



Governo de Mato Grosso
MT PARTICIPAÇÕES E PROJETOS S.A.



LED SCREENS

TECHNICAL SPECIFICATIONS



Assinado com senha por YAN NICOLAS RAMOS OLIVEIRA - ANALISTA DE PROJETOS I / NUCLEO-PROJ-ENG - 25/07/2024 às 09:27:39.
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1 INTRODUCTION

The present document establishes the technical specifications and guidelines to be observed for participation in the international public tender aimed at the acquisition of LED screens for indoor and outdoor use. These screens will be installed at Parque Novo Mato Grosso, located in Cuiabá/MT. The delivery of the products must be made at the Port of Santos, State of São Paulo, according to the Incoterm CIF.

2 OBJECTIVE

The acquisition of LED screens aims to meet the needs of Parque Novo Mato Grosso, providing high-performance and quality equipment for various events, both indoors and outdoors. The sizing and selection of the equipment were made for scenarios of high technical complexity, using adaptable and expandable control centers as topology. This results in numerous possibilities and approaches for various applications, always prioritizing high performance, efficiency, availability, interoperability, and cost-effectiveness.

The objective of this technical document is to establish the technical requirements that must be met by companies interested in supplying the equipment. All technical specifications are minimum requirements that must be fully met, under penalty of technical disqualification.

Company information:

MT PARTICIPAÇÕES E PROJETOS S.A.

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SUMMARY OF SPECIFICATIONS AND QUANTITIES

#	Specifications	Quantity
1	Fixed outdoor LED panel: with a pixel pitch of 4 mm or less , 3-in-1 SMD LEDs; brightness equal to or greater than 6000 nits and pixel density equal to or greater than 62500 pixels per square meter; dimensions of 960x960mm; rear or front maintenance; IP65 ingress protection front and back, with flatness equal to or less than 0.4 mm, suitable for outdoor environments; material is die-cast aluminum; manual and automatic brightness control; adjustable color temperature; viewing angle equal to or greater than 140 degrees horizontal and 120 degrees vertical; contrast ratio equal to or greater than 4000:1, with 14-bit processing depth and frame refresh rate equal to or greater than 3840 Hz; maximum power is equal to or less than 850 watts per square meter, and typical power equal to or less than 350 watts per square meter; input voltage between 200 and 240 Vac, with input frequency of 60 Hz; lifespan equal to or greater than 100,000 hours and with a minimum warranty of 3 years.	591 units
2	Indoor rental LED panel: with a pixel pitch of 4 mm or less, 3-in-1 SMD LEDs; brightness equal to or greater than 4000 nits and pixel density equal to or greater than 62500 pixels per square meter; dimensions less than or equal to 1000 mm in width and length; rear or front maintenance; IP54 ingress protection front and back, with flatness equal to or less than 0.4 mm, suitable for indoor environments; material is die-cast aluminum; manual and automatic brightness control; adjustable color temperature; viewing angle equal to or greater than 140 degrees horizontal and 120 degrees vertical; contrast ratio equal to or greater than 4000:1, with 14-bit processing depth and frame refresh rate equal to or greater than 3840 Hz; maximum power is equal to or less than 850 watts per square meter, and typical power equal to or less than 350 watts per square meter; input voltage between 200 and 240 Vac, with input frequency of 60 Hz; lifespan equal to or greater than 100,000 hours and with a minimum warranty of 3 years; with modular floor mounting structure and "flight case" type transport boxes.	60 square meters
3	Fixed outdoor LED panel: with a pixel pitch of 6 mm or less and a spherical shape with a 4-meter diameter; 3-in-1 SMD LEDs; brightness equal to or greater than 6000 nits; rear or front maintenance; IP65 ingress protection front and back, with flatness equal to or less than 0.4 mm, suitable for outdoor environments; manual and automatic brightness control; adjustable color temperature; viewing angle equal to or greater than 140 degrees horizontal and 120 degrees vertical; contrast ratio equal to or greater than 4000:1, with 14-bit processing depth and frame refresh rate equal to or greater than 3840 Hz; maximum power is equal to or less than 850 watts per square meter, and typical power equal to or less than 330 watts per square meter; input voltage between 200 and 240 Vac, with input frequency of 60 Hz; lifespan equal to or greater than 100,000 hours and with a minimum warranty of 3 years; with ground mounting structure.	1 unit
4	Modular video controller with a capacity for 19 million pixels; main interface with 1 Genlock input with loop, 1 RS232 serial port, USB 3.0 port, and GbE control port; input interfaces include 1 HDMI Type A port or	1 unit





	1 DP port (1×4K@60Hz), 4 3G-SDI ports (4×2K@60Hz), 4 HDMI Type A ports (4×2K@60Hz), 2 RJ45 GbE ports, and 1 USB 3.0 port. Output interfaces consist of 6 10G fiber ports (3 main and 3 backup). The monitoring interface has 1 HDMI 1.4 port for input preview and output monitoring (minimum of 1920×1080@60Hz); support for simultaneous playback of 4×4K or 16×1080P, multi-window and multi-layer display, window roaming, free splicing, and input source cropping. Control is through 1 Ethernet port, 2 USB ports (input and output), and 1 GENLOCK (IN & LOOP); color management with independent adjustments for each input and output source in brightness, color temperature, RGB gain, contrast, saturation, and brightness compensation; device control capability via LAN, RS232, and Web; power supply 100~240V 60Hz; with software and accessories and a 3-year warranty. (Colorlight X100Pro-4U or similar).	
5	Video controller with a capacity for 6.5 million pixels; with inputs for 1x HDMI 2.0, 1x HDMI 1.4, 1x DVI, 1x 3G-SDI, and 1x 10G fiber port, supporting input up to 4096x2160@60Hz and frame rate up to 240 Hz; with outputs of 10 Gigabit network ports, 2 10G fiber ports, supporting video loop output and up to 1x 4Kx1K@60Hz or 2x 2Kx1K@60Hz; 1 HDMI 1.3 port for preview or video output; with frame rate up to 240 Hz, and support for 8-bit and 10-bit video processing; with capabilities for video cutting, switching, and scaling at the broadcast level, support for displaying at least 3 layers with independent size and position adjustments, zero-latency operation in bypass mode, support for HDR display and Genlock with loop; with color management featuring independent adjustments for hue, saturation, contrast, and brightness compensation on output, brightness and color temperature adjustments; with HDMI port support for audio via multifunction card or HDMI input; with USB port for control, RS232 serial communication protocol, and LAN port for TCP/IP control; power supply 100~240V 60Hz; with control software, accessories, and 3-year warranty (Colorlight VX10 or similar).	5 units
6	Video controller with a capacity for 3.93 million pixels; with inputs for 1x HDMI 2.0, 1x HDMI 1.4, 1x DVI, 1x 3G-SDI, and 1x 10G fiber port, supporting input up to 4096x2160@60Hz and frame rate up to 240 Hz; with outputs of 10 Gigabit network ports, 2 10G fiber ports, supporting video loop output and up to 1x 4Kx1K@60Hz or 2x 2Kx1K@60Hz; 1 HDMI 1.3 port for preview or video output; with frame rate up to 240 Hz, and support for 8-bit and 10-bit video processing; with capabilities for video cutting, switching, and scaling at the broadcast level, support for displaying at least 3 layers with independent size and position adjustments, zero-latency operation in bypass mode, support for HDR display and Genlock with loop; with color management featuring independent adjustments for hue, saturation, contrast, and brightness compensation on output, brightness and color temperature adjustments; with HDMI port support for audio via multifunction card or HDMI input; with USB port for control, RS232 serial communication protocol, and LAN port for TCP/IP control; power supply 100~240V 60Hz; with control software, accessories, and 3-year warranty (Colorlight VX6 or similar)	4 units





