel. Additionally, installation time has been drastically reduced and creates less waste, with any leftover modular carpet trims fitting in a shoebox. Meanwhile, Southwest is committed to recycling via InterfaceFLOR’s ReEntry Process to prevent the product being sent to landfill.

“InterfaceFLOR SKY-TILES are a perfect fit for the aviation industry,” asserts Kippen Westphal, director of transportation products for InterfaceFLOR. “The tiles are easier to ship, store, install, maintain, replace and recycle. The lightweight tiles enable easier non-directional installation, are longer lasting than traditional aviation carpet, thus less costly over time, and can be recycled. Moreover, this product is dimensionally stable, which needs no serging around the edges – unlike fabric or broadloom carpet that flexes, shrinks, grows and creates gaps in flight when exposed to ever-changing cabin air pressures associated with commercial flight.”

Meanwhile the company revealed during Aircraft Interiors Expo USA in Seattle in September that a second, as yet unnamed, carrier is interested in testing its carpet tiles on board a Boeing 737.

the company found it challenging to develop a tile light enough and strong enough to stand up to pounding of feet and roll-abouts and the repeated pressurisation cycles.

“Under cabin pressure there is expansion and contraction. Is the carpet tile flexible enough to expand and contract but without having the seams come apart?” Arbaugh asks before hurrying to conclude that InterfaceFLOR has accomplished this in a product that when it does wear out, can be returned to the factory and recycled to make new tiles. About 70% of the company’s non-aviation product is reused when the backing is separated from the face fabric, turned into pellets and extruded into new product, he notes.

“It’s so great for us at Southwest to be able to partner with a company that has the same philosophy,” McInnis says of InterfaceFLOR, calling the combination of weight savings, ease of replacement and recyclability a “win-win” for the company and the environment. The tiles on Southwest’s green plane are installed under a supplemental type certificate but Yu says InterfaceFLOR is “on track” for full regulatory approval. The modular cabin carpeting for

04. InterfaceFLOR’s SKY-TILES are currently being trialled on the green plane

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YOU HAVE TO ENSURE THE NEW CARPET TILE MESHES WITH A CARPET THAT HAS AGED”

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05



06

05. Southwest passengers are currently trialling Row 44's onboard WiFi service

06. A Row 44-installed aircraft

Southwest's 737 also consists of just two part numbers, she adds – a vast reduction on the 33 different carpet sizes currently used by Boeing for the 737 floor.

ENTERTAINMENT FACTOR In many respects Southwest, with its one-class, all-737 fleet has a history of striving for simplicity. But several things have changed in recent years. The airline acquired AirTran, which flies Boeing 717s as well as 737s and offers premium seating. In the past, Southwest has not provided IFE – a legacy of its days as a short-haul carrier. Fortuitously, a Southwest executive says, the airline has hoppedscotched over the era of the heavy and maintenance-intensive system of seatback screens wired to an onboard server. It has gone directly to satellite-based WiFi, providing content to passengers' own devices.

The weight, the wiring and the complexity made it “easy math,” five years ago, says Dave Ridley, senior vice president and chief marketing officer for Southwest, discussing why the airline eschewed IFE in the past. The decision was partially luck, partially good timing. “We were wise in saying ‘I bet down the road we can provide email and access to the internet and it’s going to provide a lot of entertainment’. And voila, here we sit and I can watch a World Series game on my iPad at 30,000ft,” explains Ridley.

studio star

Row 44 announced in September that it is now able to offer a wireless video-on-demand service that will enable Southwest passengers to access an extensive library of movies and television episodes during flight, streamed to their smartphones, tablets and laptops. Row 44's new service is launching with many popular current and classic movies and TV shows – from launch partners Disney, Universal, Twentieth Century FOX and Warner Bros.

As a result, passengers will be able to use their WiFi-enabled devices to watch episodes of *Friends*, *Glee*, *The Office*, *Modern Family* and *The Three Stooges*, or movies such as *Avatar*, *Harry Potter*, *Inception*, *Toy Story* and the Hitchcock classics. Row 44 says it will continue to enhance the programming available through additional partnerships and innovative programming opportunities.

In addition to this new streaming video service, Row 44's In-Flight Broadband Entertainment Platform also offers inflight service for live streaming IPTV – enabling passengers to view live broadcasts from such networks as CNBC, FOX News Channel and VERSUS (to be rebranded NBC Sports Network next year) on their WiFi devices.

“Southwest knows our customers want the ability to customize their onboard entertainment experience,” said Dave Ridley, Southwest's chief marketing officer at the time of Row 44's announcement. “Allowing our customers to choose from hundreds of TV shows and movies on a Southwest flight will be a great addition to the Southwest inflight product offering. We're very excited about unveiling this service later this year.”

Meanwhile, Southwest Airlines' chief executive Gary Kelly recently revealed a further treat in store: the carrier is currently considering retrofitting some of its fleet with the Boeing Sky Interior, fitted as standard on its new 737-700s.

In 2010, Southwest started equipping its fleet with satellite WiFi through Row 44. (AirTran, which was recently acquired by Southwest, already has WiFi on its fleet of 717 and 737s.) The decision to add WiFi came as Southwest's route system started to incorporate longer-range flights and Ridley says the airline felt it needed to offer connectivity for longer trips as well as to attract and keep business and younger travellers.

“People will be expecting to be connected,” adds James FitzGerald of Mindshower LLC, which provides IT consulting to the transportation industry. “Whether they're in the air or not, the adoption curve is taking longer than folks in the industry had anticipated.” Southwest would not say how many passengers are actually using WiFi, which adds approximately 200 lbs per aircraft.

So progress towards a lighter, more environmentally friendly aircraft is a two-steps-forward, one-step-back proposition. With both WiFi and green interiors, Southwest aircraft will have a net weight loss of 300 lbs with new technology that both woos more passengers and carries them in a more sustainable aircraft. ☒

CONTACTS

www.interfaceflor.com; www.row44.com



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wap'sup

Wireless head-end system streaming to both airline-provided screens in a seat-centric architecture and passenger-provided devices is a mash-up that works

MICHAEL CHILDERS, AIRCRAFT INTERIORS INTERNATIONAL



What are the biggest IFEC trends to have emerged during 2011? Seat-centric IFE is one. The coming of age of COTS tablets as IFE devices is another. And the re-emergence of wireless IFE is also making waves. Which of these will be 2012's biggest story? How about the fact that they are all variously converging with inflight connectivity in a blend of services that offers the best advantages of each.

Wireless streaming of content in the cabin is the component that brings these things together. And 2011 is the year that wireless IFE moved from theory to practice.

It began in February with Lufthansa Systems' rollout of its BoardConnect wireless IFE system at the ITB Berlin travel trade show – with its launch customer Condor announced in March – followed in April at Aircraft Interiors Expo with the announcement of a joint venture between electrical engineering company Siemens CMT and European high-tech aerospace company Altran to develop a wireless system called Simple3.

Then in May, Aircell (since renamed Gogo) announced a trial on two American Airlines' B767-200s of a cached-content wireless system complementary to its air-to-ground connectivity system. In June, Tune Box – the digital media arm of Tune Group – announced at the Paris Airshow that it was developing a wireless IFE system for sister company, Malaysian low-cost, long-haul carrier AirAsia X, that will leverage the existing onboard architecture from AirAsia X's FlightFocus EFB.

HEAVYWEIGHT DECISION And then, at the Airline Passenger Experience Association (APEX) Conference in Seattle in September, IFE heavyweights Thales and Panasonic declared that they were onboard with wireless technology as well.

Panasonic Avionics announced its eXW wireless IFE system that delivers a portal to passengers' own devices, including streamed content and a whole lot more. And Thales announced that it has reached agreement to work with Siemens CMT on the development and testing of a new onboard wireless content distribution system for use with passenger mobile devices. Under the partnership, Siemens provides the software that is utilised on Thales' hardware, with Thales handling the marketing.

01. Virgin America has selected Lufthansa Systems BoardConnect to power its award-winning Red IFE system, which will now offer both seatback content and connectivity via PEDs



02.

WIRELESS IFE SYSTEMS ARE ANOTHER OPPORTUNITY FOR AIRLINES TO IMMERSE CUSTOMERS IN THEIR BRAND

02. Condor will be the first airline to install BoardConnect on its Boeing 767 aircraft

According to a spokesperson for Thales, “Our partnership with Siemens is the first step which brings together a proven mix of applications and systems technology...Media streaming to passenger devices adds to the scalability of the TopSeries system...”

Siemens, which is leveraging its long experience in the telco space and other transportation markets, offers a solution built to user-owned devices and which supports 20+ different devices from PCs and Macs to smartphones and from iOS to Android OS. Called Media4Sky, Siemens' solution will complement Thales' TopSeries product family.

