

ROSEN

AVIATION

LeftField Labs

Research & Development Overview 2025

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Visionary Insight | Precise Execution

Welcome aboard
Mr. Smith

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Rosen Proprietary

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DISPLAYS

Rosen has continually delivered industry leading solutions to the entire aviation industry

SENSORS

Expanded sensor and control capabilities for the most integrated aircraft environment

CMS / IFE

All the expertise from Rosen and our world-class partners, into a game-changing, intuitive package

LeftField Labs – A New Way

Experience driven research & development.

When developing transcendent solutions for the most cutting-edge, luxurious platforms, it all starts with the *experience*. Our mission in introducing LeftField Labs, the world's premier aviation cabin think tank, was simple – create a precision element of innovative thinkers focused solely on leveraging emerging technologies from around the globe.

RAPID PROTOTYPING

PROOF OF CONCEPTS

FUNCTIONING SYSTEM MOCKUPS

40 Years of Evolving the Passenger Experience



First translating aviation sun visor

First aviation in-seat LCD's

First automotive flat-panel display

First remote electronics IFE

First and only, full range of 4K OLEDs

World's largest 97" 4K OLED

Immersa: in-seat AudioSphere

Lumera: operator designed CMS

1980

1994

1997

2010

2021

2023

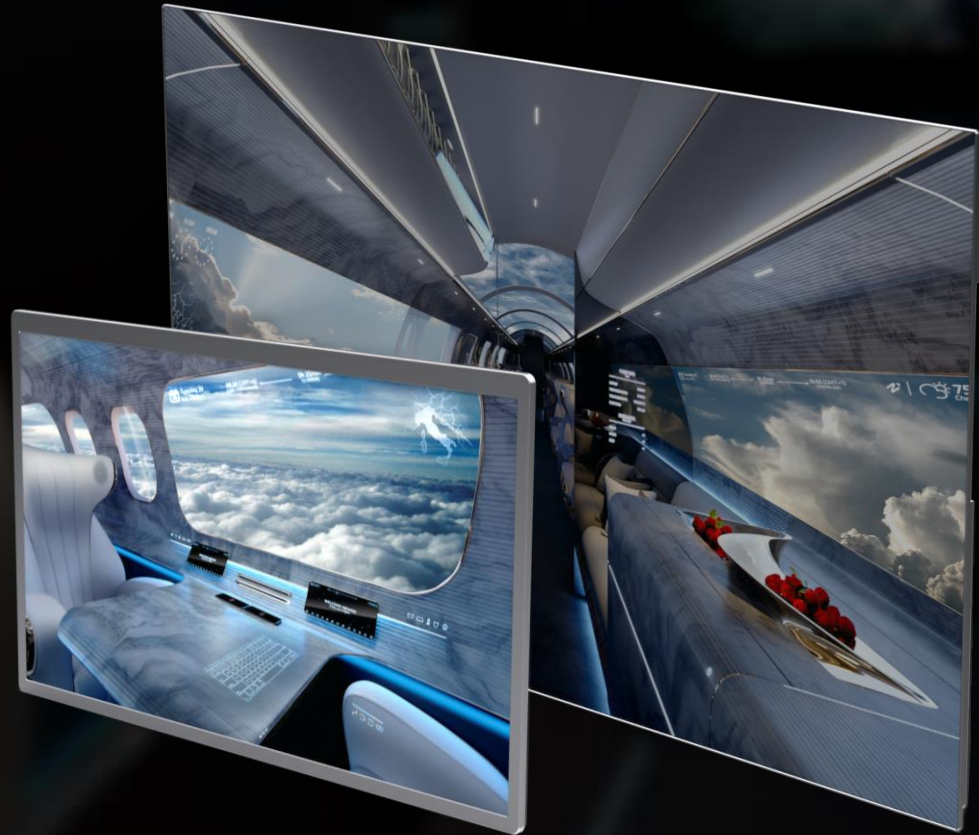
2024

2025

Theia NextGen IFE

Elevating the elevated

We took our industry-leading, complete line of OLED displays and made them even better. But in the pursuit of perfection, we didn't simply stop at display performance – we transformed IFE architecture and, ultimately, what's possible in an aircraft cabin. From picture quality to features and ultra-fast processing, every detail has been enhanced to redefine the passenger experience.