7	16K media server with the capability to play two 8K videos and provide output for eight 4K videos at 60Hz; with screen configuration capabilities, splitting, mounting, and recombining screens, multiple layers; with 8 DP1.4 outputs capable of 4K at 60Hz each; with a maximum playback capacity of at least 16384x4320 at 60Hz; with 1 1Gb LAN port, 2 USB 2.0 ports, 1 COM port, VGA video port, remote management port, 2 USB 3.2 ports, 1 10Gb LAN port, Type-C port, 7.1 audio output ports, 1TB M.2 SSD, Intel CPU with 16 cores and 32 threads, 128GB RAM, SDI or DVI capture card, 2 16GB Quadro or superior graphics cards, 3.5mm audio input and multichannel output, network bandwidth of 1GbE and 10GbE; power supply 200 ~ 240V 60Hz; accessories and software included, and a 3-year warranty (Colorlight CS16K or similar)	1 unit
8	8K media server with the capability to play four 4K videos at 60Hz; video output through 4 DP1.4 ports with a capacity of 4096x2160 at 120Hz and a maximum combined resolution of 8192x4320 at 60Hz; 1TB M.2 SSD, Intel CPU with 10 cores and 20 threads, 32GB RAM, SDI or DVI capture card, and a 16GB Quadro or superior graphics card; with audio input and output; with 4 DP1.4 outputs; 2 1GbE LAN ports, 2 USB 3.1 ports, 2 USB 2.0 ports, 1 GbE port, 1 USB 3.1 Gen 2 Type-C port, 1 optical Opt S/PDIF port, 1 COM port, VGA video port, remote management port, 2 USB 3.2 ports, 1 10Gb LAN port, Type-C port, and 7.1 audio output ports; power supply 200 ~ 240V 60Hz; accessories and software included, and a 3-year warranty (Colorlight CS20-8KPro or similar)	2 units
9	Optical transceiver with 1 10GB/s Dual-LC port and 10 Neutrik RJ45 Gigabit Ethernet outputs; support for photoelectric conversion; and single-mode fibers compatible with video controllers; power supply 200 ~ 240V 60Hz	15 units





3 P4 OUTDOOR FIXED LED DISPLAY

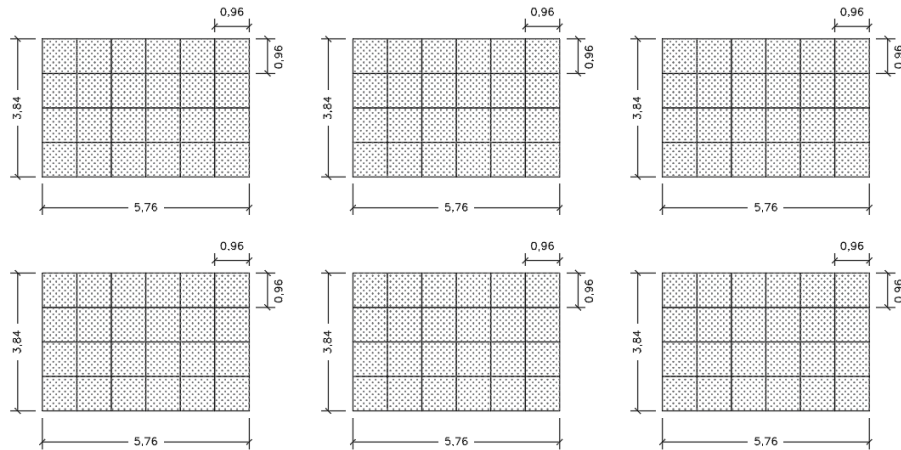
Technical Parameters	
Pixel Pitch	≤ 4 mm
LED Type	3-in-1 SMD
Brightness	≥ 6000 cd/m ²
Pixel Density	≥ 62500 pixel/m ²
Physical Resolution	≥ 240 x 240 pixels
Panel size	960 x 960mm
Weight	≤ 30 kg/m ²
Maintenance	Rear or front
Ingress protection	IP65 front / IP65 rear
Aspect Ratio	1:1
Panel Area	0.9216 m ²
Planeness	≤ 0.4mm
Environment	Fixed - Outdoor
Material	Die-casting aluminum
Calibration	Brightness and chroma
Brightness Control	Manual / Automatic
Color Temperature	Adjustable
Horizontal Viewing Angle	≥140 °
Vertical Viewing Angle	≥120 °
Contrast Ratio	≥ 4000:1
Input Power (Máx)	≤ 850 W/m ²
Input Power (Typ)	≤ 350 W/m ²
Input Voltage	200 ~ 240VAC
Input Frequency	60 Hz
Processing Depth	14 bit
Refresh Rate	≥ 3840 Hz
Video Frame Rate	60 Hz
Lifespan	≥100.000 hours
Warranty	3 years
Operating Temperature/Humidity	≥ -20°C~+50°C/10~90%RH
Storage Temperature/Humidity	≥ -30°C~+60°C/10~80%RH
Storage	Wooden crate

The details of the screens that will use this type of cabinet are displayed below.





