

OUTSIDE BROADCAST



VEHICLE

MERCEDES AXOR – 1826LL/60

- Length: 13m
- Width: 2.5m (open: 4m)
- Height: 3.8m

AIR CONDITIONING

- 1 x ARYA 18 LALU / AOYA 18 LACL – 18KW
- 3 x ARYA 24 LATU / AOYA 254 LACL – 24 KW



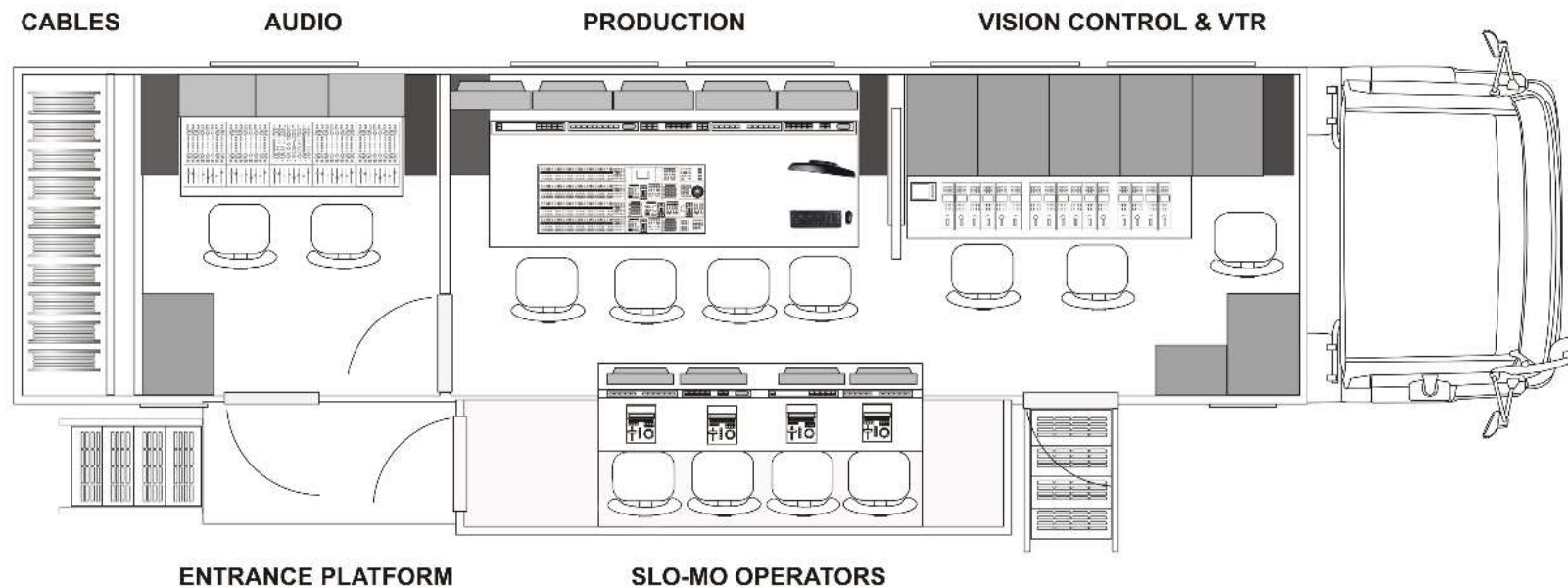
The mid sized Full HD OB Van was built in 2010, over a year period entirely by our team.

Due to the many years spent in the broadcast industry and the expertise of our engineers, the OB Van meets the highest technical requirements and provides comfortable and friendly workspace.

The truck has four areas: audio control, production, slow motion, and vision engineering area.

Every area is equipped with independent cooling system and individual temperature controls.

The Full HD OB Van (OB2) is prepared and cabled for 16 cameras with an extendable wall, providing a comfortable workspace.