For example, Siemens envisions the ability for a passenger in first class to begin viewing a movie on, for example, a tablet, and then with the swipe of a finger transfer the image to the larger, airline-provided seatback screen – indicative of efforts to integrate airline-provided IFE with passenger-provided IFE. Both Thales and Panasonic emphasise that their new wireless streaming services and the involvement of passenger-owned devices complements – rather than replaces – their current embedded offerings.

WINDOW OF OPPORTUNITY Panasonic believes that wireless IFE systems are another opportunity for airlines to immerse customers in their brand, and that it can provide passengers with compelling content. ‘Early window’ (prior to packaged media release) movies are one differentiating component of

airline-provided content. Panasonic's eXW puts the portal on the passenger device with personalised offerings that Panasonic believes will strengthen the connection between the airline and passenger by leveraging the airline's knowledge of that passenger's tastes and preferences. Panasonic's portal stores a minimum of 40 full-length multi-language movies, 100 short programmes and 100 CDs.

Brazil's low-cost carrier, GOL, used APEX to announce its streaming solution, developed in-house, called GOL NO AR (GOL on Air), which is being introduced on its fleet of over 100 B737 aircraft. The service is accessible on iOS devices like iPads and iPhones, and will be available in the future on other tablets and smartphones.

In October, a new long-haul low-cost airline owned by Singapore Airlines – and tentatively called Scoot Airlines – issued an invitation on the airline's website to bid for a wireless IFE system. And Siemens' system is said to be awaiting trial on a very large airline.

RED LETTER DAY But the announcement that drew the most attention at APEX was Virgin America's revelation that it had selected Lufthansa Systems' BoardConnect platform as the technology partner for the hotly anticipated next iteration of the iconoclastic airline's Red IFE system. Under the agreement, Virgin America and Lufthansa Systems will develop the new platform collaboratively, which will be the first of its kind in North American skies.

Slated for launch in 2012, the next iteration of Red will offer a larger, high-definition touchscreen seatback monitor with full WiFi connectivity and a breadth of curated content, along with the ability for passengers to use their own personal electronic devices (PEDs) to connect to the system pre-flight, inflight and post-flight. Beginning in the first half of 2012, Virgin America will upgrade to Gogo's

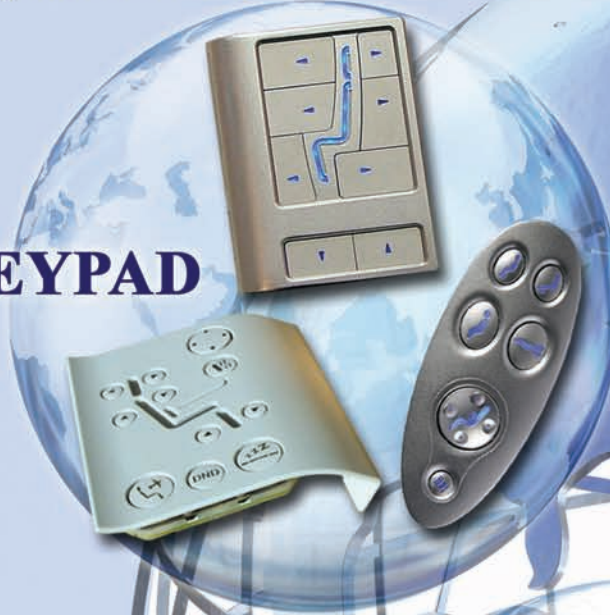
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“Our focus on innovation is a core part of our business model and guest offering,” says David Cush, president and CEO of Virgin America, “and BoardConnect will allow us to not only leap even further ahead of the airline pack, but also pace the larger consumer trends in mobile technology. We now have the architecture we need to design a dynamic entertainment experience that is the next logical iteration of Red.”

Back-end testing of the new system by Virgin America and Lufthansa Systems technicians is already under way on an aircraft dubbed ‘N841 VA-#nerdbird’.

The obvious significance of the Virgin America decision is that this is not a small regional carrier with no IFE looking to offer a simple and inexpensive system, but the winner of the 2011 APEX Awards for Best Inflight Entertainment in the Americas, Best Inflight Video, and Best Overall Passenger Experience; and an airline known to not only fly Silicon Valley techies, but to collaborate with them – suggesting that wireless IFE and the integration of PEDs into the system is more than just a low-cost solution.

THREE FORM The new wireless offerings from the various suppliers involve three basic models: wireless streaming of content to seatback screens; wireless streaming of content to airline-provided media devices such as tablets; and wireless streaming of content to passenger-provided devices. The inclusion of the third component recognises the growing importance of mobile technology and the increasing propensity of passengers to use smartphones and tablets in the broader travel experience.

The first two models are designed by suppliers to be ‘early window’ solutions – referring to their ability to provide sufficient security over the content to be able to offer movies in advance of their packaged media (DVD and Blu-ray Disc) release to consumers. The third model – streaming to passenger-owned devices – must overcome a couple of security hurdles before qualifying for early window content.

“

WIRELESS IFE AND THE INTEGRATION OF PEDS INTO THE SYSTEM IS MORE THAN JUST A LOW-COST SOLUTION ”

One of the solutions, Gogo, utilises ‘late window’ – i.e. concurrent with packaged media – movies to support the feature that if the passenger does not finish watching the movie during the flight, he/she can watch the remainder from the ground within 24 hours by accessing Gogo’s website.

These three architectures can optionally be integrated with a connectivity system, embedded seatback screens can optionally be designed to include local storage to be seat-centric, and airline-provided seatback units can be integrated with both airline-provided and user-owned tablets or PEDs.

AIRLINE-PROVIDED TABLETS One of the things that makes this mash-up compelling is the introduction of airline-provided tablets into the equation. Australian carrier Jetstar saw the potential in the iPad as an IFE device even before it was first sold in the Apple Store. But Jetstar struggled to find the right path to getting Hollywood to approve its platform for early window movies, and its difficulties led to the incorrect impression that Apple isn’t focused on supporting IFE implementations on its platform and devices.

But Apple is known to be working in the IFE space through enterprise relationships like the one it has with Lufthansa Systems. When Jetstar’s parent, Qantas, trials Lufthansa Systems’ BoardConnect this autumn, it will stream content from a head-end server to an iPad2 available to every passenger. Although Qantas is providing passengers

03. Siemens CMT has signed cooperation agreements with Thales and TriGnoSys to boost the availability of its Media4Sky IFE platform across the airline sector





STREAMING MEDIA TO PASSENGERS WILL REQUIRE THREE TO FIVE WIRELESS ACCESS POINTS (WAPS) PER AIRCRAFT



with iPads, the system will also stream content to passengers' own devices, including Android tablets and smartphones.

Similarly, Samsung's Galaxy Tab 10.1 has entered the IFE space via an order for 6,000 units by American Airlines, whose systems integrator for the project, The IMS Company, worked collaboratively with Samsung to repurpose the device for IFE use. IMS is launching a product line based on the Android OS platform, and has shifted its focus from device-specific to platform-specific. Samsung will also collaborate with Tune Box to deploy Samsung technology on AirAsia X.

On board American's B767-200 and B767-300 fleets, passengers will be able to use the airline's seatback screens, as well as connect their own tablets, smartphones and laptops to Gogo. And in business class, they can also use the Samsung Galaxy Tabs to either watch content stored locally in each tablet on an SD card, or streamed from the Gogo server.

WHAT ABOUT BANDWIDTH? For those who are not yet convinced of the efficacy of wireless IFE, questions of bandwidth and signal interference seem to be the biggest

concerns. The same radio physics apply to every system, and some commonalities are emerging. For example, streaming media to passengers will generally require three to five wireless access points (WAPs) per aircraft. Tests have indicated that WAPs can serve 100 or more passengers, but the most commonly recommended number by Lufthansa Systems, Gogo and Siemens is between 60 and 70.

Of course, once HD content becomes the norm, this will apply more pressure on throughput – especially for airline-provided clients – but may be why suppliers are recommending 60-70 users per WAP when they've tested satisfactorily above 100. And by the time HD content begins to become more broadly available, High Efficiency Video Coding (HEVC) – dubbed H.265 – may well be codified with the objective of providing the same visual quality at half the bit rate of H.264, today's IFE standard. H.265 is on track for a draft standard by mid-2012 and ratification early 2013.

These offerings from Gogo, Lufthansa Systems, Siemens and presumably others that stream to user-owned devices utilise a technology called adaptive streaming, which allows passenger-owned devices to connect to the onboard server, exchange a second or two of signals to test throughput, and then stream content at data rates from 250kbps to around 1.5Mbps (for standard definition) optimised to the device and the content. Yes, this does mean that multiple versions of a movie will be stored on the server. But just as encoding is reducing file size, storage capability increases regularly.

And how does seat-centricism fit into this mash-up? The term 'seat-centric' generally applies to a system architecture in which content is stored at the seat rather than provided from the head end, while these wireless systems involve streaming content from the head-end to the seat without downloading.

