

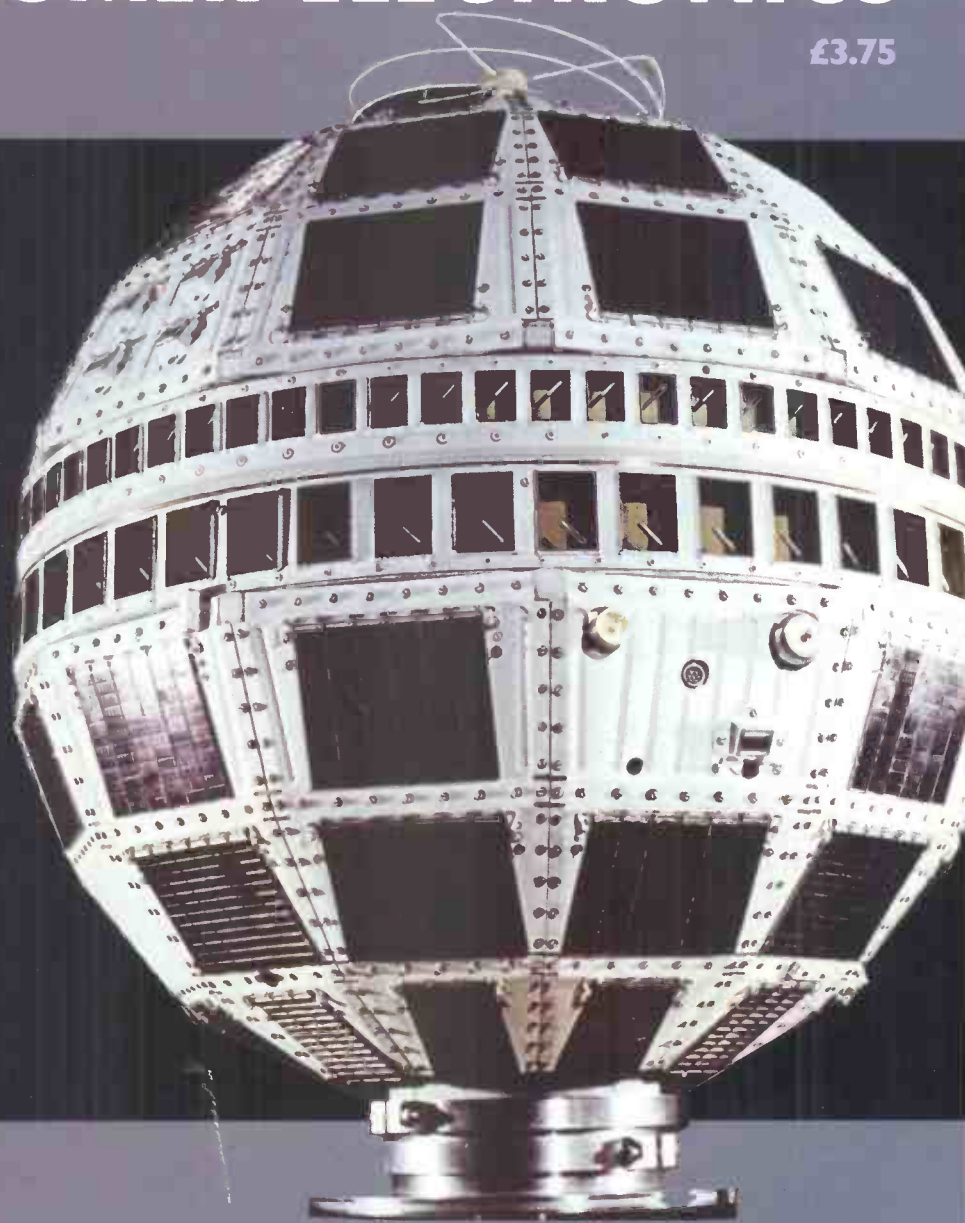
TELEVISION

AND CONSUMER ELECTRONICS

AUGUST 2006

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happened
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The indoor aerial conundrum

You wouldn't think that a £4 indoor TV aerial from Argos would outperform one costing £30, would you?

There is a news item this month about the best-performing aerial costing a mere £9.99, and scoring 85% in its overall performance rating.

However, the most expensive one, the Philex SLx 27746R, sells for a relatively exorbitant £29.99 but scores a pathetic 40%. This is lower than the cheapest aerial tested, the Argos 534/2859, which sells for £3.99 and scores 50%.

Out of a total of 32 indoor TV aerials tested by Consumer Group Ricability, three had the lowest score (30%) and two of these sell for £14.99.

It looks like some manufacturers are exploiting the maxim: "You pay your money and you make your choice". In the absence of any hard data, some people will just buy the most expensive item available in the hope that they will be getting the best.

This is why Ricability's report is to be welcomed. Indeed, both Digital UK and Trade Minister Margaret Hodge welcomed the results as helping consumers to choose the best equipment for the digital switchover.

According to Ricability, 30% of households in the UK today use an indoor aerial. If so, it is most likely for a second or even third TV. But for a few people, it will be the only way to receive a TV signal.

If you can't have an aerial on the roof, you might be able to fit a big enough roof aerial in your loft. You probably won't get such a strong signal as you will with a rooftop aerial, but it could be stronger than with an indoor one.

Surrounding houses and trees might block it, and obstacles like roof tiles and that big water tank will cut back the signal. The signal strength may also be more vulnerable to weather conditions, for instance.

Many indoor aerials also had other problems, like cables that were too short to put an aerial up high for better reception, or weak joints or loose screws. A few tended to topple over because they were too heavy or had heavy cables.

There is no guarantee that any of the indoor aerials tested will enable you to receive digital TV in every room in your home. You may get some groups of stations but not others; or some groups with the aerial in one position, and others by moving it a bit.

Whether or not you get a really good picture will depend on several things, such as where you live, where your windows are and where in the room you put the aerial.

There is one rule of thumb. If you currently get a good, clear analogue picture with an indoor aerial, you stand a fairly good chance of doing so for digital. If you do not currently get a good clear signal, you are unlikely to with digital TV either. Instead of the snowy picture you sometimes get with analogue signals, with digital you can go from a good picture to none at all very quickly.

Boris Sedacca
Editor

GB Rowing goes for gold with Panasonic

Panasonic UK has joined GB Rowing's support team at this year's remaining World Cups and at the World Championships. As an Official Supplier to GB Rowing, Panasonic equipment will now be used extensively to video and play back training and racing sessions.

"This is an absolutely vital coaching tool and will help us refine technique as well as racing plans", said GB Head Men's Coach, Jurgen Grobler.

"We video as much as we can of each session and analyse the results. This is then fed back to the rowers. To have state-of-the-art equipment at our fingertips



will be a huge benefit". "We are proud that Panasonic has chosen to become associated with our squad", added GB Performance Manager, David Tanner.

Cyril Wood, Managing

Director Panasonic UK, stated: "We are proud to be working with GB Rowing and are especially pleased that our products will be assisting the team in their quest for medals at the Beijing Olympics 2008."

Pixel Power provides graphics to ITV Play

Pixel Power is helping to provide what is thought to be live TV gaming's most intensive and dynamic graphics to ITV Play.

Pixel Power is customising its semi-automated Clarity character generators with software from Clarity specialist Mobyjoe, to output real-time information on thousands of players for the gaming channel.

While viewers play the games, the system collates real-time data on their progress for display on-screen.

This data, plus lower-third graphics including animated logos, contact details, tickers and live chat, and graphics in centre-screen for the games themselves, are all under the control of just a single operator using a custom-built control interface.

The new graphics system launched with the debut of ITV Play's Coronation Street quiz. Pixel Power's two high-end Clarity 500 character generators host the tailored software from Mobyjoe.

"ITV Play is possibly the fastest paced and most content-rich gaming channel in terms of the gamer data it processes and broadcasts in real time," says ITV Production's, head of studios and location services, Paul Bennett.

"Without Pixel Power and Mobyjoe, we simply couldn't handle so much data and produce the UK's leading gaming channel with just one operator."

The deal follows ITV News Regions' rollout of Pixel Power's Clarity 500 graphics solution across its regional UK news stations.

TI Simplifies Audio/Video Synchronization

Texas Instruments has introduced the TPA5050 digital audio delay with IIC control.

Designed for high definition and flat panel TV applications, the TPA5050 digital audio delay provides cost-effective synchronization of audio and video in a single integrated package that conserves board space and simplifies channel

configuration.

Audio/video (A/V) synchronization issues arise because video processing is more intensive than audio processing. As a result, audio is ready for playback before the video.

Without synchronization, what viewers hear will not match what they see on the screen - where the timing of lips moving is off from the words being heard, for example.

Also known as "lip sync," A/V synchronization is maintained by delaying playback of the audio stream, until the video stream has finished processing. The actual delay

required for synchronization depends upon the type of A/V signals and the current video mode.

Synchronization also plays a role in wireless multi-channel speaker applications. Given the inherent processing delays of wireless transmission, it takes more time for transmitted channels than non-transmitted channels to output audio.

The non-transmitted channels, therefore, must have additional delay to synchronize them with the transmitted channels.

"There is a real need in the market for lip sync devices that can be easily implemented," says Kevin Belnap, marketing manager for Home Audio, Texas Instruments.



Sony seeks new supplier for LCD TV screens

(Reuters) Sony is seeking a new supplier of liquid crystal display (LCD) panels for TV screens to make up for a possible shortage.

Sony said its panel supplies from S-LCD, its venture with Samsung, would not be enough to meet its plan to sell 6 million LCD televisions this business year to March.

Sony's Bravia brand LCD TVs have been selling well since their launch, and the company is now the world's fourth-biggest LCD television maker when measured in units, and the world's top LCD TV maker when measured in revenue - due to the higher average selling prices of its sets.

Sony mainly procures 32-inch or larger panels from S-LCD while buying smaller panels from

Taiwanese manufacturers.

Securing enough panels to meet strong growth in flat television demand is crucial for any TV makers. Sharp lost its position as the No.1 LCD TV maker in the final quarter of 2005, mainly due to supply shortages.

Sharp said in March it had begun procuring LCD panels for televisions from Taiwan's Quanta Display, marking the first time that the Osaka-based company bought LCD panels for televisions from another company.

AU Optronics, the world's third-largest flat panel maker, said in April it would acquire Quanta Display.

Global demand for TV-use LCDs is expected to grow 70% this year to 48.4 million units, according to DisplaySearch.

Samsung executives honoured

Samsung executive Vice President Jun Hyung Souk, head of the Samsung LCD Business Research Center, was presented with a Special Recognition Award from the SID (Society for Information Display) Board of Directors at the 2006 SID International Symposium and Exhibition, while Samsung Electronics Vice President Brian Berkeley (pictured right) was named SID Secretary and a member of Board of Directors.

Berkeley, an executive involved in LCD technology development, has been elected to serve as Secretary of the Society for Information Display.

Berkeley will serve as



one of four officers of the Society, and will also serve as a member of SID's Board of Directors.

He has been in the display industry for thirty years, working at Apple Computer, and he played an important role in establishing the use of LCDs in the IT industry.



B-SkyB purchases encoders for HD

B-SkyB has purchased seven Snell & Wilcox Memphis encoders to master content for its new HD services.

B-SkyB will use the Memphis systems to create high quality HD Long GOP MPEG-2 streams, which will then be stored on Omneon Spectrum servers, with which Memphis has been fully integrated.

The Omneon servers will then playout HD content in SD, HD (720p or 1080i) or both. The integration of Memphis encoders and Spectrum servers gives B-SkyB flexible interoperability for both playout and archiving applications.

"Quality of image is critical to the success of any HD service, and we conducted extensive testing in selecting systems for our HDTV infrastructure," said Chris Johns, director of technology at Sky.

"Thanks to Snell & Wilcox motion estimation technology the Memphis encoder provides the superior picture quality we require for MPEG mastering, and the system's flexible interfacing and easy

expansion options will help us maintain the status of digital satellite services as the home of the highest-quality viewing experience."

B-SkyB's premium services are launching now with a set of dedicated HDTV channels featuring sports, movies, entertainment and factual programming ? plus access to select events produced in HDTV.

"B-SkyB's HDTV launch is among the most significant events in the advancement of the European broadcast industry, and we're pleased that our Memphis encoder has been chosen to support the network's transition to HD broadcasting," said Joe Zaller, vice president of marketing at Snell & Wilcox.

The Snell & Wilcox Memphis encoder accepts SD and HD 1080/720 format inputs, as well as uncompressed PCM, MP1L2, Dolby E and AC-3 audio. It has been installed by a wide variety of leading broadcast customers and integrated with a wide range of automation systems and playout servers.

Single chip TV Tuner



Infineon Technologies has introduced a low power tuner IC, Taifun TUA6039.

The TUA6039 integrates the complete RF (Radio Frequency) and IF (Intermediate Frequency) functions on a single chip, leading the evolution of smaller and more cost effective digital TV tuner ICs without compromise to performance.

It offers a 50% reduction in board space and power consumption compared to the previous generation, currently using Infineon's two-chip solution, consisting of TUA6034 (RF multimedia tuner) and TUA6192 (IF amplifier).

The TUA6039 is

manufactured using a bipolar CMOS process and is well-suited for stationary broadcast receivers where both low cost and lower power consumption are major design requirements.

TUA6039 is a full 3-band RF tuner IC with integrated IF AGC (Automatic Gain Control) amplifier and PLL.

This low power tuner IC operates between 3-5V supply voltage with a power consumption of only 330mW (typical) compared to about 600mW for similar competing solutions.

The supply voltage flexibility allows manufacturers of tuner

modules the freedom to adjust the tuner modules to the various receiver system power requirements.

System power consumption is further reduced with the built-in stand-by mode function and bus controlled power-down mode.

All major analogue and digital standards for terrestrial and cable applications like PAL, SECAM, NTSC, DVB-C, DVB-T, T-DMB, DAB, ISDB-T and ATSC are supported by TUA6039.

Infineon has introduced several generations of tuner ICs, which have been designed into more than 60% of the worldwide digital terrestrial receivers. It claims its tuner ICs are used in one of every four TV tuners in the world.

"The latest trends in developing digital television receivers are to reduce the footprint of the tuner module while delivering higher performance," said Giuseppe Calarco, General Manager of the Tuner Systems business unit at Infineon.

EEIBA powerBall

The EEIBA's powerBall 2006, will take place on 10 November in the magnificent Great Room at Grosvenor House, Park Lane, London.

Following last year's centenary Ball, our industry charity's challenge has been to stage an evening even more spectacular.

This year's theme is Simply powerBall, which will feature the colour, spectacle and splendour of the lavish Simply Ballroom, performed by a cast of outstanding world-class ballroom dancers, including celebrity hosts Anton Du Beke and Erin Boag from TV's Strictly Come Dancing, accompanied by a live orchestra and singers.

Following a 5-star dinner, the guests will enjoy this glittering cabaret but will not just be watching a tremendous show, they will be able to participate with the experts and even compete with them.

Such energy and excitement can only be matched by a special performance of The Red Hot Chilli Pipers.

Fund-raising will of course form a major part of the event with Tombola, Stand-Up Bingo, Auctions and the Raffle.

Broadband television for islands

Broadband technology is to be used to give islanders access to locally produced television programmes through their PCs.

Western Isles Council, Western Isles Enterprise and other project partners, have received funding from Europe's Leader+ initiative.

A pilot service will be run between 2006/07 to gauge the level interest from residents. A website will provide a link to

Hebrides TV.

The project's backers believe a wide range of local activity, events and local news could be filmed and made available online.

Consultants will liaise with community groups and voluntary sector to identify and encourage content for the site.

Last December, the Scottish Executive announced that a project, which aimed to give every community in Scotland

access to broadband services, had been completed.

Over eight months some 378 remote and rural telephone exchanges - a third of the Scottish total - have been upgraded.

The executive said the scheme would bring "far-reaching" business and educational benefits.

The project was part of the executive's £24m broadband initiative, run in partnership with BT.



National Grid Wireless kicks off switchover in Wales

Technical work on digital switchover in Wales has moved a step forward with the construction of a 200m high temporary transmitter mast at Wenvoe, west of Cardiff, to host equipment currently installed on the existing structure.

This equipment transfer will enable technical work to be undertaken to upgrade the mast at Wenvoe as part of the preparations for digital switchover in the region in 2009.

National Grid Wireless owns and operates the Wenvoe site and will oversee work at a number of other key broadcast sites around Wales.

The Wenvoe transmitter is the first of 1,154 sites across the UK that will be upgraded as part of the switchover programme, which is due

for completion by the end of 2012.

National Grid Wireless is working closely with Digital UK, the organisation responsible for digital switchover in the UK, to ensure the seamless transition from analogue to digital television in Wales.

National Grid Wireless' CEO Steven Marshall (right) and Emyr Hughes, Digital UK Regional Co-ordinator, were at the Wenvoe site as part of the ceremony to mark the beginning of work.

Steven Marshall said: "Once the switchover programme in Wales is complete everybody will have access to digital TV – through their aerial, cable or satellite."

Emyr Hughes of Digital UK, said: "It is fantastic to see the technical work for switchover in Wales



getting underway.

"Wales already leads the UK in the take up of digital TV, and we will be the first UK Nation to complete the switchover process.

"Upgrading Wenvoe is just the start of a nationwide programme which will bring the benefits of digital television to everyone."

Snell & Wilcox provides BBC switcher for World Cup

The BBC used the Snell & Wilcox Kahuna SD/HD multiformat production switcher to enable standard definition (SD) and high definition (HD) coverage of the 2006 FIFA World Cup from studios and facilities in both Munich and Berlin.

Kahuna systems installed at both sites allowed production staff to work with both SD and HD sources in the same mainframe, integrate them seamlessly into production, and supply transmission feeds

simultaneously in both formats.

"The BBC originated SD and HD broadcasts from multiple venues across Germany, and our Kahuna production switcher were key to the integration of SD and HD sources into production and to the creation of simultaneous SD and HD transmission feeds," said Joe Zaller, vice president of marketing at Snell & Wilcox.

A 4-M/E (mix/effects banks) Kahuna system in Berlin and 2-M/E system

in Munich, both provided and installed by GearHouse Broadcast, allowed the BBC production team and switcher operators to choose from a variety of sources - SD and HD cameras, VTRs, and graphics systems - regardless of their format.

Kahuna's FormatFusion technology enabled the seamless integration of SD sources into high-quality HD productions without the need for outboard conversion.



The Snell & Wilcox switcher offers simultaneous SD and HD operations, and it enabled operators to allocate M/Es to either SD or HD sources, or to mix the two together on a single M/E.

Snell & Wilcox provided support in designing the system and in the training of freelance operators prior to the opening match.

Radioscape again chosen for mobile TV broadcast systems

RadioScape has been selected to provide the broadcast technology for a Mobile TV trial.

The Centre of Excellence for Digital Broadcasting (CoEfdB) in the Netherlands has just implemented a similar service on one of its four RadioScape Multiplexes.

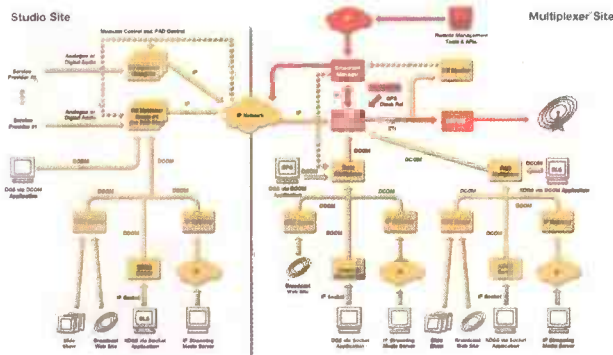
Willem Toerink of CoEfdB said: "RadioScape uses a very stable architecture of Internet Protocol (IP) to control content and internal communication within the multiplex.

"This has proved to be very reliable and has served us well over the past year on our four RadioScape DAB multiplexes.

"We are now taking DAB on to its logical next step of delivering Data and Mobile TV reliably to mobile handsets using DAB-IP."

RadioScape already has over nine DMB installations in major Chinese conurbations and is providing equipment for various trials around the world.

This includes the DMB/DAB-IP Mobile TV



trial in the UK that was announced on the 5th of June 2006, for which RadioScape is supplying broadcast systems for T-DMB and DAB-IP as well as an L-band COFDM DAB encoder.

"This Mobile TV solution is based on the well proven Eureka 147, DAB standard with an additional layer of algorithms to ensure robust signal protection and is called DMB (Digital Multimedia Broadcast) or, specifically, DAB-IP (DAB Internet Protocol)," added Phil Smith, RadioScape's Senior VP of Sales and Operations.

"DAB-IP was cited by many leading technology

companies such as Microsoft at the 2006 3GSM conference as being a key enabling technology for Mobile TV deployment as it is proven in the field, robust and there are frequencies already available in most countries."

The RadioScape Broadcast System can be configured to support both DAB-IP and T-DMB via simple software selectable options.

T-DMB is typically configured to provide H.264 QVGA sized pictures at a frame rates from 15-30 fps using 192-512 kbps and higher bit rates, while the Windows Media format focuses on lower bit rates.

C4 to simulcast on the web

Channel 4 is to simulcast its main channel on the web, according to chief executive Andy Duncan.

Programmes will be streamed live via Channel4.com as part of its "now media" strategy. Later, a video-on-demand version of FilmFour will be offered.

"Public service television provides the sturdiest bridge we have from the old analogue world of the mass viewing experience to the rapidly emerging future of consumer-led, made-to-measure media and the opportunities of a digitally connected society," said Duncan.

"The transitional period between the comfortable certainties of the analogue era and the apparently limitless possibilities of a digital future can look chaotic, anarchic and frightening, but we are not facing a technological fait accompli over which we have absolutely no control.

"Ensuring public value means much more than what the BBC does with public money. If we think we have fixed the future just by renewing the licence fee until 2016, we are mistaken."

Multi-channel scope from single USB port

The pocket-sized Elan USBscope50 is easy to use in multi-channel applications.

Users who need a multi-channel scope have usually needed to use separate USB ports on their PCs.

Elan offers a two- or four-port USB hub with flying leads, allowing multiple USBscopes to be operated from a single USB port.

USBscope50 is

synchronized in multi-channel mode and also offers galvanic isolation, which protects both equipment and users from electrical shock or damage.

The USBscope50, together with the USB hub means that all the features of a powerful oscilloscope come in a small and convenient form factor at a fraction of the price.

Other members of the USBscope family are a

waveform generator, pulse generator and pulse counter.

All these products share the same miniature package,

are powered by USB and are fully isolated.

The members of the



USBscope family can all be used in conjunction with the USBscope50.

A sharper picture



Sharp has announced the DV-SV97H, a DVD/CD player with HDMI digital output and DivX video compatibility.

The player has progressive scanning and video upscaling features up to 720p and 1080i, and is compatible with a full range of audio and video formats including DVD-RW/-R*, DVD+RW/+R*, CD-RW/-R, VCD/SVCD playback capability, MP3/JPEG/MPEG-4 decoder and DTS/Dolby Digital/MPEG Audio Stream Output.