CAMERAS



GRASS VALLEY LDK 3000 HD CAMERA

Full HD 720p/1080i (1080p upgradable) broadcast camera system

Pickup device:	3 x 2/3" CMOS imagers
Picture elements:	1920 x 1080
Digital processing:	34-bit accurate processing
Sensitivity:	2000 lux @ F9
S/N ratio:	58 dB (typical)
Dynamic range:	>600%
Gain selection:	-6 to +18 dB in 3 dB steps (user-definable presets) or continuous master gain
Optical system:	F1.4 prism
Optical filters:	Clear, 1/4 ND, 1/16 ND, 1/64ND, 4p star
Typical cable length:	triax <ul style="list-style-type: none">▪ 1,200m (3,900 ft.) (14 mm/0.55 in.)▪ 700m (2,296 ft.) (11 mm/0.42 in.)▪ 500m (1,640 ft.) (8 mm/0.31 in.)



GRASS VALLEY LDK 8300 HIGH SPEED HD CAMERA

Super Slo-Mo Full HD 720p/1080i broadcast camera system

Pickup device: 3-CCD 2/3"-type 16:9 HD-DPM+ CCDs

Picture elements: 9.2 million pixels 1920x4320

Operating modes: 1X, 2X, and 3X speed

Sensitivity

- 1X speed (normal): F8.0 at 2000 lux (1080i)
- 2X speed (double): F5.6 at 2000 lux (1080i)
- 3X speed (triple): F4.5 at 2000 lux (1080i)

S/N ratio: 57 dB on combined output; 54 dB on phases 1, 2, 3

Dynamic range: >600%

Gain selection: -6 to +18 dB in 3 dB steps (user-definable presets)
or continuous master gain

Spectrum system: F1.4 prism system

Optical filter wheels: 2x servo filter controls

- on first wheel: Clear, 4p star, 6p star, soft focus
- on second wheel: Clear, 1/4 ND, 1/16 ND, 1/64 ND

Typical cable length: Hybrid fiber (SMPTE 311)

- up to 4,000m (13,123 ft.) in portable mode
- up to 2,500m (8,202 ft.) in full studio mode



GRASS VALLEY LDK 4000 ELITE WIRELESS CAMERA

LDK 4000 Elite HD 1080i 50/60Hz broadcast camera system

Pickup device:	3 x 2/3" 16:9 HD-DPM+ CCDs
Picture elements:	9.2 million pixels 1920 (H) x 4320 (V) effective
Digital processing:	14 bits A/D, with 34 bits DSP resolution
Sensitivity:	2000 lux @ F10 typical
S/N ratio:	60 dB (typical)
Modulation depth:	55% @ 27 MHz (typical 720p59.94)
Gain selection:	-6 to +18 dB in 3 dB steps (user-definable presets) or continuous master gain
Weight:	5.5 kg (11 lbs.) incl. 2" viewfinder and Wireless Camera Adapter
Modulation:	COFDM (based on modified 802.16 layer)
Frequency ranges:	2.203 .. 2.398 GHz for 2.2 - 2.4 GHz module
Number of channels:	181 (in steps of 1 MHz)
Emitted power:	18 dBm \pm 1.5 dBm (conducted) measured at Tambient = 20° C
Bandwidth:	18 MHz per channel (at -3 dB)



