

Using a new Formula

Philip Stevens talks to the company responsible for the BBC's coverage of the recent Formula One season, covering 19 events worldwide – involving a £2 million HD upgrade to OBs and flyaways, first used at the Belgian Grand Prix last August

SIS Live is no stranger to Formula One racing. It has continued to be involved with the global event through a couple of changes of UK rights holders and now provides a full technical service to the BBC – not just for the regular broadcast transmissions, but also internet and 'red button' programming.

Handling the requirements for the annual 19 races around the world is a considerable undertaking, and to enhance the coverage, SIS (Satellite Information Services) has recently completed a £2 million upgrade that involves a redesign of one of its OB trucks and a new build of a flyaway kit in containers. The new equipment was first used at the Belgian Grand Prix in August 2010 and was deemed a success.

SIS Live designed, project managed and built the upgrade, led by Ian Haynes, the company's engineering manager, Formula One. The build and refurbishment work was carried out at SIS' Milton Keynes facility.

"We supply the production equipment and the technical personnel to BBC Sport," reports Haynes. "The crew normally comprises three cameramen, two editors, two sound engineers, a sound mixer, a vision engineer, rigger, two comms engineers and the supervising engineering manager – which is normally me.

"Although Formula One and the host broadcaster provide the World Feed of the race itself – and we are contracted to use that material – the pre and post race programmes are the responsibility of the rights holder. And it is that part of each race for which we provide the services."



SIS containers sent by cargo plane to Abu Dhabi for coverage of Formula One races

When a race is held in Europe, the production vehicle is driven to the venue, with the containers on an accompanying flat bed truck. Where the event is located further afield – Australia, the Far East or North America, for example – cabins are used for production purposes, with the containers being sent by cargo planes. The same equipment is used whichever option is employed.

"As far as the production truck is concerned, we ripped out the existing interior of what was CMCCR – Colour Mobile Central Control Room – and redesigned it to be an empty shell that could accommodate a layout to suit the specific needs of Formula One. Basically, it is separated into production, edit, VT and sound areas and is now known as the GPPU – Grand



Edits and EVS production in the GPPU cabin

"We use radio mics which we pick up via an RF over fibre system. The distances involved are often very large when you take into account pit lane, paddock and grid – and there are often many buildings in the way" – Ian Haynes

HD capable cameras with Gigawave HD radio transmitters. These provide multi-format recording flexibility, although SIS Live will be shooting in 1080i /50 mode. As well as providing the live coverage, these cameras are used for collecting pre-recorded material for inserting into the programmes. Alongside the disks that are used for these pre-records, the cameras also provide a low resolution output on a USB stick. These files are used for the material that goes straight on to the internet.

Two further cameras are provided for fixed positions – one in the commentary box and another for a programme that is exclusively available on the red button. These cameras are built by SIS' own Special Cameras department.

"Our set up allows the use of fibre as a back up if there is any radio interference in the area," explains Haynes. "Last season we did not have to use the fibre. However, all of our connectivity – even within the gallery and edit suites to the containers is via fibre, mainly 12-core."

Prix Production Unit – OB vehicle. Previously, we hired the flyaway kit, but decided it was more appropriate to have our own unit. We also took the opportunity to upgrade to high definition."

He continues: "The design here means that the unit can be readily accommodated in three containers that sit on a flatbed truck. Once at the venue, the control services such as the vision and sound mixer tops and monitors are rigged in the GPPU or portable cabin structure in the broadcasters' TV compound area."

Equipping the units

To meet the production needs of the BBC, the new unit is equipped with Sony PDW-F800 XDCAM HD422

Vision mixing is carried out using a Sony 6000 with 1 ME bank, while a Lawo mc256 mixing console is used for audio control. "This sound mixing equipment is popular among other companies covering Formula One," reports Haynes. "So it makes sense to have some commonality in the television compound."

The Lawo mc256 is fitted with 48 faders, with three DSP cards to provide 144 DSP channels. This console can be linked with three stageboxes via single mode fibre. "An interface is provided to the Riedel Artist via Madi or AES tielines," explains Philipp Hey, Lawo's project manager. "In addition, we provide Riedel IF cards for our stageboxes to allow the Riedel commentary units to be connected directly."

He goes on: "As our router is pretty transparent, it is no problem to route IC signals and control data to any destination in the Lawo system. There are free assignable envelope curves available for each DSP channel, triggered by the vision mixer by GPIO or protocol."

