Spring/Summer 2021 Webinar Programme

Standards for Campus Technology Managers

DISPLAYS, LIGHT & ENVIRONMENTAL EXPERTISE

PRODUCTS, SERVICES, SPECIALIST CONSULTANCY

Presenter – Greg Jeffreys

VISUAL DISPLAYS

- ▶ Managing Director of Visual Displays (formerly Paradigm AV)
- ▶ Specialist consultant in standards, displays, light & lighting, VC lighting, teaching space & meeting room design
- ▶ Current chair, AVIXA Standards Steering Committee
- ▶ Lead writer, PISCR image contrast standard – and new ISCR standard task group
- ▶ Task group chair ANSI/AVIXA DISCAS standard – image size, resolution, viewing positions/angles, content size guidance
- ▶ Task group working on AVIXA's new UX for AV Design standard
- ▶ President of InfoComm/AVIXA 2012, board member 2008-13
- ▶ 2020 Outstanding Contribution Award – AV Technology Awards
- ▶ Proud associate of LTSMG

Today's objectives

- ▶ Management summary of relevant standards
  - ▶ Summary of existing and in-development AVIXA and ANSI/AVIXA standards
  - ▶ New UX standard and its use on campus
  - ▶ Summary of relevant environmental standards
  - ▶ Review of new WELL Building Standard V2
    - ▶ Radical new standard which can act as hub for all other relevant standards
    - ▶ Addresses wellbeing
- ▶ Post COVID implications and applications
- ▶ Provide follow up materials and resources
- ▶ Q&A

Background

- ▶ AVIXA Standards formed from Best Practice group
- ▶ Appointed as ANSI SDO (Standards Development Organisation) 2008
- ▶ Good reaction to first published standards but limited adoption
- ▶ PERFORMANCE standards – NOT system specifications
  - ▶ 'Start with the end in mind'
- ▶ 'Standard' has two meanings
- ▶ Easy to adopt
- ▶ 'The Haiku Principle'. Just a handful of essential benchmarks and guidelines effectively needed from each.
- ▶ Adaptable – make them work for you, not the other way round!
- ▶ Calculators – tools – guides
- ▶ Post pandemic revisions to standards, but proceeding well

Current AVIXA standards

- **A102.01:2017** *Audio Coverage Uniformity in Listener Areas (Under Revision)*
- **4:2012** *Audiovisual Systems Energy Management (Revised publication expected 2Q 2020)*
- **10:2013** *Audiovisual Systems Performance Verification (Under Revision)*
- **J-STD 710 – 2015 (CTA/AVIXA/CEDIA)** *Audio, Video, and Control Architectural Drawing Symbols*
- **F501.01:2015** *Cable Labeling for Audiovisual Systems (Under Revision)*
- **V202.01:2016** *Display Image Size for 2D Content in Audiovisual Systems*
- **RP-38-15:2018 (IES/AVIXA),** *Lighting Performance for Small-to-Medium-Sized Videoconferencing Rooms**
- **3M-2011** *Projected Image System Contrast Ratio (Revision V201.01 Image System Contrast Ratio – see below)*
- **F502.01:2018** *Rack Building for Audiovisual Systems*
- **F502.02:2020** *Rack Design for Audiovisual Systems (New Release!)*
- **RP-C303.01:2018** *Recommended Practices for Security in Networked Audiovisual Systems*
- **2M-2010** *Standard Guide for Audiovisual Systems Design and Coordination Processes (Under Revision)*
- **TR-111.01** *Unified Automation for Buildings*

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Audio #1 – Audio Coverage Uniformity

▶ **A102.01:2017** *Audio Coverage Uniformity in Listener Areas (Under Revision)*

▶ This Standard defines measurement requirements and parameters for characterizing a sound system's coverage in listener areas. It provides performance classifications to describe the uniformity of coverage of a sound system's early arriving sound with the goal of achieving consistent sound pressure levels throughout defined listener areas.