LENSES



Model	Description
<p>DIGISUPER 86x9.3 w/EDSS HDxs* /Telephoto Field Lens/</p>	<p>Benefits:</p> <ul style="list-style-type: none"> ▪ Internal focus ▪ Advanced Image Stabilizer (Shift-IS) ▪ Precision digital servo system ▪ Constant Angle Focusing System; 32-bit CPU ▪ Crossover technology options; 4-position turret <p>Optical specifications:</p> <ul style="list-style-type: none"> ▪ Zoom Ratio: 86x ▪ Image size: 2/3" ▪ Built-in Extender: 2.0x ▪ Focal Length Range: 9.3~800 mm (with extender: 18.6~1600 mm)
<p>DIGISUPER 75x9.3 w/EDSS HDXS /Premium Field Lens/</p>	<p>Benefits:</p> <ul style="list-style-type: none"> ▪ Internal focus ▪ Advanced Image Stabilizer (Shift-IS) ▪ Precision digital servo system ▪ Constant Angle Focusing System; 32-bit CPU ▪ Crossover technology options; 4-position turret <p>Optical specifications:</p> <ul style="list-style-type: none"> ▪ Zoom Ratio: 75x ▪ Image size: 2/3" ▪ Built-in Extender: 2.0x ▪ Focal Length Range: 9.3~700 mm (with extender: 18.6~1400 mm)
<p>HJ40x10B IASE HDxs* /Portable Super Telephoto Lens/</p>	<p>Benefits:</p> <ul style="list-style-type: none"> ▪ Optical Shift Image Stabilizer ▪ Digital Drive Unit ▪ Zoom: Servo, Focus: Servo <p>Optical specifications:</p> <ul style="list-style-type: none"> ▪ Zoom Ratio: 40x ▪ Image size: 2/3" ▪ Built-in Extender: 2.0x ▪ Focal Length Range: 10~400 mm (with extender: 20~800 mm)

Model	Description
HJ22ex7.6B IRSE HDxs* /HD ENG Lens /	Benefits: <ul style="list-style-type: none"> Manual Zoom Servo Focus Digital Drive With Rotary Encoder Optical specifications: <ul style="list-style-type: none"> Zoom Ratio: 22x Image size: 2/3" Built-in Extender: 2.0x Focal Length Range: 7.6~168 mm (with extender: 15.2~336 mm)
HJ18ex7.6B IRSE HDxs* / HD ENG Lens /	Benefits: <ul style="list-style-type: none"> Manual Zoom Servo Focus Digital Drive With Rotary Encoder Optical specifications: <ul style="list-style-type: none"> Zoom Ratio: 18x Image size: 2/3" Built-in Extender: 2.0x Focal Length Range: 7.6~137 mm (with extender: 15.2~274 mm)
HJ14ex4.3B IRSE HDxs* /Telephoto Field Lens/	Benefits: <ul style="list-style-type: none"> Wide angle Manual Zoom Servo Focus Digital Drive With Rotary Encoder Optical specifications: <ul style="list-style-type: none"> Zoom Ratio: 14x Image size: 2/3" Built-in Extender: 2.0x Focal Length Range: 4.3~60 mm (with extender: 8.6~120 mm)
SS-41-IASD	<ul style="list-style-type: none"> Digital full servo kit Zoom and Focus Servo
MS-210D	<ul style="list-style-type: none"> Manual focus and zoom servo kit



TRIPODS



Model	Description
VISION 100 Carbon Vinten VB100-CP2 Vinten 3219-91 Vinten V3955-0002 Vinten 3396-3	For Camcorders in ENG & EFP configuration in counterbalance range 7-20kg <ul style="list-style-type: none"> • TF drag mechanism • Illuminated controls • Repeatable balance settings Vision 100 (3466-3), Two-Stage CF Pozi-Loc (3772-3), Spreader (3363-3) Second telescopic Pan Bar and Clamp for VS100 – Black ENG OB Skid. (125mm wheels) Tube for Vision 100 + Two-Stage Tripod
VISION 250 Alu Vinten VB250-AP2 Vinten 3411-3 Vinten V3955-0002	For Studio Cameras and EFP configurations, e.g. larger lenses, viewfinders in counterbalance range 10-33kg Vision 250 (3465), Dual Telescopic Pan Bars (3219-91), Two-Stage Aluminum Pozi-Loc Tripod (3880), Spreader (3363-3) Tube for Vision 250 + EFP Tripod ENG OB Skid. (125mm wheels)
VECTOR 90 Vinten V3998-0001 Vinten 3901-3 Vinten 3497-3B Vinten 3219-94 Vinten 3053-3	For Studio Cameras and EFP configurations, e.g. larger lenses, viewfinders and Heavy Duty operation, counterbalance range 10-90kg Vector 90 Head HDT – 1 Single stage heavy duty tripod with mid level spreader HD Skid, OB for HDT-1 Short Pan Bar & Clamp for Vector 90 – Black Standard Wedge Plate for Vector 90
VECTOR 750	Professional Fluid Heads for ENG/Studio The Vector 750 features a centre of gravity range span of 8 to 25 cm, which with its maximum payload of 75 kg allows a greater use of camera accessories such as talent monitors and spotlights.