Ning Ning Cheang, product manager, Sharp, said: "The Sharp DV-SV97H is part of a new wave of DVD players that use a digital HDMI connection and upscaling

technology to offer improved video quality on DVI- and HDMI-equipped HDTVs.

"This unit has a contemporary design with blue lights, and its slim frame will fit into any home theatre space."

Gary Pearson, European projects manager, Sharp, said: "Thanks to its HDMI upscaling technology, the Sharp DV-SV97H offers the consumer a more future-proofed DVD solution that is more likely to retain its value.

"This is particularly beneficial considering that the prices of standard DVD players have fallen so rapidly in the last 12 months."

According to GfK Marketing Services, there

has been a 30% year on year decrease in the price of standard DVD players in the UK since 2005.

Sharp DV-SV97H key features:

- HDMI (High Definition Multimedia Interface) digital audio and video output
- Video upscaling up to 1080i resolution
- 570p (PAL mode only), 480p (NTSC mode only), 720p and 1080i resolution
- Official DivX® certified product; plays all versions of DivX® video (including DivX®6 with standard playback of DivX® media files)
- Progressive scan component video output
- DVD-RW/-R*, DVD+RW/+R* and CD-RW/CD-R playback capability
- VCD/SVCD playback capability
- MP3/JPEG decoder
- MPEG-4 decoder
- DTS/Dolby Digital/MPEG audio stream output
- Coaxial and optional audio outputs
- User-friendly multi-language OSD

Best indoor aerial costs £9.99

Independent tests have found that an indoor aerial costing just £9.99 is the most effective set-top device for receiving digital terrestrial television.

Consumer group Ricability tested 32 aerials and found that more expensive models were not always the best performers.

The Telecam TCE2000 costing £9.99 scored highest at 85% in the Ricability performance table, matched only by the TCE2001 costing twice as much.

However, You can't beat a good rooftop aerial for TV reception says Ricability. This is true for both analogue and digital TV. In fact, even more so for digital.

That old grainy compromise you may have settled for in the past could simply translate into no picture if your signal is too weak. Rooftop aerials are also less susceptible to traffic.

Full surround promises better viewing

The 42PF9831D is Philips' first LCD TV to feature the ClearLCD system, Ambilight Full Surround, and Pixel Plus 3 HD processing.

The 42PF9831D is Philips' only FlatTV to feature Ambilight Full Surround, projecting light independently from all four sides of the screen.

In utilising Philips' proprietary colour analysis software, the ambient light output matches dominant colours on the screen.

This use of backlighting is also scientifically proven to reduce eye-strain, while at the same time

improving perceived picture detail and contrast, adds Philips.

Clear LCD introduces innovations addressing motion-blur and black level performance.

Motion blur is the result of the slow response of liquid crystals and the 'sample and hold' effect, where images are refreshed in 'steps'.

Limitations of the human visual system in only being able to monitor objects by continual tracking, makes the 'stepped' images appear blurred.

Clear LCD uses two technologies to

dramatically reduce motion blur: Overdrive Control and Dimmable, Scanning Backlight.

Overdrive Control increases voltage to accelerate the reaction of the liquid crystals, and therefore a more rapid panel response time of 6ms.

Scanning Backlight technology uses new Hot Cathode Fluorescent Lamps – rather than the usual CCFL – to mimic the

scanning effect of a CRT.

Rather than all pixels receiving the same amount of light, at the same time and for the same duration, Scanning Backlight allows for the progressive lighting of pixels for a far shorter duration.

This removes the 'sample and hold' effect.



BROADCAST LIVE 2006



Red Bee laid on a complimentary fleet of rickshaws to ferry visitors to and from public transport.

Broadcast Live, is a new event focussed on the content creation, management and delivery industries and took place from 20th to 22nd June 2006 at Earls Court 2 London.

The event was divided into three zones - Create, Manage and Deliver - each with its own interactive feature areas. The central area of the exhibition featured an auditorium with conference sessions focussing on all issues related to broadcasting from HD to IPTV, and desktop editing to Digital Cinema.

Panasonic took a 60m2 stand in the Create area of the show to promote its P2 and HD range of products and to feature new products announced at NAB. The

theme of the stand was 'Tapeless and HD Production', showcasing the many benefits of both workflows.

Ian Lowe, General Manager, Panasonic UK commented: "Broadcast Live is an important show to us for the UK market.

"With its high-level of visitors from production companies to broadcasters we have chosen it as the only UK event to showcase our latest products from NAB."

Following announcements earlier this year about the development of its Sherpa technology and Digital

Hive offering, Red Bee Media's stand in the Delivery area allowed visitors to preview how consumers will interact with new platforms.

The stand was designed to explain how rights holders and platform owners can make more money out of content, and to illustrate ways to deliver content to new platforms.

"Since becoming an independent company in August last year we have grown significantly and established our position in the market as experts in helping

consumers navigate, find and watch content," said Pam Masters, CEO of Red Bee Media.

"Broadcast Live is a great opportunity to showcase our new products and services."

Hybrid HD STB

A preview of the hybrid HD set-top box and service that Red Bee Media is developing with Microsoft and Netgem using Sherpa navigation was on the stand.

The service and set-top box will be available in the UK through ISPs by the end of the summer and will give consumers navigation to video-on-demand services, access to FreeView channels in High Definition, PVR functionality, electronic programme guide and interactive programme guide.

Visitors saw how Red Bee Media's Sherpa technology has been used to allow consumers to navigate online content services designed especially for Windows XP Media Centre Edition PCs.

Sherpa will help consumers navigate through the large range of free, premium and subscription-based products and services available on Media Centre. It will also lead them to products and services that will be of interest to them.

Digital Hive is a one stop shop for rights holders and platform owners to get content onto new platforms and make it work on different screens.

Visitors to the stand saw how Red Bee Media can make content available on all platforms including mobile phones, video iPods and PS2s. There were also examples of how content can be repurposed for these emerging video platforms.

Red Bee Media's graphic services, including its Piero technology, add context and new meaning to content. Piero is used to analyse sports coverage with 3D graphics and can enable play to be viewed from angles that cameras cannot capture.

Visitors could browse and search the electronic programme guide on mobile phones using Sherpa and see how their favourite programmes could be booked to record from their mobile handset.

Red Bee Media boasts that it was the most awarded company at the recent Promax Europe industry event. Examples of its winning promos and channel branding were on the stand, demonstrating how to market and help consumers

navigate video content in a multi-channel environment.

A case study of how Red Bee Media has helped a broadcaster enhance its delivery of linear channels was featured in another area of the stand.

Red Bee Media has helped Flextech keep creativity at the heart of its business by installing Quantel creative desktops that make it easy for creatives to edit promos themselves right up to the point of transmission, while handling digital media management and playout itself in its Broadcast Centre.

At the Broadcast Live conference, John Pink, Commercial Director at Red Bee Media presented a paper entitled 'To delivery and beyond: The newest delivery and navigation methods'.

Broadcast Centre

In another session entitled 'The chief engineer's new agenda: A changing role in a changing environment', Chris Howe, CTO at Red Bee Media talked about designing and managing the



Bal's latest product in the Multiviewer range is the Prism

Broadcast Centre in West London, the most advanced playout and media management facility in Europe.

Canopus, a part of the Grass Valley business within Thomson showed its Edius HD workstation.

Edius HD is a professional real-time HD/SD online content creation system for broadcast studios built with a combination of innovative hardware and software yielding real-time capabilities that are said to be unrivalled by NLE systems costing ten times the price.

Edius HD systems comprise of three components: Edius Broadcast NLE software; the innovative, high quality Canopus software video codecs including Canopus HQ, Canopus HD and Canopus Lossless; and the RX-E1 input/output hardware card with its companion HD-SDI I/O module.



Canopus showed its Edius HD workstation.



The HD system is fitted with an internal Rev Pro drive that accepts the newly recorded media directly from the camera. Playout can be via the same Rev Pro media or via Ethernet connection to the Turbo playout device or in cases where K2 server is present to GFX format via Ethernet directly.

Edius Broadcast is designed to meet the requirements of higher-end broadcast and post-production environments, including support for newer, non-tape forms of video editing and storage.

Incorporating all the real-time editing capabilities and features included with Edius Pro 3 NLE software, Edius Broadcast also provides additional support for industry standard formats, including DVCPRO 50 and DVCPRO HD, DVCPRO P2, VariCam, XDCam and Windows Media.

Featuring real-time video transcoding technology, Edius Broadcast performs conversion between different HD and SD resolutions, aspect ratios and frame rates in real-time.

Edius Broadcast also features real-time playback and DV output of all effects, keyers, transition and title, and can export projects to any format or medium required,

including DVD-video.

Marquis Broadcast, specialist in broadcast workflow studies and software solutions, demonstrated its Medway media mover software for digital broadcasting environments, supporting an extended range of manufacturers' platforms.

Increased interoperability

Unveiled at NAB 2006, this increased interoperability will give broadcasters more freedom to choose best of breed solutions for their broadcasting workflows without the worry of data transfer bottlenecks due to file incompatibilities.

Medway was shown at Broadcast Live working with a range of broadcasting systems, including for the first time, Apple's Final Cut Pro 5 and Sony's XPR1 editing systems, Grass Valley's ProfileXP video server, and FrontPorch's DIVA range of archive management solutions.

"Broadcasters want maximum productivity from their workflow processes and need to ensure data is being transferred between systems as fast as possible but also that it is delivered in an easy to use format," said Granby Patrick, CEO, Marquis Broadcast.

"By adding support to Medway

for these market-leading systems that are already used worldwide, a greater number of broadcasters can benefit from the advantages of a cost-effective and highly efficient universal media highway."

Medway's new functionality will enable broadcasters to move media at full capacity network speeds and with complete reliability in any format including DV and 50-Mbps IMX, between content creation, ingest, encoding, transcoding, indexing, asset management, editing, graphics, broadcast automation, finishing and master control playout servers and other systems used in digital broadcasting.

Medway already supports Leitch and Omneon servers, Harris Invenio, TMD and Konan Mam systems, and Avid Technology's Media Composers, Unity and LanShare.

Medway is a universal media mover solution that enables media files from multiple sources to be moved seamlessly between vendor platforms.

Medway also includes powerful EDL and metadata functionality. Designed specifically to meet the demands of the most challenging of broadcasting environments, Medway eliminates file

compatibility issues that occur when media and its associated metadata move between target devices, providing speedy and invisible format conversion as required.

Marquis also demonstrated a new version of The Drain at Broadcast live. The Drain is a software utility for broadcasters that allows video sequences created on Avid editing systems to be transferred quickly and easily to a server for immediate playback.

Version 2 has a redeveloped architecture enabling it to share software modules with Marquis' Medway media mover software.

The Drain is compatible with DV25 PAL and NTSC with stereo audio, and PC-based Avid systems, and supports Leitch Nexio and .AVI PC-based servers. Version 2 adds support for Omneon Quicktime and 360 Systems, and other servers as they are added to Marquis' range of supported servers.

The process of sending a finished programme from an Avid editing systems to a playout server usually involves the laborious process of outputting to tape and re-ingesting or transcoding.

Plughole

With The Drain, Avid editors can drag and drop finished material onto a desktop "plughole" without needing to worry about where it is going or how it is formatted.

The plughole automatically initiates a fast transfer from the Avid system to the target destination server in the selected format.

The Drain is ideal for budget conscious broadcasters who wish to build a system with perhaps two or three Avid Xpress editors and a low cost video server.

The Drain v2 will be available world wide via Marquis Broadcast's distribution network from Q3 2006 at a cost of £800 per licence.

Marquis launched a new upgrade to Operal, its process design and documentation tool.

Operal v3 introduces new features that allow broadcasters to design, simulate and measure productivity for new digital workflows prior to implementation.

"Despite the continuing rapid adoption of file-based workflows, many still fail to deliver the desired level of operational efficiency," added Patrick.

"There are undoubtedly several factors involved but inadequate planning is usually the culprit in

one form or another.

"Operal v3 employs comprehensive methodology enabling broadcasters to design processes and analyse how their proposed digital workflows will operate to ensure maximum efficiencies are achieved."

Operal v3 features new workflow modelling and graphics-based task analysis tools that provide full graphical representation of high level processes.

Links to external objects, for example systems diagrams, performance statistics, screenshots from existing configurations, manufacturers' operator manuals or training videos, can be inserted using a simple drag and drop interface.

Broadcasters can run real-time operational simulations of new digital workflows, and generate a system process map to which various scenarios can be applied based on resource allocation and workflow design.

Operal v3 will perform the simulation over a given time period to calculate throughput and loading. These results are displayed graphically to allow the user to track performance during the study period.

Any potential problems or areas where productivity is reduced because of overloaded components, operational bottlenecks or under-utilised tools and resources are highlighted.

Adjustments can be made accordingly to ensure the optimum performance levels are identified.

Task timeline

Version 3 also includes a task timeline, which covers all details of activities, inputs and processes for each workflow.

This provides easy identification of operator levels and tools, including hardware, software and networks, along with descriptions of each resource's availability and capabilities, including for example, encoding rates and bandwidths.

Operal v3 is built on a new architecture that allows easy access to multiple process databases. For larger broadcasters who use forms-driven process monitoring, this provides enhanced integration capabilities with BPM (business process management) systems.

Bal's latest product in the Multiviewer range is the Prism, which can accept up to 16 auto-sensing SDI and Composite inputs and assemble a picture output at high-resolution SXGA and SDI. The unit also comprises Electronic Audio Meters and housed in a 19" unit.

Dynamic text/tally capability and Ethernet control further enhance its functionality. Another Multiviewer available is SVMV010, an SDI quad split housed in a Balbox.

The SVMV010 accepts four SDI inputs and displays them in quad format. The unit provides outputs as SDI with analogue component (YPbPr) or RGB only. A genlock input allows synchronisation with other equipment. Indents are provided for channel identification, which can be inserted if required.





Gearhouse Broadcast announced that it has become a value added reseller for Tektronix.

The unit is controlled either through switches local to the unit or via GPI.

The space saving Balbox stand-alone range of video and audio multi-function modules with integrated power supply and robust steel case, continues to be extended and the latest additions are CAEM010, providing convenient solutions for converting a composite video, PAL/NTSC and an analogue stereo audio signal into a component SDI digital signal with embedded audio and SCAA010, for conversion of SDI digital signal to composite video with the extraction (de-embedding) and conversion to analogue of the embedded digital audio.

All the products can be operated remotely via the automation port with varying degrees of sophistication. The units are stand-alone, occupy not more than 1U of rack space and can easily be installed with plug and play ease.

Hum eliminators

Bal Broadcast has also extended its range of broadcast hum and noise eliminators by the addition of a product suitable for use in serial digital high definition systems.

Interconnects in a High Definition Broadcast chain can result in ground loops and the introduction of induced noise.

Even though SDI is more immune to extraneous noise and low frequency component (hum), problems can still exist as often seen in a smearing of the eye pattern.

As with analogue signals once there is noise in the system it is extremely difficult and costly to remove. Jitter caused by induced noise effects can compound other

system problems and result in the loss of a recoverable digital signal.

HD-SDI serial digital signals transmissions at 1.485Gb/s over a cable contain a range of frequencies and are subject to analogue type distortions, like induced noise, as well as digital distortions related to sampling and quantizing.

Unlike analogue systems the digital signals do not degrade gracefully but are subject to a knee effect and sudden crash. Using the HD-SDI Ground Loop Eliminator the potential for this type of data loss can be greatly reduced.

The four transmission rates of SMPTE 259m and SMPTE 292 1.485 Gb/s HD SDI are supported. The device is housed in a metal box fitted with BNC connectors. Power is not required so making it convenient to insert in any position within a cable run.

Hum Eliminators and Isolation Transformers are also available for standard SDI, S-Video, Analogue Composite, Analogue Component and audio.

Zandar Technologies introduced enhanced HDTV capabilities in its MultiViewer range.

Addressing the challenges of HD monitoring, all MultiViewers are enhanced to support genuine HD output resolutions (1080p), automatic aspect ratio management and auto-sensing of HD and SD signals.

The compact HD4 and HD8 MultiViewers are now complemented by the higher capacity Predator HD12 and Predator HD16. The new 2RU systems accept 12 or 16 inputs for HDTV monitoring in a variety of applications.

All Predator HD MultiViewers

include support for HD-SDI and SDI inputs and drive high resolution displays up to 1080p.

With an extensive feature set, as standard, including audio and video monitoring, UMD & Tallies, clock display, and LAN control, the HD MultiViewers have numerous control options including the intuitive Z-Configurator layout editing software, On-Screen Display, GPI, and ZRP remote panel.

Additional functionality is available with the Predator HD8, HD12 and HD16 MultiViewers which feature the ZdH Zandar Dual Head display capability as standard.

ZdH seamlessly converts the Predator HD MultiViewer into a wall processor, capable of driving two displays as one virtual super-screen. With the ability to display any input on either output, images can also be spanned across both displays to add further flexibility.

Predator HD8 can display eight images on one ultra-high resolution display or be easily mode-switched to DualQuad for display across two screens, making it particularly suitable for space-saving OB truck installations.

Also on display was the modular FusionPro+ MultiViewer which also supports high definition resolutions up to 1080p.

Available in either 1RU or 3RU, this combines multiple inputs in all common formats such as analogue video, SDI, HD-SDI, RGBHV computer sources, DVI sources, and audio, all in one system.

Like the Predator HD range, FusionPro+ is easily set up and managed using the intuitive Z-Configurator layout software and

features ZdH Zandar Dual Head as an option to achieve significant cost-savings.

HDTV OB truck

Switzerland's largest TV production company, tpc, has installed multiple Predator HD4 MultiViewers to drive a large production monitor wall inside their HDTV OB truck; while FusionPro+ MultiViewers are used in a brand new sports playout facility and news studio at Norway's TV 2 and in Maori TV's control room.

Designed and built by Sony Professional Services, this new vehicle uses the very latest in digital technology to set new standards in OB vehicle design. Fully HDTV and SDI capable, this new tpc vehicle is claimed to be one of Europe's largest and most advanced OB trucks and hits the road this winter with Zandar Predator HD MultiViewers.

In the critical production area of the vehicle is a monitoring stack where production crews can view up to 66 sources in either SDI or HDTV formats. In total there are 17 Predator HD4 MultiViewers feeding a bank of Sony LCD displays.

The combination of multi format LCD panels and auto-sensing SDI & HDTV MultiViewer technology not only reduces weight and equipment size to less than half of a traditional CRT monitoring wall equivalent but also provides much greater flexibility as the truck can be reconfigured.

"For the most complete, end-to-end monitoring and dynamic control systems, Zandar has further strengthened the Predator Series range to cater for the seamless display of pristine quality HDTV and SD video images," comments Deirdre Smith, CEO at Zandar Technologies.

"During the design stages we demonstrated our capability by developing some innovative new display features specifically for this pioneering truck.

"The versatility of Zandar MultiViewers allowed us to effectively emulate a CRT monitor wall on the Sony LCD display wall just as the client wanted it – it was important that we offered a display solution that would allow the tpc production crew to easily distinguish each picture source."

Various control options comprise Z-Configurator layout editing software for quick and seamless arrangement of inputs on a display device, on screen display (OSD), GPI, and the ZRP Zandar remote panel. System set-up and configuration can also be achieved manually by using the front panel On Screen Display (OSD). Supported protocols include RS232/422 and TCP/IP.

For the presentation of images over more than one display device, Zandar offers the ZdH Zandar Dual Head display capability.

Miranda highlighted multiple new products at Broadcast Live, including a more powerful Imagestore Intuition+ HD/SD channel branding processor with multiple clip playout, a new up/down/crossconverter with automatic aspect-ratio conversion, 12-bit miniature interfaces, and a new HD-Bridge DEC+ for HDV to HD/SD interfacing.

HD signal monitoring

The HD monitoring range is also strengthened with new features for the Kaleido-Alto-HD and Kaleido-K2 multi-image display processors, as well as a new HD signal monitoring probe.

The new Imagestore Intuition+ HD/SD channel branding graphics processor can play out multiple full-frame or partial-frame video/audio clips.

The clip capability is ideal for junction graphics with upcoming program previews and moving character generator backgrounds, and it can also be used for interstitials, emergency material and commercials.

The clips play with 8-channel audio (six channels with SD version), which can feed the audio mixer of an associated Imagestore HDTV/300+ processor.

Imagestore Intuition+ also features an advanced character generator for high-quality display



Miranda highlighted multiple new products.



The theme of the Panasonic stand was 'Tapeless and HD Production.'



Zandar Technologies introduced enhanced HDTV capabilities in its MultiViewer range.

of Latin- and non-Latin-based text, including Arabic, Japanese, Punjabi, Urdu, Hindi, Chinese scripts, Hebrew, Thai, Korean, Greek, and Russian.

These new graphics capabilities can be combined with almost unlimited animation ployout to provide high-impact promotional and branding graphics.

Engaging graphics are easily prepared and controlled using advanced templates with embedded control.

This allows a graphics team to maintain full control over the look of a channel, without having to worry about complex schedules, secondary events, and the limits

of the automation system.

Full manual control is also available with the PresStation master control and channel branding panel.

Miranda's XVP HD interfacing family has been enhanced with the new XVP-811i HD/SD up/down/crossconverter.

This new interface features automatic aspect-ratio conversion using the Active Format Description (AFD) standard, based on embedded control signaling.

The XVP-811i also offers 5.1 to left/right downmixing for easy audio monitoring of downconverted HD signals.

A Dolby E metadata insertion capability provides efficient distribution of audio information across a plant, including dialogue level and dynamic range control information.

Additional key features include frame synchronization, video proc amp, and audio processing with mux/demux.

The XVP family comprises a range of HD/SD interfaces that can be easily upgraded in the field to the full XVP-811i specification, thereby simplifying

The HD-Bridge DEC+ is a new version of Miranda's HDV to HD-SDI interface with multiple new features for news gathering, editing, and transmission.

The interface's ASI to HD-SDI conversion capability allows long-range monitoring during HDV news gathering, as well as easy recording and transmission, when it is combined with Miranda's ASI-Bridge CAM HDV to ASI converter.

The HD-Bridge DEC+ also features a genlock input for broadcast applications, as well as 720p24 HDV to 1080p24 HD-SDI conversion for native 24p production and editing.

Other new features include an HDV downconverter for SD editing and a simultaneous composite video output for low-cost monitoring.

Multiple new HD monitoring capabilities have been added to the Kaleido-Alto-HD and Kaleido-K2 multi-image display processors.

The Kaleido-Alto-HD is an affordable, high-quality 10-input multi-image display processor with auto-sensing HD-SDI/SDI/analogue video inputs.

Alarms

For effective operations in master control environments, the Kaleido-Alto-HD now offers advanced video and audio probing, including signal black, freeze and luminance too high, audio presence, overload, mono, and out-of-phase alarms.