Yet when American deploys its Samsung tablets it will combine content stored on the devices on SD cards with that streamed from Gogo's server. Similar hybrid architectures are possible with content stored at the seat for airline-provided screens/devices while streamed from a head-end to user-owned devices. But these components are largely interchangeable and may emerge in a variety of configurations.

During a wireless panel discussion at APEX in September, Gogo was given an opportunity to walk back some of the statements of its CEO Michael Small that the days of embedded IFE are numbered, but declined to soften that position. Elsewhere, however, the conversation seems to have changed from claims that connectivity and pax-owned devices spell the end of embedded IFE to one of how a compelling IFEC programme can result from the mash-up of seat-centric SDUs, airline and pax-provided tablets, connectivity and wireless IFE in various configurations. ☒

CONTACTS

www.gogoair.com; www.lhsystems.com; www.siemens.at/cmt



04.

04. Panasonic's portal on a Motorola Xoom tablet and Apple iPhone




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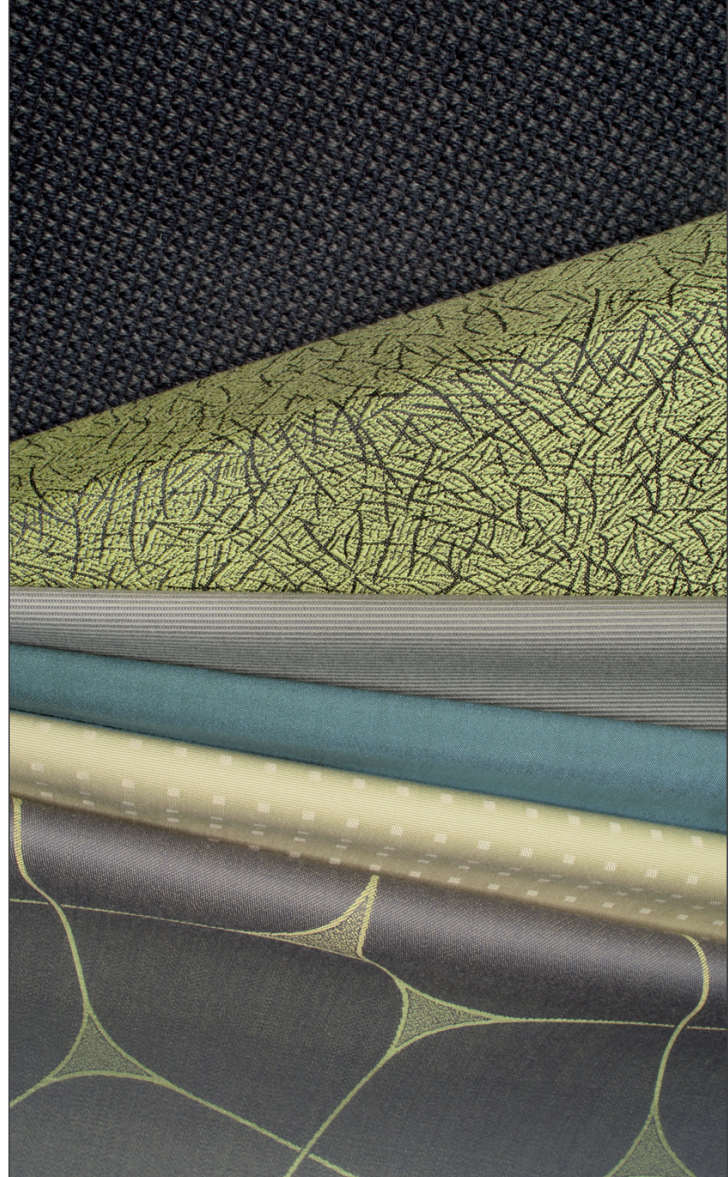
Tisca Tiara

on song

Tisca Tiara mobility textiles recently launched Alto Basso Avio, a new collection of carefully harmonised carpets and seat cover and curtain fabrics. The idea is to provide a convenient single source of ready-to-implement soft furnishing design concepts for the entire cabin. Tisca Tiara's new collection reflects the latest global trends in terms of designs, textures and colour combinations, and was produced and developed to be eco-friendly. The company also believes the products will generate lower lifecycle costs for airlines.

Tisca Tiara maintains extensive stock, with many thousands of fabrics and carpets all available for immediate shipment and with no minimum order quantity. Founded in 1940, the Swiss company designs, develops and manufactures all sorts of carpets, seat cover and curtain fabrics, steam-pleated curtains and other ready-to-install products for the complete aircraft interior under one roof.

www.tisca.com



all about weave

Having teamed up with an Italian factory that is used by high-end fashion houses, Edelman can now offer three of its most popular leathers (Luxe, Artisan and Napoli) as woven products. There are four weave patterns to choose from: Classic, Alessi, Balla and Arturo.

Luxe Calf and Artisan are made from European vegetable-tanned aniline-dyed calfskin. Luxe Calf has a rich sheen produced by being heated and pressed. Meanwhile, Napoli, inspired by antique leather, is made from European vegetable-tanned aniline-dyed cowhide. Luxe is available in 23 colours, averages 28-30ft² and is 1.0-1.2mm thick; Artisan comes in four colours, averages 32-34ft² and is 1.3mm thick; and Napoli has 17 colour options, averages 45-50ft² and is 1.2-1.3mm thick.

All in-stock leather can be despatched immediately; for custom orders, lead time is about four to six weeks.

Edelman also launched DayGlowBrights earlier in 2011. This eye-catching collection was inspired by the neon work of artists Olafur Eliasson and Dan Flavin, the graffiti art of Stephen Sprouse, and the trend for colourful city bikes. The neon-bright leather is custom coloured for each client and made from Royal Hide, Edelman's best-selling leather for aircraft interiors.

www.edelmanleather.com

Edelman



green dream

Andrew Muirhead & Son's Low Carbon Leather was created to address rising concerns over fuel costs, sustainability and carbon emissions. The made-to-order leather weighs approximately 650g/m² and is 1mm thick. The product is 100% genuine leather – it is not reconstituted, recycled or rehashed. The company says Low Carbon Leather has all the properties you would expect from genuine leather, while being 30% lighter and boasting greater elasticity than standard leather.

Recent wins for the company include an order for Voyager leather from Gulf Air, for the next stage in its A330 programme. Meanwhile, Lan Chile has specified Andrew Muirhead leather for its new Boeing Dreamliner 787, which is scheduled to come into service in 2012. The new aircraft will expand Lan Chile's services between South America and Washington DC and London Heathrow.

www.muirhead.co.uk

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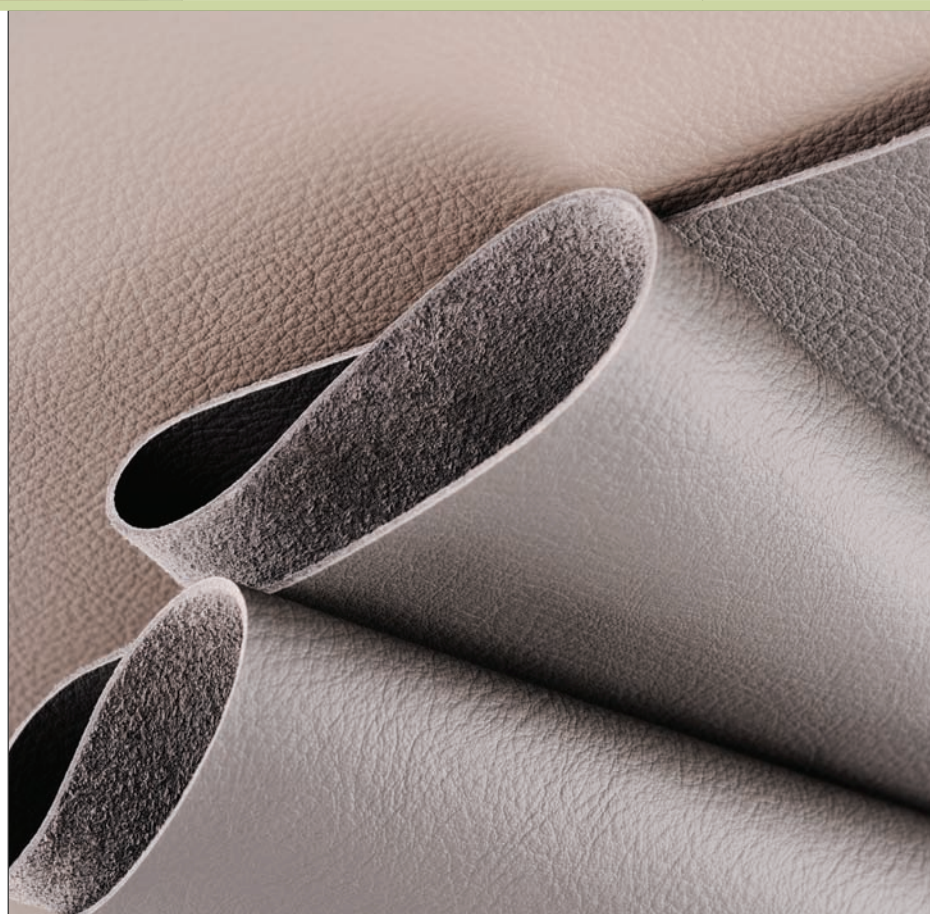
farm fresh

Lantal Textiles has renewed its portfolio of leathers. The range consists of four types with different surface textures and a palette of 48 distinctive colours. Calando is designed to have a silky, soft and natural hand for comfort; Classic is a cool, technical leather that Lantal says is easy to care for; Crescendo is a naturally structured leather; and Conbrio is billed by the company as the best choice for large-volume projects.