VISION MIXER

SONY MVS6000 MULTI-FORMAT PRODUCTION SWITCHER

2,5 ME;HD; 49IP / 24 OP; DME; FC&M with MVS-8000 Control Panel

Main features

Compact and Versatile HD-ready switcher

- Compact and simple designed switcher with an ASIC (Image Processor)

Fixed Configuration Control Panel (CCP-6324)

- 3M/E, 24 cross point buttons
- Built-in Format Converter
- Color Correction Function
- Resizer Function
- Customizable Control Panel
- Creative M/E Functionality
- Enhanced Frame Memory System
- Programmable Macros
- Clip Transition effects



INFRASTRUCTURE



MIRANDA NVISION 8288

3Gbps, SWB/SD signals HD, 156x240

Key features and benefits

Truck video router

- 3Gbps
- HD
- SD
- ASI
- Dolby E certified



The router is controlled by a fully redundant NVISION 9000 controller system, linked to a range of highly adapted control panels.

Front loading, hot-swappable power supplies, input, output, controller and crosspoint modules.

Highly flexible automated/manual control.

Wide range of remote control panels: traditional and PC GUI-based.

Simultaneous router control by external automation, facility control systems, and NVISION control systems.

MIRANDA DENSITÉ

28 Densité modules, housed in three frames

The Miranda Densité Frame can simultaneously process 3Gbps, HD, SD, and analog video, as well as AES and analog audio. Its front-opening frame features dual hot swappable power supplies (PSUs) and fans. Modules for the air-cooled frame are also hot swappable, and replacement modules can be configured automatically. All modules, redundant PSUs and fans are monitored to deliver status via GPI or an optional Ethernet port. Front panel multi-color LEDs provide status reporting, while a controller card allows card adjustments by the front panel.

- Up, Down & Cross Converters
- Frame Synchronizers
- Downstream Keyer
- HCO (Change Over with Clean Switch)
- HDA
- ADA
- VDA



HARRIS X50

Multiple Path Converter and Frame Synchronizer



The X50 is offering an array of analog and digital baseband video and audio processing capabilities. This 1RU frame synchronizer/converter effectively and reliably supports standard-definition and high-definition formats. With easy-to-use controls, the X50 comes standard with a myriad of features, including color correction, closed caption/teletext capabilities, control and monitoring via a built-in web server, active format description support, two fully controllable aspect ratio converters and 16-channel embedded audio processing.

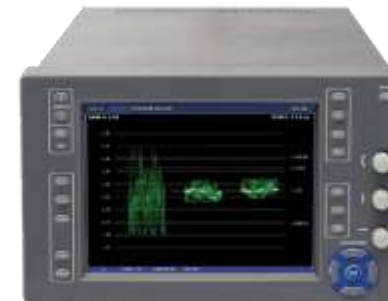
HARRIS X75

Multiple Path Converters and Frame Synchronizers



The Harris X75 is a multidefinition converter and frame sync. The X75 can be used for upconversion, downconversion, cross conversion and aspect ratio conversion. Also, the frame sync can be used to mux and demux audio on the any digital signal. The X75 can take a single input SD or HD and output composite, component, SD-SDI, HD-SDI, Fiber, DVI-D and S Video. This single rack unit can also do color correcting on the fly.