These alarms can be reported on-screen or via SNMP to other monitoring devices such as Miranda's iControl for logging and strategic monitoring views.

The Kaleido-Alto-HD can also provide highly cost-effective remote production monitoring over IP when it is combined with Miranda's new Allegro RGB real-

time MPEG-4 streaming encoder.

This configuration can deliver high-quality 10-channel remote monitoring, and this can significantly reduce production staffing requirements and costs for major events.

Many new monitoring features have also been added to the advanced and highly robust Kaleido-K2 multi-image display processor, including the decoding and on-screen display of Dolby Metadata information, such as channel lineup and the dialog normalization value.

In addition, advanced new aspect-ratio control capabilities include on-screen reporting of the Active Format Description (AFD), and automatic reconfiguration of the video windows' aspect ratios from the AFD information.

The new Densite Series HD-SDI Control Probe (HCP-1801) operates with Miranda's iControl end-to-end facility monitoring system to provide highly effective signal measurement, with detection of video freeze, Dolby E metadata, and the AFD.

The probe operates with

1080i/720p HD and provides streaming video to allow operators to see the signals they are monitoring from a remote location. The HD Control Probe also provides distribution amplification, with four HD-SDI outputs and de-embedding of 16 audio channels.

Miranda has also launched two new picoLink 12-bit miniature interfaces: the ENC-291p SDI to composite (NTSC/PAL) encoder and the DEC-291p composite (NTSC/PAL) to SDI decoder.

Miranda highlighted its new VertigoXmedia range of high-end graphics automation software and platforms.

Miranda Technologies acquired VertigoXmedia in May, which adds a powerful suite of graphics platforms and workflow software to Miranda's existing playout branding systems.

Key new products include the VertigoXG, a full-featured HD/SD graphics system. The VxScaler option for the VertigoXG represents what is said to be the world's first integrated SD/HD crossconverter in a graphics platform.

This allows SD or HD video input to be branded, DVE'd, scaled, and simultaneously aired on both SD and HD outputs. The bidirectional VxScaler is ideal for stations simulcasting SD and HD channels.

The Xmedia Suite offers powerful applications for automatically creating, managing, and playing out dynamic real-time television graphics.

Miranda's line-up included new HDV interfaces, including the HD-Bridge DEC+ HDV to HD/SD converter, the ASI-Bridge CAM HDV to ASI interface, the ADC-800 CAM A to D converter, and the AMX-800 CAM embedder.

The HD-Bridge DEC+ is a high-quality HDV (MPEG-2) decoder interface with multiple output formats for news gathering, recording, monitoring, and on-air playout.

HD-Bridge DEC+ features two HDV IEEE-1394 ports (iLink, FireWireR), an ASI input, and a genlock reference input. Dual digital video outputs provide either HD-SDI or SDI with embedded audio and time code.

Time code burn-in

One output is a clean feed, and the other features time code burn-in and aspect ratio markers.

The HD-Bridge DEC+ also provides composite, SD/HD component video, AES and analog audio, and LTC outputs. A RS-422 port is available for VTR control, and a built-in crossconverter



Red Bee gave visitors a preview of its hybrid HD set-top box.

allows 1080i/720p HD crossconversion.

The interface can also perform 720p24 HDV to 1080PsF24 HD-SDI conversion for high-end 24p production, and there is also a 1080i/720p HD to SD downconverter.

A lower cost version, called HD-Bridge DEC, is identical except that it does not include the ASI and genlock inputs.

The ASI-Bridge CAM is a camera-mounted HDV to ASI converter, which is ideal for HDV news gathering and for direct MPEG-2 recording on a server for cost-effective preparation of dailies.

The use of ASI cabling from the camera means the dailies' recording device can be located farther away from the camera. The ASI-Bridge CAM accepts HDV via an IEEE-1394 connection, and converts it to standard MPEG-2/ASI format.

This compact interface mounts discretely between an HDV camcorder and a tripod, and accepts power from the camera battery or from a dedicated in-line

power supply.

The ASI-Bridge CAM can also be combined with the HD-Bridge DEC+ to create a highly effective long-range HDV news gathering system, which overcomes the short-range limits of FireWireR cable and allows more flexibility in the field.

Gearhouse Broadcast announced that it has become a value added reseller for Tektronix. Gearhouse Broadcast has been selected by Tektronix to sell and support its baseband video test and monitoring products to a client base inside the M25.

"Tektronix is delighted to have selected Gearhouse Broadcast, a company recognised as having a strong understanding of the broadcast market needs, exceptional customer relationships and an excellent reputation in the industry," said Nicki Fisher, Video Sales Director EMEA, Tektronix.

"Working with Gearhouse Broadcast will enhance Tektronix's presence and coverage beyond its existing business in the London area, to ensure that all

aspects of the broadcast chain are investing in the highest quality & performance test and monitoring solutions."

"Tektronix is the leading brand in the industry and has an extensive product range which addresses the needs of the market place," said Eamonn Dowdall, Managing Director, Gearhouse Broadcast.

"For Gearhouse Broadcast's sales business this is a unique partnership which will allow us to offer another first class product range along with other leading brands including Sony, to our target audience of broadcasters, post production companies, outside broadcasters and corporate clients.

"There is real value in Gearhouse Broadcast becoming a reseller for Tektronix," Dowdall continued.

"As a company with a strong engineering base, we understand the value of test and measurement equipment and we frequently require a significant amount of Tektronix product for our Project Solutions business."



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I read with interest Chas Miller's reply to my letter regarding the use of a variac in a modern workshop. I have to say that I was somewhat disappointed in his 'Grumpy Old Men' responses, and was actually astounded at some of the comments.

It is all very well for him to say that the seal end of an electrolytic capacitor should be pointed away from you when servicing, and to comment that he has emphasised this fact to people attending his restoration workshops, but no such wisdom was imparted in the article that appeared in Television.

As far as the experience of my colleague all those years ago goes, the reason for the explosion of the cap is neither here nor there, in this particular context. I used the example only to emphasise the potential for personal injury, which I witnessed at first hand, from this exploding capacitor.

From the time I was originally apprenticed to the radio and TV repair trade, I was taught that electrolytic capacitors were potentially dangerous and fickle devices that should not be stressed or abused.

I was also taught that electrolytic capacitors that had remained unused for a considerable time, would require reforming before being put into service, to avoid potential catastrophic failure.

Now maybe Chas considers all this to be just trade myth and nonsense - and perhaps he's right - but I am not about to change my working practices to find out. There are enough reputable engineers out there who do believe in it, and that's good enough for me.

As I said, I really don't know what caused the capacitor in question to fail. Perhaps I was told at the time, but I simply don't remember. It may be that it had been replaced, and wired in wrongly by that engineer.

It was easy enough to do as I recall,

To answer the question about how many old caps I have had fail when voltage was applied, I would not like to put a number on it, but certainly a few over the years have gone short circuit or leaky, as I have brought up the voltage across them.

I would not pretend, by any stretch of the imagination, that it is a common occurrence, and I have not had one explode as a result, but I like to think - perhaps wrongly, of course - that this is because I have not applied full voltage to them immediately.

I have also had other failed

components, such as solid state rectifiers which have been located as a result of the item failing to respond correctly as the voltage is brought up, no other damage having then been caused.

It could of course be argued that in this sort of case, a fuse will blow if full power is applied, but in the time it takes the fuse to blow, unnecessary stress may still be placed on other

components.

Perhaps in using the word 'catastrophically', I was being less than clear. I did not necessarily mean that in all cases, a failed capacitor would actually blow out, merely that it might.

Personally, I consider a short circuit failure to fall into the



with multi-section caps where the tag colour coding was not always very clear.

By the same token, perhaps the cap was a replacement that had been sitting for a long time in the spares drawers and perhaps, if it had been reformed by gently ramping up the voltage, the problem would not have occurred.

category of catastrophic, but that is just a matter of semantics.

While I accept that a short circuit capacitor is unlikely to explode, a glass HT fuse might well, and the flying glass fragments could be just as dangerous to unprotected eyes.

Moving on to Chas's comments about "appropriate repair methods", if he is truly the well respected professional that we have all come to believe over the years, it should not be necessary for me to explain that responsible repair methods are those which do not put yourself or your work colleagues into any kind of potentially dangerous or hazardous situation, or compromise the reputation or legal position of the company that you are working for.

Any engineer over the age of about 40, will have been guilty of these bad practices in the past. It was the 'way of the workshop', but times have moved on, and health and safety legislation is now a significant factor in our trade, and we should all take serious responsibility for the well being and safety of anyone we work with.

Whilst I have not been in the trade for the 55 years that Chas has, I have nevertheless clocked up over 35 years, and I take exception to the comment about "before I was born". I would certainly consider myself just as qualified as Chas, and equally able to offer considered opinions and advice.

On the point that Chas makes regarding a capacitor having to be working under its normal conditions for trouble to commence, I would absolutely dispute this. There is no reason that an old capacitor should not commence to fail at a voltage much lower than its rated value.

The comments regarding an engineer being vigilant for tell tale signs of impending capacitor failure, are of course, good common sense, but running a unit on reduced voltage, is likely to give a longer period to spot such warnings, than going ahead and just applying full voltage.

Despite all of the negative comments that Chas makes about the use of a variac, I still stand by my original contention that it is a useful workshop tool. Perhaps Chas is actually so stuck in the past, that he has not caught up with modern DC coupled amplifiers.

I would say on this point that it is impossible to repair discrete output stage failures on these, without the use of a variac.

Replacing (often expensive) output devices and then just reapplying full power in the fond hope that all is now well, is a recipe for repeat failure, so if for no other reason, any workshop that repairs these items, will certainly possess a variac, and have engineers with the necessary skill and expertise, to use it appropriately.

This being the case, I don't see where the difference comes in. If it is there and it has the potential to make a safer repair environment, why not use it?

Clearly, we are never going to agree on this, and I have no desire to turn this into one of those long-running internet-style threads, but I felt that some of the comments that Chas levelled at me required a response.

*Geoff Darby, Proprietor,
Monitech.*

On to Retirement

It was nice to read about the experiences of John Royce (*Television* letters, March 2006) who recently hung up his AVO after 50 years in the trade. It was so different then; the trade was alive and well, and respected too.

I do hope the new breed of service engineers study the nostalgia and try to understand the history of their trade.

The television trade in the sixties and seventies was really split by about 70 to 30, the greater amount being rented sets, which the big boys such as Radio Rentals and DER without doubt dominated.

There were of course plenty of medium sized and small firms all trying to get into what was considered a lucrative business.

Television sets were very expensive to purchase. The Ferguson 436T retailed in 1958, costing the princely sum of £53.16.9 in old money. A builder's labourer earned around £11 per week. Therefore, for the working classes at that time rental was the only option.

British relay was a dominating factor in large cities, especially in London where they had their relay wiring piped into most blocks of flats. Local councils objected to arrays of

aerials, on the rented properties, therefore relay was the answer.

Some years later the problem was solved by installing communal aerial systems that overcame the need for individual UHF aerials.

Moreover, another great natural force in the sales anomaly was the introduction of 625 lines. No extra aerial was required, so BBC 2 was almost an instant extra for their viewers. The new channel started in April 1964, transmitted in black and white, and continued so until the onset of colour in 1966.

The Rediffusion Company was also big in cable television, and ran alongside the Rank Organisation. Cities and towns such as Blackpool and Liverpool were connected to the cable systems. However, because of the rise of customer ownership, cable rental companies started to disappear in the eighties.

Radio Rentals was the giant of rental in those days. It actually paid field staff to use their own cars. Mileage and an allowance for the wear and tear of the car was paid.

Virtually all work was completed in the customers' home - even tube changes. Engineers carried common spares with them, and should a specific part be required a trip back to the depot was necessary.

Thorn Industries owned DER and Radio rentals, which included Ferguson and Ultra Manufacturing Companies. That is the reason the sets were Ferguson - it made it easier of course for the engineer having only one make to deal with. Stock faults were in abundance and for anything more complicated the set was taken into the branch for the bench engineers to deal with.

It was quite common for the rental company engineers to be called bottle changers in the valve days. If it was not a 'bottle' fault, then it came.

Inevitably, as circuits advanced, and colour came about, technical ability was called for. Semiconductor knowledge was needed and indeed taught by the large companies. The City and Guilds courses were extended to include colour, and swarms of engineers returned to college to obtain their colour endorsement.

The trade went through the colour side, passed through the Baird all-valve beast, including the decoder, then the hybrids, running alongside

the wonderful Thorn 3000 chassis, which like Marmite you loved or hated.

Then somewhere we stumbled across the Philips G6, which must be bringing tears to some ageing engineers. Then along came the G22 chassis.

Nineteen seventy to nineteen eighty was reported to be the height of the boom era for sales of colour sets. Rediffusion stated at that time they could not get enough of them to satisfy waiting customers. Rediffusion had its own Mark 1 model. It had a Hybrid line stage, easy to fix and reliable. The public wanted them all in place for November 14th 1973.

That was the day of the royal wedding of Princess Anne and Mark Phillips.

After that some rental firms went by the wayside. That was the rise of the cheap set brigade, which started in the early 80s and rental companies steadily experienced a slow decline in their customer base.

With the onset of Dixons and Currys, more customers were purchasing their own television sets. With buying power and their own brands, these discount stores made buying electrical goods easier than ever before.

A change in people's attitude towards the conventional style of the sitting room has already begun. At present, a room normally has the seating arranged around the main focal point: the television set.

Focal points will change; perhaps there will be two focal points. The daytime one and one that appears when the curtains are drawn in the evening, thanks to a clever idea of putting a TFT LCD screen into a mirror.

Selling at around £2,700 it is not for everybody at present. When today's service engineer retires, hanging up a digital voltmeter does not have quite the same ring about it, has it?

*Alfred Holt,
Pinxton, Notts.*

A week in the life

There can be little doubt that times in our industry are hard - very hard in fact.

Our own business is based among the dreaming spires of Oxford and we have noticed a dramatic drop in the level of trade since Christmas of this year really.

We carry out service work for a number of local dealers and rental companies and all are reporting dramatic drops in trading this year. Many, sadly, have gone out of business and great characters in the trade have been lost.

One engineer who owned a nearby shop has closed down and now works for Tesco. The reasons for the drop in business are many, not least the fact that a lot of people are 'upgrading' to an LCD screen when their present CRT equipment fails. Also there is the constant degradation in the sale price of AV equipment.

That said there is still business to be done and a living to be scratched out there. However, this month I dedicate my letter to all those who come through my shop door or through the earpiece of my telephone and have absolutely no intention of paying me any money whatsoever for services rendered.

One day, the first telephone call of the day was from a lady I will call Mrs No-idea.

"We have just been to Argos and my husband has got us a new TV thingy and a DVD whatsit and one of those Free box things you see advertised on the TV every night.

"Thing is we do not really know how to set it up. Would you like to come round and do it for us".

"Lot of kit there," I thought.

"Yes, that would be no problem," I said.

"We charge £35.00 for the call out. This covers the first half hour and as long as there is no stand to put up, I would think we would probably be able to sort it all out inside that time."

There followed a silence for a few seconds. Then Mrs No-idea piped back in a stunned voice: "But why should we have to pay anything? It is all brand new equipment - we have only just bought it."

"Yes but now you need help in setting it all up and you will obviously have to pay me to come and do that for you."

"No absolutely not! It is new equipment. Why should we pay you?"

"Well if you want me to set it up for you I'm afraid that you will have to pay."

Another Silence. "Well why can't you send the bill to Argos - they will have to pay."

"No, I have a much better idea. I

will bill you and you can take my bill into Argos and see if they will pay."

"No way am I going to do that. What if they refuse to pay me?"

"Well madam what if they refuse to pay me?"

By now I was losing interest. It was beginning to become one of those all-too-regular 'circular conversations.'

I asked: "Incidentally have you contacted Argos to see if they can help you at all?"

"Of course I have," she snapped back, "and they are not in the slightest bit interested. And you are no better. Just forget it. I will get my neighbour to do it for me."

With that down went the telephone.

Another day, and into the shop bustled an unpleasant character, whom I will call Mr Nasty, clutching two instruction books - one for an Alba set top box and one for an Alba DVD Recorder.

"Just got these at Argos," he said, "and I am having a bit of a problem connecting them up. I would like you to show me how to do it."

Now I hate it when people come in off the street wanting this kind of advice. We get about three or four of them a day. I guess it is due to the close proximity of an Argos Xtra store.

We used to spend hours with people explaining to them how to connect their various pieces of new equipment. We just can't afford to do that anymore. Most people understand but this man did not.

The conversation went as follows: "I'd like to help sir but I am afraid we are not familiar with these particular devices.

"I would be happy to arrange a call out for you, and our engineer will be able to help I'm sure, but I can't stand here with you and take you through the whole set up procedure."

He was undeterred: "I don't want an engineer I would have to pay for that. Just draw me a picture on this piece of paper," he said as he unfolded an A4 sheet from his pocket.

"I'm sorry sir I just cannot do that. I do not have any idea what TV you have, what leads you are using, or anything else about your setup. If you are having a problem you need to take it up with the people you bought the kit from.

"Don't be so beep stupid: it was Argos. They know even less than I do. Just draw the picture will you?"

Now I was angry too. I do not like being sworn at, so I stood my ground: "No I will not draw the picture."

"Do you treat all of your customers like this?" he asked.

"No, I do not treat any of my customers this way," I replied.

"I help my customers to the best of my ability. However you are not my customer. You are a customer of Argos and if you are having a problem with something you got from them, then you need to go back to them."

He turned and walked out swearing and shouting all the way to his car.

Yet another day, and another call: "Could you come and set up my DVD player for me? My son got it from the Co-op and we are having problems setting it up. There won't be a charge will there?"

"Well yes there will be a charge. You wouldn't expect me to call out for nothing would you?" I asked.

"Well my neighbour always does these things for me - he never charges"

"Right, but he's not doing it for a living is he? That's the difference you see? I am. This is how I pay my bills. Perhaps you could get your neighbour to set the DVD up for you if he is willing to do it for nothing."

"Well I don't like to keep bothering him you see. No, no, I will pay your call out charge and get you to come and do it."

The call was duly arranged for the following day. When I got there the DVD Player was in fact a DVD Recorder. Not that this mattered, as when I plugged it into the mains, there was a horrible grating sound and the unit died.

I said: "I am sorry to say that this DVD recorder is faulty madam. You will need to take it back and get it exchanged."

"Oh no," she said, "I don't believe this. Oh I don't think I want one anymore. I don't even know what it is really. I only got it because my son said I needed one. I'll just take it back. At least I won't have to pay you will I?"

"Well yes, of course you have to pay me. You have to pay for the call

out." An argument followed. I won, and got my £35. I'm glad this week is over.

Andrew Lyon, Visiontech, Wootton, Oxford.

50 years ago

I found reading Keith Wilson's article, '50 years ago', very nostalgic.

The problems we had with the opening of the new Crystal Palace transmitter were quite different to the ones he describes.

Having the previous year spent many a late night fitting band 3 converters to the wide array of sets that were in use at the time, both superhet and TRF, we were hoping for at least a less hectic year, but it was not to be.

We were located on a hill in Kent, in direct line-of-sight to Crystal Palace. The new transmitter, being more powerful, with a taller mast and so visible, caused a tremendous increase in signal strength.

Fitting an attenuator was the obvious course of action, but it naturally also attenuated the ITA signal. We got quite a good signal from Beulah Hill, but being on the 'super high' band frequencies, was nothing like as strong as the BBC signal, so wouldn't stand much attenuation.

Many of the sets we converted were made by Bush, which as I am sure numerous readers will recall, had separate aerial inputs for BBC and ITA. These did not pose much of a problem. Neither did their early multi-channel sets, which for some reason used 300 ohm twin feeder for the band 3 input.

Most other sets of course were fitted with turret tuners, which had just one aerial socket. To cater for this problem, an ingenious

manufacturer produced an attenuator that consisted of a coil, which resonated at around 45MHz, fitted with an adjustable iron dust core, all housed in a neat square aluminium box.

The *modus operandi* was to adjust the core to give the appropriate amount of attenuation at band 1 without affecting the band 3 signal - so far so good.

The problem was though, that the bandwidth of the tuned circuit was insufficient to fully attenuate both vision and sound signals at the same time, so in very strong signal areas, the sets suffered from either sound-on-vision or vision-on-sound type interference, so we had to resort to detuning the band 1 coils in the tuner, and other foul tactics.

This was a great time to be in the trade though, because as technology improved you could actually see and understand what was happening.

When a component failed you could not only isolate it, but very often see what had mechanically gone wrong with it. I still repair a few TVs but diagnosis is largely a matter of guesswork in the small signal sections of a set.

There obviously are people out there who understand exactly what is going on inside a particular chip, but I am afraid I am not one of them.

Peter Nutkins, Charmouth, Dorset.

Electrical Safety

Recently, I had a phone call from an elderly customer who sounded quite worried. An engineer from a security firm had been fitting an outdoor camera to the man's bungalow, and had received an 'electric shock' from the VCR.

When the engineer had checked with a meter, there had been over 100 volts on the machine's metal casing. He advised the customer to have it checked over, which was where I came in.

The VCR in question was fairly modern - one of the JVC HRJ series. It worked normally, but checks with a digital meter produced a reading of 107V between the VCR's metal casing and the customer's aerial lead.

Resistance checks showed that there was no fault with the machine's insulation, in fact it was working as the



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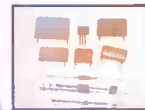
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50 years ago

By Keith Wilson

Taking televisions apart on the kitchen table must have been a popular pastime 50 years ago, if the picture on the cover of our August 1956 issue is anything to go by!

Given the very high cost of sets at that time, you might have thought that servicing was best left to the experts, but the earnest young man in the picture has clearly decided to the contrary.

His worried expression, however, does rather suggest that this is a decision he may live to regret!

We will pass over the delights of the features mentioned on the cover and move on to an intriguing advertisement from Brimar, the valve manufacturing division of Standard Telephones and Cables (STC).

But this advertisement was not for valves – it was for transistors, which at the time were very much a novelty.