3.1 DISPLAY DESIGN #1 - DIGITAL SIGNAGE

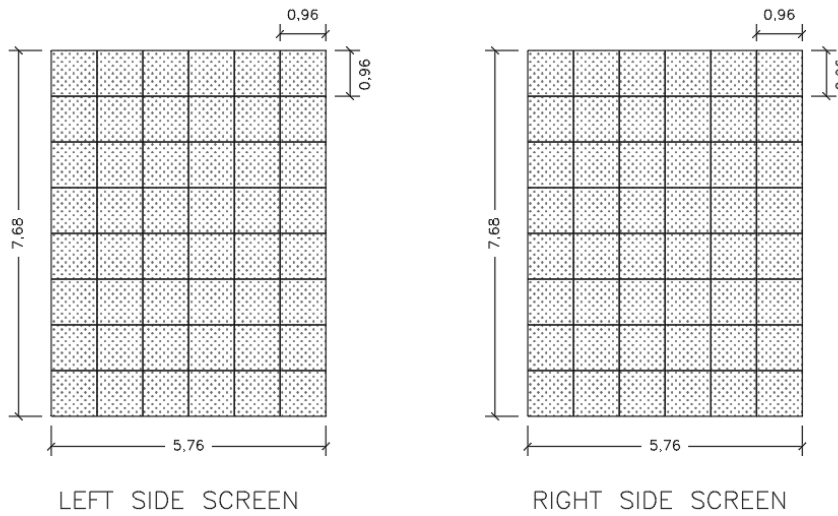


DISPLAY DESIGN #1	
Technical Parameters	
Pixel pitch	4 mm
Physical resolution	1440 x 960 px
Cabinet pieces:	6 (W) x 4 (H) = 24 pcs
Display size	3.84 (W) x 5.76 (H) = 22.12 sqm
Display quantities	6 units
Total	132,72 sqm
Controller	3 x tipo 2
	6 x optical transceiver





3.2 DISPLAY DESIGN #2 - CONCERT HALL ENTRANCE

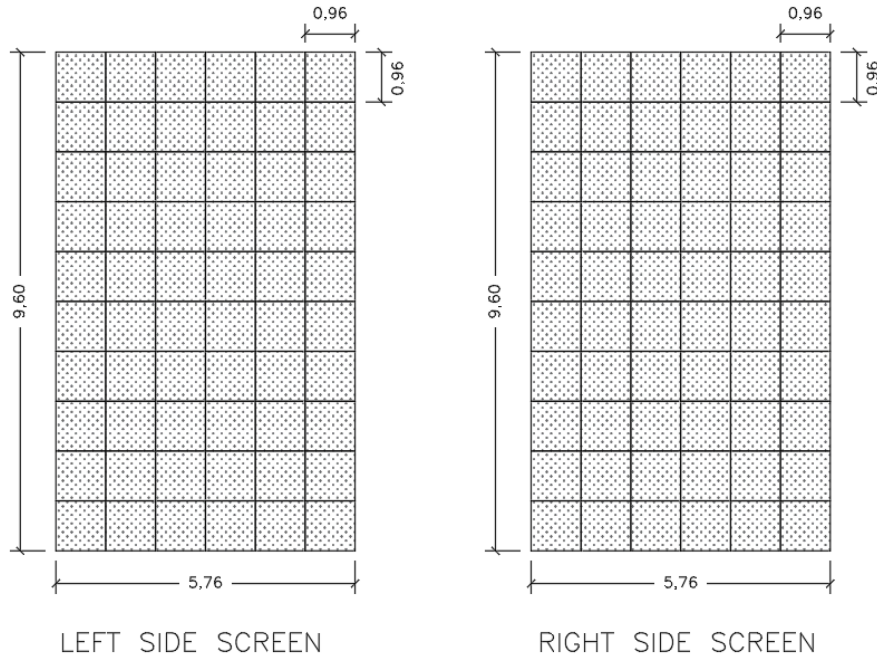


DISPLAY MODEL #2	
Technical Parameters	
Pixel pitch	4 mm
Physical resolution	1920 x 1440 px
Cabinet pieces	6 (W) x 8 (H) = 48 pcs
Display size	5,76 (W) x 7,68 (H) = 44,23 sqm
Display quantities	2 units
Total	88,47 sqm
Controller	2 x type 3
	2x optical transceiver





3.3 DISPLAY DESIGN #3 – STAGE SIDE DISPLAY

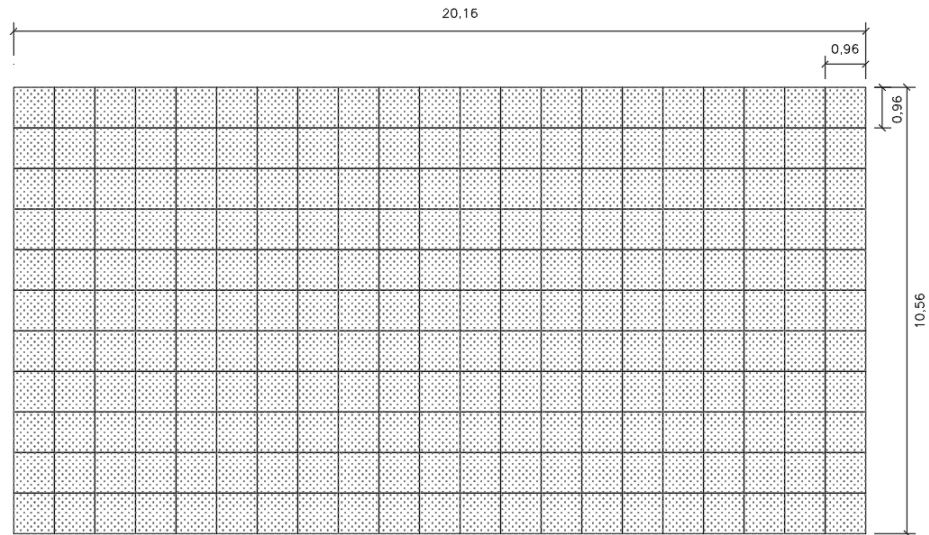


DISPLAY MODEL #3	
Technical Parameters	
Pixel pitch	4 mm
Physical resolution	2400 x 1440 px
Cabinet pieces	10 (W) x 6 (H) = 60 pcs
Display size	5,76 (W) x 9,60 (H) = 55,30 sqm
Display quantities	2 units
Total	110,6 sqm
Controller	2x type 3
	2x optical transceiver





3.4 DISPLAY DESIGN #4 – SHORE



DISPLAY MODEL #4	
Technical Parameters	
Pixel pitch	4 mm
Physical resolution	5040 x 2640 px
Cabinet pieces	21 (W) x 11 (H) = 231 pcs
Display size	20,16 (W) x 10,56 (H) = 212,89 sqm
Display quantities	1 unit
Total	212,89 sqm
Controller	1 x Type 1
	3 x optical transceiver