▶ https://www.avixa.org/standards/audio-coverage-uniformity-in-listener-area

▶ WEBINAR - https://www.avixa.org/insight/webinars/Details/what-you-need-to-know-about-the-revised-audio-coverage-in-listener-areas-standard/

Audio #2 - Spectral balance
in development

▶ A103.01 Sound System Spectral Balance

▶ This Standard defines a measurement and verification process for sound system reproduction of spectral balance, also known as uniform frequency response, accomplished by documenting the frequency response from the sound system across a specified bandwidth within a low- to high-frequency range within the listening area.

Audio #3 Sound System Dynamic Range

in development

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- ▶ A104.01 Sound System Dynamic Range

- ▶ This Standard provides a procedure to measure and classify the dynamic range, or signal-to-noise ratio, of early arriving sound from a sound system across a listener area.

Energy

▶ **4:2012 *Audiovisual Systems Energy Management* (*update soon being published*)**

▶ This Standard defines processes and requirements for ongoing power-consumption management of audiovisual systems. The revision uses a tiered conformance approach. Audiovisual systems conforming to this Standard will meet the defined requirements for automation, measurement, and analysis will vary based on each tier.

▶ https://www.avixa.org/standards/energy-management-for-audiovisual-systems

▶ ROI worksheet available from above link

▶ Energy Management Plan available from above link

▶

Systems Performance Verification

▶ **10:2013** *Audiovisual Systems Performance Verification (task group reforming)*

▶ This Standard provides a framework and supporting processes for determining elements of an audiovisual system that need to be verified; the timing of that verification within the project delivery cycle; a process for determining verification criteria/metrics; and reporting procedures.

▶ https://www.avixa.org/standards/audiovisual-systems-performance-verification

▶ Handbook - https://store.avixa.org/CPBase__item?id=a13f200000C2iPzAAJ

▶ Documentation Standards - https://avixa.azureedge.net/portal/docs/default-source/default-document-library/avprojectdocsample_fullcontents.pdf

CAD symbols

▶ **J-STD 710 – 2015 (CTA/AVIXA/CEDIA)** *Audio, Video, and Control Architectural Drawing Symbols*

▶ This Standard defines architectural floor plan and reflected ceiling plan symbols for audio, video, and control systems, with associated technologies such as environmental control and communication networks. It also includes descriptions and guidelines for the use of these symbols.

▶ https://www.avixa.org/standards/audio-video-and-control-architectural-drawing-symbols

▶ Symbol files - https://store.avixa.org/CPBase__item?id=a13f200000C2iQdAAJ

Cable Labelling

▶ **F501.01:2015 *Cable Labeling for Audiovisual Systems (restarting 2021)***

▶ This Standard defines requirements for audiovisual system cable labeling for a variety of venues. It provides requirements to easily identify all power and signal paths in a completed audiovisual system to aid in operation, support, maintenance, and troubleshooting.

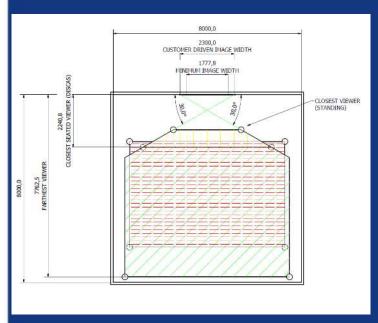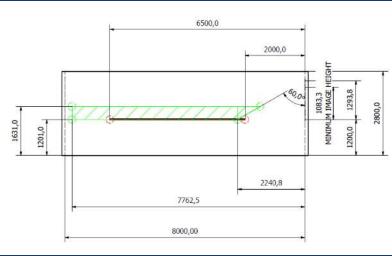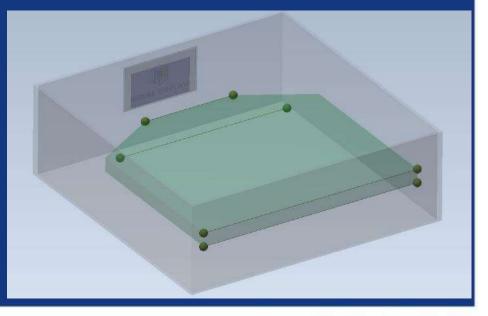▶ https://www.avixa.org/standards/cable-labeling-for-audiovisual-systems