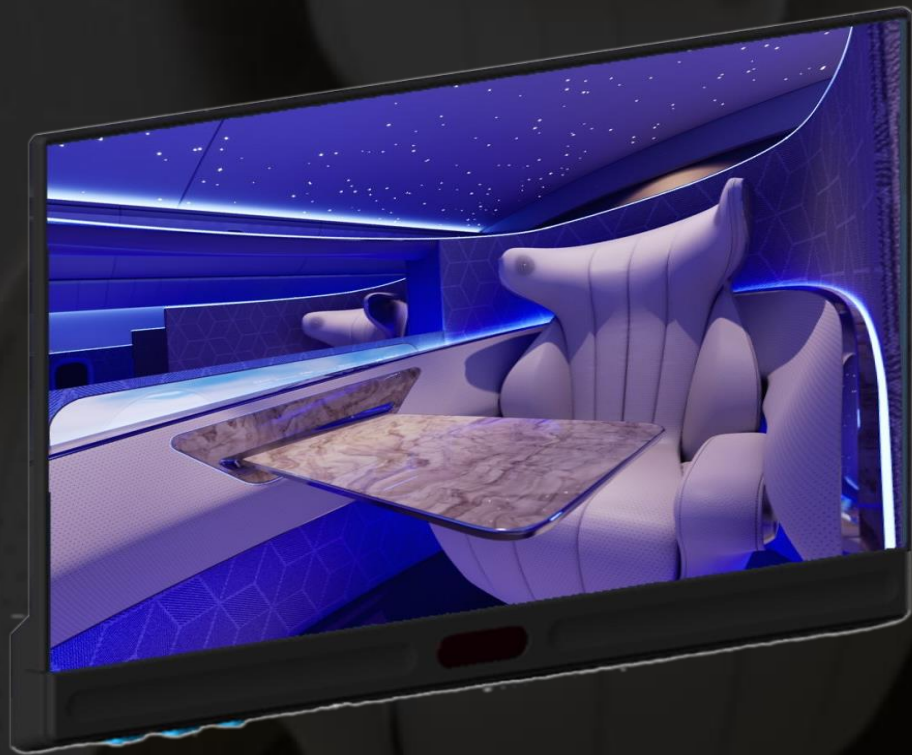
Preliminary Features & Specifications

- Truly smart IFE eliminating complexity
- Full range of sizes, 13" – 97"
- Dynamic & scalable architecture powered by Qualcomm®
- Ultra lightweight composite chassis
- Integrated power supply
- 4K UHD resolution, HDR, WCG
- Increased optical performance and reliability
- Integrated app hosting (streaming, 3D moving map & more)
- Ethernet based architecture
- Field upgradable via software updates
- Scalable design, standalone to system level
- Reduces system box count

Seatback Displays

An executive jet experience in a commercial jet environment

After more than 40 years of designing the best IFE displays in executive and VIP aviation, both in terms of optical performance and reliability, we are now introducing the same level of sophistication to commercial airlines. Rosen's new OLED seatback displays shatter any previous expectations in weight, picture quality and functionality. Our variety of sizes meet any requirements for economy, business and first-class IFE configurations.