MEASUREMENTS: HARRIS



FIBER NETWORK EQUIPMENT

Riedel MediorNet Compact pro units

2x Units, each:

- 12x HD-SDI outputs and 4x HD-SDI inputs
- 8x HD-SDI outputs and 8x HD-SDI inputs
- 4x Mic/Line inputs
- 4x Line outputs
- 4x AES inputs
- 4x AES outputs
- 2x Madi port with 64 inputs and outputs integrated with the audio system





DISPLAYS



13 x VUT23VX323Q

23" Quad TFT display, 1366x768, SDI/HDSDI INP

5 x VUT17VX323Q

17" Quad TFT display, 1280x768, SDI/HDSDI INP

4 x VUT24VXP11F

24" Single TFT display, 1920x1200, SDI/HDSDI INP

3 x VUT17VX323F

17" Single TFT display, 1280x768, SDI/HDSDI INP

13 x VUT9X2VX323

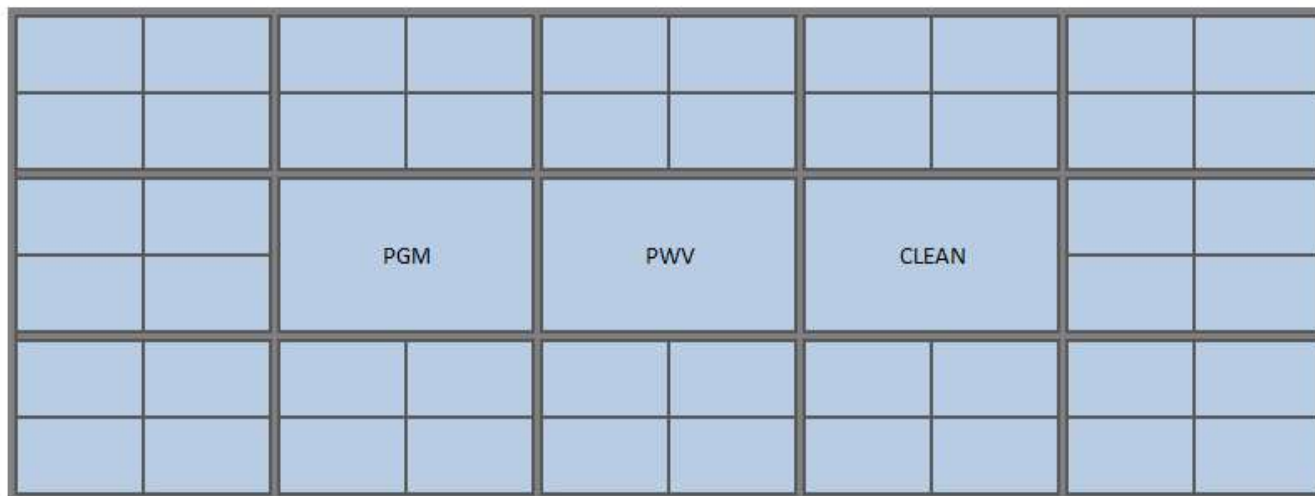
9" Dual TFT display, 800x480, SDI/HDSDI INP



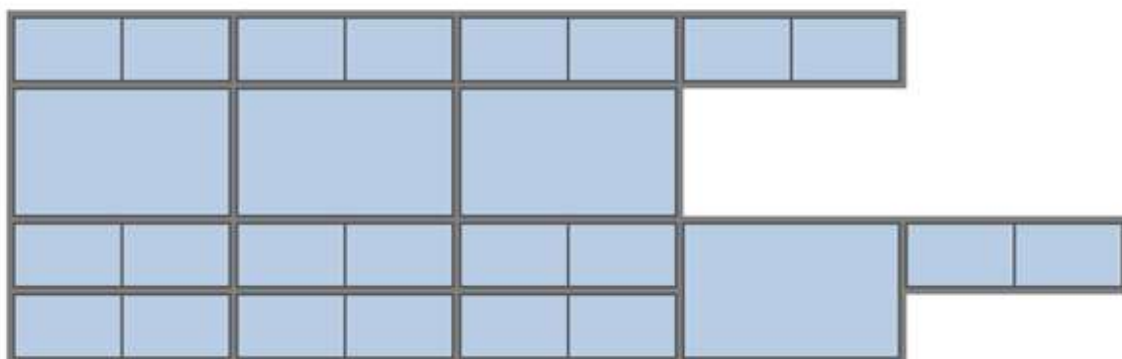


DISPLAY SYSTEMS

HDOB-2 DIRECTOR MONITOR WALL



HDOB-2 CCU MONITOR WALL



AUDIO



SOLID STATE LOGIC C100HDS

BlackRock processor, 96 channels DSP, 8 MADI ports, 8 x MORSE Stage Boxes

Key Benefits:

- Comprehensive 5.1 production tools with superb metering & monitoring, flexible bus architecture, single fader stem control, intuitive panning system and stereo to 5.1 Upmix
- Benchmark audio quality and a full array of precision audio processing tools
- Modular I/O, scalable Control Surface and Processing upgrades that don't require new hardware, let you specify the right system for today with flexible future expansion
- Ergonomically advanced control surface that is elegant, comfortable, logical and freelance friendly. Dedicated processing per channel means no DSP compromises
- Proven robust reliability and ultimate Redundancy with every aspect of the system configurable as two fully mirrored systems
- Advanced remote control capability with Pro-Bel protocols, Ross Overdrive, Sony ELC & Mosart Medialab Production Automation and extensive GPI parameter control

Dynaudio BM5 Compact 5.1 Monitoring System

Axon

Dolby E Encoder

Pronto ISDN Codec

Sennheiser, Rode microphones w/windshields

Sennheiser 2000 series wireless microphones

Sennheiser wireless IFB system



INTERCOM



RIEDEL MFR-32 G2 ARTIST MAINFRAME

Hot swap of all modules

Redundant power supplies

Redundant node controller

Max. ports per frame: 32

Max. of controller / client / GPI cards per frame: 2 / 4 / 1



On board:

- 1x RCP 1012 keypanel
- 6x RCP 2016 keypanel
- 3x DCP 1016 desktop keypanel
- 3x DCP 2016 desktop keypanel

8x Additional Ext keypanels

RiFace with 8x Motorola Walkies

Acrobat Wireless System with 4 beltpack

EVS



LSM 6 CHANNELS EVS HD SLOW MOTION

2 x with Super Slow Motion Option

Live editing, non-linear editing, storage, video transfer and repurposing

Time delay, playout control, instant replay (Live Slow Motion)

Non-stop multi channel recording

Multi-camera recording

Reliable hardware & software architecture

Flexible IN/OUT configuration

Most popular SD and HD codecs support



EPSIO VIRTUAL OFF-SIDE LINE & LIVE EFFECTS (HD/SD)

Full virtual effects

Instant creation

Instant screenshot preview of best angle for producer

Playout at first replay

Easy-to-learn

Great visual result with the highest level of reliability

Also available for complete 3D workflows

Multiple graphic overlays:

- offside line
- 9 metres circle
- distance to the goal
- scores and logo inserts

Automated drawing of field and its limits



IP DIRECTOR – PRODUCTION CONTROL

CAPABILITIES

- Content production management suite
- Easily ingest, log, manage, search, browse
- Track, edit, create clips and highlights
- Play out any video or audio content instantly
- Complete and instant overview on the media sharing network, XNet2 (XT3, XS, EVS storage platforms, video tape recorders)
- Control and organize any recording and live streaming actions of feeds from cameras, satellite or video tape recorders, either in high or low resolution
- Metadata can be transferred to and from third-party and post-production equipment via export of XML files

FEATURES

- Multiple camera ingest
- Rough cut editing
- Clip transfer and streaming to craft editor and storage
- Highlights import from craft editors
- Graphics import from graphical devices
- Online storage and nearline storage control
- Instant clip review
- Multifeeds ingest
- Metadata management
- Network control (high/low-resolution)
- Transfer/Streaming to post-production





GRAPHICS

HARRIS INSCRIBER G7

for two channels HD graphics system

Highlights of the high-performance features and workflow benefits of the G7™.