The leather can be customised in many ways to reflect the airline's corporate identity. Lantal says dyes can be formulated to achieve virtually any shade to match or coordinate with livery colours, for instance as defined by the Pantone or RAL systems. Further design options are embossing, debossing and embroidered logos or patterns, specially stitched seams and piping and even perforations and dimpling.

With fit-and-fly products such as pre-cut leather parts and ready-made seat covers, and its Design Organisation Approval status, Lantal aims to reduce airlines' process management and handling costs.

www.lantal.com





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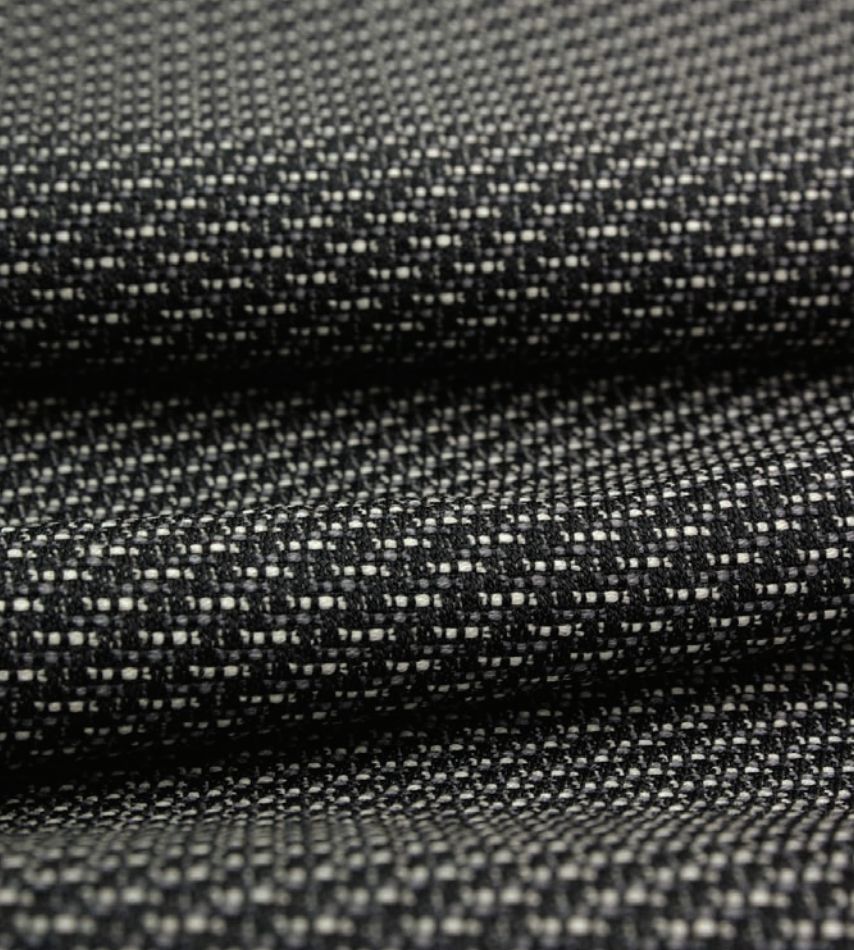
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carbon copy

Launched by rohi as a concept study at Aircraft Interiors Expo 2011 in Hamburg, Germany, Carbon Looks is an optical interpretation of high-tech carbon materials into interior textiles. Carbon fibres are synonymous with high-performance vehicles such as race bikes, powerboats, Formula 1 cars and aircraft fuselages. rohi's carbon fibre animated textile constructions are designed to reflect that sophistication, durability and high value. They coordinate particularly well with high-end aircraft seat models. Anker carpets, partnering closely with rohi, has also adopted the concept to create coordinated carpets, which will be showcased along with rohi's fabrics at Aircraft Interiors Expo 2012.

www.rohi.com

rohi

Ambiances

complete package

Ambiances' latest collection of leathers and fabrics for aircraft interiors is called Integral. The company says the leathers and fabrics meet FAR 25 853 Part I for flammability; FAR 25 853(d) Appendix F, Part IV for heat release; and Airbus ABD 0031 and Boeing BSS 7238 for smoke density and toxicity.

The leather weighs 570g/m², while the fabric weighs 360g/m². Both are available in a wide range of finishes and custom colours, with a one-month lead time.

www.ambiances-aviation.com



air conditioning

Tatsumura Textile has created an 'air catalyst' treatment called TioTio that can be applied to textiles used on aircraft seats and floors, as well as curtains, to provide an antibacterial and deodorisation effect. Tatsumura says treated textiles combat microorganisms, odours, stains and the like, benefiting passengers who suffer with asthma, allergies or atopy.

The air catalyst does not require light to work and does not use organic compounds, which Tatsumura says ensures it is environmentally harmless, safe and gentle. In addition, its effects do not disappear through melting and evaporation at room temperature.

Tatsumura has already supplied fabrics treated with TioTio (pictured) to major Japanese airlines.

www.tatsumura.co.jp

Tatsumura

Scott Group

rich pattern

Scott Group Custom Carpets' newest offering is the Terk collection, which draws inspiration from early 20th century painters such as Sonia Delaunay and Paul Klee, who created boldly patterned works of art using vibrant and rich colours. "We were struck by how current the colours and patterns from these artists feel almost 100 years later," says Jennifer Kirchgessner, Scott Group's director of marketing.

The Terk pattern consists of simple fractal shapes outlined in a low loop to enhance the dimension of the carpet. Vibrant lines of colour in pewter and golden mustard are balanced with shades of cream. This pattern is designed with a modern cabin interior in mind, but colours and patterns can be customised to coordinate with clients' wishes.

The company develops new sample collections on a quarterly basis reflecting trends from various markets: residential, commercial, automotive and fashion. The collections serve as a starting point for aviation designers to help generate new ideas.

www.scottgroup.com



light fantastic

Yarwood Leather's latest product, Yarwood NT, is a genuine leather weighing less than 450g/m². The product was developed by the same team behind two generations of Kalorlite leather and was designed to meet urgent industry requirements for weight savings. On a maximum-capacity A380, Yarwood says it can reduce overall leather seat cover weight by 950kg.

Being a genuine hide with a large surface area (typically 50ft² or more), this product can be cut and sewn using standard techniques. Yarwood offers this service from its UK in-house cut and sew facility. Yarwood reports that global leaders in seat manufacturing have partnered with the company to ensure that their own lightweight options are promoted to the maximum benefit.

www.yarwood.co.uk

Yarwood

Kalogridis

panel show

Kalogridis's 3D custom panel, Deconel, is proving popular. It was originally developed for commercial airlines, but has since expanded into private jets, superyachts and luxury houses. It has been installed on large VIP aircraft, such as the A330, Boeing 737, Global Express, Global 5000, Falcon 7X and Tu-214. The picture shows its use on a window panel in a Dornier 328 cabin designed by CTM Design. Other successes include a reorder from a major airline for first-class bulkheads on its Boeing 777, following its first purchase in 2007.

Some customers have applied Deconel on all wall panels. Kalogridis says it is easy to install, reduces noise in the cabin and weighs 80% less than traditional tapestries. It also says the fabric selected does not need to be treated with fire-retardant chemicals; and silk can be used without creating bubbles or wrinkles on the panels.

www.kalogridis.com



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lightitup

LED-based ambient lighting continues to transform the cabins of many aircraft but certain pitfalls could see it leapfrogged by even more advanced technology in the future

GUY BIRD, AIRCRAFT INTERIORS INTERNATIONAL





Lighting that does more than help you see – better known as ‘mood’ or ‘ambient’ lighting – is now so commonplace in domestic and commercial housing it’s taken for granted in many parts of the world. You wouldn’t expect a club, hotel foyer or even someone’s living room to only have a single incandescent light from the ceiling doing all the work with only ‘on’ or ‘off’ for brightness choice, but in transport it’s been a slower process for numerous reasons from space and heat to safety and cost.

In the automotive industry Mini has been offering personally adjustable interior lighting with colour variations on various models for nearly five years and Virgin Atlantic started the trend for cabin mood lighting in aircraft as far back as the early 2000s as Gareth Southall, senior designer at Virgin Atlantic Airways boldly states: “A decade ago we revolutionised the cabin lighting experience on our 747 fleet. The great thing for the passenger is that mood lighting is now implemented on most airlines. Those who don’t have it are behind the curve in terms of cabin experience.”