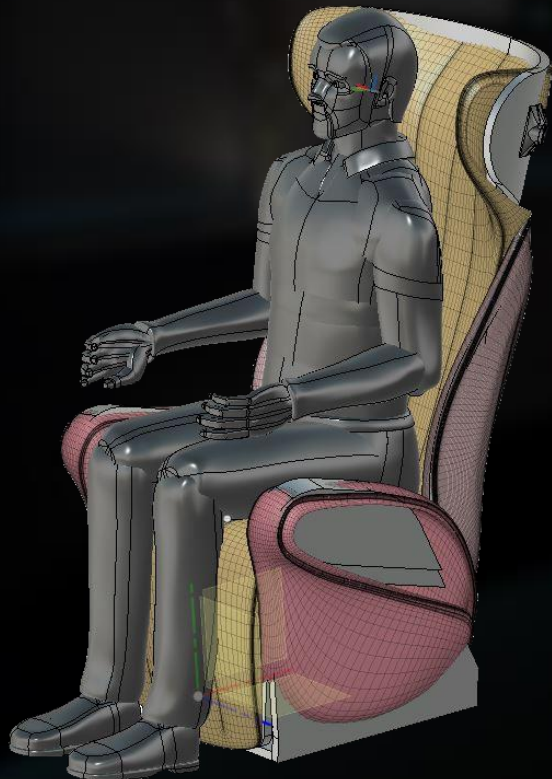
Preliminary Features & Specifications

- 13" and 16" sizes, additional sizes in development
- Dynamic & scalable architecture powered by Qualcomm®
- Ultra lightweight composite chassis (~1lb & 1.8lb)
- Integrated power supply
- 4K UHD resolution, HDR, WCG
- Signature Rosen quality & performance
- Designed for repairability
- Ethernet based architecture
- Field upgradable via software updates
- Bluetooth & Li-Fi connectivity
- Touchscreen compatible

Aurria™ In-seat AudioSphere

A lifelike experience made possible with dynamic in-seat AudioSphere

Inflight entertainment is more than just stunning 4K video & connectivity. To create a transcendent passenger experience, high-definition audio is not simply a “nice to have” - it is a requirement. Backed by global leaders in audio innovation, our dynamic in-seat AudioSphere shatters expectations.



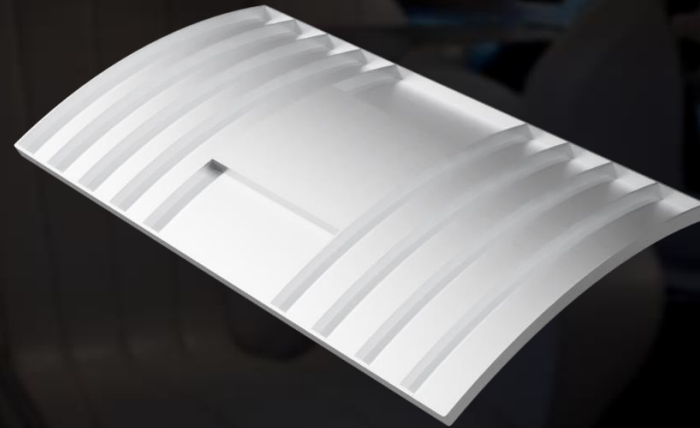
Preliminary Features & Specifications

- Patent pending dynamic in-seat AudioSphere
- True spatiality
- Ultra-Fi tonality and timbre
- Full cabin personalized 3D audio
- Active noise cancellation
- Spatial source signal 3D rendering
- Minimal weight impact
- Full CMS and IFE integration
- Lossless & efficient hybrid amplification
- Real-time equalization
- Control Via Rosen Android or iOS application

Enhanced Perspectives with *Exterra* Digital Windows & Skylights

Enhance any aircraft cabin by creating immersive space with digital windows & skylights.

Boasting 4K resolution, Wide Color Gamut, High Dynamic Range, “infinite” contrast ratios, and future upgradeability including real-time 3D rendering, POI information, and augmented reality, our curved digital perspectives provide stunning views and radically transform the flying experience.



Preliminary Features & Specifications

- 42”, 55”, 65” & 77” curved OLED skylights
- Lightweight, robust composite chassis
- Est. 8 lbs, 11 lbs, 16 lbs & 22 lbs., respectively
- Integrated power supply
- 4K UHD supporting HDR and WCG
- Can be paired with external camera(s)
- POI & Augmented Reality
- Tile multiple displays for expanded coverage
- Up to 1 meter curvature
- Four pre-loaded video themes available including night & daytime sky, forest & undersea
- Multiple inputs & control

A Smart Mirror for the **Smart Lavatory**

Enhance any environment with integrated smart mirror technology

A transformative passenger experience is not limited to main cabin space. Intuitive, fully integrated smart mirrors for galleys and lavatories create a seamless level of elegance and sophistication throughout the entire aircraft. Control CMS and ECS functions with each smart mirror.



