

# TREALITY LTSD

### Large Training Simulation Domes

### for simulation and training



For wide viewing areas for tandem and side-by-side seated cockpits, TREALITY offers the Large Training and Simulation Dome (LTSD). Based on a multi-projector system, the TREALITY LTSD creates a completely seamless and realistic image. TREALITY's extensive experience in motion base compatibility and structural rigidity analysis warrant a risk free implementation on motion bases and TREALITY has fielded spherical domes in a variety of sizes successfully on motion.

TREALITY SVS tailors these LTSD domes specifically to the application and the use of TREALITY's proprietary technologies ensure best-inclass results. TREALITY continuous quest for improvement optimizes the TREALITY LTSD's level of realism and ensures that an increasing part of the training can take place in simulators, thereby reducing cost and enhancing safety for the end-user.

## Large Training Simulation Domes

#### LTSD is Optimized for Performance

TREALITY is unique in the way that it combines dedicated research for simulation with internal product manufacturing to the highest quality standards. We offer application optimized screen technology and our decade long mechanical engineering experience provides for a fast, accurate and flawless installation and easy maintenance.

TREALITY visual displays are designed for optimal brightness and contrast through the use of internally developed screen coatings. We optimize our projection technology to perfectly match color, brightness, grey scale and other visual parameters across the entire visual system.



LTSD-M 13 for Tandem Seated Cockpit

#### **Power Control and Alignment Tools**

Central to the LTSD system are its powerful multi-system control and automated alignment tools. TREALITY SVS has equipped the system with its proprietary XDS-RACU solution. The TREALITY XDS-RACU allows the LTSD to operate as a fully integrated system with a single, userfriendly, scalable interface. The user can operate, calibrate, configure and diagnose multiple projectors from a handheld controller. To reduce set-up and maintenance time, the XDS-RACU automatically detects the projector type and location. It automatically downloads its display parameters. This valuable data is safely stored and can be quickly uploaded to get a projector up and running fast.



#### Accurate night training

With our state-of-the-art NOCTIS blending technology creating a true neutral density filter the NOCTIS true grey scale has been optimized to work equally well with visible and infrared light. Providing excellent blending performance optimized for any time of day and for stimulated NVG applications. The blend transition is calculated by TREALITY SimCAD design tool which accurately predicts the blend quality of the multi-channel projection visual display. The calculations are based on system projector configuration, projector optical design and lens characteristics. We can deliver the highest quality of blend overlap and the best image performance.



Blocking area
Blocks full light spectrum

Transition area The neutral density print gradually goes from 100% to 0%

Transparant area Maximum transmissivity of 98%

Non-Rugged AutoAlignment Head

NOCTIS<sup>™</sup> Soft Edge Blend plate

#### Design analysis and prediction

Using the TREALITY SimCAD, proprietary simulator design and optimization tool, all display parameters and customer requirements are easily translated into a highly detailed ray-tracing based model. SimCAD offers auto-optimization of projector placement and orientation (including obstruction analysis) and yields accurate real-time predications of brightness, contrast and resolution Simcad provides Aitoff plots of the channel coverage for even the most complex tiled layouts and the SimCAD designs can be exported to all the common CAD packages.

We guarantee safe and risk-free operation of our LTSD systems through our extensive experience in Finite Element Analysis (FEA) to determine the structural strength as well as the dynamic behavior of screens, mechanical components and assemblies.



FEA Geometry Model



FEA Mesh Model

#### Key features:

- horizontal field of view up to 360°
- vertical field of view up to 120° Up and 60° down
- most accurate system geometry
- modular design
- strength analysis with FEA tools
- direct projection screen with a variety of screen gains
- motion-base compatibility
- choice between several projectors technologies
- automated alignment tools
- smear-free operation
- flawless edge blending
- color and brightness uniformity
- stimulated night vision



FEA Results



LTSD-7 for Side-by-Side Seated Cockpits

## (LTSD-series

#### Industry Broadest Portfolio of Simulation Visual Systems

TREALITY Simulation Visual Systems offers the industry's broadest portfolio of simulation display products. These systems have been fielded and our proven solutions. They include a variety of solid (glass) and film mirror collimated displays, the world's highest performing full 360-degree seamless rear-projection dome, standard and custom front-projection displays, and the first trully deployable dome with a seamless-screen. Our simulation visual systems are used for the highest level of certified full flight simulations.

Some of our more recent applications were fielded for wide body aircraft include AW139, AW101, NH-90, T129, KC-135, AN132, MH-60S/R and C-130H/J.





#### World-wide presence and service

TREALITY SVS has the necessary experience and global reach to handle projects in all corners of the world. We are always ready to respond quickly and effectively to customer support requirements. TREALITY's worldwide presence, allows us to minimize downtime and maximize customer satisfaction regardless of where our systems are installed.

For more then 30 years TREALITY SVS has one mission: "To be the trusted and preferred supplier of choice for your high performance simulation visual systems."

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TREALITY SVS Simulation is an ISO 9001:2015 registered company. The information and data given are typical for the equipment described. However any individual item is subject to change without any notice. The latest version of this brochure can be found on www.trealitysvs.com.

SVS-TR-LTSD SERIES\_21-00

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