The Riedel set up incorporates a Riedel Artist 64 Digital Intercom Matrix with a total of 23 Artist 1000 Series Control Panels – two of which are equipped with a CSX-11 commentary unit. Since the control panels are connected to the matrix via an AES3/EBU signal, a second audio channel with broadcast quality is available that can be used independently from the intercom application. In fact, the CSX-11 provides a complete commentary position at the intercom panel without need for additional cabling.

Haynes continues: "We use radio mics which we pick up via an RF over fibre system. The distances involved are often very large when you take into account the pit lane, paddock and grid – and there are often many buildings in the way. For example, in Brazil the television compound is over one kilometre from the paddock and pit lane."

Recording proceedings

Apart from two DigiBeta machines that are used for archive recording, the GPPU operates a tapeless environment. Recording is carried out using Sony PDW-F1600 disk recorders. These units support existing XDCAM HD and XDCAM SD formats as standard and provide 1080i and 720P recording. Around 95 minutes of recording time at 50Mbps is possible on a dual-layer disc and 43 minutes on a single-layer disc. Several EVS machines are also available. "We also employ two XT2+ and two XS machines to record our three cameras, the world feed and 11 other feeds from Formula One Management."

Editing is carried on four Final Cut Pro edit suites, with laptops



The GPPU unit (left) and three containers that house the flyaway units loaded on the flat bed (right)

➔ Continued on page 46

AD INDEX

- IBC **AJA** www.aja.com
- 24,25 **BCE** www.bce.lu
- 5 **Blackmagic Design**
www.blackmagic-design.com
- 3 **Bridge Technologies**
www.bridgetech.tv
- 46 **BVE** www.bvexpo.co.uk
- 36 **Clearcom**
www.clearcom.com
- 29 **Datavideo**
www.datavideo.nl
- IFC **Digital Rapids**
www.digital-rapids.com
- 40 **DVB** www.dvb.org
- 18 **DVS** www.dvs.de
- 45 **Element Technica**
www.elementtechnica.com
- 4 **EVS** www.evs.tv
- 27 **For-A** www.for-a.com
- 1 **Harris**
www.harris-broadcast.com
- 38 **Ikegami**
www.ikegami.de
- 31 **Mediagenix**
www.mediagenix.com
- 11 **Miranda**
www.miranda.com
- 28 **Murraypro**
www.murraypro.com
- 9 **Newtek**
www.newtek-europe.com
- 29 **Neveion** www.neveion.com
- 13 **Oasys**
www.on-air-systems.com
- 21 **Omneon**
www.omneon.com
- 41 **Photon Beard**
www.photonbeard.com
- OBC, **Playbox**
26,32 www.playboxtechnology.com
- 19 **Publitrone**
www.publitrone.com
- 37,39 **Riedel** www.riedel.net
- 23 **Rohde und Schwarz**
www.rohde-schwarz.com
- 33 **Servizi** www.si-media.tv
- 17 **Snell**
www.snellgroup.com
- 10 **Spidercam**
www.spidercam.net
- 7 **Sony MPE**
www.pro.sony.eu
- 15 **Teletream**
www.teletream.net
- 35 **Viewcast**
www.viewcast.com
- 42 **VSN** www.vsn-tv.com

Test Chest 3G put through checks for Coronation Street live episode

Production Case Study

When Manchester's Granada Studio Complex requested to borrow a Test Chest 3G for a critical evaluation, manufacturer Murraypro was happy to oblige. **Steve Craddock**, technical manager at production facility 3sixtymedia, reveals why the unit was brought in for testing

The Test Chest 3G arrived for evaluation on the first day of a seven day rig/rehearse for *Coronation Street's* live 50th birthday episode. While this potentially provided an excellent opportunity to thoroughly test it I was also concerned the crew might not have time to try it out properly. I needn't have worried!

The *Coronation Street* project involved 24 cameras controlled from SiS Outside Broadcast 1 (their flagship scanner) deployed across two studios, the medical centre building and the Lot comprising the Street itself, alleyways and passages, all littered with prop crashed trams and rubble.

