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## TOP STORIES

# SUPER BOWL BROADCAST BY CBS SPORTS POINTS TO POWER OF HD AS TECH CREW BATTLES ELEMENTS

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*By Ken Kerschbaumer*

When CBS Sports offered the world the first unified HD Super Bowl production from Houston three years ago the move required CBS to use four of the five HD productions truck available in the U.S.

Three years later the Super Bowl compound in Miami for Super Bowl XLI is awash in HD vehicles, a real-world example of the way HD has truly taken over the industry. This year's game also exemplifies how NFL stadiums will need to step up their facilities to ensure quality HD productions as the lighting in Dolphins Stadium was not up to Super Bowl snuff.

"It's an older stadium and we needed to supplement the lighting," says Ken Aagaard, CBS Sports SVP production and operations. During a site visit measuring lighting levels the end zones were reading at only 60 foot candles, well below the 175 foot candles specified by the NFL.

"We brought in 16 soft light fixtures and deployed them around the stadium to give us 180 foot candles evenly across the field," says Aagaard.

On Game Day, as was obvious to billions of viewers around the globe, constant rain that started early on Super Bowl Sunday and continued throughout the day upped the ante but there were only a few minor equipment issues. Wind was the bigger concern as on-site sets had roofs capable of withstanding gusts up to 40 MPH but rain turned out to be the only weather concern. In fact, weather proved to be more of a problem for the Bears and Colts than the technicians and gear that covered the game.

In terms of new in-game production technology advances this year's Super Bowl production, based around NEP's SS24 three-trailer HD unit that also handles A game coverage for the NFL, were fairly limited. Along with the NEP truck CBS relied on an NCP truck for pre-game and Corplex truck for tape release.

## More Super Slo-Mo

Topping the list was the use of even more HD slow-mo, in both the regular 180-frames-per-second version from Sony (with six units on hand) and three super high-speed cam-

eras. Two of those units were three-chip cameras built by NEC and offered by Fletcher Chicago while the third was a Phantom ImageCam from Inertia Unlimited.

“The two NEC units ran between 180-220 frames while the Phantom camera can shoot up to 1,000 frames per second,” says Aagaard. It can only shoot in 11-second increments with an EVS server then playing highlights to air. Both cameras on-air presence was denoted by the SuperVision logo.

The additional super slo-mo cameras are what a Super Bowl production are all about: making sure the directors and technical crews have enough cameras shooting the action so just the right angle is delivered to the billions of viewers. This year that meant 48 Sony HD cameras and Canon lenses, with 21 hard cameras, three cabled handheld cameras, and two RF handhelds and a CableCam. Toss in robotic cameras, clock cameras, and unmanned cameras and the numbers keep on climbing. All were tied into nearly 40 EVS units and five Sony HDCAM units.

“The only reason you would have this many cameras and tape machines is to make sure you can find the right replay,” says Aagaard.

The massive influx of replay sources also called for a new approach to workflow. Like Indianapolis Colts Peyton Manning needs to trust that the offensive line will protect his back side Super Bowl Producer Lance Barrow needs to trust that the production people who are looking through the replays are offering up the best shots. “Technically and operationally it allows us to work fast enough to get all the replays,” says Aagaard.

Corplex Platinum handled tape release and supplemental game cameras. Platinum housed and controlled 17 cameras consisting of 10 Sony HDC 1500 cameras, four Sony 3300 Super slo-motion cameras, three high speed/High Motion cameras as well as 12 EVS servers and two HD VTRs. Platinum also took feeds of the remaining cameras, EVS machines and VTRs and was able to provide SS24 with a sub-mix of replays via the GVG Kalypso switcher and Calrec Alpha 100 as well as being prepared to provide emergency game coverage in the event of a catastrophic failure of the main unit.

Meanwhile Corplex Mercury, Platinum’s Graphics support unit, housed five EVS Super Slo-mo operators, the camera control area for nine robotic cameras and the Comms area where all four of the buss expanded Telex/RTS Adam intercoms, with nearly 500 ports were programmed and controlled.

“We were pleased to be working with CBS on an event such as the Super Bowl,” says Scott West, Corplex president. We have highly experienced engineers that provided excellent technical support for this program. Platinum and Mercury have an extensive investment in router and distribution infrastructure, and that, coupled with our past history of working with NEP’s SS 24, allowed us to facilitate an efficient setup and provide CBS with a great show.”

Princeton Video Images (PVI) supplies CBS Sports with on-the-field graphics enhancements like the first-down marker and rolled out a new enhancement called the Tackle Box that lays a box around the offensive tackles that lets viewers see when the quarterback has ventured outside the pocket.

## **New Tech the Exception**

Those new technical additions are the exception, not the rule, when it comes to a Super Bowl production. The technical side of the Super Bowl telecast always garners headlines because of the sheer size of the telecast. But the real reason it's newsworthy is that it's an example of safety first with redundancy ruling the day.

"Everything has a backup," says Aagaard. "And it becomes a question of how fast you can get to that redundant system because you'll never know where a problem will come from."

For example, wireless microphones and wireless cameras can be tested prior to game day but the influx of ENG news crews from TV stations and networks on Super Sunday is an x-factor. That's one reason Aagaard tells his crew to use cable whenever possible for delivering signals back from cameras.

"You never know until game day," says Aagaard. "You can coordinate as best you can but until you get there you never know what's going to happen."

The NFL brings in nearly 20 game day frequency coordinators to keep track of all of the wireless RF traffic. CBS Sports brings in Louis Libin, president of Broad Comm Group, to manage its own frequency coordination process.

"The risks are very high because, to me, the spectrum is very, very congested," says Libin. "As a rights holder we have a lot of channels but where we are, which is right in the nearfield of broadcast towers and we're operating, in some cases, between the carriers of those stations."

## **Wireless Confidence**

To ensure video signals are transmitted wirelessly with confidence Libin took a different approach. Five wireless cameras will be used during the game and every local TV station and others are in town using 2.4GHz spectrum. As a result, Libin says he isn't comfortable depending on 2.4 GHz spectrum. The work-around? Getting STAs to use other frequencies.

"Some are aircraft and test safety downlink and some is above and below 2GHz," says Libin. "And those are the saving grace."

Finding reliable and secure wireless spectrum is one of the reasons Libin and many in the wireless community are concerned with federal legislation that would allow unlicensed devices to be used in the White Spaces spectrum that is crucial to events like the Super Bowl.

"That legislation will basically make all of the spectrum unreliable," says Libin. More importantly, it's a move that turns back the clock on the technological advances made in audio and return them to the days when massive plumbicon-tube based cameras ruled the airwaves and large wired mics were the only way to deliver audio.