4 P4 INDOOR RENTAL LED DISPLAY

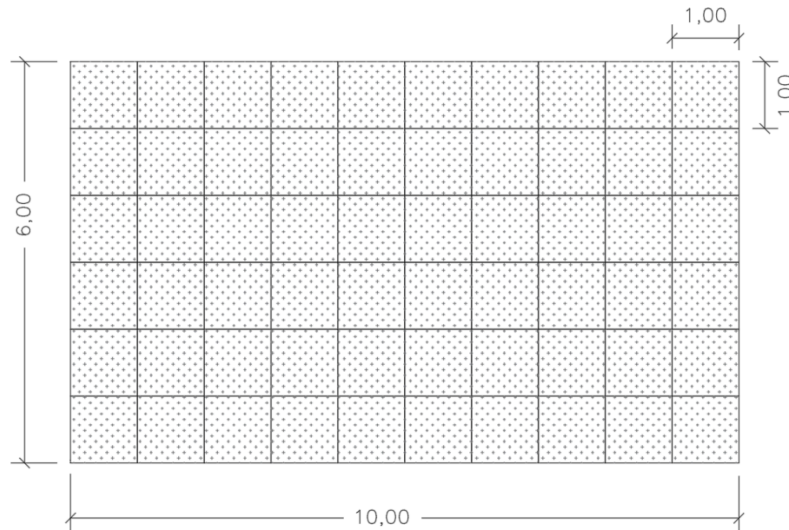
The second type of screen to be acquired will be rental type. The cabinets that will form this screen should allow for simple assembly, with interlocking between cabinets and fast-lock type latches for tool-free assembly. The screen should be provided with all necessary accessories, including power and data cables, as well as flight cases for storage and transportation. It should also include a suitable mounting structure for floor installation and corner protection, which can be integrated into the cabinets or provided as an additional accessory.

Technical Parameters	
Pixel Pitch	≤ 4 mm
LED Type	3-in-1 SMD
Brightness	≥ 4000 cd/m ²
Pixel Density	≥ 62500 pixel/m ²
Panel size	≤1000 x ≤1000 mm
Aspect Ratio	1:1 or 1:2
Weight	≤ 20 kg/m ²
Maintenance	Rear or front
Ingress protection	≥IP54
Planeness	≤ 0.4mm
Environment	Rental - Indoor
Material	Die-casting aluminum
Calibration	Brightness and chroma
Brightness Control	Manual / Automatic
Horizontal Viewing Angle	≥140 °
Vertical Viewing Angle	≥120 °
Contrast Ratio	≥ 4000:1
Input Power (Máx)	≤ 800 W/m ²
Input Power (Typ)	≤ 350 W/m ²
Input Voltage	200 ~ 240VAC
Input Frequency	60 Hz
Processing Depth	14 bit
Refresh Rate	≥ 3840 Hz
Video Frame Rate	60 Hz
Lifespan	≥100.000 hours
Warranty	3 years
Operating Temperature/Humidity	≥ -20°C~+50°C/10~80%RH
Storage Temperature/Humidity	≥ -30°C~+60°C/10~80%RH
Mounting structure	Modular ground stacking frame structure
Storage	Flight case





4.1 DISPLAY DESIGN #5 – STAGE DISPLAY



DISPLAY MODEL #5	
Technical Parameters	
Pixel pitch	4 mm
Physical resolution	2500 x 1500 px
Cabinet pieces:	10 (W) x 6 (H) = 60 pcs
Display size	10 (W) x 6 (H) = 60 sqm
Display quantities	1 unit
Total	60 sqm
Controller	1 x Type 2
	1x optical transceiver

4.2 MODULAR GROUND SUPPORT STACKING FRAME STRUCTURE

The rental LED screen should be provided with a modular floor mounting structure that allows the cabinets to be stacked according to the screen design. This structure must be dismantlable and stored in flight cases similar to the cabinet storage cases.





4.3 STORAGE (FLIGHT CASE)

The cabinets and the mounting structure must be stored in appropriate flight cases for safe storage and transport. These cases should be robust, equipped with ergonomic handles for easy handling, reinforced corners for extra protection, and wheels for easy transportation. The flight cases must be designed to securely accommodate the cabinets and the mounting structure, preventing damage during transport and ensuring the durability of the equipment.

5 P6 OUTDOOR SPHERICAL LED DISPLAY

The third model of screen will be custom-made and have a spherical shape with a 4-meter diameter and a pixel pitch of 6mm or less. The screen will be installed in an outdoor environment, exposed to weather conditions, and must have dust and water ingress protection of at least IP65, as well as UV radiation resistance. The mounting will be on the ground, and the metallic structure for assembly and mounting must be included with the product.

Technical Parameters	
Pixel Pitch	≤ 6 mm
LED Type	3-in-1 SMD
Brightness	≥ 6000 cd/m ²
Pixel Density	Customized
Panel size	4 meter diameter
Aspect Ratio	Sphere
Weight	≤ 50 kg/m ²
Maintenance	Rear or front
Ingress protection	≥ IP65
Planeness	≤ 0.4mm
Environment	Outdoor ground fixed
Material	Steel
Calibration	Brightness and chroma
Brightness Control	Manual / Automatic
Horizontal Viewing Angle	≥140 °
Vertical Viewing Angle	≥120 °
Contrast Ratio	≥ 4000:1
Input Power (Máx)	≤ 800 W/m ²
Input Power (Typ)	≤ 350 W/m ²





Input Voltage	200 ~ 240VAC
Input Frequency	60 Hz
Processing Depth	14 bit
Refresh Rate	≥ 3840 Hz
Video Frame Rate	60 Hz
Lifespan	≥100.000 hours
Warranty	3 years
Operating Temperature/Humidity	≥ -20°C~+50°C/10~80%RH
Storage Temperature/Humidity	≥ -30°C~+60°C/10~80%RH
Storage	Wooden crate
Controller	1 x Tipo 2 (VX10)
	1 x Optical transceiver

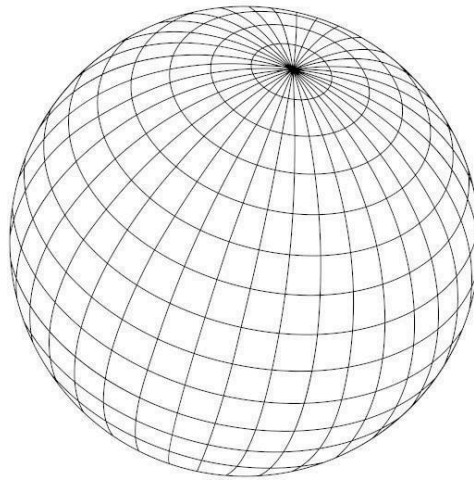


Figura 1 - Spherical LED screen

5.1 STEEL STRUCTURE

The mounting structure must ensure the stability, safety, proper functioning, and maintenance of the spherical LED panel, considering that its base will be fixed to the ground. The contracted company will be responsible for designing and providing the necessary metallic structure for the installation of the panel, along with the panels themselves. Additionally, the company must provide detailed manuals with instructions and templates for the mounting and assembly of the metallic structure.