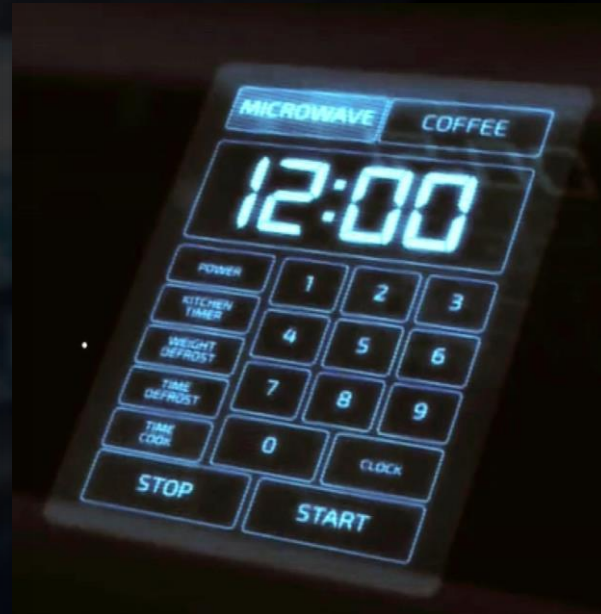
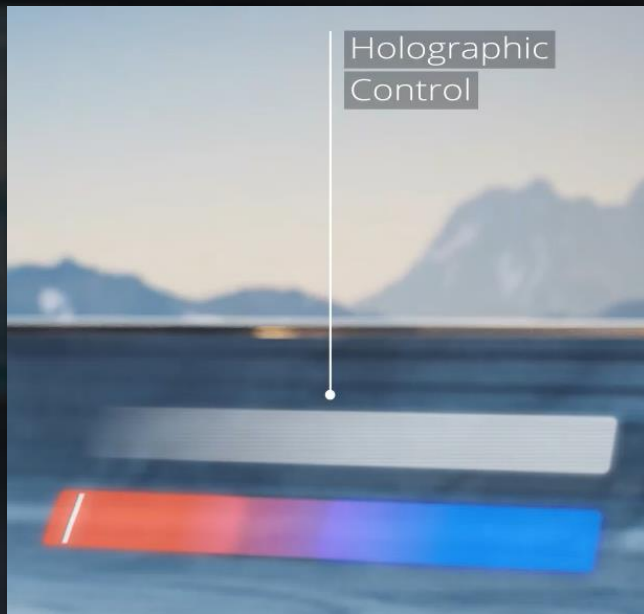
Preliminary Features & Specifications

- Glass, plastic, or tempered glass
- Virtually unlimited size & shape options
- HD or 4K LCD or OLED
- Touchscreen
- Compact & lightweight design
- Full color & moving imagery
- Intuitive function, no learning curve
- Wireless connectivity
- Seamless interior design integration

Style & Safety – Holo Controller

Safe touchless control, intuitive function, endless “WOW” factor.

Transform any aircraft cabin from ordinary to extraordinary with dynamic holographic controllers. Completely customizable, this cutting-edge solution can be configured for touchpads, keypads, sliders and more, while offering the same benefits of less-intuitive and less-private touchless control options such as gesture or voice control. Create an unrivaled passenger experience that borders on science fiction.



Preliminary Features & Specifications

- Potential sizes ranging from 4.7” - 32”+
- Projected image ~70% of source image
- Mimics touch, slide, pinch & multi-finger inputs
- Compact & lightweight design
- Standalone control or CMS/IFE integration
- Full color & moving imagery
- Private and intuitive function, no learning curve
- Wireless connection
- Seamless interior design integration