DISCAS

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- **V202.01:2016 *Display Image Size for 2D Content in Audiovisual Systems***

- This Standard determines required display image size and relative viewing positions based on user need. It can be used to design a new space or to assess/modify an existing space, from either drawings or the space itself. It applies to permanently installed and temporary systems. The Standard does not apply to the performance or efficiency of any component. A free online calculator is available for ease of conformance (one-time registration).

- https://www.avixa.org/standards/display-image-size-for-2d-content-in-audiovisual-system

- Online calculator - https://www.avixa.org/standards/discas-calculators

- Offline calculator - https://visualdisplaysltd.com/resources/useful-calculator-tools

- Delft Uni DISCAS tool - http://homepage.tudelft.nl/9c41c/Readability/ReadabilityTool4EducationSpaces.htm

DISCAS CAD tools
Formulae in parametric 3D CAD (+ renderings)

VC lighting

▶ **RP-38-15:2018 (IES/AVIXA),** *Lighting Performance for Small-to-Medium-Sized Videoconferencing Rooms**

▶ This Standard provides parameters and performance criteria for lighting small-to-medium sized single-axis videoconferencing spaces (maximum of 25 participants), defined as one set of video displays and cameras oriented toward a group of seated participants, providing technical and practical requirements to assist practitioners who configure and specify lighting systems specific to videoconferencing projects.

▶ https://www.avixa.org/standards/recommended-practice-for-lighting-performance-for-small-to-medium-sized-videoconferencing-rooms

PISCR

▶ **3M-2011 *Projected Image System Contrast Ratio (Revision V201.01 Image System Contrast Ratio – see below)***

▶ This Standard defines projected image system contrast ratio and its measurement. Four contrast ratios based on four categories of content-viewing requirements are defined. Practical metrics to measure and validate the defined contrast ratios are provided.

▶ https://www.avixa.org/standards/image-system-contrast-ratio

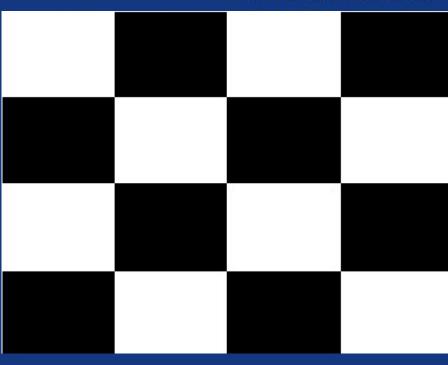▶ Related tools - https://visualdisplaysltd.com/resources/useful-calculator-tools

15?
15:1 contrast ratio

- The PISCR/ISCR image standard has four viewing categories

- 99% of our installations are Basic Decision Making Category

  The viewer can make basic decisions from the displayed image. The decisions are not dependent on critical details within the image, but there is assimilation and retention of information. The viewer is actively engaged with the content (e.g., information displays, presentations containing detailed images, classrooms, boardrooms multi-purpose rooms, product illustrations).

- In standard installations 15:1 is almost always impossible to achieve

- **But why………………..?**

The white squares' average luminance (brightness) must be 15 x more than the black squares.
ONSCREEN – NOT FROM PROJECTOR

ISCR – publishing 20201

- V201.01 Image System Contrast Ratio (public review completed early 2021)

- Applies to all display types

- This Standard defines contrast ratios based on user viewing requirements. It is designed to facilitate informed decision making for any display, projector, and screen selection, relative to location and purpose. It applies to permanently installed systems and live events; front and rear projection, and direct view displays.