Eight types were on offer, and it is interesting to see that the TP1 and TP2 versions were point-contact devices. While the TP1 is recommended for switching and control applications, the TP2 is described as being suitable for use

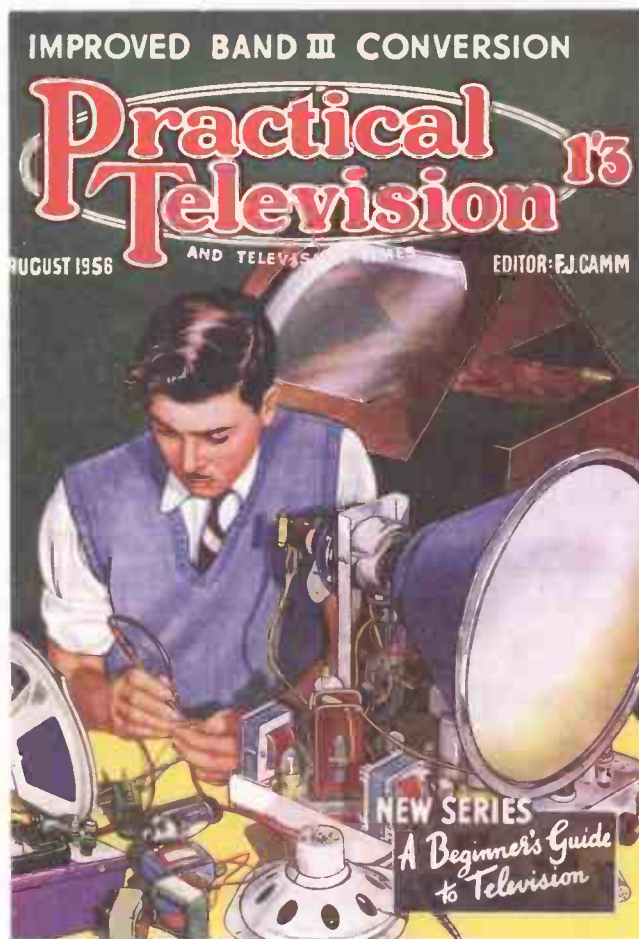
as an oscillator or amplifier at frequencies up to 2MHz.

This made it potentially useful in AM radios but, as far as I know, point-contact transistors were never used commercially in domestic equipment.

The other transistors in the advertisement were the more familiar junction types which, during the 1960s and 1970s, rapidly ousted valves in most applications.

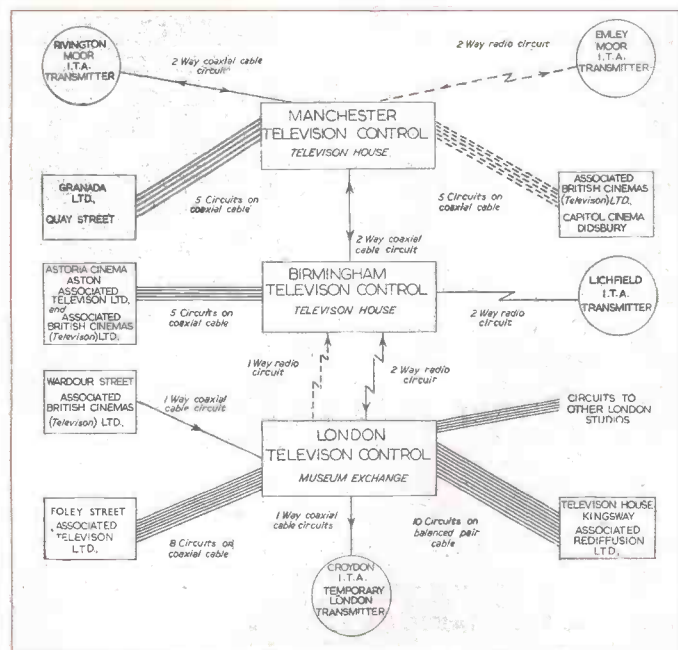
All the devices were, of course, germanium – it was not for another decade or so that silicon semiconductors became common.

As well as the point-contact



"My wife's going to kill me!"

Who remembers Rivington Moor?



transistor, another almost-forgotten device put in an appearance in the August 1956 issue of Television. This time, it's in the circuit diagram for the line timebase of the Ekco model TS46 television, which was featured in the "Servicing Television Receivers" series authored by

long-time contributor, Les Lawry-Johns.

At first glance, the circuit diagram shows the line oscillator to be a triode and, indeed, it is. But, as the cross-hatching reveals, it's a gas-filled triode, alternatively known as a thyatron. This was used as a relaxation oscillator, which meant that the timebase could be built with few components and a very simple circuit.

Unfortunately, thyatrons had short lives, and they were prone to erratic triggering that gave rise to line jitter. They were, therefore, quickly superseded by hard valves and more conventional, if more complicated, timebase circuits.

Turning from reception to transmission, the magazine featured a diagram showing the new ITA network used for routing

Brimar transistors were immune from the effects of noxious atmospheric conditions!

BRIMAR

TRIPLE-TESTED Transistors

save space power & weight

These long-life transistors in your circuits will save space and power and incidentally save weight. Exhaustive tests by our unique triple-test process have proved their reliability over a long period.

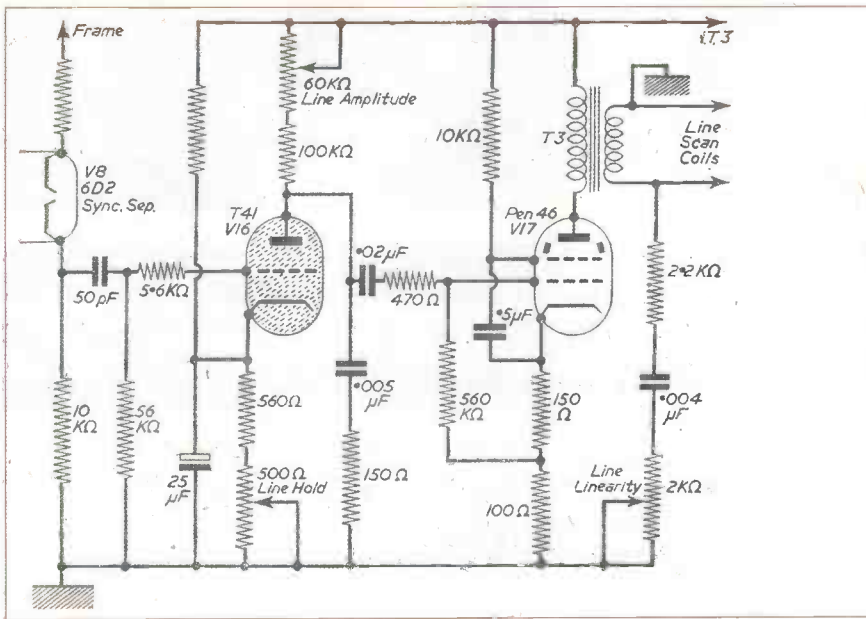
Their small size and low consumption permit the design of light, compact equipment and, since the cases are of metal, there is little danger of accidental fracture.

The BRIMAR TP1 and TP2 are point contact n type, germanium transistors. Type TP1 may be used in control and switching circuits at frequencies up to 100 Kc/s and will work consistently and reliably within this range. Type TP2 may be used as an amplifier or oscillator at frequencies up to 2 Mc/s. Collector dissipation 150 mW max. at 20° C. The BRIMAR TS1, TS2 and TS3 are p.n.p. alloyed junction transistors intended for use in low frequency applications up to 500 Kc/s. These transistors are fully hermetically sealed. They are thus immune from the effects of humidity and noxious atmospheric conditions. The collector dissipation of these types is 50 mW at 20° C. The TJ1, TJ2 and TJ3 are similar to the TS1, TS2 and TS3, but have a collector dissipation of 200 mW at 20° C. and are somewhat larger in size.

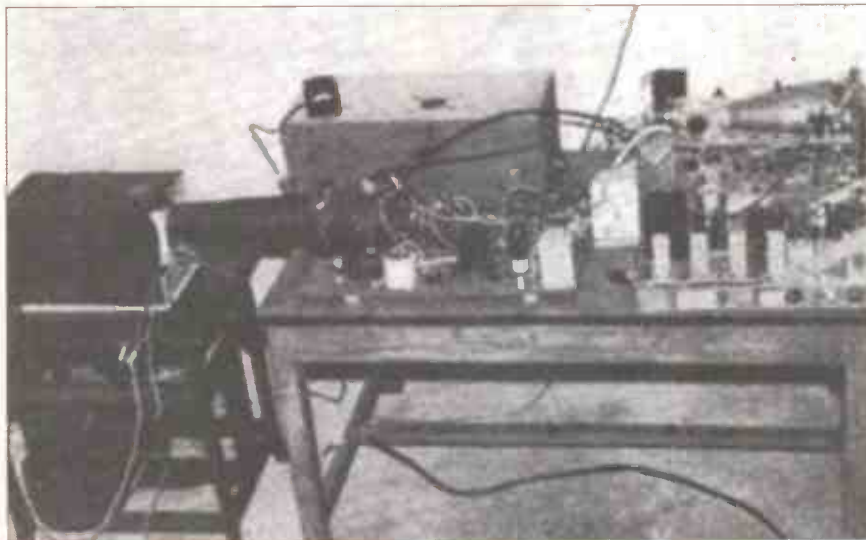
Send for data sheets of these transistors to

Standard Telephones and Cables Limited FOOTSCRAY, SIDCUP, KENT Footscray 3333

Line timebases really were this simple in 1956.



Mr Sweet's flying-spot scanner.



programmes from the studios to the various transmitters then in operation or under construction.

It is surprising how many of the links used radio circuits – indeed, the article specifically mentions that the vision link between London and Birmingham operated at 900MHz.

Most of the once-familiar programme company names, like Associated Rediffusion and ATV, have long since disappeared, but it was another small anomaly that caught my eye.

The transmitter for the North West is shown as Rivington Moor, whereas I had always believed it to be Winter Hill. A little research on the web suggests that Rivington Moor was originally the official name for the transmitter site.

However, the winter of 1955 in this bleak location was particularly severe and, as a result, the engineers working on the transmitter dubbed the site Winter Hill, the name which has been used ever since.

It may come as a surprise to some but, as early as 1956, enthusiasts were already finding ways of generating their own television pictures.

A Mr CM Sweet, working in India, reports his success with a closed-circuit flying-spot scanner constructed almost entirely from war-surplus radar equipment.

Using a 931A photomultiplier as a light sensor, this was capable of producing 400-line pictures from photographic transparencies or negatives.

Problems with synchronism were neatly avoided by using timebases which were common to the scanning and receiving CRTs, although this must have severely limited the distance over which pictures could be transmitted.

Let's conclude with a whinge from the letters page. Mr B Filmer, of Kilburn in London, comments: "Some of the ITA programmes are very interesting but, just when you relax to look at the show and enjoy yourself, what happens?"

"A gaudy advertisement accompanied by a stupid song suddenly takes one's interest away."

Not much has changed – except, of course, that these days, the adverts are often more interesting than the programmes!

BAE systems pioneers wireless television studio



A new wireless system allowing television studio cameras to be operated without the need for clumsy trailing cables has been developed by BAE Systems.

The same technology can be applied to military communications with several battlefield and platform applications.

Project ROFMOD (Radio on Fibre mobile data network demonstrator) has solved the problem of moving cameras quickly and silently around the cluttered environment of a TV studio, and brings fibre optics and broadband radio together in this setting for the first time.

BAE Systems, alongside partners from the broadcasting industry, has developed wireless links attached to the cameras which relay video signals via a microwave transmitter into a fixed, fibre optic network carrying broad bandwidth data to fixed receivers in the studio ceiling. The receivers then pipe the signals along optical fibres - without loss of quality - over many metres to the control room.

Currently, the demands of high definition picture quality mean that TV cameras use lengthy, heavy cables that need to be manhandled in absolute silence by studio technicians

so as not to interfere with recording.

This limits the degree of movement and can pose real problems for fast-moving action. Freed of their burdensome connections, camera operators can freely move around to find the best shooting positions.

Through its Advanced Technology Centre in Filton, BAE Systems has designed and patented a special mushroom shaped antenna to achieve this.

Once safely encoded in the optical fibre, the signals can be relayed through great distances - kilometres if necessary - without risk of too much degradation or interference.

BAE Systems' Mohammed Nawaz comments: "The studio cameras have two-way communication using 60 GHz, suitable for high bandwidth and capable of supporting high definition TV channels.

"These signals are short range as they only need to reach the fibre optic network in the ceiling, and they don't interfere with the studio next door."

Single frequency tests have been

performed at TV Studios in Teddington to determine multi-path effects. A low bandwidth video link was successfully demonstrated in the lab and further operational system tests are planned at the TV studios in the near future.

Four patents have resulted for BAE Systems from this work and the team is now working on ways to exploit the technology for defence and security purposes.

The unique mix of mobile, short range radio and long range fibre optic links that cannot be intercepted or degraded, offers several potential military applications.

Amongst them are naval ship communications below and above deck, ship to ship links, and communications for rapid military deployment of vehicles with mobile headquarters.

Other ROFMOD partners are Broadcast Project Research, Shell and Wilcox, and the University of Leeds. The project is part-funded by the DTI LINK programme.

FAULT REPORTS

TV and DVD Faults

Test Case 524 ■

Philip Salkeld ■ Neil Baker ■ John Parker

Martin McCluskey ■ John Coombes

Solution – Test Case 524 ■

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Philip Salkeld

Sony KV-X2182U (BE-3B CHASSIS)

This set was stuck on standby and with Sony sets it is never obvious what is causing the problem. A phone call to Sony Technical was most helpful. He advised me to disconnect the protection line by removing D505, and the set fired up. Replace C613 (100mF 160V). The set did exactly that and C613 put matters right.

Bush 2057

This set belonged to an old lady, and when she phoned me, she mentioned that her eyes were poor but she could see black strips down the side of the screen. When I called out the fault was striations, a problem you had when the 1k resistor across the line linearity coil was open circuit in the old days. I decided to have a quick look and my attention was drawn to C424 (10mF 250V), which was bulging. Replacement removed the striations.

JVC AV-28VM1EK

Six of these sets came in from a working men's social club, but one in particular had a lack of width, with east-west bowing. A dry joint on C528 was noticed and resoldered, fully expecting it would cure the fault. To my surprise the fault persisted. Checking the east-west circuit showed nothing. My thoughts turned to C528 where its pin had been arcing. Could it have possibly destroyed IC401 TDA8350Q? This incorporates some east-west circuitry. After replacement there was still no change. Next step was to remove C528, which looked perfect, but it was open circuit. Replacement of C528 (470nF 250V) corrected the picture size.

Sony KV-36FS70

This was a heavy set and because it had an intermittent fault, had to be brought in to the workshop. The set would try to start up and then go

into standby. As the standby light was not blinking, I knew it was in no kind of protect mode. Heating the power supply brought the set back to life. I decided to replace all the electrolytic capacitors around IC 6651, but the fault persisted. The next step was to replace IC6651 TOP209P Part Number 875946889, and to my surprise this put matters right.

Sony KVE2532U (AE-2 CHASSIS)

This old timer brought back memories. The customer was connecting up a new Freeview box when he suddenly noticed that the picture had shrunk. When these sets were in their prime, what used to happen is that the tube flashed over, corrupting the microprocessor. This resulted in lack of height. All that was required was to go in to the service menu as follows: press the CH+ and CH- at the same time and press the on/off switch on. TT comes

Test Case 524

A 24-inch screen TV is perhaps the biggest which can safely be carried out by one big and healthy person, and Todd is big and healthy. So when he got a call to one such, claimed to be 'dead', he carried out a quick confirmation of the symptom then checked that the mains fuses in the power plug and in the set were OK before loading it into the van in exchange for a loan set. It was just as well that he did, because so far from its being amenable to a field repair, it was only with difficulty that the lads in the workshop were able to get a diagnosis on it! This set was a Samsung widescreen model WS24W63V, fitted with the KS3A(P) chassis, dubbed by Samsung dream chassis – the comments of the lads, on hearing this, were certainly not suitable for publication here!

Initially the job seemed straightforward enough. The power supply section was inaudibly pumping, revealed by an oscilloscope connected to the chopper transformer. This suggested some kind of current overload, so attention was turned to the line scan stage, where meter checks showed, initially at least, no problems with the 'usual suspects', things like the scan-output transistor, scan-modulation diodes etc. The next time the set was switched on there was more activity in the line scan stage: a sort of burp on each power-supply pump cycle and then – wow – a wisp of smoke from somewhere in the region of the flyback transformer. The man on the job, Sage, hastily switched the set off, but could not immediately locate the burning part in spite of careful 'cold' examination of every relevant component. With Ted, Sage and Real

Technician all watching the parts in the line output stage, the set was switched on again. But now there was no smoke, no burning, just the gentle pumping action of the power supply.

After the lads had dispersed Sage found that he was now getting a resistance reading varying with time from 9Ω to about 15Ω, both ways across the 135V line. Again he examined all the components connected across this feed and the line output transistor for burn marks but there were none to be seen. His best guess, then, was that the puff of smoke had come from within the flyback transformer which, perhaps, had now broken down completely. With great difficulty because of the rivets used on the printed board, he isolated pins 1 and 3 (primary winding) of the transformer. An ohmmeter test proved that the transformer was innocent, and that the low-resistance reading was still present – at the collector of the line output transistor. Can smoke come from such a component when it had no visible mark on it? He isolated the transistor's collector leg, again cursing the PCB rivets, and the low resistance reading on the 135V line disappeared. To be sure, Sage disconnected the e and b legs and checked the (now completely isolated) transistor for inter-electrode leaks. There were none!

What was happening here? And where had the smoke come from? Finally Sage found the cause of the trouble, and in fact did not have to replace any of the components in the set. What? He just had to fit an additional part, though this repair was, perhaps, a little unorthodox. What? The solution is on page 604.



up. Then press menu, followed by the up/down buttons on the remote control to Demo. Press OK, from CXD2018 on the screen, press OK again, then select vertical size. Using the right and left buttons adjust the correct height. Then press OK. Finally switch the set off to store setting. At the time, we had a few complaints about this height problem and in my wisdom I phoned Sony Technical who promptly told me there was a modification to prevent the micro from corruption, but because it was quite involved it was not worth doing. He went on to say to inform the customer that if this would happen the first time, it could happen a second time, but would not happen a third. To make this last statement he must have obviously given it a bit of thought.

Welltech 40736

You never know what chassis will be inside these type of sets, but once again it was a Beko. The Beko chassis is also in the Watson FA7175TS (supplied by Makro). A very common fault on this chassis is 'stuck on standby', and when brought out of standby, starts to trip. Look no further than the line output transformer, shorted turns. The number on the side of the transformer is 13525048A and can be supplied by most distributors.

Bush RF6683VPL (11AK49 chassis)

Power supply faults in the earlier 11AK45 seem to have slowed down. The dead fault symptoms are now appearing in this chassis. Instead of replacing D808 it is now D817 UF5407. Up to now, one component replaced, and the set works. Nice little earners. The Silvercrest model CT2805 has the same chassis.

Ferguson D78N (ICC9 chassis)

This set lived in a country pub, mounted on a shelf. I was grateful when two strong helpers came to my aid; what a weight. The landlord said the picture was curved, obviously an east-west fault. Racking my memory, I recalled a capacitor used to cause this fault. Due to the layers of dust on it, no way was it going into the car. Off with the back and after a few minutes' study, I went for CL42 (4.7mF 63V), which cured the fault. Needless to say I was not involved in putting it back on the shelf.

Neil Baker

Panasonic NVHD605 VCR

We took a customer's repaired TV back only to find he had unplugged his VCR and this was now Dead. Taking it back to the workshop, we found that the two capacitors C15 and C16 in the power supply were low in value. 47uF 63V replacements got the machine up and running.

Bush 2867NTX AK19

Dead. No standby LED. There was only 43V on the collector of the line output transistor. This led us a song and dance for a while until we found a safety resistor o/c - it is R867, which is 0.33R. It is found just in front of IC804. Also check for the usual dry joints in the EW area.

LG DVC8700

We have had a couple of these in recently. With one, the drawer would stay open and would not go in unless pushed and then it would come straight back out. The other just would not open but in the display it was getting the correct command. In both cases it turned out to be the open/close switch that was faulty. It is on the small PCB with the tray loading motor. It can be taken apart and cleaned, but it is best to replace.

LG RE28FZ10PX CTV

The customer struggled in with this large TV, which kept going off intermittently. This showed up instantly for a change. Looking around for dry joint on the regulators, I noticed that in fact the dry joint was on pin 1 of the line output transformer. This was very crusty. Resoldering all the transformers pins cured this monster, just in time for the England match.

Panasonic TX25MD3 CTV

The job card reported that this set could take 20 minutes for sound and picture to appear. Once there the picture could take on a very smeary effect. The usual cause is the tuner unit and this was no exception. Taking out the tuner and resoldering most of the connections cured this TV, with excellent pictures still being

John Parker

Hitachi C2976TN

This relatively old Hitachi was stuck in standby. HT was present at the line output transistor but the switched voltages were missing. I could not initially find any shorts on the secondary HT rails. I decided to ground the collector of Q952. This immediately brought up the switched voltages. My line drive appeared momentarily, then the set shut down. I could not restart the set. I found the line output transistor had gone leaky (Q751). This was due to C704 (2.2nF) being virtually short circuit. Also C703 (10nF) tuning cap was stressed. Replacing these parts got the set running, with a narrow picture and with no east-west correction. Studying the circuit, I found R618 (47R) to be open circuit. Replacing IC601 (TDA8350Q) and R618, and then switching on rewarded me with a field (frame) collapse. I rechecked my soldering but this was OK, so I isolated R618. Up came the frame, so a fault still existed in the line stage. I next disconnected the east-west coil L751. A puff of smoke came from the LOPT stage. I could not see exactly where it came from. My HT rail was still present but my line drive was missing at the base of the line output transistor. It was OK at the line driver collector Q701. I disconnected the base of the line output transistor and scoped the print to see if the drive was now present: it was not. Luckily I had a scrape panel. I removed the line driver transformer and fitted it to the set. I also noticed R730 was dry jointed (emitter resistor of line output transistor). Resoldering this and fitting the drive transformer got the set working. A long soak test showed everything was OK. I measured the suspect transformer. It appeared to be short circuit on its secondary. (Strange?)

Ferguson FTV28WN1 (AK37)

This set had no tuning. The field engineer had replaced the tuner, but fortunately he sent the original one with the set. The tuner he had fitted was an incorrect one there were no option codes in the service manual for the tuner. I decided to fit the original tuner. I was rewarded



with a very noisy picture. All the option codes were correct for the tuner. I found the supply voltage, serial clock and serial data present at the tuner pins. There was however no AGC voltage at pin 1. I measured pin 1 resistance to earth: it showed a direct short existed. Isolating pin 1 showed the fault was not in the tuner. Studying the circuit diagram and lifting links found capacitor C201 (47uF electrolytic capacitor) was short circuit. This is an extremely rare fault. I have seen large power supply electrolytics go short in amplifiers, but I cannot remember seeing a small electrolytic cap go short.

Sony KDF-E50A12U

This new DLP projector had no picture with 11 flashes of the standby LED. According to Sony service bulletin 06TV078, three diodes - D5701, 5703 AND 9616 - need to be replaced. However when I did this, the fault was still the same. I decided to go back to basics and check the supply voltages. I found the supply on the AG board, which feeds the ballast PCB, was missing. The 17V, 11V and 33V were also missing. I had a power supply fault. I found R6618 (0.1R, 2W) open circuit due to the chopper FETs D1606 and D1607 being short circuit. I replaced these along with IC1601 and the opto coupler PH1601. This provided a complete cure. I was rewarded with a lovely picture.