6 CONTROLLERS AND ACCESSORIES

The control of the screens will be centralized, distributed across three media servers. The first server will be responsible for transmitting content, notices, and information. The second server will transmit content to the screen on the waterfront, the largest screen planned in the project, and the last server will be used to control the content displayed on the screens in the concert area. The choice of fiber optic data transmission is due to the long distance between the screens and the control centers. The system topology is displayed below:

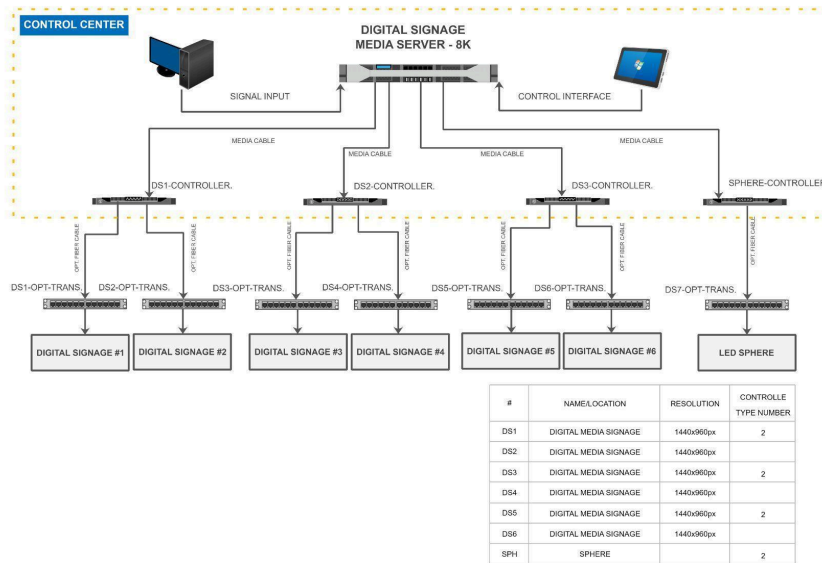


Figura 2 - Sistema de controle - Digital signage



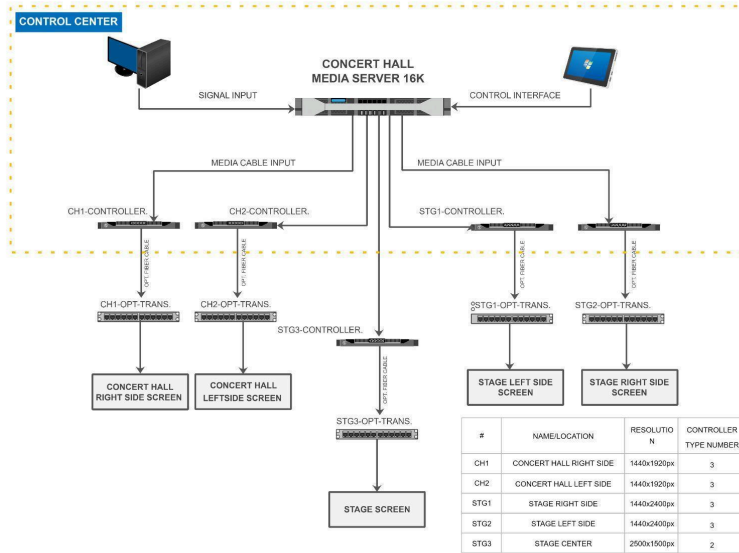


Figura 3 - Sistema de controle - Espaço Show

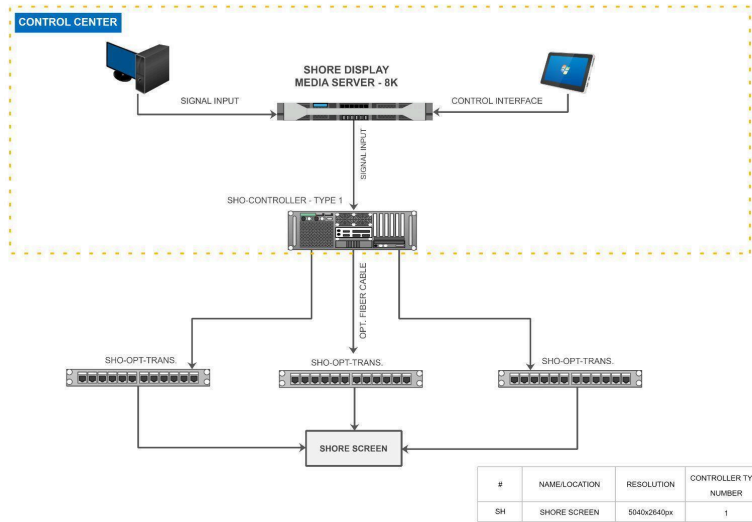


Figura 4 - Sistema de controle - Orla





6.1 INTEGRATED VIDEO PROCESSING CONTROLLER - TYPE 1

The video control equipment must be capable of supporting large screens, integrating essential functionalities such as cropping, scaling, splicing, and multi-screen display. The device should be able to process and control fine-pitch LED screens with ultra-high resolution.

It must have a modular architecture, allowing a flexible configuration of input and output boards according to the project's needs. The processing functionality must be robust, ensuring high-quality visual effects and efficient video processing, promoting stable and secure operation.

The input ports of the equipment must include industry-standard connectors such as HDMI, DP, SDI, DVI, VGA, CVBS, and IP, supporting resolutions up to 4K (4096×2160@60Hz). The outputs should include Gigabit Ethernet and 10 Gigabit optical fiber options to facilitate long-distance data transmission, as well as DVI and HDMI outputs for various applications. The controller must have CE, RoHS, and FCC compliance certificates and meet the following minimum technical requirements:

INTEGRATED VIDEO PROCESSING CONTROLLER - TYPE 1	
Processing capacity	<ul style="list-style-type: none"> • 3 main and 3 backup 10G fiber ports, with a maximum load capacity of 19.65 million pixels
Main board	<ul style="list-style-type: none"> • 1x Genlock In + Genlock Loop; • 1x RS232 porta serial; • USB 3.0 port; • GbE control port;
Input board	<ul style="list-style-type: none"> • 1×HDMI Type A or 1×DP port, 1×4K@60Hz • 4×3G-SDI ports, 4×2K@60Hz • 4×HDMI Type A ports, 4×2K@60Hz • 2×RJ45 GbE ports; 1×USB 3.0 port
Output board	<ul style="list-style-type: none"> • 2×10G fiber ports (1 main and 1 backup) • 2×10G fiber ports (1 main and 1 backup) • 2×10G fiber ports (1 main and 1 backup)
Monitoring board	<ul style="list-style-type: none"> • 1×HDMI1.4 port, for previewing inputs and monitoring outputs, at least 1920×1080@60Hz
Video processing capacity	<ul style="list-style-type: none"> • Supports 4×4K or 16×1080P simultaneously. • Multi-window and multi-layer display