Rack building & rack design

▶ *F502.01:2018 Rack Building for Audiovisual Systems*

▶ *This Standard defines requirements for building audiovisual equipment racks which are defined as assembly of rack(s), mounting of audiovisual equipment and accessories, cable management, and finishing.*

▶ https://www.avixa.org/standards/rack-building-for-audiovisual-systems

▶ **F502.02:2020** *Rack Design for Audiovisual Systems*

▶ This Standard defines minimum requirements for the audiovisual rack planning and design process including required process inputs and outputs. Key performance criteria validate the impact to internal and external integration with the facility requirements.

Network security

▶ **RP-C303.01:2018** *Recommended Practices for Security in Networked Audiovisual Systems*

▶ This Recommended Practice provides guidance and current best practices for securing networked audiovisual systems including how to recognize risks and develop a risk mitigation management plan to address those risks.

▶ https://www.avixa.org/standards/recommended-practices-for-security-in-networked-audiovisual-systems

Systems Design and Coordination

- **2M-2010 *Standard Guide for Audiovisual Systems Design and Coordination Processes (Under Revision)***

- This Standard provides a framework for the methods, procedures, tasks, and deliverables typically recommended or applied by industry professionals in the design and implementation of audiovisual communication systems. The framework enables clients and other design and construction team members to assess whether responsible parties are providing expected services. The revision will define minimum documentation requirements for audiovisual systems design.

- https://www.avixa.org/standards/Standard-guide-for-audiovisual-systems-design-and-coordination-processes

- Handbook - https://store.avixa.org/CPBase__item?id=a13f200000C2iPzAAJ

- Documentation sample - https://avixa.azureedge.net/portal/docs/default-source/default-document-library/avprojectdocsample_fullcontents.pdf

Unified Automation for Buildings

▶ **TR-111.01 *Unified Automation for Buildings***

▶ This Technical Report provides a detailed overview of the building automation environment and identifies the need for a unified set of standards to integrate multiple building systems, including but not limited to traditional Building Automation Systems (BAS), into cohesive and functional systems and/or sub-systems for increased benefits.

▶ https://www.avixa.org/standards/unified-automation-for-buildings

User Experience Design for AV Systems

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▶ UX701.01 User Experience Design for Audiovisual Systems

▶ This Standard defines processes that optimize user experience for audiovisual-equipped spaces. Processes include user engagement, design, testing, deployment, and continuous refinement.

Any questions about AVIXA standards?

WELL Building Standard v2™

IWBI delivers the cutting-edge WELL Building Standard™, the leading global rating system and the first to be focused exclusively on the ways that buildings, and everything in them, can improve our comfort, drive better choices, and generally enhance, not compromise, our health and wellness.

▶ This standard captures every aspect of building and user wellbeing and management

▶ Provides 'hooks' into AV standards

▶ Powerful tool to work with senior management and other stakeholders

▶ Helps 'silo conflict' such as lighting damaging display performance – and learning outcomes

▶ https://v2.wellcertified.com/v/en/overview

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Specialist manufacture, distribution, services.
Supporting HE framework integrators to excel.

DISPLAYS, LIGHT, ENVIRONMENTAL & STANDARDS EXPERTISE

Visual Displays Ltd

Specialist manufacture, distribution & services

Supporting your framework integrators supporting you

▶ Products

    ▶ dnp Supernova ALR (ambient light-rejecting) projection screens

    ▶ Complete laser projection display bundles – from 100" to any size

    ▶ Main UK Draper & Euroscreen distributor

    ▶ Immersive displays

    ▶ Bespoke display & mounting solutions

    ▶ Bespoke interactive displays

    ▶ Daylight control (blinds)

▶ Services

    ▶ Display design and specification

    ▶ Parametric 3D CAD design

    ▶ Expert tender response support and consultant liaison

    ▶ Space redeployment design for social distancing

    ▶ System troubleshooting

    ▶ Room surveys and audits (using meters & reporting to standards)

    ▶ Proof of concept

    ▶ Specialist consultancy

Ambient light rejecting screens
…best known for dnp Supernova

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dnp Supernova 08-85

dnp Supernova 20-25

Standard white Da-Lite gain 1

See full Gary Kayye ISE video here -
https://www.dnp-screens.com/en/video/dnp-ambient-light-rejecting-screens-at-ise-2015/

https://www.dnp-screens.com/
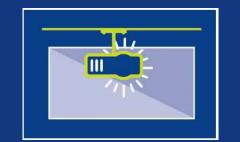
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▶ Glasgow University – new L&T Hub