Outgoing circuits were two HD satellite feeds via SiS, three outgoing SD feeds via the internal ITV network, cue feeds to numerous PAL, SD and HD monitors around the studios and the Lot, courtesy feeds to communal areas around the ITV building and via the internal RF ring-main, four HD record feeds via the studios to our Avid ISIS server for replay later, repeats, ITV player etc. Plus — if it was commissioned in time — a brand new internal network HD line feed to BT Tower. A tall order! Especially when



Steve Craddock: "We were easily able to establish which feeds were PAL, SD or HD"

As the live transmission approached, the Test Chest was transferred to the studio engineers who put it to use chasing feeds to projectors, screens and TVs located around the building and distributed from our Central Technical Area

everything had to be plugged from scratch and any existing facilities over-plugged to allow rehearsals to continue throughout the rig.

Remote identification

The Murraypro Test Chest was used in every area. We found the 'Which-Wire?' input was invaluable for checking individual camera and mixer out feeds back to each studio. The Embedded Audio monitoring with the in-built speakers allowed us to identify remote feeds from the scanner without having to call the scanner

crew by phone or RT to ask them to Ident either sound or vision.

On the Studio floors and outside on the Lot, we were able to establish which feeds were PAL, SD or HD simply by plugging them in. Television monitors for cueing on the Lot were carefully hidden out of shot, usually in dark corners, Ginnels and behind rubble, all under cover of darkness. It was here that we discovered the in-built torch and put it to good use.

Overall, the Test Chest was very straightforward to use. Everything was achieved without any of us referring to the enclosed handbook PDF or the helpline

tailboard, sorting out a variety of off air and network monitoring feeds and measuring levels in PAL, HD and SD with and without embedded audio.

With everything in place our attention turned to the outgoing circuits and so the Test Chest headed off to our Network Control Room. The unit acted as a test signal generator for the SD circuits with the advantage of being able to use its Clapper Board feature too to check audio/video synchronicity. It was also used to commission our new HD circuit, spending virtually a whole day generating a variety of level and sync test signals for measurement at BT Tower. It was at this point that, despite the impressive battery life, we finally conceded to use the mains adaptor.

As the live transmission approached, the Test Chest was transferred to the studio engineers who put it to good use chasing feeds to projectors, screens and TVs located around the building and distributed from our Central Technical Area.

Over the full week we used the Test Chest extensively. We certainly made more use of it across more areas and users than I had expected and with unanimous approval. We used many of the Test Chest's functions but we certainly did not use all of them (I am looking forward to achieving that this new year!).

What we did use we found very useful and were never disappointed. By the time I asked my colleagues at the end of the week if we should buy one, the response was a predictable, "one each"?



Murraypro's Test Chest 3G was evaluated in the run up to Coronation Street's live episode

number provided; we just didn't have time. Similar use was made of the Test Chest at the scanner

Using a new Formula

← Continued from page 44

available for producers to produce offline compilation.

Haynes concludes: "On the qualifying day and then again on race

day, our facilities are used for a live pre-race show on BBC One that runs between 30 minutes and one hour. Five minutes before the race, we join the World Feed coverage. The BBC provides its own commentary, but the pictures and graphics are from Formula One. "That World Feed continues until after the end-of-race press conference. Then the BBC programme includes the post-race

analysis. After that, the facilities are used for the BBC Red Button for another hour of BBC Forum. It is quite intense, but the new units work extremely well and readily cope with the BBC's demands."

- www.sislive.tv**
- www.lawo.de**
- www.riedel.com**
- www.sony-europe.com**
- www.sono.de**



Location gallery with graphics stations in foreground



BE INSPIRED AT BROADCAST VIDEO EXPO'S FREE SEMINAR PROGRAMME

Choose from over 180 seminars and establish what's really going on in the market, discover the newest trends emerging and learn how to make the most out of new opportunities in media.

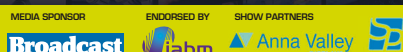
- **The Post Production Theatre** - Benefit from the AVID training day, enjoy the UK Screen panel & H.264 with Matrox and attend sessions on multi camera 3D from studio to post.
- **The Total Delivery Theatre** - Hear from industry experts on topics such as an

introduction to IPTV, Media Streaming - The 4 golden Rules, Broadcasting to the iPhone and iPad and how 3G connections empower TV news crews.

- **Broadcast Meets IT** - Join debates including 'The Cloud, a year on' and attend seminars on topics such as future-proofing the broadcast infrastructure
- **The Audio Room (incl. New Radio Day)** - Discover the pros and cons of compressed audio in broadcast, question the experts on recording sound and learn more about 5.1.



PRIORITY CODE - EBTVB3



FIND OUT MORE AND REGISTER FOR FREE ENTRY AT **WWW.BVEXPO.CO.UK**