Philips HTS3500 DVD PLAYER

This DVD player had no fluorescent display. All other functions worked. I checked voltages to the display. At first glance these appeared to be OK. I checked drive signals to the display: they appeared to be present and correct. I then noticed the display was now working, so there was the possibility of a dry joint. Resoldering the display electrodes did not cure the fault. A thorough search in the adjacent area of the display using my magnifying glass showed that C2721 was dry jointed on its negative leg. It is part of the VGL voltage generator circuit. Resoldering cured the fault.

LG 42PX3RV

This plasma display had no picture. The standby light went green. All the voltages came up except for VS

(185V). It was present at one side of the fuse on the Y sus panel but not the other. Obviously the fuse was open circuit. A direct short circuit was present on the Y sus panel. I suspect the module block was short on the Y sus panel. Unfortunately, individual parts are not available. I wonder when manufacturers are going to allow us to repair panels to the component level.

Philips 32PW8718/05 (EM2 CHASSIS)

This set had an east-west fault. There was no e-w drive at 7480 drain, but east-west drive was present at its gate. The drain had no DC. Studying the circuit diagram showed nothing obviously amiss. I replaced 7480 to be greeted with the same fault. Looking physically at the circuit, I found a 200mA fuse connected between 7480 drain and the junction of D6422 and D6423. The fuse was open circuit. Replacing this cured fault.

Sony KV32FX65U

This set would switch on then immediately shut down with the standby light flashing twice. According to the service manual, this means over-current protection. The HT appeared to come up and shut down. You could feel the static on the screenline drive was present briefly, but the frame drive did not come up. I initially replaced the frame IC6700 STV9379, but this did not cure the fault, so I checked supplies during start up. The voltages seemed a little low to the frame IC. By sheer luck I noticed the main reservoir cap C6661 (470uF, 450V) had a bulged top, so I removed it and measured it. It was open circuit. Replacing C6661 cured fault.

Philips 32PW6006/05 (L01.1E)

After replacing the CRT due to the set cutting out, I had to tune the set in the workshop generator. I did an auto tune. The set found the local TV channels, but the image, not the workshop generator around 696.25MHz. The image was very noisy. I replaced the tuner. This immediately cured fault. The tuner had gone low gain at its higher end.

Panasonic TX32-PM1 (GP4 Chassis) When I switched this set on, I got a

line collapse, i.e. no line scan. This was very unusual. On removing the back, I found the wire on the scan coil had come away. After resoldering, I was rewarded with a picture with an east-west fault. I had EW drive at Q701 gate but not at its drain. I found Q701 (2SK2049) to be leaky along with R706 (10R) open circuit. L704 (8.2mH) had shorted turns and R713 (8R2) open circuit. Once these parts have been replaced, I was rewarded with a normal picture.

Grundig TVR5120

This TV/VCR combi came in dead with a short circuit line output transistor. The usual cause of its failure is a dry jointed line driver coil. However in this case, the LOPT was faulty. Replacement provided a complete cure.

Martin McCluskey

Goodmans 285NS (Daewoo CP775)

'No picture' was the customer's complaint with this 28" TV. Sound was present at switch on, but there was no rustle of EHT and the tube heaters appeared not to be lit. In fact the line output stage seemed to be inactive, but a faint spark was produced when a meter probe was applied to the collector of the line output transistor. The line stage was working but with reduced efficiency. I found the scan coils sub-panel to be dry-jointed. There was no damage to the plug or socket, and re-soldering provided a complete cure.

Bush WS 6671 (11AK19)

The set appeared to be dead. The standby LED was out, but a faint tripping sound came from the power supply area, accompanied by a clicking from both speakers. The HT voltage measured 80V and the other secondary supplies were very low. Much time was wasted checking for overloads before I discovered that the HT smoothing capacitor C813 was open circuit. A new 47mF 250V restored normal operation.

Black Diamond BDS2851S (11AK37-8)

When powered up, the set would revert to standby after two seconds. There was no rustle of EHT but during the few seconds the set was



on, a field buzz was audible from the scan coils. I found that R817 (130k) in the HT feedback regulation circuit had risen in value to over 170k. I made up a replacement using 120k and 10k components and this brought the set to life again.

Hitachi C2886TN (A7)

When switched on, there was a squeal from the line output transformer, then the set reverted to standby. I have had this fault before and went straight to C717, a blue disc capacitor near the transformer. It checked OK using a digital meter, but showed a very slight leakage when measured with an old-fashioned AVO meter on the high resistance range. A replacement 1nF 1kV capacitor cleared the fault.

Bush DVD142TV (AK46)

'No sound' was the customer's complaint with this 14" TV DVD Combi unit. The picture was perfect but there was indeed no sound, though a popping noise came from both speakers when the set was in standby. On test with the back removed, I noticed a heatsink at the back of the main circuit board became very hot after only a few minutes. Further investigation revealed this to be the audio output IC. A new TDA7496 restored the sound. This chassis is also used in some Goodmans models.

Hitachi C2114 TE

Field flyback lines covered the top three inches of the picture: also the Teletext and on screen displays rolled. All was well once the TA8247 field output chip and boost capacitor C605 (100mF 35V) were changed.

Hitachi C2856TN

The set was 'dead' with the red LED pulsing slowly. There was a 75-ohm short circuit measurable from collector to emitter of the line output transistor, though this component was not faulty. The culprit was C704 (2.2nF 2kV), a blue disc capacitor in parallel with one of the E/W diodes. That was not the end of the story: there was a bowed picture because the TDA 8350Q field and E/W output chip had been damaged by the other fault. Once this component had been changed, the set produced a first-class picture.

Hitachi C28WD2

There was no sound or vision – just a faint blank raster was visible. If the screen control on the line transformer was turned up and down a few times, a picture appeared, but in green and blue only. A meter check on the tube's red cathode pin produced a reading of about 90V. There should have been a bright red raster but the tube had an internal fault. Another one for the scrap heap (It has probably been covered in shrink wrap by now and sold from the back of a plain white van!)

Sony KD32DX50

There was a click from a relay when the set was brought out of standby, but no sign of life, though the HT voltage rose to about 100V, then dropped to zero. Replacing the line output transformer cured the problem. The part number is 8 598 834 40, and a pattern one is available for a reasonable price.

Thorn P1465

Dead was the complaint with this Tatung-based portable TV. The power supply is based on the TDA 4605 control IC and replacing the series-connected startup resistors R802 and R803 (15k) cleared the fault.

Sanyo CB 5156 (EC3 – A21 chassis)

When the auto tuning facility was used, the set would not stop searching after a channel had been found. If the stations were stored manually, they constantly went off tune. Replacing the TDA 8361 jungle IC cured both faults.

DVD Recorder BNI 1000R

This machine was completely dead. I had no service information so started with a visual inspection of the separate power supply panel. Two capacitors C46 and C47 (1F 16V) had bulging tops, and new replacements brought the machine to life again

John Coombes

Sony model KV32FQ86U (chassis AE6BA)

No start-up. If the set does not start-up and the LED flashes three times, check transistor Q8121 (2SK2679) for short circuit on the east/west PCB.

Samsung model SP42W5HF1

No start-up. If the set does not start up, check ICZ103 (STK392040) and/or resistor R127 (3.9R) and R128 (3.9R). Check for open circuit.

Funal model L5100U

Dead. If the set is dead but the power LED is lit, check the start-up resistors R7 (270k) and/or R8 (270k) for open circuit.

Panasonic model TC14B3R

Dead. If the set is completely dead and the mains input fuse F801 (4A) has blown, along with resistors R806/R807 being both badly burnt, check capacitor C406 (471nF) for short circuit.

Panasonic model TC14S3R

LED flashing. If the set is not starting-up and the LED is flashing, check resistor R811 (220k 0.5W) for open circuit. If still in trouble then check R804 (220k 0.5W) for open circuit.

Toshiba model VTV1402

Intermittent start-up. If there is intermittent start-up with no voltage supply to the line driver, check the feed resistor R504 (270k) to the switching transistor for open circuit.

Nalko model N1003

Shuts down after a short time. If when switching the set on, the picture comes up with AUX appearing on the blank screen, but then quickly shuts down, this is due to faulty capacitors C1 and/or C2 (2 x 150uF 30V). Check by replacement.

Nalko model N2866

Stuck in standby mode. If the set will not start-up from standby mode, check transistor TD02 (BU2525AF) and also capacitor CD64 (2.2nF 2kV) by replacement.

Hitachi model 37PD5200 Plasma TV

Dead. If there is no power on the AC section, then check the photo coupler PC001 (PC123) for short circuit. A replacement will restore normal operation.

If the set is dead but the relay switches are on and off continuously, check the diode D114 (ERA91-02) for short circuit.



Sony model KV20WS1A

Dead. If the set is dead and after checking all the power supply outputs are low, check IC602 (SE135N) by replacement.

Goodmans model GTV14DVD

Lack of height. If there is lack of height and it cannot be adjusted, check transistor Q603 (BC848) for short circuit.

Panasonic TX-W28R4 (Euro4 chassis)

Power supply faults

Dead. The first and most obvious check is the mains input fuse F802 (3.15A) check for open circuit or if it has violently blown. The state of the fuse can help to decide how serious the fault is or give a clue in which area to start fault finding.

If the input fuse has just gone open circuit, replace with an upgrade fuse of 5A advised by Panasonic and retry as it may have failed due to old age or just slack tension on the wire, so parting company from the fuse cap.

If however the fuse has blown, then check the Power regulator IC801 (STR-F6654LF51) for short circuit. If this proves to be negative, check the degauss thermistor inside the posistor case.

If the fuse proves to be OK then check transistor Q853 (BC847B) for open or short circuit. Check also the opto coupler D805 (TLP621GR-LF2) by replacement.

If any of the power supply components are at fault, always replace as a block of components in the power supply to avoid a further power supply problem later costing time and money.

If this all proves to be negative then check capacitor C869 (100uF 25V) for low capacitance or high ESR. If this capacitor proves to be OK check capacitor C871 (1mF 16V) for short circuit. This is the decoupling capacitor on the collector of Q852 (2SC1383-S) but also ensure the transistor Q852 is not short circuit.

If this proves to be OK check for open circuit on pins 5 and 6 of the chopper transformer T801. Also check for dry-joints on all the pins to avoid further trouble at a later date.

If the power supply powers down just after switch on, and the line

stage fails to start, this can be due to the fusible HT feed resistor R877 (47R 2W) having gone open circuit.

If the set is stuck in standby mode with the standby LED lit, check for faulty SMD transistor Q854 (BC847B) by replacement. If there is no start-up and capacitor C871 proves to be OK then check diode D867 (IN4001) by replacement.

If all this proves negative but the set still remains dead, check the error amplifier IC850 (SE140N). Check by replacement or DC conditions. This could however be a fault in the line stage.

Check also diode D853 (MA2180BLFS) for short circuit, or if not reading faulty, check by replacement. If however this proves to be OK but the set will not start-up, check diode D867 (IN4001) for leaky condition.

In a few cases the set will switch into a standby mode randomly, but it will then switch back on. Suspect a faulty diode D868 (1N4150T-27). The diode is situated near the standby relay (RL801) and feeds the 12V supply to the relay.

At this point it is also worth mentioning that IC801 (STR-F6654LF51) can also cause the same fault condition. On a few sets we have found that intermittently the set will trip, which is usually caused by transistor Q857 (2SA1018QTA).

Check by replacement because it is difficult to read a fault on the transistor, both DC or resistive. If there is intermittent remote control function, check the power supply transistor Q852 (2SC1383QRS) by replacement.

In a few rare cases, if the set is dead we have found resistor R877 (0.47R) to be open circuit. If the mains input fuse F802 has gone open circuit, do not forget to check the bridge rectifier diode D801 (RBV-608LF-B) for short circuit.

If all else proves to be negative but the fuse keeps going open circuit or intermittently blows, check the chopper transformer T801, or this maybe due to intermittent breakdown in the windings, or a more permanent fault would be shorted turns in the transformer.

If all in the power supply proves to be negative then it may be necessary to check the line stage.

Line stage faults

If there is no picture, no audio, and the power supply keeps pulsating, check the line output transistor Q551 (BU2508) for short circuit.

If the line transistor Q551 that is fitted is a BU2508, be sure to replace with a 2SD1577. Also be sure to check resistor R507 (100R 1W) for open circuit or by replacement.

If the line output transistor Q551 keeps going short circuit, check the HT voltage and volts on the collector of the line output transistor Q551 and if they are varying from 140-160V, suspect a faulty error amplifier IC850 (SE140N). Check by replacement.

Originally there was a line stage kit (TZS9EK001) but this has now been discontinued and replaced by line transistor (2SD1577LB). On the other models TX28MD4, TX28MD4L, TX28LD4DP, TX28LD4DPL, TX28XD4/A, TX28XD4L/A with Q551 (BU2508AXLB) is replaced with 2SD1577LB and resistor R507 (270R 1W) to (100R 1W).

If however the line transistor Q551 is a 2SD1577LB and it is short circuit, check for dry-joints on the line driver transformer T501. Resoldering will normally restore normal operation.

If still no line drive to the base of the line output transistor Q551, check capacitor C509 (47uF 35V) for short circuit. If this proves negative then check the line driver transistor Q503 (2SD2398-M2). Check for dry joints or open circuit.

If none of these faults eliminate the problem but staying in the line stage and the set remains dead, then check transistor Q552 (2SD1877) for short circuit.

If in some cases the mains input fuse F602 is open circuit, then check the line output transformer T551. Check for shorted turns in windings between pins 2 and pin 7.

The line output transformer T551 can be responsible for several problems, one of which can be excessive brightness caused by a faulty G2 screen control. Also there maybe incorrect focus, which can also be caused by the focus control inset in the line output transformer T551.

If the picture is dark or there is no picture, this can be the cause of low G2 voltage from the line output transformer. Check DC conditions or by replacement.

If there is intermittent loss of picture then check pin 11 and pin 7 for dry joints. If this proves to be negative, then check the plug/socket (E3) pin 4 and pin 5 for dry joints. If still in trouble then suspect a faulty line output transformer T551 and check by replacement.

If the power supply voltage is correct to line stage and the line driver components are correct, check the 8V supply to IC601 (VDP3120BPPB1) pin 50. If this is missing, then check coil L606 (4.7uH) for open circuit.

If there is excessive height and width, which also gives a dark picture due to G2 voltage down to 200V, replace coil L554 and resistor R702 (8.2R).

In a few cases we have found east/west faults due to faulty diode D701 (ISS133T-77). Check by replacement. If it is difficult to centre the picture, then check and replace IC701 (TEA2031A).

If the picture is shifted vertically and there is a line jitter, replace the video processor IC601 (VDP3120BPPB1). This IC601 can also cause flashing picture and line tearing.

If still in trouble with no start-up or dead set then check IC601 (VDP3120BPPB1) for dry joints or incorrect DC conditions.

Frame stage faults

The most common of the frame faults is frame collapse, giving a horizontal white line or in some cases no picture - just a rainbow effect.

If there is frame collapse then check the frame output IC451 (LA7845N) by replacement. If this proves to be negative then check diode D557 (EU02) and/or resistor R555 (0.33R) for open circuit.

If still in trouble then check diode D558 (ISR124-4AT82) and/or resistor R559 (0.33R) for open circuit. If there is still frame collapse, then check the diode D454 (ERA15-02V3) for short circuit.

If all proves to be negative then check the scanning coils (FRAME) for open circuit or they maybe dry-jointed or at worst then may have shorted turns.

If the latter, then there maybe smoke or arcing from the point of contact were the windings go short circuit. If the DC resistance checks

prove to be OK on fame and line coils, check the plug/socket (E4) for dry-joints or high resistance connections.

If however the frame output IC451 (LA7845N) has gone short circuit, then the set will not start up from a standby mode, choosing to go into protection mode.

If however the set switches to standby mode after start-up, check diode D558 (ISR124-4AT82) for short circuit. If there is no start-up and the LED blinks check resistor R559 (0.33R) for open circuit.

If the set intermittently shuts down, check for faulty capacitor C454 (220nF) by replacement. If however the frame output stage proves to be operating correctly then check IC601 (VDP3120BPPB1) for dry joints or check pin31 for a frame drive waveform.

If the frame drive waveform is missing then suspect IC601 and check by replacement. In a few cases if the set switches to standby mode intermittently check for dry-joints on resistor R601 (100R) in the frame protection circuitry.

To be continued in the September issue

Solution to Test Case 524

A very odd fault was present in that Samsung TV chassis! The low resistance reading in the line output section at one stage came and went by itself, and certainly went when the line output transistor was taken out of circuit.

But the transistor, when electrically isolated by unsoldering all its legs, showed no internal faults on test with an ohmmeter.

What had happened was that the insulation at the rear plastic face of the device had broken down such that there was a discharge through it to the grounded heatsink.

This had made a small puncture and burn mark on the transistor case and a spot-burn on the metal of the steel heatsink. That was where the

puff of smoke had come from. We have never encountered this type of failure in a transistor before.

With the transistor mounted on the print side of the PC board – and without a heat sink – the set worked perfectly well, and the device did not get very hot.

Now the workshop semiconductor equivalents books did not list type KSD5703, and there was no such thing in the stores.

Had the set been the customer's property a new transistor would have been required. This was a rental one, however, so the transistor was re-used, backed up (literally) by a stout mica washer. It worked!

We welcome reader's fault reports.

Send your reports to: TVeditor@nexusmedia.com

Preference will be given to reports emailed as Word.doc attachments, and reports submitted on CD. Send to: Television Magazine, Fault Reports, Nexus Media Communications, Azalea Drive, Swanley, Kent BR8 8HU

Please do not send handwritten reports.

Payment will be made after publication

Long distance terrestrial DX reception [Sporadic E] has been remarkable from May into June. Good to see that the long promised closures of the Spanish TVE-1 transmitters on chs. E2 and E3 haven't gone ahead – and the TVE ch.E4 Guadalcanal transmitter is also confirmed as still on-air! The latest close down date for Band 1 TVE is now pencilled in for this coming autumn. Good news from Garry Smith (Derby) that the Camerons in West Africa is thought to have up to 12 Band 1 analogue transmitters in use with at least 3 on ch. E2 with powers around 5kW ERP. The German manufacturer Kathrein has been involved with the installation of the transmitter system.

A quick summary of identified Band 1 reception in the South UK follows:

26 May TVE (Spain) chs. E2, 3
 31st TVE E2
 2 June TVE E2,3
 3rd RAI (Italy) chs. IA, B; Italian Privates chs. R1, IA, E4; SVT (Sweden) chs. E2,3; NRK (Norway) ch.E4; LTV (Lithuania) ch. R2; RTP (Portugal) ch. E2
 6th RAI IA,B; Privates ch.E2-; Canal Plus (France) chs. F2,3,4; TVE E3
 7th RUV (Iceland) ch. E4; TVE E3; HRT (Croatia) ch.E4; RAI IA,B; Private ch. E2-
 9th TVE E2
 10th C+ F3
 11th RAI IA; Private E2-; SVT E2,3; TVE E2,3; HRT E4
 12th TVE E2; RAI IA,B; ETV (Estonia) ch.R2; SVT E3
 13th RAI IA; Privates E2,3,IA; RUV E4; C+ F4; HRT E4; Arabs incl. Syria (STV) chs. E2,3
 14th. SVT E2,3,4; NRK E3
 15th RAI IA; Private E2-
 17th ARD (Germany) ch.E2; Nova (Czech Rep.) Ch.R2; HRT E4; C+ F4
 19th TVE E2; SVT E2,3,4; ETV R2
 20th C+ F4; RAI IA

TVDX has been available most days with many intense and long duration SpE openings – on several occasions 'just like the old days!' Cyril Willis (Kings Lynn) using a software radio received 2 American TV video carriers on May 21st – ch. A3 around 1300 hrs; June 9th with 3 x ch. A2 and 3 x ch.A3 video carriers. Software operated radio receivers allow signal frequencies to be measured down to a few Hz enabling all transmitter offsets to be located and often identified. These signals were too weak to display any video images though TV-DXers in N. Ireland and Scotland have received North American video this past month.

Broadcast News

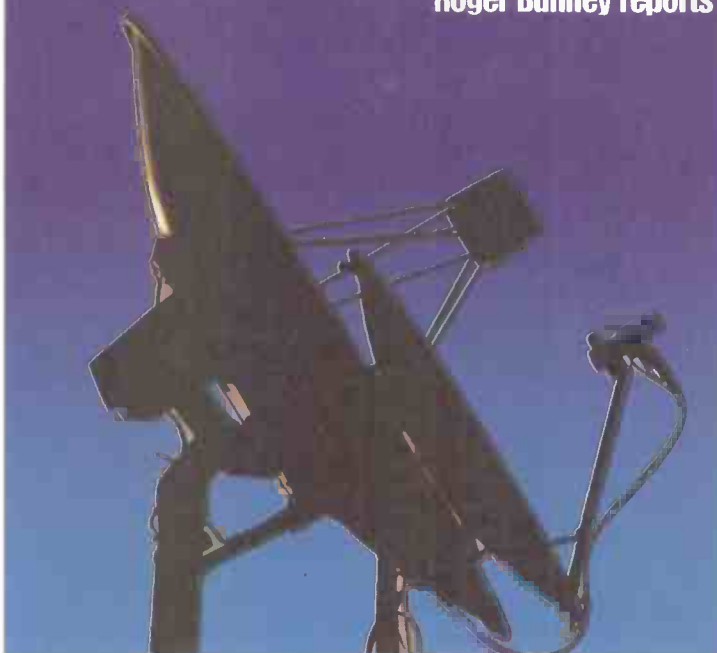
Spain. The government has sought co-operation from the nation's broadcasters in timetabling the close down of analogue and introduction of digital TV across the country. The digital migration will be conducted 'region by region, city by city' in closing analogue totally by April 2010. Broadcasters must provide the government with detailed plans of their analogue closure process/DTT take-over. The Government will instruct cable companies to pay for digital channels carried over their networks, up to now all digital carriage has been free. In separate moves, the government is organising an E18million budget to pay for digital development and promotion, 50% of this funding being derived from the broadcasters and the rest

DX and Satellite Reception

● Terrestrial DX and satellite TV reception reports.

● Broadcast and satellite TV news.

Roger Bunney reports



matched by the government. Estimated DTT coverage figures are end July 2007 85% of landmass; by July 2008 88%; by 2009 93% and 100% by mid 2010, a few months after the analogue closure. Broadcasters had been seeking a delayed analogue switch-off due to a fall in DTT box sales.

Korea-South. The Korean Broadcasting Corporation (KBS) have received a massive shipment of digital equipment from Toshiba to upgrade the TV networks into digital, including 72 transmitter systems both main and relay along with studio equipment. DTT with at least 3 channels is now available in 12 main cities reaching over the nation. Interesting that North Korea sought technical help from KBS in providing World Cup football content into Pyongyang for distribution to their TV network, which is still based on VHF analogue and lacks adequate funding to move into DTT at this time. KBS is increasing involvement with DMB – digital multimedia broadcasting – which up to now has been a local Seoul experimental service and by summer 2006 most of Korea can access to video content via DMB terrestrial base stations.