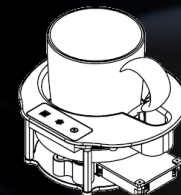
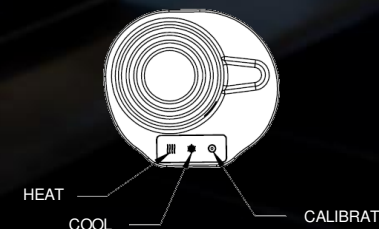
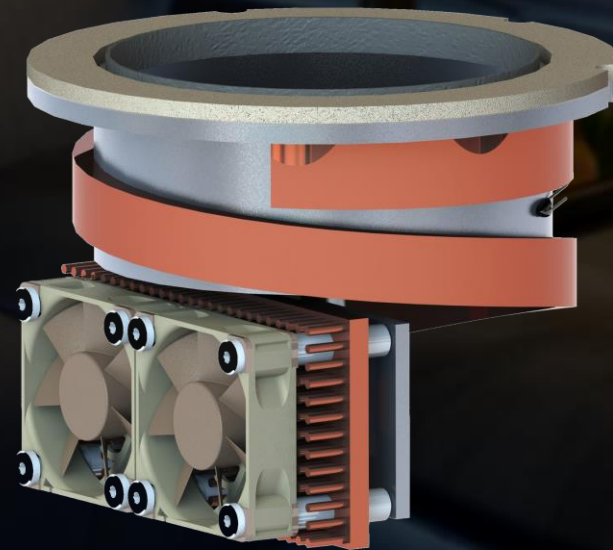
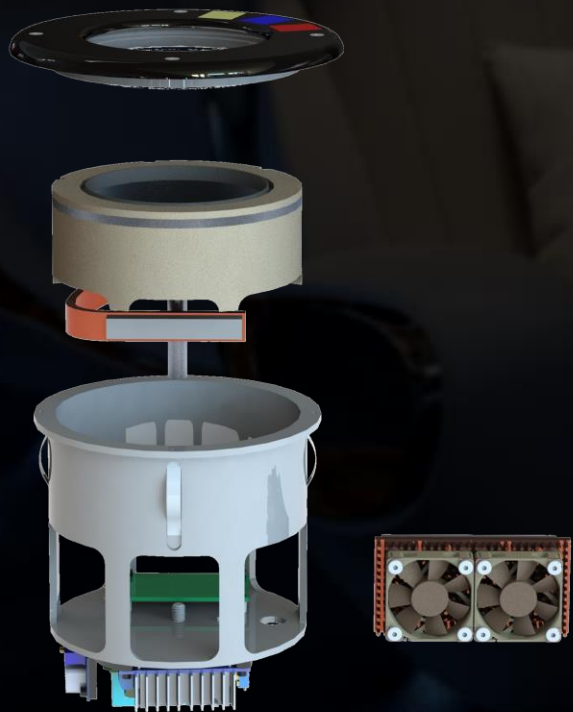
Automatic Smart Cupholder

Intelligent amenities for the intelligent cabin of tomorrow

A combination of sensors, processing power and AI functionality transforms even the simplest passenger experience detail such as drinking a cup of coffee or glass of wine. Rosen's Smart Cupholder automatically maintains drink temperature based on container type and can even detect when passengers need a refill with built-in level sensing. Scalable design makes for easy CMS integration.

Preliminary Features & Specifications

- Heating & cooling
- Maintains drink temp for longer
- NFC drink container identification
- Automatic ON/OFF
- Level sensing with CMS integration
- Manual override for pax preference
- Lightweight & compact design (~2 lbs)
- Low power consumption (~50W)



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Dynamic Engagement with Digital Branding Panel

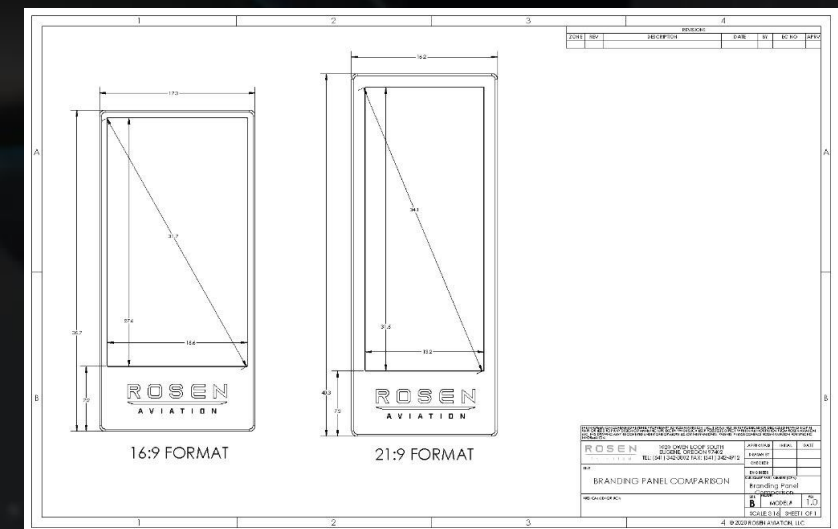
Every opportunity for passenger engagement matters – make it count

Redefine the passenger boarding and inflight experience with dynamic, engaging content offered by Rosen's digital branding panel. Available in multiple sizes and aspect ratios, deliver passengers brand messaging, flight data, upsell opportunities, app syncing, food and IFE information, and sponsored ads, all in a matter of seconds.