Those early technological forays into ambient lighting were not as advanced as they are today of course. Southall admits that Virgin’s early technology involved not much more than two different coloured fluorescent tubes which mixed to create a different mood for the passenger

throughout the flight. For Virgin’s new A330 fleet the latest LED RGB lighting system is used though, which, says Southall, “means our colours, light levels and moods are now infinite.”

Of course for Virgin such lighting technology trail-blazing not only helped create repeat customer business but also became part of its brand identity as Tyler L. Smith, lead engineer for Boeing’s payloads lighting development, acknowledges: “There are large items that can make one airline stand out from another such as unique architecture in combination with unique lighting scenes.” Little details can be equally as important though, as Smith continues: “Small items such as enabling a light to fade on and off or having a sign that dims to match a cabin light level can really change a passenger’s experience.”

AMBIENCE TO WELL-BEING Beyond such ‘surprise and delight’ capability, designers, carriers and manufacturers have also come to realise that lighting can actually improve customers’ health on board, especially during long flights. “An aircraft is an enclosed area moving independently from the sun’s journey,” notes ex-Airbus and now independent lighting designer Caroline Crespin of Crespin Lumieres. “There is no indication of time inside so we could compare this to a dark closed box. But this darkness allows us to draw using light like a pencil.”

- 01. Starlight ceiling from Airbus’ A380 cabin mock-up
- 02. A380 staircase lighting detail



THOSE WHO DON’T HAVE IT [MOOD LIGHTING] ARE BEHIND THE CURVE IN TERMS OF CABIN EXPERIENCE



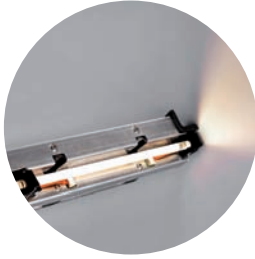
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01



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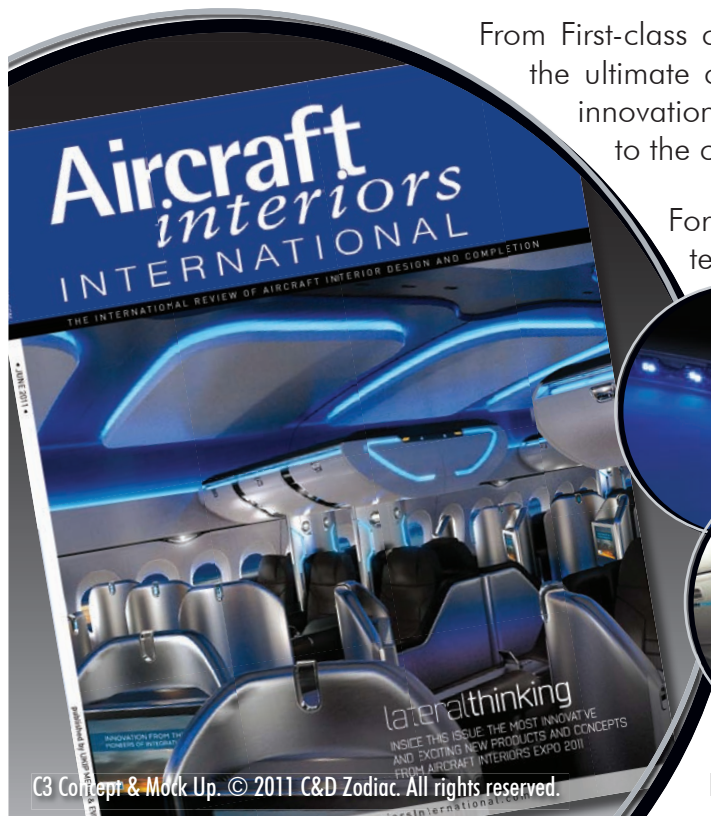
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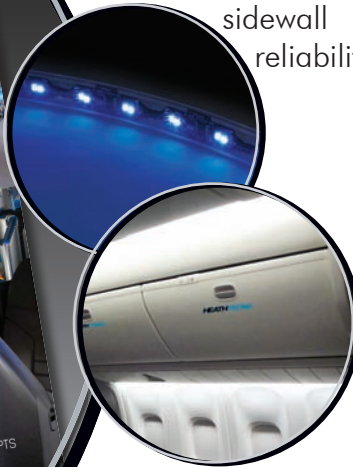
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To continue Crespin's evocative metaphor, aircraft manufacturers like Airbus and Boeing are key players in defining the parameters of these dark boxes and how sophisticated light can change them for the better. "We are taking this capability to a higher level with our latest aircraft being equipped with systems that are technically able to deliver any scenario solution, including animated sequences – sunrise and sunset for example," says Claire Nurcombe, aircraft interiors marketing, Airbus. "These scenarios are more than branding, they have a direct impact on passenger well-being, such as easing the effects of jet lag."

Where Virgin led, Qantas and Emirates followed and in 2011 the key technology driving lighting options is still LED (Light Emitting Diodes). With extra benefits of a long life span, lower energy use and space efficiency it is accepted by the industry as a mature lighting technology. "Today we use almost exclusively LED," declares Crespin. "Before that, the cabin got only a static diffused and uniform white light. It provided the lighting of a cloudy day."

But despite LEDs' rise to prominence, there are a few clouds on the horizon for this technology.

LED DRAWBACKS "There are drawbacks with LEDs that we have had to overcome on our new A330 fleet," Virgin Atlantic's Southall concedes. "The white light emitted from LEDs is a very cold light. This impacts the colour

rendering of food and passengers' skin, making both look washed out – so we have fitted a warm colour gel wrap on our reading lights in order to counterbalance this and make our passengers and food look great."

Armin Plichta, general manager for transportation at light supplier Schott Lighting and Imaging, also warns of an over reliance on LEDs, given that they change in intensity over their lifespan and can also change colour too unless many sensors are used to control them. "Look at RGB LED strips closely," says Plichta, "and you will see red, green and blue dots, but over time if the red fades it can cause the overall light to become pink." Plichta also says LEDs "create extra heat where you don't want it" so Schott's solution is to use fewer LEDs (one tenth as many) in conjunction with glass light guides and fibre optic know-how to create similar strip effects for a more consistent light. Called HelioJet, the product claims to have the intensity of old fluorescent tube lighting combined with the low energy consumption of new LED tech. It's the first product from a new cooperation agreement between Schott and Lufthansa Technik, is aviation-certified, and has already been subject to a test installation in an Airbus 319.

As everyone in the industry knows, certification can be a tough and design creativity-stifling process. Desmond O'Donovan of lighting consultancy DHA design, who has worked with Virgin Atlantic, as well as many architectural

03. Virgin Atlantic interior mood lighting on its new A330 fleet

04. Boeing 787 Dreamliner entrance way features a sculpted ceiling with integrated ambient lighting

03



04





A new interactive gaming system enables passengers to gamble in flight while airlines take a share of the revenue

asafebet

The increased popularity of computerised portable devices has led to the development of an inflight gambling system by a new company called JetBet. JetBet's Inflight Interactive Gaming System (JIGS) offers aircraft passengers an adapted device that enables them to gamble on casino games from their aircraft seat.

As well as expanding the entertainment offering, JetBet says JIGS could potentially generate big ancillary revenue streams for airlines and business jet operators.

"The global online gaming market has experienced rapid growth since its establishment in the 1990s, and it is now widely accepted as a safe and respectable alternative to live casino gaming," says Victoria Harding, client liaison executive at JetBet. "This trend will continue, and airlines must look for ways of catering for the wishes and desires of their passengers. Marketing studies show that one out of five passengers would take the opportunity to gamble while flying."

JetBet offers a full customer relationship management (CRM) system; that is, an account management system, a payment solution, wallet system and database. This is to aid passenger confidence in the system, and for dispute resolution, should it arise. JetBet also provides 24/7 support. This is provided by the company's in-house personnel, who have considerable gaming experience.

The JIGS platform is pre-installed on a tablet and offers a virtual casino for passengers that can be used when flying in international airspace (i.e. above 20,000ft).

The platform currently offers roulette, blackjack, baccarat and slots using a random number generator. JetBet says the devices have a battery life of eight hours. Because they are pre-installed with all the necessary software, they need no administrative input from the cabin crew.

JetBet will make all passengers gaming on its device a member of the FEE Club, and as such they will each be given a membership smartcard. This card is designed to protect new members from security issues, and is the physical link that allows players to manage their wallet.