France. The 'Conseil Supérieur de l'Audiovisuel' –

similar to the UK's OFCOM – gave the OK for HD-TV test transmissions end-May to mid July and a later period after September 2006. Atlantic Bird-3 @ 5o West is providing the programme feed to the terrestrial transmitters in Lyons, Marseilles and Paris, the test programmes being a compilation of content from Canal+; TF1, M6 and France Televisions.

New Zealand. After a long period of 'non-decision' over the introduction of digital TV into NZ, the government has come down in favour of their version of 'FreeView', a mix of both satellite and terrestrial distribution. The NZ government are to budget \$NZ25 million up to 2011 in aiding the move into digital with the broadcasters providing most of the funding – which will allow the continuance of FTA TV across the country – the first DTT transmissions will commence during 2007. Hopefully the Optus B1 replacement satellite (Optus D1) will be in orbit before NZ's DTT opens, see sat news.

USA. We've previously reported on the activities of Marti TV and Radio Marti, a propaganda broadcasting operation, targeting Cuba with propaganda programming from a C-130 aircraft of the 'Psyops' unit – this being funded by the CIA. Discussions are in progress to replace the 10kW analogue TV transmitter with a digital equivalent though the digital viewers in Cuba must be negligible! [note:Psyops = the Airborne Psychological operations]

Luxembourg. DTT transmissions have opened across the Duchy offering 6 TV channels in a single multiplex. There are 3 French language channels – RTL-TVI; RTL Club and Plug TV) and 3 Dutch channels (RTL4; RTL5; RTL7). A 7th channel – 'RTL Tele Letzebuerg' - has been running a six-month test period. All programmes are FTA in MPEG-2 and all analogue services of RTL, TVI, RTL4 and RTL5 have been closed down.

Austria. DTT will be launched October 2006 with a 50% population coverage by mid 2007 and 90% in Spring 2009 of the Multiplex-A containing the ORF channels + ATV. A 2nd Multiplex-B will expand more slowly with 60% coverage early 2008. Analogue switch-off will be mid 2010.

UK. Despite the lack of DRM receivers in the UK, VT Communications have proceeded with test transmissions in the 11 metre Short Wave band in the London region – check 25.700MHz where will be found 2 radio channels within a 20KHz bandwidth. VT are suggesting that the current minimal use of the 11 metre band would make this spectrum ideal for local radio services as available FM spectrum has been used up in many city areas. Crystal Palace, London is transmitting the 25MHz local tests and at Woofferton VT is also carrying out high power Short Wave DRM tests.

VHF-UHF Digital Boxes. Of interest to TVDXers is news from reader Kevin Hewitt (Chatham) who whilst on holiday in Cadiz, Spain notes that the 'Roadstar DVB 2005T' (cost E65) covers input frequencies from 50-858MHz and the Belson BST 1001 (cost E60) also includes VHF/UHF coverage. With paralleled analogue/digital, VHF/UHF TV transmissions in the United States, our American DX friends are enjoying low band digital DX, check out the WWW.WTFDA website for information, pictures etc.

Satellite News

Following the recent difficulties with the ageing Optus B1 satellite @ 160o East, fingers are crossed that it'll stay operational until the replacement Optus D1 is launched. The shortage of hydrazine manoeuvring fuel (the fuel powers the small jet motors to nudge the craft back into

NTSC test pattern from PAS-12 (45° East)



16:9 into squeezed into 4:3 of World Cup German street, note sat uplink truck (W2, 16° East)

its correct position should it drift away) on B1 means that if the satellite goes on another 'walkabout' it may be impossible to adjust the bird back into the correct slot which in turn will take out various Sky and Australian TV/comms services. The new D1 satellite will be launched out of French Guyana during August/September this year and could in theory be operational by October. [info – the NZ 'SatFACTS']

At the time of writing the floating 'Sea Launch' platform now positioned on the Equator @ 154o West in the Pacific is preparing to launch the PanAmSat 'Galaxy 16' satellite. The C and Ku band satellite will slot into a 99o West orbit providing TV programming into North America, Mexico and the Hawaii island group.

Noting the above launch for PanAmSat, there are further commercial changes in the air with Intelsat merging with the PanamSat satellite system end May, having been given the clear by the US government. This will increase the Intelsat fleet and further enhance coverage across the globe – it may well lead to a renaming of satellite, the 45o East Europe*Star-1 became PAS-12 and now may change again!

If you're reading this as an exile from the UK, you can now pick up high quality BBC radio programming – both English and Arabic - from the ArabSat 26o East slot, check 11.861GHz-V [SR 27500+FEC4 ?].

TV channel distribution for the Russian 'RTR' and 'Channel One' national networks that's distributed over satellite such as the Express AM-1 have both been encrypted from the end of May, this to prevent the 'lifting' of material for retransmission by other TV stations for copyright protection. The Russian International TV

A specially selected 450-strong audience sample collect their trial HD set top boxes this week (beginning 5 June 2006) for the closed technical digital terrestrial television (DTT) technical trial which is due to last six months.

High definition is a step change in television technology which provides far clearer and more detailed pictures than normal standard definition TV. Each picture contains up to five times as much digital information as an ordinary TV picture.

The trial will offer participating broadcasters and their technical partners valuable lessons about delivering HD broadcasts on a digital terrestrial network and also research how the audience enjoys this new format.

It will help to discover whether there could be HD broadcasts on Freeview in future.

The trial is being conducted under an Ofcom licence which strictly limits the number of receivers and forbids reception of the trial stream by general members of the public.

Humax and ADB (Advanced Digital Broadcast) have supplied the HD set top boxes for the trial.

The DTT HD trial consists of low power transmissions from Crystal Palace in London on frequencies that are not suitable for high power broadcasting.

National Grid Wireless (NGW) is transmitting the BBC's HD stream, which went on air last month, and Red Bee Media provides play-out services.

Arqiva is transmitting the multiplex shared by ITV, Channel 4 and Five, with Grass Valley, a business within Thomson, providing broadcast playout and video encoding equipment.

Siemens Business Services is providing technical support for the BBC's HD trial.

64QAM

The test broadcasts will use MPEG4 video coding, 8K carriers and 64QAM modulation at launch – different parameters may be tested during the trial period.

The BBC's trial DTT HD stream will offer identical programming to its HD trial broadcasts on satellite and cable over the trial period.

That includes the BBC's World Cup coverage, major Wimbledon matches and programming highlights such as Planet Earth and Bleak House.

ITV will offer its own World Cup coverage in HD, completing the full line-up of World Cup games, as well as drama such as Agatha Christie's Poirot

specials *Death on the Nile* and *Murder in Mesopotamia*, documentaries such as Jean-Michel Cousteau's *Ocean Adventures* and classic films including *All Quiet on the Western Front* and *The Big Sleep*.

Channel 4's HD trial broadcasts will include hit US drama series *Lost* and *Desperate Housewives*, FilmFour films and other Channel 4 programming.

Five will be showing episodes of popular US series *CSI*, plus commissioned programmes such as *Tim Marlow* at MOMA and movies such as *Cocktail*.

Research company TNS Media is conducting the panel research. The audience panel was selected from online volunteers who registered on a website in April. All had existing HD Ready television sets and will be supplied with special DTT HD set top boxes. Recruitment is closed.

7 million STBs

Advanced Digital Broadcast provides a range of high-quality products and services to the digital television market worldwide and has deployed more than seven million set-top boxes since 1997.

ADB is headquartered in Geneva, Switzerland with main offices in Poland and Taiwan and representation in eight other countries around the world including the UK.

Arqiva has a 50-year history in transmission and has helped pioneer the technologies of the digital age.

The company's Terrestrial Media Solutions division provides national transmission for UK commercial television including ITV, Channel 4, Five and associated digital multiplexes, playing a leading role in the run-up to digital switchover.

Transmission services also provided to vast majority of UK independent radio stations, both analogue and digital.

Humax is one of the world's largest manufacturers of digital set-top boxes, exporting its products to over 90 countries across the globe. The company is a leading supplier of high quality, feature-rich digital TV products, including Personal

Video Recorders (PVRs) and HD-Ready Integrated Digital TVs. The company headquarters and R&D facility are based in Korea, with offices in Dubai, Germany, India, Italy, Japan, the UK and the US.

National Grid Wireless is a wholly owned subsidiary of National Grid and one of two UK providers of terrestrial infrastructure for the transmission of analogue and digital television and radio broadcasts in the UK. National Grid

Wireless has a strong position in the growing digital television market, owning two of the six digital terrestrial television licences and providing infrastructure services to all the Freeview channels, the BBC and BSkyB.

NGW is also the leading independent provider of infrastructure to the mobile telecommunications operators in the UK.

Red Bee Media provides the distribution and promotion of multimedia content, offering a comprehensive range of services to playout, publish, promote and provide media access for content across all media, from television to mobile phones.

Red Bee Media is owned by Creative Broadcast Services, which is in turn owned by Macquarie Capital Alliance Group (65%) and Macquarie Bank (35%).

Siemens Business Services is an international leading IT service provider. This Siemens Group offers services all along the entire value chain – from consulting to systems integration, right through to the management of IT infrastructures.

Siemens Business Services is among the top ten providers of outsourcing worldwide. With around 39,000 employees, the Group posted sales in fiscal 2005 (ending 30 September 2005) of EUR 5.4 billion, 75 percent of which was achieved outside the Siemens organization.

Hollywood Studios

Thomson's Systems and Equipment division develops video and film technologies, products and services sold to all major Hollywood studios, all major television, satellite, and cable broadcasters under the Grass Valley brand-name for the delivery of analogue and digital entertainment.

The division also includes Thomson's Access Platforms and Gateways Business, which develops technologies and products for broadband and telecommunication networks to deliver digital entertainment and data to consumers and businesses. The Group includes the Technicolor, Grass Valley, RCA and Thomson brands.

TNS is a market information group. It is the world's largest provider of custom research and analysis, a leader in political and social polling and a major supplier of consumer panel, media intelligence and TV and radio audience measurement services.

TNS operates across a global network in over 70 countries, allowing it to provide internationally consistent, up-to-the-minute and high quality information and analysis.

The role of the transport properties of the interlayer in blue LEP's lifetime

Natasha Conway, Clare Foden, Matthew Roberts, Ilaria Grizzi of Cambridge Display Technology present a paper that yields a set of design rules for choosing interlayer properties to provide optimum lifetime for RGB materials in LEPs.

It has been reported previously that efficiency and lifetime in RGB light-emitting polymer diodes can be considerably improved by the incorporation of an interlayer between the hole transport layer (often formed from PEDOT) and the emission layer. We believe that the presence of the interlayer increases device efficiency in two ways: firstly, with an increased confinement of electrons in the region where the hole density is also high, and secondly, by blocking

excitons, leading to a reduction in exciton quenching by PEDOT, as has been observed experimentally before. This is illustrated in Figure 1.

Previous work has linked the degradation of the polymer-LED to the growth of an insoluble layer from the PEDOT/LEP interface. Experimental data using electrical and optical models suggests that the exciton formation zone is peaked close to this interface, and that the inclusion of an interlayer moves the peak away from the LEP/PEDT interface. It is found that the growth rate of the insoluble layer is considerably slowed and that the device's lifetime is increased by including an interlayer.

Other approaches to solving this problem, such as changing charge balance to move the exciton formation zone away from the anode, have resulted in very low device efficiencies, consistent with an increase in cathode quenching.

The work described above illustrates the importance of keeping the exciton formation zone away from both the anode (PEDOT) and cathode interfaces, in order to achieve high efficiency and long lifetime, and the role of the exciton and electron blocking properties of the interlayer in achieving this. However, the impact of the LEP and interlayer transport properties on the device performance has not been reported in detail. The work related here is a systematic study of the effects of varying the interlayer electron and hole currents on the efficiency and lifetime of a blue LED. The results are then related to our current understanding of device performance.

Discussion

The introduction of an interlayer does not benefit all LEP materials. Figure 2 shows the variation in DC lifetime as we modify the structure of a blue LEP so that the recombination zone is broader and moved towards the cathode. When the recombination zone broadens and the exciton density at the interlayer interface is reduced, we do not

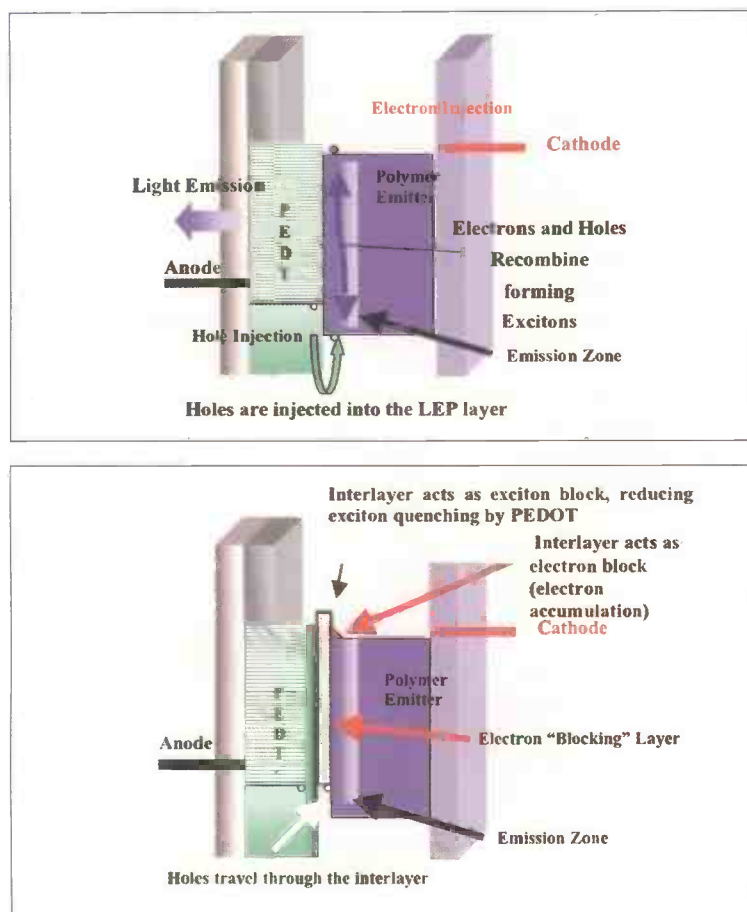


Figure 1: Schematic diagram of LEP structure (a) (top) without and (b) (bottom) with interlayer.

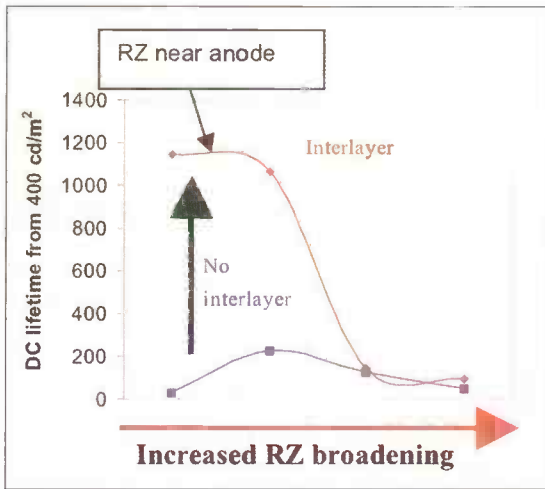


Figure 2: As the recombination zone broadens towards the cathode, the effect of the interlayer on the display lifetime is reduced (The distribution of the recombination zone was inferred from EL spectra measurements fitted using an optical model). Note: 'lifetime' is defined as the time to half initial brightness from a defined start point.

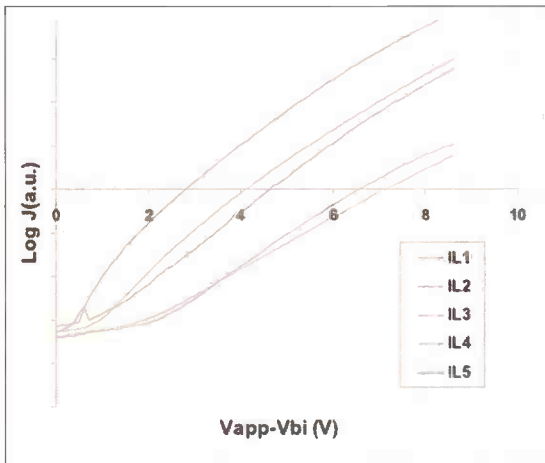


Figure 3: J-V characteristics of electron-only devices as a function of internal voltage

observe a lifetime enhancement due to the interlayer.

Note that, for broader emission zones away from the anode, the lifetime of the device is generally much lower. This is due to a combination of charge imbalance and increased cathode quenching, which reduces device efficiency and, as a result, the device has to be driven at very high current to achieve the desired brightness.

The interlayer was modified in order to vary its hole and electron currents and the magnitude of variation was measured in single carrier devices (with modified electrodes). The electron only J-V characteristics of the series of interlayer materials (coded IL1 to 5) are shown in **Figure 3**. It can be seen that the electron conductivity decreases from IL1 to IL5.

Each of these interlayer materials was tested in the following device structure: ITO/PEDOT (65nm)/ interlayer (10nm)/ CDTblue (65nm) /Ba (5nm) /Al.

The variation in the maximum external

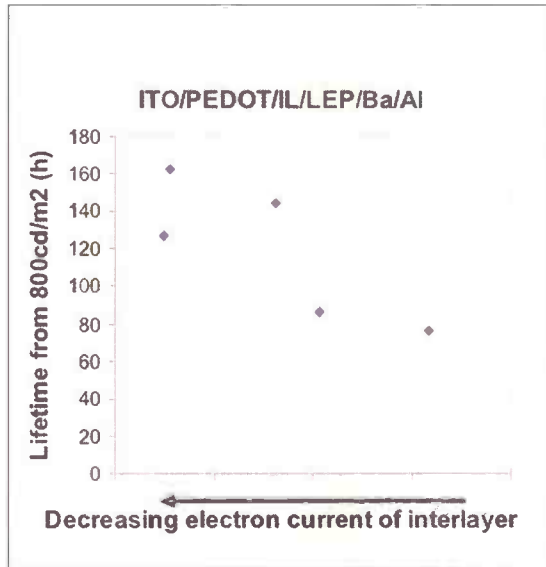
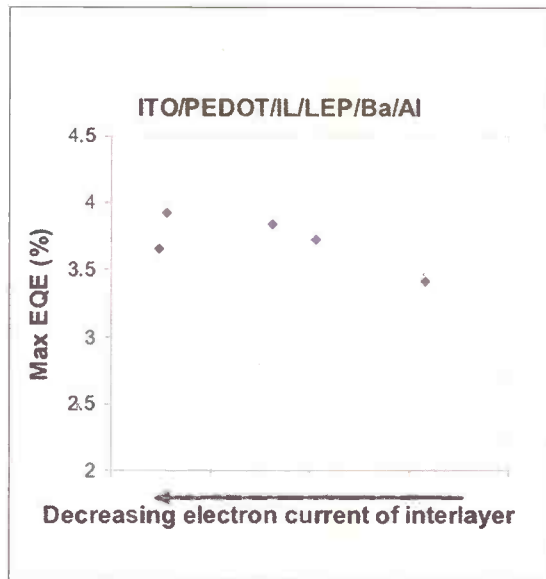


Figure 4: Variation of (a) (top) EQE and (b) (bottom) lifetime with respect to the electron-only current density of the interlayer at 3V Note: EQE is defined as the proportion of electrons passing through the device which are converted to photons (light).

quantum efficiency (EQE) is shown in **Figure 4(a)**. As the electron current in the interlayer is decreased, the efficiency of the structure is improved up to IL4. **Figure 4(b)** shows that the behaviour with respect to lifetime roughly matches this trend, with IL4 giving the best lifetime.

As previously discussed, in the longest lived blue PLED devices, the recombination zone is near the anode. By reducing the interlayer electron conductivity with respect to the LEP conductivity we expect that electrons will accumulate within the LEP layer at the interlayer interface. The interlayer can further improve the device performance if, in addition to the electron accumulation, the hole currents in LEP and interlayer were such as to also promote hole accumulation at the interface. The increased accumulation of both electrons and holes would result in an improved exciton formation efficiency and increased confinement

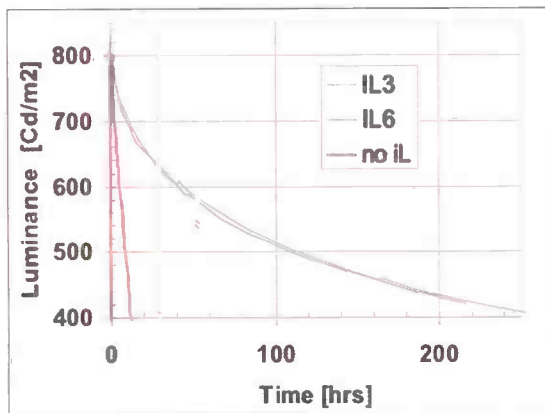


Figure 5: Lifetime from 800cd / m², DC at room temperature

Table 2: Efficiency data

Interlayer	Max. EQE (%)
None	2.3
IL3	3.5
IL6	3.3

of recombination zone at the interlayer/LEP interface, giving the observed improvement in efficiency. The lifetime improvement could be related to this improvement in efficiency as it roughly follows the same trend.

The decrease in performance for IL5 cannot be explained by the small difference in electron current compared to IL4 (Figure 4(b)). A possible explanation for this result could be the larger hole current exhibited by IL5 compared to IL4 (i.e. approximately three times higher than in IL4). This suggests that there may be an optimum current for maximum lifetime.

Improving efficiency

The gathered data suggests that optimising the electron and hole currents in the interlayer is of key importance to achieve high efficiency and lifetime. However, the presence of the interlayer may also improve lifetime and efficiency by reducing the probability of excitons reaching the PEDOT layer. IL1 to IL5 all have a deeper HOMO and shallower LUMO than the LEP so that the electrochemical band gap of the interlayer is wider than the LEP's band gap (by more than 0.5eV). Therefore, a further interlayer, IL6, was examined in order to try and decouple the effects of exciton blocking from that of varying the transport properties.

IL6 has a similar optical band gap to the LEP layer and, therefore, will not act as an exciton block. However, the electron and hole currents are such that an

accumulation of charges at the il-LEP interface would be expected

Figure 5 shows that IL6 improves the device lifetime by a similar amount to that seen for other interlayer materials which also act as an exciton block. There is however a decrease in efficiency observed with IL6 compared to IL3 (Table 2), consistent with some of the generated excitons being able to diffuse through the interlayer and become quenched by the PEDOT. This demonstrates how both LEP and interlayer transport properties are key in determining device lifetime by confining the recombination zone at the interlayer-LEP interface. The exciton-blocking character of the interlayer can, however, add a further improvement to the device efficiency.