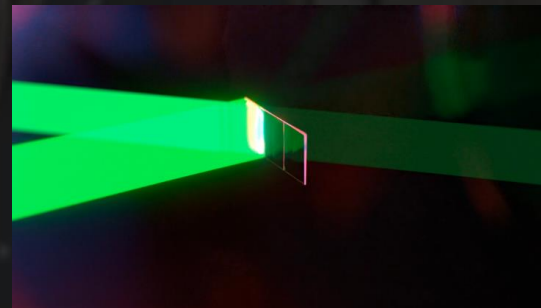
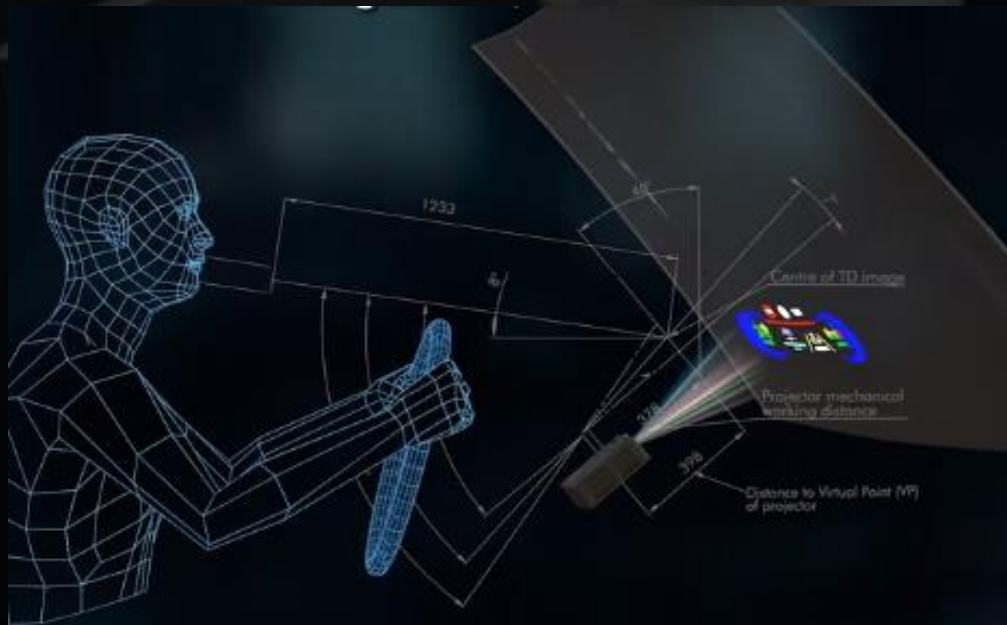
Preliminary Features & Specifications

- 24", 32", 34 and 42+” 4K display sizes
- Integrated power supply
- Field replaceable bezel and cover glass
- 16:9, 21:9 or custom aspect ratios
- Mounted landscape or portrait
- Lightweight & compact design
- Standalone or IFE/CMS integration



Information On-Demand

Create a seamless cabin experience by adding Holographic Optical Elements (HOE film) to side windows or cockpit windows of the aircraft. Originally designed as heads-up display technology, HOE technology can be integrated in a variety of applications to display information, news, directions, flight parameters, and video content in full color. Due to the designed eye box, information is only visible to the intended user and is visible in high ambient light environments.



Preliminary Features & Specifications

- HOE film laminated to windows, up to A2 sized eye box
- Low projector power (light is amplified with HOE film technology)
- Rosen has projector experience and is currently in development of an aircraft grade projection system
- Lightweight & compact design
- Low risk – technology in use in automotive

Utilizing Rosen Aviation LeftField Labs

Accelerating innovation

Defined by the experience not the technology

Small, agile and responsive

Collaborative partnership

Experience definition and storyboarding

Augmenting your R&D capabilities

Personalized project development

Leverage globally leading technology partners

Test & evaluation options

- Highly Accelerated Life Test (HALT)
- Environmental Stress Screening (ESS)
- DO-160 certification expertise with in-house testing equipment
- 3D printing & rapid prototyping
- Focus on designing out failure modes and design for zero defects

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The image shows the interior of a private jet cabin. The seats are white leather with a dark blue or black accent on the backrest. There are tables with white tablecloths, and on them are glasses of wine and small plates of food. The cabin is dimly lit, with a warm glow from the windows. The text is overlaid on the image in a white, sans-serif font.

"Insanity is doing the same thing over and over again and expecting different results."

-Albert Einstein