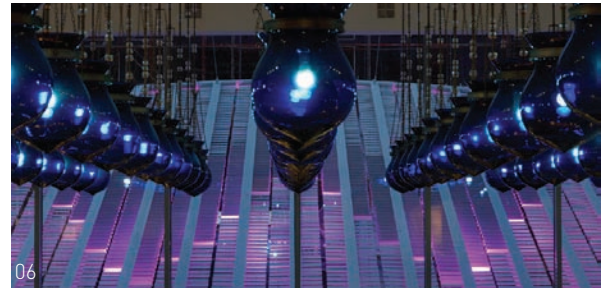
The passenger can transfer gaming funds from their debit/credit card, or via bank transfer, onto their wallet, which is encoded on their membership card. This transaction needs to be completed before take-off. The tablet is loaded with the player's membership details, and the funds available to the player are reflected in the wallet on the tablet. Each spin/hand updates the wallet. After the flight, the player's gaming history and account information is uploaded to the JetBet data centre.

The carrier profits in two ways from each passenger that becomes a member of the FEE Club. Firstly, the carrier receives a percentage of all revenues earned by JetBet from passengers' JIGS gaming activity in flight. Secondly, for those passengers who go on to gamble on any of JetBet's associated platforms, the airline receives a further percentage of all revenues received by JetBet in perpetuity. The final ace is that the application does not need to be licensed, as it is operated in international airspace, outside of the jurisdiction of any country.

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Reader Enquiry No. 501



05



06



07



FULL PANEL ILLUMINATION USING OLED TECHNOLOGY COULD BE THE ULTIMATE SOLUTION FOR DIGITAL CUSTOMISATION



05-07. W-Hotel in Doha with lighting developed by DHA Designs, which recently worked with Virgin Atlantic on its A330 lighting

projects, admits as much: “The requirement for stringent certification greatly limits the transfer of techniques from architecture in particular,” he says. “I believe airlines would be much bolder in their choice of design were it not for this constraint. Virgin’s chandelier at their Upper Class bar is an example but we were restricted in terms of how we achieved this architectural look.”

But while Airbus also acknowledges the difficulty of new innovations meeting certification while providing sufficient customer choice, it would seem to have some solutions too. “Deviations from the normal industrial platform are difficult and very expensive to address on a one-to-one basis,” says Nurcombe. “Many of our aircraft display exotic lighting features. One of the more complex ones is the ‘Starlight’ ceiling, where individual fibre optic strands are hand fitted to cabin lining parts to simulate specific star constellations during night flights. For this scenario, we have already demonstrated mock-ups where a similar effect is achieved by digital projection. When hardware customisation can be replaced by digital customisation, it becomes much easier to address such individual requests. This requires focused activities on the anticipation of future customer needs combined with specific hardware development to achieve the next generation of enabling platform.”

FUTURE TECH As to the type of technology that will lead such change most of the relevant parties are in agreement. “LED will lead the way for the next generation of aircraft,” continues Nurcombe, “but beyond that, we may see more

dramatic systems coming to market as they gain maturity. For example, full panel illumination using OLED technology could be the ultimate solution for digital customisation, allowing the rendering of specific lighting effects along with digital graphics and patterns with each panel being the equivalent of a flat-screen TV.”

OLEDs (organic light emitting diodes) are lights where the light-emitting layer material of the LED is an organic compound rather than hard crystalline as in normal LEDs and already well-established OLED applications in other fields include the small screens for mobile phones and digital cameras. Bigger applications have taken longer to develop as the substrate can be a little unstable – it doesn’t like water for example so has to be well protected from moisture – and its life span was originally weaker, but as the technology grows up its potential is exciting designers.

Caroline Crespín of Crespín Lumieres is certainly a believer: “In the medium to long term, OLEDs would be a little revolution. Basically it is a luminous foil made of a range of layers working with electroluminescence [EL] too. The advantage of this lies in its shaping capabilities. It could be applied to many things in our usual environment and they would become bright. In spite of a slow development we can imagine luminous aircraft cabin linings switching from a screen display to an ambient light to finish with a decorative pattern.”

Virgin’s Southall has his money on EL technology – where a material emits light in response to an electric current passed through it or to a strong electric field – as a way of getting a more “dynamic and subtle lighting experience,” while DHA’s O’Donovan is in no doubt about OLEDs adding: “OLED technology could do for cabin lighting all over again what LED has recently done.”

Whatever the type of technology and the ‘how’ of its working, it seems the ‘wow’ of customers when they encounter such experiences looks set only to increase. ☒

CONTACTS

www.dhadesigns.com; www.crespin-lumieres.com;
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Innovation and Integration



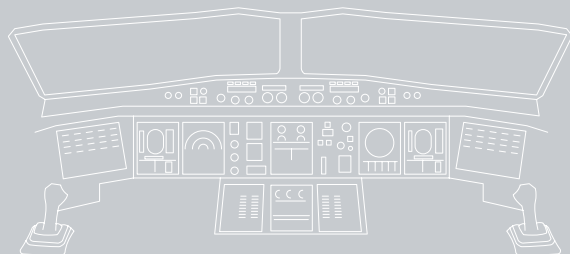
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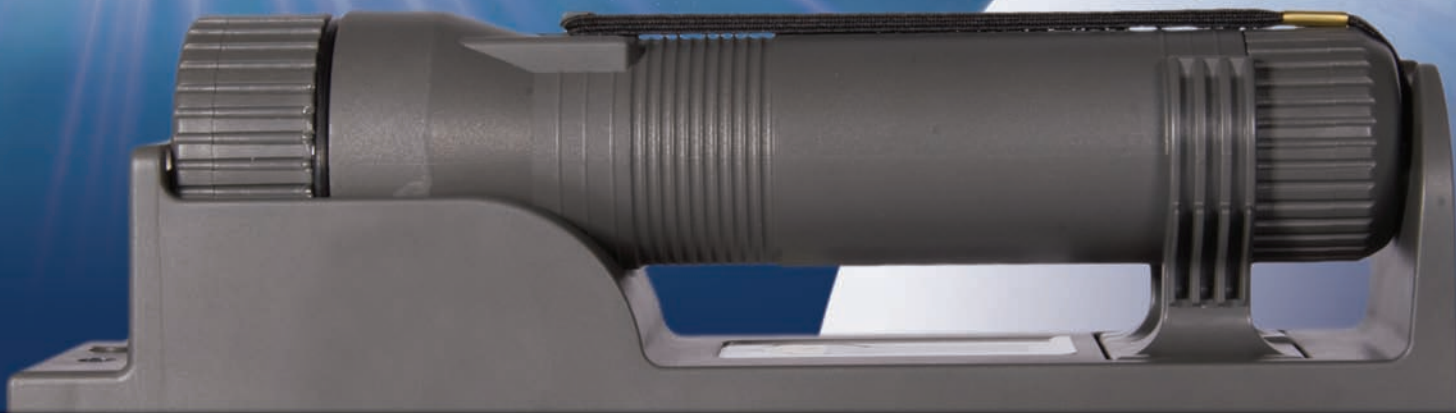


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Aerotage also has a division that provides employment solutions for the aviation industry, addressing the challenges of fluctuating workloads, specific projects and surge requirements for businesses with hard-to-find skill sets.

The division specialises primarily in engineering and technical search programmes providing highly experienced and qualified personnel, whether the need is for contractors, temporary personnel to direct hires, large volumes or managed services programmes (on-site recruiting).

"The need to find top talent remains paramount, and in today's economic landscape, budgets require creative and cost-effective solutions," says Brad Hardwick, president of Aerotage. "With over 60 years of combined aviation experience, clients can count on our specialised search teams to assist in finding the exclusive search solution, both domestically and internationally. Aerotage can provide turn-key solutions for clients' aerospace engineering, certification and personnel requirements."

Aerotage

Reader Enquiry No. 510

soundadvice

N2 Aero takes a holistic approach to cabin acoustic design. "We begin with an extensive aircraft and technology evaluation, perform a detailed review of the aircraft configuration and all of its properties and complete the development, implementation and certification of a customised and comprehensive noise control solution," says Greg Nelson, president of N2 Aero.

"Cabin acoustics are a critical aspect of today's VIP completions," says Olen Nelson, vice president of the company. "Owners demand quiet, comfortable acoustic environments that complement their cabin interiors. There are many types of noise sources that can mar the luxury cabin environment; isolating aerodynamic and engine noise is simply not enough to meet the standards of today's discerning customer."

Hisses, whines, rattles and other common phenomena can cause excessive fatigue and discomfort but N2 Aero says these are not adequately assessed by measuring decibel values alone – each and every noise source must be isolated, evaluated and treated to produce a truly excellent aircraft environment. "Piecemeal approaches to noise control, such as those focused solely on materials or components, cannot meet today's performance expectations," says Greg Nelson. "These processes neglect many key acoustic issues and the results are often heavy, over-complicated and less effective."

N2 Aero believes a comprehensive acoustic design should be tightly integrated with the aircraft and its systems to be as effective and lightweight as possible. "This requires not only well-designed installation kits but also expert guidance in the acoustic aspects of all of the aircraft systems and equipment," says Greg Nelson. "Creating a comprehensive, fully documented and supported design ensures the best acoustic results that are also economical, lightweight, easy to install and reliable for the lifetime of the aircraft."