▶ 30 x dnp ALR screen systems 8m wide down to 100"

▶ *Image (sign-off photo):*

   ▶ *1 x 6m wide 4K projection;*

   ▶ *2 x 100" VDL Complete Laser Display*

Complete Laser Displays

Standards-compliant large screen displays

- ▶ Complete bundled packages, Epson projector (with warranty), dnp screen & Epson mount.
  - ▶ 100", 110" & 120" with UST (e.g. EB-700U)
  - ▶ 100" to any size with standard lens laser projectors
  - ▶ Furniture & bespoke options available
- ▶ Single SKU purchase of complete display packages
- ▶ Fraction of £cost/m^2 compared with LFD, dvLED etc
- ▶ *Available through all framework integrators*

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Specify and buy with single SKUs (order codes)

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Each CLD bundle includes

- **Epson laser projector**
  (with 5 year warranty)

- **dnp Supernova ALR (ambient light rejecting) screen**

- **Complete mounting solution**

Optional Extras:

- Free installation CAD drawings
- Site survey
- Installation
- 16:10 aspect ratio available
- Furniture
- Bespoke framework
- High-gain screen option (for limited field of view) no additional charge

- ▶ Hassle-free, single-SKU complete solution

- ▶ Multiple screen, projector and mount options to suit any space

- ▶ Large custom-size displays for optimised viewing from everywhere in the room

- ▶ Laser projection and ALR screen technology for flawless image quality at a fraction of the cost of FPD and dvLED

- ▶ Seamless single images - no visible joins (as with videowalls)

- ▶ Completely non-reflective screen - no 'cheap seats' created by distracting reflections from lighting and daylight

- ▶ High resolution HD video and graphics for detailed content viewing – exceeds AVIXA DISCAS resolution requirement

- ▶ Conforms to to AVIXA DISCAS image size standard for all room sizes

- ▶ Exceeds AVIXA ISCR image contrast requirement – for all viewers

- ▶ Optimised image brightness, designed for all-day viewing without eye strain
  (in conformance with the new WELL v2 Building Standard)