Balancing charges

This work identifies the importance of balancing charges in the interlayer and LEP layers. This ensures that the exciton formation zone is confined within the LEP at the interlayer/LEP interface, and is neither near the interlayer/PEDOT interface nor close to the cathode.

Furthermore, the results with IL6 show that lifetime can still be improved when the interlayer is not exciton-blocking but the recombination zone is still at the interlayer/LEP interface, due to tuning of the electron and hole currents of the interlayer such that electrons and holes accumulate at the interlayer/LEP interface. This is the first evidence to suggest that exciton quenching by PEDOT does not play a significant role in device degradation and, therefore, implies that the role of the interlayer transport properties is of key importance.

These results provide a set of design rules for choosing interlayer properties to provide optimum lifetime for RGB materials. It demonstrates that the transport properties of the LEP and interlayer need to be matched in a way that ensures the recombination zone is confined near the interlayer/LEP interface.

This understanding of the underlying parameters governing device performances should also enable the tailoring of the LEP to ensure that we can achieve best performances whilst keeping the manufacturing process as simple as possible (e.g. by using a single interlayer material for RGB).

In addition, the fact that improved lifetime can be achieved where the interlayer need not be exciton-blocking is of key significance to blue where it may not always be possible to use an interlayer with an increased band gap, particularly for deep blue LEP materials.

This feature first appeared in Electronics World May 2006

EMEA Desktop Monitor Market STRUGGLES

Following over-supply into the channel in Q4 2005, the EMEA desktop monitor market showed a larger than expected decline in sales in Q1 2006.

According to preliminary data compiled by Meko, shipments of CRT and LCD monitors exceeded 12.9 million units for the period but this reflects a more than 22% sequential decline in sales.

There was the usual seasonal decline for some vendors but others saw shipments drop much more than is usual in the first quarter as a result of the over-supply in the last period of 2005.

"We had expected to see some problems for a few of the suppliers who over-stocked their channels at the end of last year but the problems seem to have extended

more or less throughout the market", noted Pete Gamby, research director at Meko.

"The company with the biggest challenge in Q1 amongst the top ranking suppliers was Acer", he added.

The company was named by some sources (along with Benq and LG) as amongst those that had excess stock in the channel going into the start of the new year.

Samsung Tops

By vendor, it was again Samsung that ranked as the top supplier by volume with sales of more than 2.9m units. Sales were down compared to Q4 but by less than the overall market.

An indication of the strength of the Korean monitor maker was that it was able to grow its sales sequentially in the German-speaking countries and also in the Benelux countries. Both of these regions would normally be expected to see a seasonal drop in shipments.

In second place, Dell was also able to continue to out-perform the overall market with shipments of more than 1.5m units and a seasonal decline of just 7%, according to Meko's preliminary data.

"As always, Dell has been able to move its pricing quickly to respond to market conditions - this

is a luxury some of the other suppliers have not been able to afford or to follow", remarked Gamby.

HP Best Performer

HP performed well in third place in the table with sales dropping by only 3% compared to the previous quarter.

"HP was the best performer in the top ten in terms of the change in sales compared to Q4", said Gamby.

"There was only one account amongst those that we track in EMEA to see sequential growth and that was Gateway/eMachines which is benefiting from a renewed interest in the European PC market", he added.

The top five vendors accounted for over 55% of shipments in Q1 leaving the rest of the suppliers to battle to obtain a more than 6% share each.

Desktop Monitor Shlpmnts - EMEA		
Vendor	Q1 06	Share
Samsung	2,399,979	18.50%
Dell	1,486,060	11.45%
HP	1,298,000	10.00%
LG	1,252,036	9.65%
Acer	928,310	7.15%
Philips	870,289	6.71%
Benq	519,000	4.00%
Fujitsu-Siemens	494,000	3.81%
Maxdata	340,822	2.63%
ViewSonic	286,643	2.21%
NEC Displays	232,421	1.79%
Hyundai	225,660	1.74%
AOC	220,891	1.70%
AG Neovo	215,959	1.66%
Proview	203,000	1.56%
NEC CI	189,682	1.46%
Sony	188,205	1.45%
IBM	162,000	1.25%
Ingram	158,545	1.22%
Medion	95,793	0.74%
Others	1,209,042	9.32%
Total	12,976,337	

Source: Meko Preliminary data only

Desktop Monitor Shlpmnts - W Europe		
Vendor	Q1 06	Share
Dell	1,136,000	13.76%
Samsung	1,081,888	13.11%
HP	1,049,000	12.71%
Acer	735,823	8.92%
Philips	572,000	6.93%
Fujitsu-Siemens	384,000	4.65%
LG	373,679	4.53%
Benq	366,320	4.44%
Maxdata	262,550	3.18%
AOC	193,068	2.34%
Others	2,098,622	25.43%
Total	8,252,950	

Source: Meko Preliminary data only

LCD Monitor Shlpmnts - EMEA		
Vendor	Q1 06	Share
Samsung	1,702,114	15.06%
Dell	1,402,965	12.41%
HP	1,192,000	10.55%
Acer	914,265	8.09%
LG	892,741	7.90%
Philips	670,120	5.93%
Benq	519,000	4.59%
Fujitsu-Siemens	432,450	3.83%
Maxdata	337,840	2.99%
ViewSonic	255,000	2.26%
Others	2,982,853	26.39%
Total	11,301,348	

Source: Meko Preliminary data only

CRT Monitor Shlpmnts - EMEA		
Vendor	Q1 06	Share
Samsung	697,865	41.66%
LG	359,295	21.45%
Philips	200,170	11.95%
HP	106,000	6.33%
Dell	83,095	4.96%
Proview	56,059	3.35%
Fujitsu-Siemens	40,956	2.45%
ViewSonic	31,640	1.89%
Hyundai	26,515	1.58%
AOC	19,108	1.14%
Others	54,286	3.24%
Total	1,674,989	

Source: Meko Preliminary data only

Alexandra Palace TV heritage faces destruction

John Thompson, curator of the Alexandra Palace Television Group's museum, believes the single most important place in world TV history may be destroyed by the Alexandra Palace Trustees' actions.



Back issues of Television are on display in the museum.

For many years Alexandra Palace has been presenting a financial burden to its Trustees, which comprises exclusively of councillors from the London Borough of Haringey.

The Trustees made a decision several years to seek permission from the Charity Commission to issue a lease on the whole of the Palace, including the Television wing, to a third party developer.

In 2001, the Charity Commission promoted a Parliamentary scheme to provide the trustees with the power to lease the Palace for up to 125 years. The scheme was approved and since then the Trustees have invited bids from prospective lessees.

In November 2005, a shortlist of three was selected:

1. Business Design Centre
2. Earl's Court & Olympia Group
3. Firoka (Heythrop Park)

Earlier this year, Firoka's bid was selected as the preferred developer. The lease is now under final negotiation by the parties concerned,

and is due for completion and signing at the end of July 2006.

Petition

A period of one month for representations by interested parties was required under the Charities Act, Section 36/6. The Alexandra Palace Television Group, along with others, submitted its representation, including a petition with around 1,600 signatures.

The petition read as follows: "We are concerned that any alterations may be detrimental to the building and its broadcasting history, which would mean the loss of the single most important site in the world marking the beginning of the first high definition public television service.

"If any scheme is put in place, we consider it vital that the historic areas of the Palace must be preserved."

The Group submitted its representation to Alexandra Palace's general manager, Keith Holder.

Thompson was surprised and frustrated when Holder advised him that the representation would not be submitted to the Trustees in full, as he would summarise the petition.

Holder suggested that there might have been data protection issues with regard to submitting the names and addresses of petitioners to the Trustees. Thompson finds this absurd, as petitioners signed expressly for that purpose.

Thompson believes this weakened the representation, because none of the numerous comments within the petition were reported to the Trustees.

Holder selected one sheet from the petition as an example of its contents, but not a full summary of the comments.

At an Alexandra Palace consultative committee meeting in late June, Thompson raised the issue of inappropriate analysis by Holder. At the meeting, two of the Trustees, Cllr Sheila Rainger and Cllr Robert Hare, requested sight of the full petition from

GREATER LONDON COUNCIL

THE WORLD'S
FIRST REGULAR
HIGH DEFINITION
TELEVISION SERVICE
WAS INAUGURATED
HERE BY THE B·B·C
2 November
1936

Thompson, which he provided.

"So far, there appears to be no protection of this historically important site within the lease," Thompson argues.

Single-minded

"The management and Trustees appear to have a single-minded objective to offload their responsibility for the Palace, with no regard to its world heritage. There have been no reassurances whatsoever from the Trustees or management team, that there will be some form of protection."

Firoka's initial proposal indicated that museum space may be available elsewhere within the Palace. Thompson believes this highlights the complete lack of understanding of the significance of this historic space.

"After all, this is where it actually happened in 1936. The pioneers like Baird, EMI and the BBC all contributed to the birth of high definition television at Alexandra Palace," concludes Thompson.

Since the consultative committee's meeting Thompson has made the petition available to any Trustee of Alexandra Palace who would like sight of it.

Readers who would like to make their views known to the Trustees should write to: Cllr Charles Adje, Chairman, Alexandra Palace and Park Board, River Park House, 225 High Road, Wood Green, London, N22 8HQ.

Contact: John Thompson, Curator, Alexandra Palace television Group, 5 Prospect Place, London N17 8AT.
Email: Thompson.john@btinternet.com
Tel: 07947 507340

A waxwork mock-up of an early TV studio.



Thompson was surprised and frustrated.

REVIEW

Sibelius 4

Sibelius is a comprehensive package for composing, editing and arranging written music of all kinds. Following on from the introductory feature on Sibelius 4 in *Television* April 2006 'Sibelius helps you score', which looked at the role of Sibelius in film and TV soundtracks, John Chandler takes it through its paces.

John Chandler has been a guitar teacher and composer for over thirty years with Honours in theory exams and much hands-on experience in sound mixing both live and in studios. Other instruments he plays include keyboards and bass guitar. One of his compositions, which he recorded on a four-track analogue studio setup, has been used in an industrial film as an ambient factory background. Before using Sibelius, he was working with Finale notepad and Finale songwriter. He takes up the story from here.

There is a 'culture' or habit by some computer users of launching into a program and relying on previous experience and 'intuition' to get to grips with it, in a sort of muddling through way.

This applies even more if that experience is with similar programs to the new one you're looking at. You may well have worked with other music notation programmes.

It is not just advisable to watch the tutorial videos and read at least some of the handbook (yes,

I'm afraid I must plead guilty here) – it is pretty well essential. It is through watching the videos that you get the full picture of the capabilities of Sibelius.

Sibelius comes with 19 excellent tutorial videos and help is available from Sibelius reference, the handbook or the online help centre, which also has a chat page for Sibelius users. Help is also available by phone (first 90 days free after registration), email and fax.

The reference handbook (560

pages) is very thorough, and it seems every conceivable problem you could encounter is covered.

Music theory

Sibelius is a written music notation software programme, which means you need to know some basics of music theory - just up to say Grade 1 or 2 to get started.

So, assuming you have read or are reading the manual, or have watched the first couple of videos, you can now start writing music.

Figure 1



Figure 2

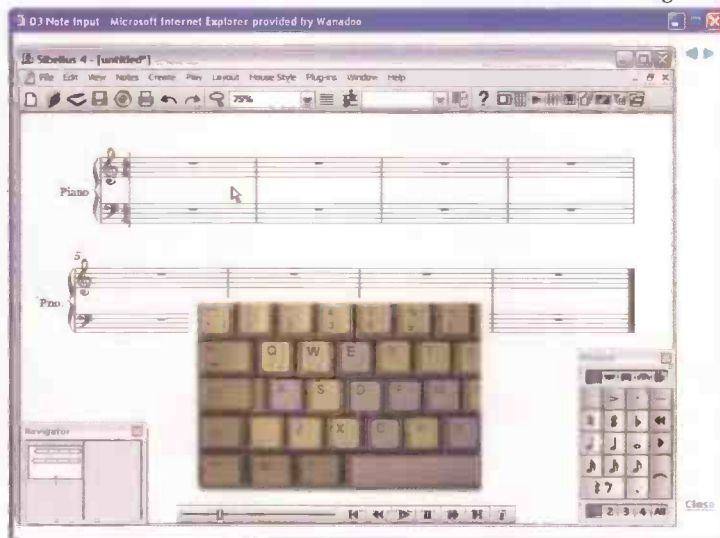
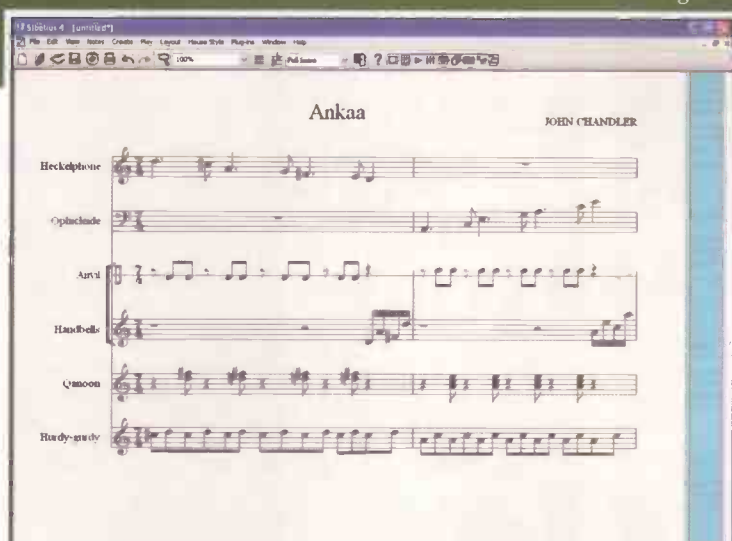


Figure 3



You need to choose your input and playback method, which can be your computer's soundcard or Sibelius's Kontakt player as shown in Figure 1 or a midi connection to a keyboard.

Input can be with a mouse, the keypad or from a midi instrument. From a midi instrument the notes can be put in 'one at a time' or played directly in real time.

Sibelius has a 'flexi-time' input method, which follows your tempo and can also quantise to correct timing errors.

Keypad note entry has been especially designed for ease and efficiency - the left hand for the notes A to G and the right hand on the numeric keypad for note values like sharps, flats, etc. See Figure 2 for an explanation. There is even a special colour coded keypad cover available to highlight the relevant keys.

Your first choice when you start with Sibelius is from over sixty manuscript templates; everything from jazz band to choir, and piano to full orchestra. There is also a blank template for making your own selection of instruments.

Next is the choice of instruments - over 400 from the familiar to the obscure. Selecting a category such as jazz instruments, common instruments or orchestral instruments, can help your choice.

Heckelphone

I couldn't resist selecting instruments from the all instruments category to try writing score for heckelphone, ophicleide, anvil, handbells, qanoon and hurdy-gurdy, as shown in Figure 3.

Further choices are from a standard manuscript style, or a more handwritten appearance. Any type of time signature is possible

which a part can be extracted for editing but, unlike other notation programs, what is altered in the extracted part is also altered in the original.

Dynamic markings

It can be further tweaked to tidy up dynamic markings in the parts without changing the original, as shown in Figure 4.

Individual parts can be arranged through 'auto layout' to have page turns at convenient rests, or laid out four bars per staff. Printing out separately with multiple copies for each part is just a few clicks away. A lot of laborious work has been eliminated with this part of Sibelius.

Another feature of Sibelius is 'focus on staves'. In a large score this feature can let you work simultaneously on staves that are far apart, by hiding the

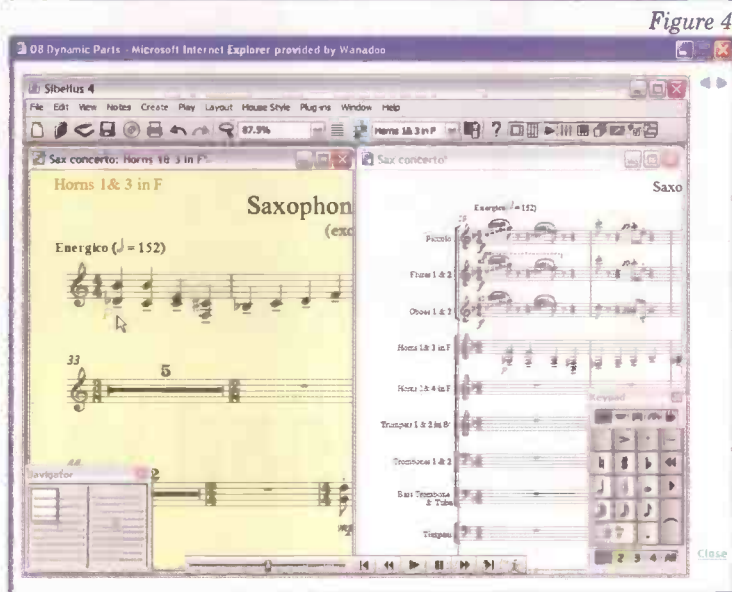


Figure 4

with options for grouping beamed notes. Add a key signature and then title, composer, lyricist and copyright details, and your first page is ready for inputting your music.

It is with copying, arranging and editing that Sibelius shows its mettle. It is recommended that when you first input notes, you include with them any details of tenuto, accent or slurs - and this is the best way, but it is often only after a playback or two that you would want to change things.

Thus editing and re-arranging are fundamental to any notation software and is a real measure of its usefulness.

It is straightforward and easy to add in lyrics and dynamic markings. There is even a pop up menu with often-used words (such as pizz, mute and arco) and symbols.

There is a large collection of symbols, lines and clefs to use. Sibelius has 'dynamic parts' with

other staves.

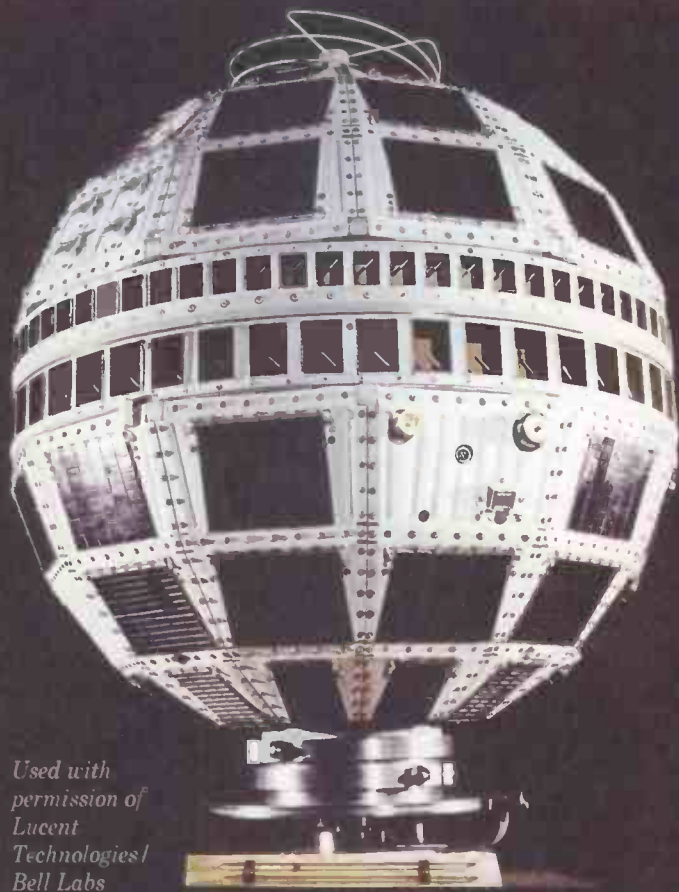
This is also helpful for showing just a lead part but having the accompaniment play along. In addition there is 'hide empty staves' feature within the layout menu.

Creating a layout is easily done with Sibelius and with a little more tweaking, can be quite distinctive. Everything is alterable - size of staves, notehead shapes, and space between staves, as well as text fonts, dynamic markings and page layouts.

Just a small part or the entire score can be changed with just a few clicks. Once this work is done on one score it can be exported to another score as a 'house style'. You can also 'import' a house style to a score you are working on.

Your music can be published and distributed on the World Wide Web with Sibelius. Two clicks take you to www.Sibelius.com where you can upload your music to sell or give away free. You could upload

Continued on page 621



Used with permission of Lucent Technologies/Bell Labs

NASA launched Telstar 1 aboard a Delta rocket from Cape Canaveral on July 10, 1962. It immediately inspired a smash hit instrumental recording, composed by Joe Meek, originally performed by The Tornados, and covered by The Ventures among many others.

Whatever happened to Telstar?

The 171-pound Telstar satellite was used to transmit the first transatlantic television signal via satellite.

Viewers in Europe saw a picture of the American flag at Telstar's US earth station in Andover, Maine. Then, similar images of the British and French flags were transmitted to the US from the two European earth stations in Pleumeur-Bodou, France and Goonhilly Downs, Cornwall, England.

Before Telstar, transatlantic communication was achievable only over telephone cables linking France and the United States, and these had a limited capacity of 36 voice channels and no capability to transmit video.

The only way to show a European audience a television program produced in the US, or vice versa, was to record it on a magnetic tape and send it by airplane courier - live intercontinental broadcasts were non-existent.

Telstar was the first privately

owned satellite. Belonging to AT&T, the original Telstar was part of a multi-national agreement between AT&T, Bell Telephone Laboratories, NASA, the British General Post Office, and the French National PTT (Post & Telecom Office) to develop satellite communication.

Telstar was equipped with a helical antenna, which received microwave signals from a ground station, then amplified and re-broadcast the signal. Today, there are several Telstar satellites in orbit, launched and operated by Loral Skynet, in geosynchronous orbit 23,000 miles above the equator.

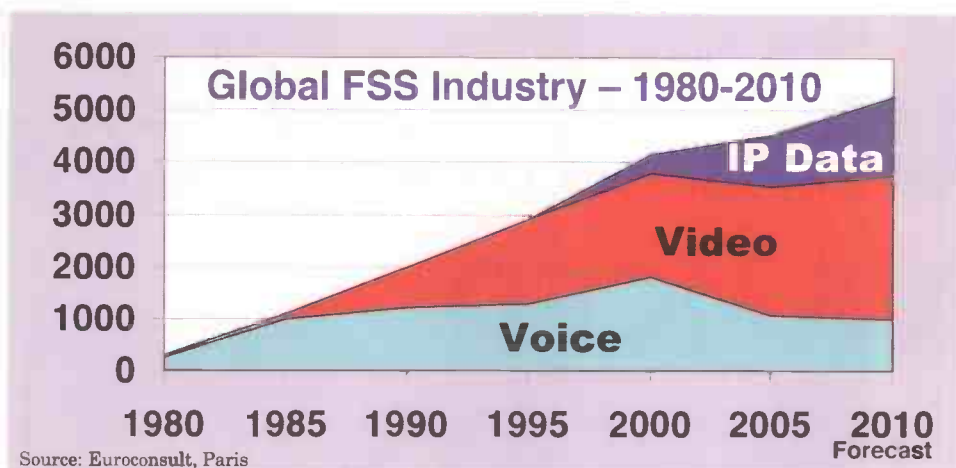
Modern Telstar fleet

Patrick Brant, Loral Skynet's president (pictured right) talked about the modern Telstar fleet at Networks in the 21st Century, the 2nd Annual Conference by Global Telecoms Business (GTB), held in London late June.