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Aeristo is building
on 20 years of
success with new
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forwardthinking

Established in 1991, aviation leather specialist Aeristo celebrates its 20th anniversary in 2011. The company says it remains prosperous, because of the strong principles it was founded on and which it continues to exemplify.

Aeristo's main focus is to research, develop and distribute interior leathers and associated seating comfort products exclusively formulated for aeronautical applications. Its aviation leather brands include Aeronappa, Belvedair, Volairo, Rotinda, Aerolino and Aerolamb.

Realising that seating comfort does not stop with surface materials, Aeristo also offers a line of seat comfort products. The company, already the supplier of a nano-carbon-fibre seat heater called Fybairheat, recently began to investigate seat ventilation solutions, after numerous inquiries from OEMs, seat manufacturers, FBOs and end customers. While the company says it has found that at this time an active seat ventilation system for aircraft is unrealistic in light of weight, packaging and space issues, there are alternatives. It has taken a creative approach and believes that a passive ventilation system is not only the best approach for ventilating seats, but also offers valuable added benefits.

The resulting material is known as Ventimesh, and has only recently been released. The loop structure of the yarn allows for a wide range of seating comfort levels from firm to soft. Aeristo says additional advantages include passive ventilation, superb testing results, comfort, versatility, light weight, enhanced hygiene and an excellent recovery feature.

Also new are the company's leather splitting and skiving services. This allows customers to

specify leather to any thickness they wish – which Aeristo says facilitates the upholsterer's job and provides for a nicer, cleaner end product.

To handle growing demand, two years ago Aeristo relocated its headquarters to a new facility close to Dallas/Fort Worth International Airport in Texas, USA. The company says the new location – benefiting from the airport and accompanying logistics network – positions it better than ever to facilitate quick shipments worldwide. The company prides itself on its willingness to go the extra mile to help customers struggling with time constraints.

Customers have been benefiting from the company's stringent quality controls over the past two decades. Now Aeristo has accomplished a further milestone in its commitment to continual improvement and has been awarded AS 9100 rev. C, AS 9120 rev. A and ISO 9001:2008 certification – the latest in certification standards.

While Aeristo believes it has always gone above the industry standard to ensure customer satisfaction, the company understands the necessity for formalities in an industry that requires speed, perfection and traceability in all steps and processes. "We are very proud of our industry-leading quality certifications," says Shawn Weishuhn, operations manager at Aeristo. "However, our customers are the ones who truly benefit from our inherent quality-driven culture."

What customers can continue to expect from Aeristo is a huge inventory of aircraft leathers ready for immediate shipment in some 180 colours. All these leathers are central European bull hides chosen for their cleanliness, tight grain and large size, optimising yield.

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Image courtesy of Altitude Aerospace Interiors

stitchcraft

Besides its more traditional aircraft offerings, the award-winning Swiss company Tisca Tiara mobility textiles also offers carpets for those clients who want something way out of the ordinary. By reconstructing machines originally built for the production of embroidered clothes, the company has honed a way of producing embroidered carpets. The result is Waron, a carpet with a distinctive look and feel. Waron is particularly in demand for VIP and business jets, as well as for first-class airline cabins and first-and business-class airport lounges.

Carpets are made to measure, in any size and shape, up to 13.5m in width, in one piece and without any seams. The company says this last feature increases service life because seams are the weakest points in floor coverings. No cutting waste is produced during installation because the carpets match the aircraft's floorplan. Moreover, carpets are available with no minimum order quantity, and despite being entirely customised, are available in lead times as short as three weeks. Tisca Tiara says the possibilities for customisation are endless: clients can choose any colour or colour mixture, shape, size and measurement, and can pick from various qualities and design options.

Another special feature is the ability to thread differently dyed yarns through the same needle; yarns are marled according to the client's wishes. Tisca Tiara says this means an infinite number of hues can be produced, enabling clients to match the carpet perfectly with the rest of the cabin.

"Whether the requirement is for light or dark, a bold contrast or subtle hue, Tisca Tiara's yarn

mixture technique is special because every thread remains visible," explains Matthias P. Tischhauser, managing director of mobility textiles at the company. "In addition, the use of long-stapled 100% pure new wool in worsted yarn ensures the superior quality of this exclusive, long-wearing product."

Tisca Tiara has been run by the Tischhauser family since its foundation in 1940. As well as Waron, the company produces a huge range of other carpets – woven and tufted, pass-machine tufted, hand-tufted and hand-woven – as well as fabrics for seat covers, curtains and headrests, and ready-to-fly, steam-pleated curtains.

"By uniting these uniquely diversified product categories and various production technologies under one roof, we are proud to be a true all-inclusive manufacturer," says Tischhauser. "It allows us to satisfy any textile need within the aviation industry without having to subcontract from other companies. This makes everything faster, easier and cheaper for our customers."

The company maintains state-of-the-art machinery and production facilities. Customised products are manufactured in short delivery times and with low minimum order quantities. Tisca Tiara also has an in-house design and development department, which Tischhauser says can realise even the most extraordinary customer request.

Furthermore, the company maintains a very extensive stock programme: a vast array of aircraft fabric and carpet collections are available in stock and ready for immediate shipment, with no minimum order quantity.



showbusiness

Business Jet Interiors World Expo will be held on 22-23 February 2012 in the glamorous setting of Cannes, France. Tailored to showcasing the very latest in executive jet and helicopter interior design and technologies, the event is expected to draw around 2,000 executive jet owners, operators and completion centres from all over the world. It will also include a free-to-attend conference boasting a truly VIP line-up of speakers representing leading aircraft manufacturers, design houses, completion centres, completion management firms and more.

Expect to see the very best seating, catering services and equipment, flooring materials, IFE systems, lighting, materials, design houses – everything that goes into creating bespoke business aviation cabins. More than 60 interiors suppliers have been invited to exhibit their latest designs, concepts, materials and technologies.

A highlight of the show will be the free-to-attend conference. Aircraft and helicopter manufacturers will be represented by Andrew Fulford, manager of design operations at Gulfstream; Patrice Royer, business and private aviation director at Eurocopter; David Velupillai of Airbus Corporate Jets; and other high-level speakers from Bombardier's Global Completions Center and Boeing Business Jets.

The conference also boasts a very strong design contingent, including an inspirational speech on design across disciplines from renowned designer Ross Lovegrove; a masterclass in applying lessons from yacht design in VIP aircraft from Jim Dixon, director of aviation at Andrew Winch Designs; thoughts on designing for the Chinese aviation market by Jean-Pierre Alfano of AirJet Designs; and pointers on how to balance innovation with certification issues from Edese Doret of Edése

Doret Industrial Design (whose most recent project, a Boeing 787-9 with living walls, is featured on page 24). Other design visionaries speaking include Magnus Aspegren, director of BMWDesignworks' Singapore studio; Paul Priestman, director of Priestmangoode; Tim Callies, head of Comlux Creatives; and Marcelo Teixeira of Brazil-based Studio Marcelo Teixeira.

There will also be speakers focusing on the completions process itself. These include Elisabeth Harvey, head of Jet Aviation Basel's in-house interior design studio, who will share her tips for optimising relations between design and engineering departments; and Rick Roseman of RWR Design, who will address how completions can be made more efficient.

Finally, aircraft owners/operators can look forward to tips on navigating the potentially bewildering worlds of aircraft acquisition and outfitting, including the complex technologies on offer. Jean Sémiramo of Altair will provide an overview on the cabin outfitting marketplace; Oliver Stone of brokerage and advisory firm Colibri Aircraft will address how interiors can dramatically impact the aircraft's final resale value – with lots of good and bad examples; and Andrew Muirhead, CEO of IDAir, will address the fast-moving arena of IFEC and CMS.

The World Expo is organised by UKIP Media and Events Ltd, founder of Aircraft Interiors Expo in Hamburg, Germany, and publisher of *Business Jet Interiors International* and *Aircraft Interiors International* magazines. Business Jet Interiors World Expo 2012 will be co-located with Business Airport World Expo 2012, where an additional 3,000 executive jet owners and operators will attend to discover new FBOs and destinations.

To register for your free pass simply visit www.BusinessJetInteriorsWorldExpo.com.

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With the multiple, often conflicting demands for weight reduction and increased comfort, aircraft seating manufacturers need a highly efficient cushioning material. An alternative to traditional foam cushioning, Supracor's Stimulite honeycomb relies on the benefits of structural aerospace honeycomb to provide load distribution and weight reduction, with comfort achieved through its elastomeric matrix. Perforations in the honeycomb cell walls circulate air to eliminate heat build-up, while the 'footprint' of the cells and their flexing action is designed to stimulate blood flow to promote circulation.

Since its debut at the Aircraft Interiors Expo 2011 in Hamburg, Germany, Stimulite has received strong market interest and Supracor is currently working with both OEMs and airlines.