Full 2D and 3D graphics creation and playout with two video inputs per channel, up to 32 channels of discrete audio, and support for 2D and 3D HD DVE.

G-Scribe+™ 2D/3D creation and playout software, which delivers sophisticated capabilities such as video capture, charting, simultaneous playback, automation interface for real-time data display connection and intelligent graphics transitions.

G-3D™, a design module that elevates broadcast graphics design with illuminating, true 3D graphics and animations in both HD and SD.

Network Manager for G-Series™, which bi-directionally manages graphics across a LAN or WAN by publishing content across a local network or through the Internet.

G-Scribe™ support for custom applications written in RTX.NET. Real-time sports, news and weather data can be streamed and graphically displayed using RTX ports on all G-Series™ systems, including the G7™.



CABLES



CABLES

BELDEN

- 16 x 200m Belden Triax 8 cable with Fisher Connectors
- 12 x 150m Belden Triax 8 cable with Fisher Connectors

FISHER

- 12m cable from CCU to termination panel
- 1 x FMW.3K.93C.TLMC96Z fixed plug
- 1 x PUW.3K.93C.TLCC96 free socket
- 12m heavy duty, halogen-free hybrid fibre cable

LEMO

- 4 x 150m hybrid fibre camera cable
- 1 x FUW.3K.93C.TLMC96 straight plug
- 1 x PUW.3K.93C.TLCC96 free socket
- 150m heavy duty, halogen-free hybrid fibre cable on drum



REFERENCES

EUROSPORT

- UEFA Under-17 European Football Championship Final in Novi Sad (Serbia), May 2011
- Rugby 7's Grand-Prix Series in Bucharest (Romania), 16 July 2011
- UEFA Under-19 European Football Championship Final in Bucharest (Romania), July 2011
- UEFA Futsal Euro Final 2012 Zagreb (Croatia), February 2012
- UEFA UNDER-17 European Football Championship Final in Lendava (Slovenia), May 2012
- UEFA Women's Champions League Final in Olympic Stadium – Munich (Germany), 17 May 2012
- UEFA European Under-19 Championship Final – Hungary, 19-31 July 2014
- UEFA European Under-19 Championship Final – Greece, 6-19 July 2015

MTVA

- Matches of the Hungarian national football team
- soccer, futsal, ice hockey, basketball, handball, water polo, athletics, boxing, horse racing, music events, conferences, theatre productions
- 31. LEN European Swimming Championships in Debrecen (Hungary), 20-27 May 2012
- New Year's Concert from Hungarian National Opera House, Budapest (Hungary), 1 January 2013
- the reopening ceremony of Vigadó Concert Hall, Budapest (Hungary), 14 March 2014
- the Group B and the Main Round Group I matches of the Women's EHF Handball European Championship 2014, Debrecen (Hungary), 7-17 December 2014

REFERENCES

CHELLO CENTRAL EUROPE and AMC NETWORKS (Czech, Hungarian and Slovakian Sport TV Channel)

- matches of Hungarian Professional Football League, Hungarian League Cup and Hungarian Cup
- water polo-, volleyball and beach volleyball, basketball- and handball matches in Hungary and Slovakia
- Kontinental Hockey League (KHL) – Seasons 2011-12, 2012-13, 2013-14, 2014-15 (home matches of Lev Poprad and HC Slovan Bratislava, Slovakia)
- the 2014 KHL Legends Game and All Star Game in Bratislava (Slovakia), 10-11 January 2014
- Champions Hockey League (CHL) – Season 2015-16 (home matches of Vitkovice Ostrava, HC Kosice, HK Nitra)

CONCERTS

- Győr Philharmonic Orchestra – 2012, 2013, 2014
- Concert of Ákos in Budapest (Hungary), 15 December 2012
- Dezső Ránki pianist's concert in Győr (Hungary), 25 April 2013
- Concert of Tankcsapda in Debrecen (Hungary), 27 December 2014