	<ul style="list-style-type: none"> • Supports window roaming and free splicing • Supports cropping of the input source
Control	<ul style="list-style-type: none"> • 1x porta Ethernet • 2x USB (entrada e saída) • 1x GENLOCK (IN & LOOP)
Number of output boards	<ul style="list-style-type: none"> • Maximum number of boards: 4
Color management	<ul style="list-style-type: none"> • Independent color adjustment of each input source, enabling adjustments to brightness, color temperature, RGB gain, contrast, saturation, and brightness compensation. • Independent color adjustment of each Ethernet output, enabling adjustments to brightness, color temperature, RGB gain, contrast, saturation, and brightness compensation. • Independent color adjustment of each video output, enabling adjustments to brightness, color temperature, and RGB gain. • Brightness adjustment on the level of port group, enabling independent management of display brightness for each group.
Device control	<ul style="list-style-type: none"> • Connectable to a PC and central controller via LAN, RS232, etc. • Supports device access and control from Web
Device monitoring	<ul style="list-style-type: none"> • Abnormal temperature alarm, disconnection alert, etc.
Power	<ul style="list-style-type: none"> • AC 100-240 ~ 60Hz
Reference Product: Colorlight X100 Pro-4U	

6.2 INTEGRATED VIDEO PROCESSING CONTROLLER – TYPE 2

The specified video controller must integrate Ultra High Definition (UHD) image processing and LED display control functions. This device must support video signal input at 4K and 2K resolutions, with a maximum load capacity of 6.5 million pixels, reaching up to 16,384 pixels in width and 8,192 pixels in height. In terms of output, it must support Ethernet ports and optical fiber ports for long-distance data transmission.

With robust video processing and sending capabilities, the controller must be suitable for a variety of scenarios, stage control, television broadcasts, and film shootings.





This device is designed to ensure reliable performance and flexibility in applications requiring high definition and complex display control. The controller must have CE, RoHS, and FCC compliance certificates and meet the following minimum requirements:

INTEGRATED VIDEO PROCESSING CONTROLLER – TYPE 2	
Processing Capacity	<ul style="list-style-type: none"> ● Loading capacity of 6.5 million pixels ● 16000 pixels in width and 8000 pixels in length
Inputs	<ul style="list-style-type: none"> ● 1x HDM2.0 ● 1x HDMI1.4 ● 1x DVI ● 1x 3G-SDI ● 1x 10G fiber port (fiber1) ● Up to 4096x2160@60Hz input ● Up to 240 Hz frame rate
Outputs	<ul style="list-style-type: none"> ● 10x Gigabit network ports ● 2x 10G fiber port (fiber 1 fiber 2) ● Support video loop output ● Support up to 1x 4Kx1K@60Hz or 2x2Kx1K@60Hz video source ● 1x HDMI1.3 previewing or video output port ● Up to 240Hz framerate
Features	<ul style="list-style-type: none"> ● Support 8bit and 10bit video processing ● Video signal cropping, switching and broadcasting-level scaling. ● Support at least 3 layers display with independent adjustment of size and position of layers. ● No latency in bypass mode ● Support HDR display ● Support Genlock an LOOP through
Color Management	<ul style="list-style-type: none"> ● Adjustment of hue, saturation, contrast and brightness compensation of output. ● Brightness adjustment ● Color temperature adjustment
	<ul style="list-style-type: none"> ● HDMI port support audio input ● Support audio output via multi-function card
Control	<ul style="list-style-type: none"> ● USB port for control and cascading ● RS232 serial communication protocol.





	LAN port for TCP/IP control
Power	<ul style="list-style-type: none"> AC 100-240 ~ 60Hz
Reference Product: Colorlight VX10	

6.3 INTEGRATED VIDEO PROCESSING CONTROLLER – TYPE 3

The specified video controller must integrate Ultra High Definition (UHD) image processing and LED display control functions. This device must support video signal input at 4K and 2K resolutions, with a maximum load capacity of 3.93 million pixels. In terms of output, it must support Ethernet ports and optical fiber ports for long-distance data transmission.

With robust video processing and sending capabilities, the controller must be suitable for a variety of scenarios, including stage control, television broadcasts, and film shootings. This device is designed to ensure reliable performance and flexibility in applications requiring high definition and complex display control. The controller must have CE, RoHS, and FCC compliance certificates and meet the following minimum requirements:

INTEGRATED VIDEO PROCESSING CONTROLLER – TYPE 3	
Processing Capacity	<ul style="list-style-type: none"> Loading capacity of 3.93 million pixels
Inputs	<ul style="list-style-type: none"> 1x HDM2.0 1x HDMI1.4 1x DVI 1x 3G-SDI 1x 10G fiber port (fiber1) Up to 4096x2160@60Hz input Up to 240 Hz frame rate
Outputs	<ul style="list-style-type: none"> 10x Gigabit network ports 2x 10G fiber port (fiber 1 fiber 2) Support video loop output Support up to 1x 4Kx1K@60Hz or 2x2Kx1K@60Hz video source 1x HDMI1.3 previewing or video output port Up to 240Hz framerate
Features	<ul style="list-style-type: none"> Support 8bit and 10bit video processing





	<ul style="list-style-type: none"> • Video signal cropping, switching and broadcasting-level scaling. • Support at least 3 layers display with independent adjustment of size and position of layers. • No latency in bypass mode • Support HDR display • Support Genlock an LOOP through
Color adjustment	<ul style="list-style-type: none"> • Adjustment of hue, saturation, contrast and brightness compensation of output. • Brightness adjustment • Color temperature adjustment
Audio	<ul style="list-style-type: none"> • HDMI port support audio input • Support audio output via multi-function card
	USB por for control and cascading RS232 serial communication protocol. LAN port for TCP/IP control
Power	<ul style="list-style-type: none"> • AC 100-240 ~ 60Hz
Reference Product: Colorlight VX6	

6.4 MEDIA SERVER TYPE 1 - 1K6

The specified media server must feature advanced playback and control capabilities, high stability, and great scalability. It must be based on robust hardware, optimized for the playback of two 8K videos and capable of providing output for eight 4K@60Hz videos. It should include professional playback and control software, capable of decoding and playing various content formats.

Additionally, the server must support various screen configurations, including screen splitting, special-shaped screen assembly, and recombination. Other important features include support for multiple layers, multiple scenes, and the ability to switch between scenes smoothly and without interruptions. The media server should have the following features:

- **Output:** Supports 8 DP1.4 outputs, each capable of 4K@60Hz, and pixel-by-pixel display up to 16384×4320@60Hz.