Supracor says Stimulite honeycomb can provide comfort and support in a low profile (0.5-1.5in thickness). Fortunately, seat frame design is evolving to take advantage of this streamlined cushioning material. And because it's made from thermoplastics, Supracor says it is durable, washable, recyclable and resists moisture.

For more than 20 years, Stimulite has been a leading technology in medical support surfaces for pressure sore prevention. Its low-profile

performance has also been recognised by the military – Stimulite is the specified ejection seat cushion for F-18 Hornet fighter jets. In addition, Stimulite mattresses have been chosen for crew rest areas on the new Boeing 787 Dreamliner and 747-800 aircraft. Supracor says Stimulite meets all flammability requirements with standard dress cover materials. Stimulite is manufactured in California by Supracor, from US-made materials.



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perfectharmony

Monogram Systems, a division of Zodiac Aerospace, says the tone has changed in the world of commercial airline suppliers, as the industry moves from a buyer-furnished equipment (BFE) to a seller-furnished equipment (SFE) design approach. Monogram Systems is answering this shift with its new Symphony suite of galley inserts. Each product – whether it be the steam or convection oven, beverage chiller, coffeemaker, trash compactor or water heater – works in total concert with the others, the idea being to provide a dramatically improved inflight experience for passengers and flight attendants.

A leader in the field with more than 80,000 galley inserts flying on wide- and narrow-body commercial aircraft, regional and corporate jets, the company has poured long hours of research into this totally harmonised suite. Designed for reliability, weight conservation and performance, Monogram says highlights of its suite include "a new level of heating and cooling consistency, an oven Delta T that sets new benchmarks, infusion coffee brewing based on refined scientific study and much more". User-friendly with universal controls across the suite, each insert is designed to consume minimal power. Symphony is available in both ARINC and ATLAS standards, making it suitable for a wide range of aircraft.

"Symphony is a totally interconnected system of complementary galley products that works for both the SFE and BFE world," says Thomas Lee, business development director for Monogram Systems. "We have raised the bar with a combination of elegance, adaptability and convenience that not only meets the OEMs' required specs, but enhances them with added features and benefits."

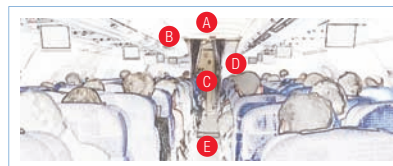
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balancingact

Lantal says its cost analyses show that with a single-layer light-blocking curtain, lightweight seat covers and carpets, as well as individually pressure-adjustable pneumatic cushions, an airline can save up to €240,000 in kerosene per A380 and year while reducing CO₂ emissions by 417 tonnes.

Passengers have a growing awareness of the ecological impact of flying, but at the same time, they expect more comfort. How can these two perspectives be reconciled? Additionally, IATA's core goals stipulate greater fuel efficiency.

Lantal has been proactively developing soft interior solutions to support these goals, with lighter seat covers, curtain fabrics and carpets, and cushions filled with air instead of foam, potentially for all classes. The aim of these products is to contribute to the achievement of the airline's environmental objectives while also cutting operating costs. The company's approach is to pick lightweight but simultaneously sustainable materials with longer

service lives for more cost-effectiveness. "It is often thought that especially in cabin textiles, less weight and more comfort are mutually exclusive," says Peter Kämpfer, EVP for markets at Lantal. "But innovation has proven that this no longer applies. In a three-class A380 carrying 516 passengers, we can achieve weight savings of up to 800kg and yet enhance passenger well-being."

For nearly 60 years, Lantal has been dedicated to airline passenger comfort and carrier profitability. The company is celebrating 125 years in textiles in 2011. Customers are expressing their appreciation of its all-in-one solutions for the aviation industry. So are Bertrand Piccard and André Borschberg, who selected Lantal as official supplier partner for Solar Impulse's vision of flying around the world in a solar aircraft in 2014. Lantal will contribute to the ambitious project by supplying its Pneumatic Comfort System for the cockpit, as well as offering ergonomic expertise for what should be the longest solar-powered airborne trip ever made.



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danielkerrison



Want to know more about key industry individuals, but haven't got the time to search for their Facebook profile or LinkedIn page? This issue's 'FaceSpacer' is Daniel Kerrison, inflight product development and customer experience manager at flydubai. Dan is currently overseeing the retrofitting of Lumexis's innovative FTTS IFE system to the carrier's fleet.

01 WHAT WAS YOUR FIRST JOB? When leaving school I studied food and beverage management, which led to me managing a very busy restaurant and nightclub in Brisbane for seven years. Then in 2000, the Virgin Group announced that they were to launch a new low-cost airline in Australia. I'd always had a fascination with aviation, and this seemed a terrific opportunity to steer my career in an exciting new direction.

02 HOW DID YOU END UP AT FLYDUBAI? I joined Virgin Blue as cabin crew before it launched in August 2000. Due to the airline's rapid expansion, I was promoted many times to different roles within the guest service systems division, while at the same time completing a masters degree in aviation management. I moved to Dubai in 2006 to join the service delivery management team at Emirates Airline, which exposed me to long-haul, wide-body, multiclass operations, and introduced me to the challenges and rewards of living in this culturally diverse city. When it was announced in March 2008 that Dubai was to establish a low-cost carrier, I was ready for a new challenge – joining flydubai was the perfect opportunity to combine my regional experience with my low-cost background.

03 IT MUST BE GREAT WORKING FOR AN AIRLINE WITH SUCH DEEP POCKETS? Flydubai was launched in March 2008 with a start-up capital of AED250 million (US\$70 million). The airline is owned by the government of Dubai but is run as a commercial operation. Since operations began in June 2009, we have worked to expand both our fleet and network as quickly as possible to offer more choice and attract passengers to create a sustainable and profitable business model in the future. To this end, in just over two years we have amassed a fleet of 20 brand new Boeing 737-800 NG aircraft (13 of which are fitted with Lumexis's FTTS IFE system) and a network of more than 40 destinations. The remaining 30 aircraft from the order of 50 we placed with Boeing in 2008 are due to be delivered by the end of 2016, all of which will be fitted with the Lumexis system, as well as the Boeing Sky Interior. Being the launch customer for Lumexis and the Boeing Sky Interior are prime examples of how we are constantly working to improve the passenger experience.

04 FLYDUBAI DESCRIBES ITSELF AS A LOW-FARE AIRLINE – HOW DOES THAT IMPACT ON THE CABIN? Flydubai is a low-cost airline but that does not mean low quality. For us, affordability and excellent service go hand in hand. Passengers

receive the same services on flydubai they would on any traditional carrier, but we allow passengers to choose what they want – and therefore how much they want to spend. Our philosophy is to offer the best standards of customer service we can. We offer a great value café-style menu, which passengers can purchase on demand through the IFE system, as well as during the regular cabin service. The on-demand IFE system, meanwhile, also lets passengers watch movies, TV shows, listen to music or play games at any time during their flight.

05 WHAT ATTRACTED YOU TO LUMEXIS'S FTTS IFE SYSTEM?

We considered various IFE systems but the Lumexis FTTS model was the only one that could meet our requirements: lightweight while offering unrivalled viewing quality. The weight of traditional copper systems is usually a prohibitive factor for low-cost carriers when it comes to IFE but the Lumexis fibre optic model – which weighs considerably less than those already on the market – made it viable. It is also the only system in the world capable of showing movies in high definition, which means passengers have the same experience they would at the cinema. We were also able to customize the system – it just ticked all the boxes.

06 IS IT FRUSTRATING THAT IT'S NOT LINEFIT OFFERABLE?

Since flydubai introduced IFE last November, it has always been installed post-delivery. This is factored into the time-frame and has proved to be a successful process. However, we do hope that in future it will be possible to have the system fitted before delivery, which will allow us to get the aircraft to Dubai and in the air earning money as soon as possible.

07 HOW ARE PASSENGERS TAKING TO IT?

We are very pleased with uptake so far. It is natural for those on flights of one hour or less not to buy a movie but on longer flights to Beirut, Kuwait, Russia and Ukraine there has been excellent take up. Some of the content, including music and games, is free of charge, with TV shows starting at just US\$1.36 and movies from US\$6.81, which we think is excellent value for money. A unique feature of the system is the passenger survey, which allows customers to talk directly to us, highlighting the things they like most, but also giving feedback on areas in which to improve.

08 AS AN AUSSIE, DO YOU MISS HOME?

Having moved from Australia's Gold Coast I am right at home in Dubai. Something few people know is that Dubai has more coastline than any other city in the world. I live by the beach and spend countless hours paddling in my surf kayak around the Palm Jumeirah. One of the highlights of living here is the ease with which residents can explore the region. Dubai has a great geographical location, and with flydubai now flying to 44 remarkable cities (places I otherwise would never have visited) all within five hours, there are many perfect weekend destinations. Of course there's no place like home but I'm fortunate to now have two amazing homes – Dubai and Australia – both of which I miss when I'm away.

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