- ▶ Lightweight – can mount on any wall, even the largest sizes

- ▶ Reliable & easy to use

- ▶ Maintenance free

Specified by *image* performance

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Bundle code	Complete Laser Bundle Description	Image size (inches diagonal)	Image size (mm width x mm height)	Epson Projector Model (mount included)	Lens type	Projector lumens (max)	Installed Image Resolution (can also be installed as 1920 x 1200)	dnp Supernova ALR Screen Model	Image Brightness (max, cd/m²)	**ISCR Image Contrast
CLD/UST/STW/100/700	Compact Footprint, Fixed Screen	100	2214 x 1245	EB-700U	UST	4000	1920 x 1080 HD	STW	231	29
CLD/UST/STW/110/700	Compact Footprint, Fixed Screen	110	2435 x 1370	EB-700U	UST	4000	1920 x 1080 HD	STW	191	25
CLD/UST/STW/120/700	Compact Footprint, Fixed Screen	120	2651 x 1491	EB-700U	UST	4000	1920 x 1080 HD	STW	161	22
CLD/STL/SNC/100/510	Fixed Screen (semi-rigid)	100	2214 x 1245	EB-L510U	Standard	5000	1920 x 1080 HD	Core	462	
CLD/STL/SNC/100/070	Fixed Screen (semi-rigid)	100	2214 x 1245	EB-L1070U	Standard	7000	4K enhanced *	Core	647	
CLD/STL/SNC/110/510	Fixed Screen (semi-rigid)	110	2435 x 1370	EB-L510U	Standard	5000	1920 x 1080 HD	Core	382	
CLD/STL/SNC/110/070	Fixed Screen (semi-rigid)	110	2435 x 1370	EB-L1070U	Standard	7000	4K enhanced *	Core	542	
CLD/STL/SNC/120/510	Fixed Screen (semi-rigid)	120	2657 x 1494	EB-L510U	Standard	5000	1920 x 1080 HD	Core	290	
CLD/STL/SNC/120/070	Fixed Screen (semi-rigid)	120	2657 x 1494	EB-L1070U	Standard	7000	4K enhanced *	Core	406	
CLD/STL/SNO/100/510	Fixed Screen (with bezel)	100	2214 x 1245	EB-L510U	Standard	5000	1920 x 1080 HD	One	46	
CLD/STL/SNO/100/070	Fixed Screen (with bezel)	100	2214 x 1245	EB-L1070U	Standard	7000	4K enhanced *	One	64	
CLD/STL/SNO/110/510	Fixed Screen (with bezel)	110	2435 x 1370	EB-L510U	Standard	5000	1920 x 1080 HD	One	38	
CLD/STL/SNO/110/070	Fixed Screen (with bezel)	110	2435 x 1370	EB-L1070U	Standard	7000	4K enhanced *	One	54	
CLD/STL/SNO/120/510	Fixed Screen (with bezel)	120	2657 x 1494	EB-L510U	Standard	5000	1920 x 1080 HD	One	29	
CLD/STL/SNO/120/070	Fixed Screen (with bezel)	120	2657 x 1494	EB-L1070U	Standard	7000	4K enhanced *	One	40	
CLD/STL/SNB/100/510	Fixed Screen (borderless image)	100	2214 x 1245	EB-L510U	Standard	5000	1920 x 1080 HD	Blade	462	
CLD/STL/SNB/100/070	Fixed Screen (borderless image)	100	2214 x 1245	EB-L1070U	Standard	7000	4K enhanced *	Blade	647	
CLD/STL/SNB/110/510	Fixed Screen (borderless image)	110	2435 x 1370	EB-L510U	Standard	5000	1920 x 1080 HD	Blade	382	
CLD/STL/SNB/110/070	Fixed Screen (borderless image)	110	2435 x 1370	EB-L1070U	Standard	7000	4K enhanced *	Blade	542	
CLD/STL/SNB/120/510	Fixed Screen (borderless image)	120	2657 x 1494	EB-L510U	Standard	5000	1920 x 1080 HD	Blade	290	
CLD/STL/SNB/120/070	Fixed Screen (borderless image)	120	2657 x 1494	EB-L1070U	Standard	7000	4K enhanced *	Blade	406	
CLD/STL/SNF/100/510	Electric Drop-Down Screen	100	2214 x 1245	EB-L510U	Standard	5000	1920 x 1080 HD	Flex Classic	462	39
CLD/STL/SNF/100/070	Electric Drop-Down Screen	100	2214 x 1245	EB-L1070U	Standard	7000	4K enhanced *	Flex Classic	647	47
CLD/STL/SNF/120/510	Electric Drop-Down Screen	120	2612 x 1469	EB-L510U	Standard	5000	1920 x 1080 HD	Flex Classic	332	31
CLD/STL/SNF/120/070	Electric Drop-Down Screen	120	2612 x 1469	EB-L1070U	Standard	7000	4K enhanced *	Flex Classic	467	39

What size should my screen be? Click here for our 3-Step Guide to Display Success ✓

* 4K pixel resolution, pixel shift technology.
**Notional, at 150 lux downlight on-screen.
(Min for BDM category = 15 : 1)

Magnified detail:

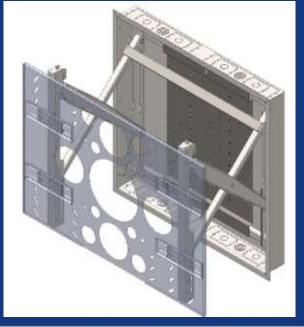| Image Brightness (max, cd/m²)	**ISCR Image Contrast
231	29
191	25
161	22
462	39
647	47
382	34
542	42