- **Multimedia Features:** Capable of playing a variety of content such as videos, images, texts, and streaming media. Includes advanced functions such as editing, preview, switching, saving, and copying multiple scenes.
- **Scene and Video Handling:** Supports features like image freezing, background image display, content rotation at any angle, and screen splitting. Additionally, it allows for special screen assembly and panel recombination.
- **Monitoring and Control:** Real-time monitoring of system status with failure and anomaly alerts. Supports PVW and PGM editing modes for output content monitoring and NDI signal capture.
- **Backup and Remote Control:** Includes redundancy backup functionalities and support for control via third-party devices and visualized control through tablets for scene adjustments and monitoring.
- **Advanced Editing and Effects:** Allows program and effect editing on the timeline, supporting window effects and various transitions, including fade and directional movements.
- **Automation and Scheduling:** Supports scheduled commands for automated operations such as opening, closing, software restart, and server management.

TECHNICAL SPECIFICATIONS OF THE 16K MEDIA SERVER	
Outputs	<ul style="list-style-type: none"> ● Supports 8x DP1.4 outputs – up to 4K@60Hz for each ● Supports pixel-to-pixel display up to 16384x4320@60Hz
Ports	<ul style="list-style-type: none"> ● 1GB LAN Port ● 2x USB 2.0 ● 1 x COM port ● VGA Video Port ● Remote management port ● 2x USB 3.2 Port ● 10Gb LAN port ● Type-C port ● 7.1 audio output ports
SSD	<ul style="list-style-type: none"> ● SSD 1TB M.2





CPU	<ul style="list-style-type: none">• Intel 16 cores, 32 threads
RAM	<ul style="list-style-type: none">• 128 Gb
Capture card	<ul style="list-style-type: none">• SDI or DVI
Graphics card	<ul style="list-style-type: none">• 2 x 16G Quadro or superior
Video Output	<ul style="list-style-type: none">• 8 x DP1.4
Max. resolution of each port	<ul style="list-style-type: none">• 4096x2160@120Hz
Máx. resolution	<ul style="list-style-type: none">• 16384x4320@60Hz
Audio	<ul style="list-style-type: none">• 3.5mm áudio input and multichannel output
Network bandwidth	<ul style="list-style-type: none">• 1GbE and 10GbE
Software	<ul style="list-style-type: none">• Included
Carta de Controle:	<ul style="list-style-type: none">• Temperature: 0°C~55°C• Humidity: 0%RH~85%RH
Power Supply	200-240V~8A, 50/60Hz

Reference product: **Colorlight CS16K**

6.5 MEDIA SERVER TYPE 2 - 8K

The required media server must feature advanced playback and control capabilities, essential for applications that demand high definition and precision in visual content management. The unit must be capable of supporting 8K video playback and have outputs that support up to four 4K video streams at 60Hz. Importantly, the device should include integrated control software that facilitates the decoding and playback of various content formats and allows for complex display configurations such as screen splitting, unconventional screen assembly, and recombination.

Additionally, the server must support the handling of multiple layers and multiple scenes, with the ability to switch between scenes smoothly and without interruptions. The operational stability of the hardware is crucial, ensuring reliability in continuous operations and scalability to meet future needs or more complex configurations. These technical requirements are vital to ensure that the media server meets the demands of professional environments, such as live productions, large-scale events, and permanent installations where display quality is critical.





- **Multimedia Features:** Capable of playing a variety of content such as videos, images, texts, and streaming media. Includes advanced functions such as editing, previewing, switching, saving, and copying multiple scenes;
- **Scene and Video Handling:** Supports features like image freezing, background image display, content rotation at any angle, and screen splitting. Additionally, it allows for special screen assembly and panel recombination;
- **Monitoring and Control:** Real-time monitoring of system status with failure and anomaly alerts. Supports PVW and PGM editing modes for output content monitoring and NDI signal capture;
- **Backup and Remote Control:** Includes redundancy backup functionalities and support for control via third-party devices and visualized control through tablets for scene adjustments and monitoring;
- **Advanced Editing and Effects:** Allows program and effect editing on the timeline, supporting window effects and various transitions, including fade and directional movements;
- **Automation and Scheduling:** Supports scheduled commands for automated operations such as opening, closing, software restart, and server management.

TECHNICAL SPECIFICATIONS OF THE 8K MEDIA SERVER	
Output	<ul style="list-style-type: none"> ● Supports 4x DP1.4 outputs – up to 4K@60Hz for each ● Supports pixel-to-pixel display up to 8192x4320@60Hz
Ports	<ul style="list-style-type: none"> ● 2x 1GBe LAN Port ● 2x USB 3.1 ● 2x USB 2.0 ● 1 GbE port ● 1 GbE port ● 1x USB 3.1 Gen 2, Type-C ● 1x Opt S/PDIF optic port ● 1X COM port ● VGA Videoport ● Remote management port





	<ul style="list-style-type: none"> • 2x USB 3.2 Port • 10Gb LAN port • Type-C port • 7.1 audio output ports
SSD	<ul style="list-style-type: none"> • SSD 1TB M.2
CPU	<ul style="list-style-type: none"> • Intel 10 cores, 20 threads
RAM	<ul style="list-style-type: none"> • 32 Gb
Capture card	<ul style="list-style-type: none"> • SDI or DVI
Graphics card	<ul style="list-style-type: none"> • 16G Quadro or superior
Video Output	<ul style="list-style-type: none"> • 4x DP1.4
Max. resolution of each port	<ul style="list-style-type: none"> • 4096x2160@120Hz
Máx. resolution	<ul style="list-style-type: none"> • 8192x4320@60Hz
Audio	<ul style="list-style-type: none"> • 3.5mm áudio input and output
Network bandwidth	<ul style="list-style-type: none"> • 1000M
Software	<ul style="list-style-type: none"> • Included
Operating environment	<ul style="list-style-type: none"> • Temperature: 0°C~45°C • Humidity: 10%RH~80%RH
Electrical	<ul style="list-style-type: none"> • 200-240V, 60Hz
Produto de referência: CS20-8K Pro	

6.6 OPTICAL TRANSCEIVER

All screens will have data transmission via optical fiber because the screens will be installed far from the controllers. Therefore, the optical transmitter will be acquired together with the video controllers. Among the crucial characteristics of this device are high availability, reliability, and durability, even in continuous operations. The optical transceivers must have the following minimum characteristics:

OPTICAL TRANSCEIVER MODULE	
SFP module	<ul style="list-style-type: none"> • 10GB/s – Dual-LC fiber port up to 2km
RJ45 Ethernet ports	<ul style="list-style-type: none"> • 10x Neutrik RJ45 Ethernet ports 1GB/s per channel
Feature	<ul style="list-style-type: none"> • Support photoelectric conversion
	<ul style="list-style-type: none"> • Hot pluggable
	<ul style="list-style-type: none"> • Single mode twin-core fiber
Electrical	<ul style="list-style-type: none"> • 200-240V 60Hz
Operating environment	<ul style="list-style-type: none"> • 0°C~70°C
	<ul style="list-style-type: none"> • 10%RH~80%RH, non-condensing
Product of reference: Colorlight H10FN	





7 SUPPLY CONDITIONS

LED panels must be supplied ready for installation and connection to the power network and accessories. All internal connections of the panels must be delivered already assembled and ready for immediate use. Including, but not limited to:

- Receiving cards + HUB board
- Cascading signal cable
- Cascading energy cable
- Main signal cable
- Main energy cable
- LED module
- Power supply units
- Software
- Flat cables
- Cabinets

Controllers, media servers, and transceivers must come with all the necessary accessories for their operation under the conditions established in this document. This includes the provision of essential cables, accessories, and software for the correct functioning of the system.