WALLMATE

▶ Total in wall solution

▶ Flexible mounting

▶ Displays from 55" through 100"+

▶ Order as kits

▶ With box = all at once one SKU

▶ Box separate / first

https://visualdisplaysltd.com/solutions/technology/wallmate
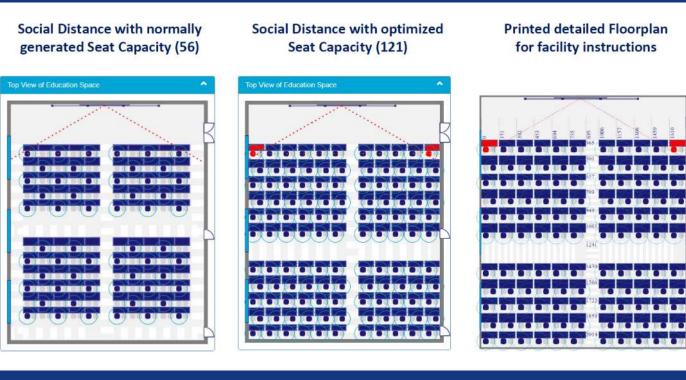
dvLED

- Indoor and Outdoor systems
- Huge range of resolutions
- Many brightness options
- Mounting and framing
- Full design and mechanical engineering service

Social distancing space configurator
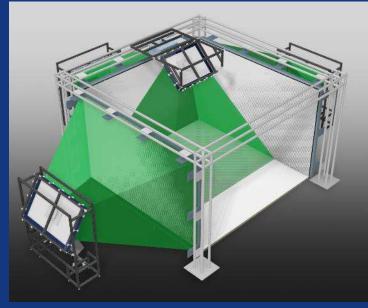## Complete space configuration and management

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Specialising in the difficult!

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CAVES

MULTI-PROJECTION

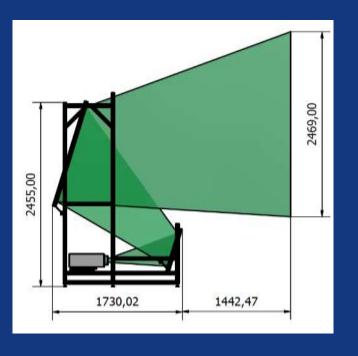CURVED SCREENS

LARGE SCREEN INTERACTIVE
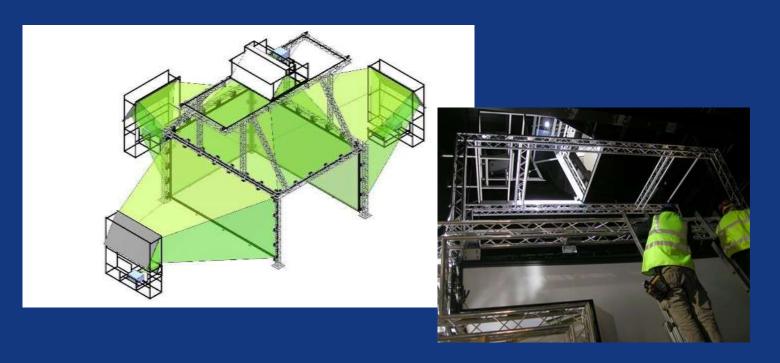
IMMERSIVE, SIMULATION, AR, VR, CR etc

World-leading 3D CAD design and bespoke manufacture

▶ We solve problems

Q & A

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Our website is packed with essential info, tools & content

VISUAL DISPLAYS

▶ Case studies

    ▶ Corporate – https://visualdisplaysltd.com/case-studies/corporate

    ▶ Retail & signage – https://visualdisplaysltd.com/case-studies/retail-signage

    ▶ Education – https://visualdisplaysltd.com/case-studies/education

    ▶ Leisure – https://visualdisplaysltd.com/case-studies/leisure

▶ Displays expertise, advice and knowledge bank – https://visualdisplaysltd.com/resources/tools/specifying

▶ Tools, resource bank, essential easy-to-use calculators – https://visualdisplaysltd.com/resources

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