7.1 PACKAGING

LED panels and accessories must be packed in rigid containers, such as plywood wooden cases or similar. These containers must be sealed and suitable for sea transport, as well as for usual loading, unloading, handling, and storage operations. The packaging must have clear content identification and handling instructions.

For rental LED panels and their structure, they should be packed in "flight case" type containers, as specified.

7.2 SPARE PARTS

The panels should be accompanied by spare parts in the following quantities:





PH4 960x960 LED CABINET SPARE PARTS	
Part	Quantity
Módulos of 960x960 PH4 cabinet	50
Receiving cards com HUB cards	20
LED diode	500
IC driver	100
Mask	100
Power supply	20
Main signal cable 10m	5
Main power supply cable 10m	5
Patch cord	20
Cascade power cable	20

PH4 RENTAL LED CABINET SPARE PARTS	
Part	Quantity
Módulos PH4 rental cabinet	20
Receiving cards com HUB cards	5
LED diode	300
IC driver	50
Mask	50
Power supply	5
Patch cord	10
Cascade power cable	10

PH6 SPHERE LED SCREEN SPARE PARTS	
Part	Quantity
Módulos PH6 each custom type	2
Receiving cards com HUB cards	5
LED diode	300
IC driver	50
Power supply	5
Patch cord	10
Cascade power cable	10

The supplier must ensure the availability of spare parts for the acquired LED screens for a period of 5 years. Discontinued products will not be accepted. The list of spare parts must include critical components such as LED modules, power supplies, connection cables, controllers, and any other essential parts for the operation and maintenance of the equipment. Spare parts must be supplied with the same quality and





specifications as the original components, and the corresponding technical documentation must be provided to facilitate proper replacement and maintenance.

7.3 INSTALLATION AND OPERATION MANUAL

The manual of installation and operation instructions for an LED screen must include an introduction with an overview and main technical specifications, as well as the package contents. The manual should contain sections with information on:

- a. Safety warnings;
- b. Handling recommendations;
- c. Precautions during installation;
- d. Tools and materials required for installation;
- e. Steps and details for assembly and mounting;
- f. Electrical and data connections;
- g. Startup instructions;
- h. Initial configuration and adjustments;
- i. Cleaning procedures;
- j. Diagnostics and troubleshooting common issues;
- k. Replacement of parts and components;
- l. Technical specifications;
- m. Warranty information;
- n. Contact for technical support.

7.4 INVOICE

If the supplier is a foreign company, the invoice must be provided after the contract is signed and the supply order is issued, before the shipment of the products. This document must contain a detailed description of the products, including quantity, unit price, and total price, as well as payment terms, date of issue, invoice number, and complete information about the seller and buyer, such as names, addresses, and contact details. The invoice is essential to confirm the order and ensure that all agreed conditions are clearly specified and documented.





7.5 PACKING LIST

The Packing List must be provided by the supplier immediately after the shipment of the products and must include a detailed description of the items, including quantity, weight, and dimensions of each package. It is necessary to specify the total number of boxes, as well as the gross and net weight. This document is essential for receiving control, ensuring that all shipped items are correctly documented and that there are no discrepancies in the product reception process.

7.6 BILL OF LADING

If the supplier is a foreign company, the Bill of Lading must be provided immediately after the shipment of the products, confirming that the products have been shipped and are on their way. It must include detailed information about the transport, such as the carrier's name, type of transport, port of shipment, and destination, as well as a detailed description of the products, quantity, and weight. The Bill of Lading must also specify the CIF shipping terms and include complete consignee information, ensuring compliance with transportation and customs clearance requirements.





8 PROOF OF TECHNICAL REQUIREMENTS

The supplier must provide test reports that certify the characteristics required in the terms of reference. All reports must be issued by laboratories certified by INMETRO and/or laboratories with ILAC MRA accreditation.

8.1 CERTIFICATIONS AND TEST REPORTS

The certification documentation must be complete and provide evidence that all tests were performed in accordance with the procedures established in the mentioned standards, and must include:

- a. UL (Underwriters Laboratories) or CE (Conformité Européene) or CCC (China Compulsory Certification) certificate of conformity;
- b. RoHS certificate of conformity;
- c. FCC certificate of conformity;
- d. Test report on the determination of restricted substances, in accordance with IEC 62321;
- e. Test report on the safety of electronic products, in accordance with IEC 62368;
- f. Electromagnetic compatibility test report, in accordance with EN55032 and/or IEC61000;
- g. Electromagnetic immunity test report, in accordance with EN55035;
- h. Dust and water ingress protection test report, in accordance with IEC60529;
- i. Photometric measurement test report (luminous flux, illuminance, luminous intensity, luminance, spectrum, etc.).

8.2 DATASHEET

The supplier must provide a datasheet containing at least the following information:

- a. Maximum panel power in "W/m²";
- b. Average panel power in "W/m²";
- c. Panel input voltage in "Volts";





- d. Pixel pitch in “mm”;
- e. Panel brightness in “Nits”;
- f. Grayscale in “bits”;
- g. Color depth in “bits”;
- h. Pixel density in “pixel/m²”;
- i. Refresh rate in “Hertz”;
- j. LED pixel type of the modules;
- k. Horizontal and Vertical viewing angle in “Degrees”;
- l. Power frequency in “Hertz”;
- m. Panel lifespan;
- n. Protection standard;
- o. Operating temperature;
- p. Operating humidity;
- q. Cabinet size;
- r. Cabinet weight;
- s. Datasheet and Installation Manual;
- t. Module dimensions;
- u. Certifications.

9 PROVISIONAL RECEIPT

At the time of provisional receipt of the products, at least the following procedures must be carried out, but not limited to:

- a. Verification of documentation: invoice, packing list, bill of lading, etc.
- b. Physical inspection: checking the integrity of the packaging and products, quantity according to the packing list;
- c. Compliance verification: technical specifications, dimensions, weight, and physical parameters;
- d. Functional tests.





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The procedures will be documented with photographic records taken during the process. A provisional receipt report will be issued and sent to the supplier. If there are any non-conformities, the receiving committee will notify the supplier so that they are aware and can take the necessary actions.