This was a unique, bottom-line focussed summit for senior

telecoms executive. GTB's Networks in the 21st Century two-day executive summit aimed to educate the industry on the business benefits of NGN. This invitation-only event was held exclusively for 70-90 senior executives, which allowed for effective communication between delegates.





access, high levels of security and availability/reliability backed by SLAs, and seamless interconnections with terrestrial services.

Brant elaborated on the success of multi-site applications such as interactive distance learning, corporate communications, training, and broadcast video services like 'digital signage' and business television (BTV).

IP data is the key growth driver in the fixed satellite services (FSS) Industry Today. Voice, the mainstay of the early industry that peaked with Y2K, is now in decline.

Telcos around the world are main customers for backup and some trunking. Video is the number 1 source of FSS revenue and profitability. Broadcasters, cable and DTH providers are key customers, spurred on by growth from HDTV and increasing content choices for viewers.

Brant's presentation was entitled: 'Gaining Competitive Advantage through Today's Satellite IP Networks.'

"In today's world of advanced IP networking and converged communications, corporate and government customers increasingly rely on broadband satellite solutions to deliver high levels of performance and reliability to their offices and facilities and it's growing in every region of the

world, not just those with limited telecom infrastructure," he said.

North America accounts for the greatest number of IP broadband satellite sites today with around 50% of the Global Total.

There are several growth drivers of broadband satellite IP networks. Greatly improved performance from global standardisation on IP satellite can now offer 'near terrestrial' experience for LAN/WAN extension and Internet

REVIEW continued from page 619

it to your own website and have 'scorch' - a free downloadable plug-in from Sibelius.

Synchronising music to video is very easily done. The makers claim that Sibelius has a unique feature in its capacity to sync the music directly with hit points, which enable you to shift the tempo and stay in sync.

I found this worked very well with a short homemade video, to which I added some music that I composed with the range of instruments I mentioned earlier as shown in Figure 5.

For education there is a wealth of material to use. Worksheets can be configured to give random questions every time so that a teacher would never run out of material. These worksheets can be for a class or for an individual.

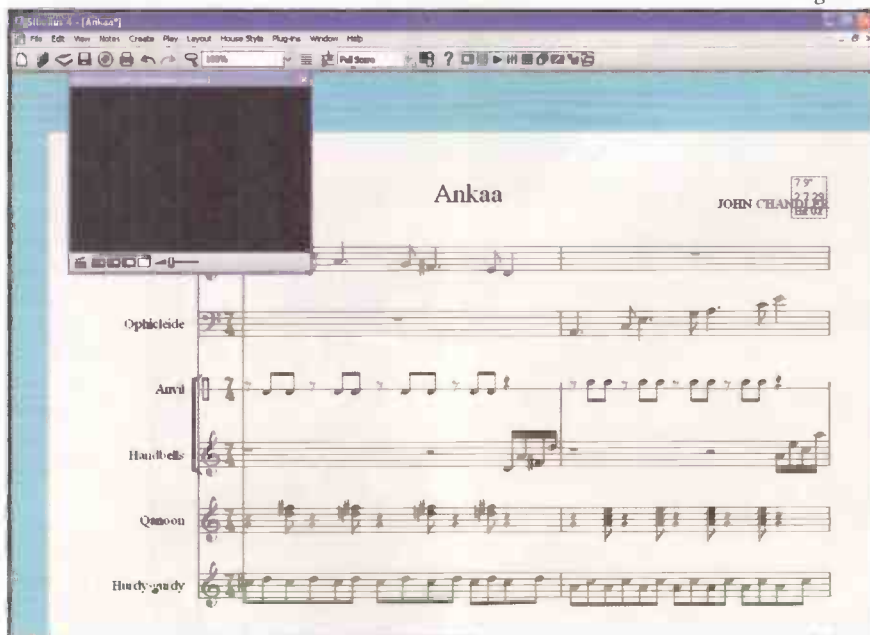
Flash cards and posters give descriptions of all instruments and their ranges, and music from African drumming and European classical to American jazz. Teaching aids and material fit key stages and GCSE requirements.

There is a dedicated website

www.SibeliusEducation.com which has more material and some videos that you can download to make music with. You can even download more worksheets and share your own.

In conclusion, with its wide range of instruments, manuscript templates and rearranging/editing capabilities, Sibelius is an excellent investment for any composer, music teacher or student.

Figure 5



SAMSUNG *introduces* ADVANCED DISPLAYS



Samsung Electronics, which claims to be the world's largest provider of thin-film transistor, liquid crystal display (TFT-LCD) panels, will introduce a 3.5" LCD with embedded touch screen, and the first-ever 7" LCD driven by a single chip, at the 2006 Society for Information Display International Symposium and Exhibition(SID) in San Francisco, California, USA.

Also at SID, one of the world's largest events dedicated to displays, Samsung is unveiling widescreen versions of 24", 27" and 30" monitors for specialty-market, digital information displays, as well as a 21.3" black-and-white monitor with clearer X-ray viewing for medical applications.

The new 3.5" LCD, referred to as the 3.5" hTSP (hybrid Touch Screen Panel), features qVGA resolution and a built-in touch screen.

Normally, an LCD panel with touch screen must have a separate printed circuit board (PCB) attached to the top of the LCD panel that contains sensor circuitry.

Now, Samsung has eliminated this requirement by including all sensor circuitry within the panel. As a result, mobile devices designed with the new 3.5" display can be thinner and lighter, while maintaining a



bright, high contrast image.

Adding to production cost efficiencies, the company produced the touch screen circuitry inside the new panel using the same thin-film transistor (TFT) processing that it uses today in mass production at existing LCD facilities.

The new LCD panel can be applied to a wide range of portable applications that require a touch screen, such as navigation terminals for vehicles, and personal media players (PMPs).

Future applications will include smart phones, PDA phones, ultra-mobile PCs and other multimedia mobile products.

7" LCD with single chip

Samsung also is showcasing the industry's first 7 inch single-chip LCD display at SID 2006. The new display, completed in May, boasts a high (WVGA) resolution of 800x480 pixels.

The display uses Samsung's proprietary amorphous silicon gate technology, which allows the gate IC function to be built directly onto the glass panel.

The time controller function also is built into the driver IC, reducing the circuitry footprint and the number of parts by about one-third. This allows engineers to design finished mobile products that are simpler in how they function and thinner in shape.

The embedded digital LCD chip also simplifies the task of circuit design in the finished product. Seven inches is now the most common size LCD screen used for digital multimedia broadcasting handsets, PMPs and car navigation systems.

The new monitors that will be exhibited by Samsung at SID 2006 are wider than most of the standard-aspect-ratio panels available today and offer increased functionality, which is helping to blur the distinction between consumer electronics and IT network products.

The monitors have a widescreen aspect ratio of 16:10 in 24", 27" and 30" diagonal sizes.

Medical monitor

Samsung also anticipates a great deal of interest at SID in a 21.3" black-and-white monitor that will be used in medical applications.

Featuring greatly enhanced brightness and a 2000:1 contrast ratio, made possible by a unique

Samsung pixel configuration, the medically applicable display can be used as an alternative to X-ray film.

The new Samsung monitor, with its ultra-high resolution, provides clearer, easier to discern X-ray images than those produced today.

Also at SID, Samsung is showing the world's largest (7") plastic LCD, using amorphous silicon. The flexible LCD suggests many possibilities for displays that are both wearable and fashionable.

Samsung will also provide the first public viewing of its prototype 8th-generation glass substrate at the SID exhibition, which runs through June 8 at the Moscone convention center in downtown San Francisco.

Terminology

Amorphous silicon gate (ASG): a system-on-glass technology that allows integrated circuit (IC) gate functions to be placed directly on a glass substrate.

Amorphous silicon (a-Si): non-crystalline silicon

Gate: an electrode that controls electrical flow in a TFT

Timing controller (T-Con): a component that synchronizes the output times of the source driver IC and gate drive IC.

Display resolution

- qSVGA: 300 x 400 pixels
- VGA: 640 x 480 pixels
- WVGA: 800 x 480 pixels
- SVGA: 800 x 600 pixels

nit: unit of brightness equal to 1cd/m²

Commonwealth TV trial



There are an increasing number of mobile broadcast TV trials of the different technologies competing to provide services, and the World Cup was predicted by some to showcase mobile TV as never before. But there has already been one major sporting event this year where one of those technologies - DVB-H - was put to the test, albeit in trial conditions.

In March 2006 the Commonwealth Games had a new participant — DVB-H (digital video broadcasting – handheld) mobile television. In a landmark showcase, the emerging technology, supported by leading broadcast infrastructure group Broadcast Australia, was demonstrated to the broadcasting and telecommunications industry at the Melbourne Games. The showcase tested the strength of DVB-H mobile television at large broadcasting events, with up to seven channels of live Commonwealth Games television broadcast from 15 to 26 March.

The DVB-H showcase was the product of a cooperative effort between Broadcast Australia, Microsoft and Telstra. As a pioneer in digital terrestrial broadcasting technologies, Broadcast Australia was responsible for the successful design, installation and commissioning of the RF transmission component of the showcase system, located at 120

Collins Street, in the heart of the Melbourne CBD.

Talking about the detailed effort to meet the targeted coverage requirements, Broadcast Australia Product Development Manager, David Hilliger revealed, “In the planning phase, we used specialised computer



modelling tools to design the service to cover as many Melbourne 2006 Commonwealth Games venues as possible. Our team was responsible for field strength measurements and performance verification; the planning work was verified through field testing, which showed good correlation between

the predicted model and achieved coverage.”

Distributed antennas

The Broadcast Australia component of the DVB-H system incorporated an 800-watt transmitter plus QPSK modulation and monitoring equipment. Broadcast Australia, Telstra and Finland's Cardinal Information Systems worked together to deliver the DVB-H transmission stream to the inner city broadcast site using optical fibre.

Broadcast technology group Radio Frequency Systems (RFS) provided the UHF antenna system, which comprised multiple antenna panels mounted on different faces of the Collins Street building. Whereas conventional broadcast panel arrays must be mounted close together, back to back, for tight alignment of RF

signals, Broadcast Australia achieved the required coverage using a distributed antenna system, by taking advantage of the particular characteristics of OFDM modulation during system design. The antenna system delivered up to 7.5 kW of effective radiated power.

Special receiver

To view the DVB-H mobile television, a specially equipped mobile receiver was required. The receiver, provided by DiBcom, was integrated into an eTEN Windows Mobile Smartphone that also acts as a Personal Digital Assistant (PDA). The showcase DVB-H system utilised Microsoft Windows Media Video 9 compression technology (Microsoft's implementation of the VC-1 codec), plus a DVB-H head-end from Cardinal to encapsulate IP data and perform the time-slicing of the data

stream. This equipment was located in Telstra's facility at the Melbourne 2006 Commonwealth Games International Broadcasting Centre.

According to Clive Morton, Broadcast Services Director at Broadcast Australia, Broadcast Australia's participation in the Melbourne 2006 Commonwealth Games DVB-H showcase complemented the company's one-year trial of DVB-H technology underway in Sydney. "The Melbourne system used a number of different technologies compared with the Sydney trial," he said. "This has allowed us to build upon our foundation of DVB-H knowledge. DVB-H is still an emerging technology. It's important to look at all the options available and explore their various capabilities."

This article first appeared in Television's sister publication, Mobile Europe, May 2006.

Nokia's releases results from DVB-H trials across Europe

If Nokia is to be believed, results from pilots on broadcast (DVB-H) mobile TV services amongst consumers in Finland, the UK, Spain and France have revealed clear consumer demand for certain services as well as important indications over future business models for commercial mobile TV services.

Each of the pilots involved Nokia and a range of companies, including broadcasters, mobile operators and broadcast network provider. Each pilot also involved broadcasts of live digital TV content over DVB-H networks to the Nokia 7710 smartphone.

Consumer demand for mobile TV Interim results from the pilot in Oxford, UK, revealed that 83% of participants were satisfied with the service and over three quarters (76%) said they would take up the service within 12 months. In France, 68% said they would pay for mobile TV services while over half (55%) in Spain were willing to do so. Nearly 75% of Spanish participants would recommend the service to friends and family.

Pricing Models

The potential commercial benefits of mobile TV for the industry are made clear by these pilots with such a high proportion willing to pay for the service. The most popular pricing model to emerge is a monthly subscription for a package of channels. In the Helsinki pilot, half of those that took part thought €10 per month was a reasonable price to pay, while in France, 68% were willing to pay €7 per month for mobile TV services.

When to view

New prime times for broadcasters and advertisers also emerge from the pilots. The UK results reveal a

lunchtime viewing peak higher than the normal TV pattern, suggesting that viewers are enjoying their favorite TV content while on their lunch break. In France, participants watched mobile TV for 20 minutes on average per day with early morning, lunchtime and mid evening representing the periods of highest use. The Spanish pilot also reveals mobile TV viewing spread throughout the day with early evening representing peak viewing.

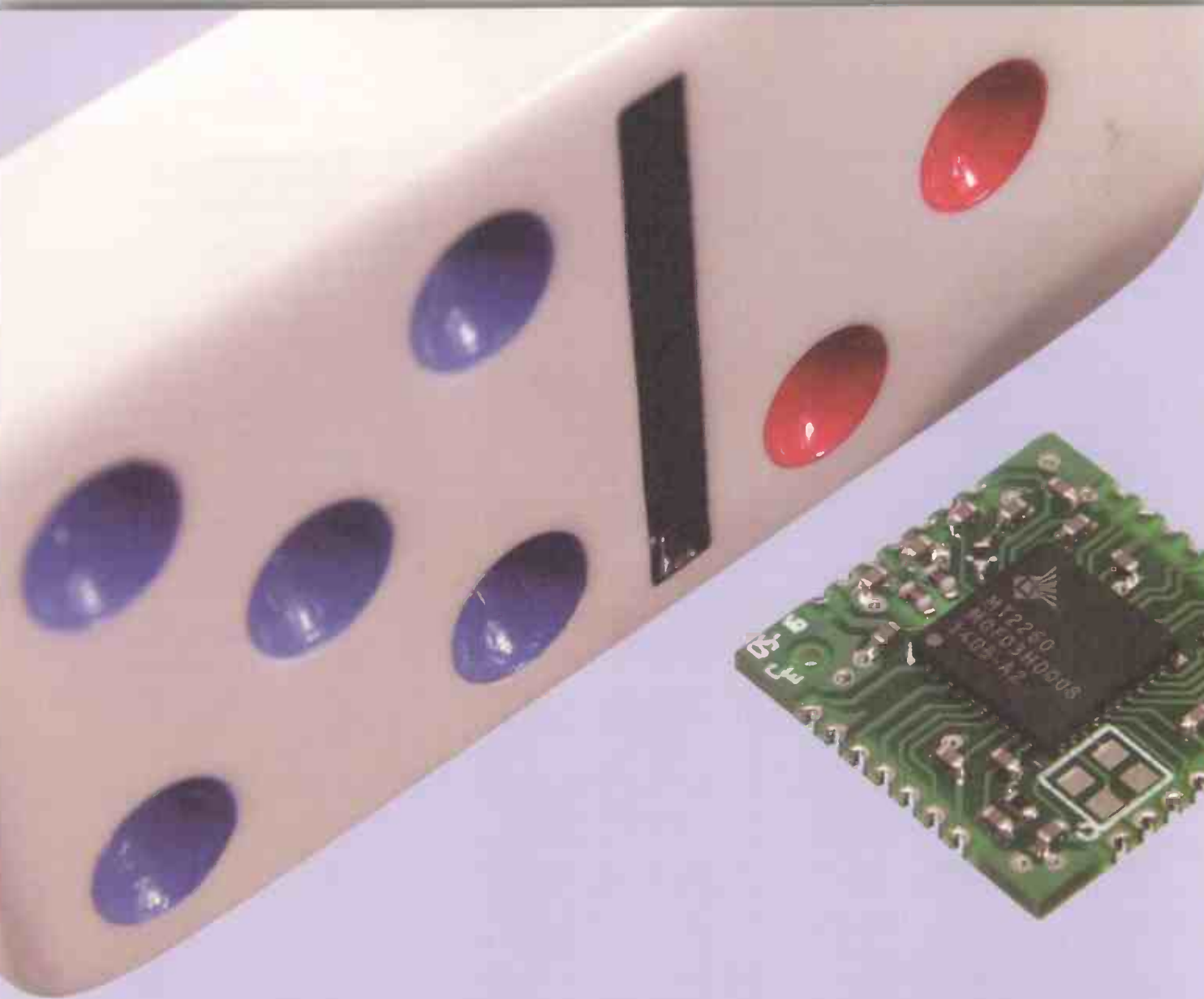
An interesting aspect of all the pilots was that many users watched mobile TV within their homes.

Almost half of those taking part in the French and Spanish

pilots claimed to mainly watch mobile TV at home. For almost a third of participants in the UK pilot, this represented their first taste of multi-channel TV.

The overwhelming message from these pilots is that consumers want both a wide range of channels but also content that is suitable for watching on mobile devices. The most popular types of content were news, sports, music, soaps and documentaries. Interactivity was also an important functionality with over half of Spanish users (58%) saying they wanted specific, interactive content adapted to shorter viewing times.

	Finland	UK	Spain	France
Response	58% believe services would be popular	83% are satisfied with the service	75% would recommend the service	73% were satisfied with the service
Willingness to pay	41%	76%	55%	68%
Acceptable fee	€10	n/a	€5	€7
Average viewing time	5-30 minutes	23 minutes per session, 1-2 sessions per day	16 minutes	20 minutes
Peak times	n/a	Morning/ lunchtimes, early evenings	7-8pm	9-10am, 1-2pm, 8-10pm
Popular content	Local Finnish TV programmes	News, soaps, sports	News, series ad music	News, music, entertainment, films



New single-chip TV tuners now support multiple mobile TV standards. Microtune CEO James Fontaine has revealed his company's product strategy that aims to meet the needs of these worldwide standards.

“Leveraging our patented MicroTuner architecture, coupled with our market leadership in silicon TV tuner-chips and digital TV expertise, our product plan is to develop new multi-standard, poly-band, universal TV tuners that can help drive the development of the global market for mobile and portable TV,” said Fontaine.

“We expect the commercial rollouts for the 2006 FIFA World Cup to serve as an excellent proving ground for mobile TV services. They will rigorously test the entire broadcasting system, while spurring interest, demand and deployments.

“We are proud that our DVB-H tuner technology is deployed in the LG Electronics' LG-U900 handsets that will be used in the Italian

Hutchison (3) launch.

“As additional mobile TV networks are introduced worldwide, we believe that multiple mobile TV standards, as with other digital TV standards, will co-exist across regions or countries.

“We intend to support these multiple standards with our advanced tuner technology.

“Our goal is to provide high-performance tuners to as wide a market as possible, while permitting our customers to cost effectively develop multi-market end products.

“In the process, we expect to solidify a leadership position as the preferred RF supplier to major consumer electronics manufacturers.”

According to Fontaine, Microtune plans to expand upon its existing

ATSC, DVB-T and DVB-H-based products to develop universal tuners.

Dual-tuner

They will be engineered as miniature single chips that support multiple mobile TV standards, while also easily enabling compact dual-tuner configurations for personal video recording and diversity applications.

Anticipating the convergence of digital TV broadcast, multimedia and connectivity as part of the evolution of handsets and portable devices, the company also plans to investigate strategies to bridge its current tuner portfolio with expanded RF functions.

As the first initiative in its strategy, Microtune plans to expand its Mobile MicroTuner product family



ONE

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for the DVB-T, DVB-H, T-DMB, ISDB-T and DMB-TH specifications.

When implemented into consumer multimedia devices, the new tuners will enable users to access a variety of content — digital TV broadcasts, mobile TV broadcasts, digital radio and Teletext — while roaming across countries that offer differing standards.

Combining standards with expanded RF functions, Microtune expects that its future tuners will permit manufacturers to develop products for global markets without the added expense and duplication of effort to design standard- or feature-specific devices.

They will help to accelerate a customer's time-to-market and reduce

costly development investments, while maintaining the very high level of RF performance and silicon integration associated with current Microtune products.

As examples of the company's successful multi-standard approach, Fontaine cited the recently announced Mobile MicroTuner MT2266, a dual-standard (DVB-T and DVB-H), dual-band (UHF and VHF-Band III) chip that receives and tunes both digital terrestrial TV and mobile broadcast TV signals.

Microtune's first Mobile MicroTuner product, the MT2260, was the industry's first multi-band (UHF/L-Band) DVB-H tuner to be introduced, sampled and put into production. This chip is currently deployed in LG's LG-U900 mobile phone.

As the most rigorous example of the company's multi-standard broadband expertise, Fontaine noted that earlier this year the company announced a 3-in-1 analogue/digital/cable TV tuner.

This tuner, the MT2131, is engineered to deliver benchmark-setting performance that exceeds the RF requirements of the most demanding standards in the world: ATSC, NTSC and Digital Cable Ready (DCR).

System-in-chip

Complementing its product direction, the company also plans to sell its tuners as wafer-level chip-scale packages for system-in-chip packages, making its technology available in multiple form factors.

Microtune's chip-scale packaged

tuners enable greater miniaturisation, a key requirement anticipated in future of mobile TV products.

DVB-H, T-DMB, DMB-TH, and ISDB-T are various worldwide digital terrestrial standards, using different allocations and/or bands of the frequency spectrum, which enable reception of mobile TV on handheld and portable devices.

Commercial services based on DVB-H have launched in Italy and are expected to roll out in the US later this year while DVB-H trials have begun in Germany and other countries.

Korea and parts of Germany have initiated mobile TV services based on T-DMB. Major handset manufacturers have announced product line-ups supporting both standards.

Based on patented technology and advanced architectural designs, Microtune's RF products function as universal RF 'gateway' components in delivering video, audio and data to TVs, digital TVs, TV peripherals, set-top boxes, VoIP cable modems, PC-TVs, automotive entertainment systems and handheld devices.

They are engineered to deliver superior channel selectivity, image rejection, impedance matching, and wide dynamic range input amplification, outperforming traditional TV tuners across stringent digital performance metrics.

When integrated into consumer electronics devices, they provide users high reliability with superior reception, characterised by superior and stable pictures under varying signal conditions.

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(College of North West London)



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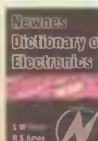
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Robin Pain (Design Engineer, Cotag International Ltd)



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Mac E Van Valkenburg; Edited by Wendy Middleton



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Mar 2000 ▲ 447 pages ▲ Illustrations ▲ PB

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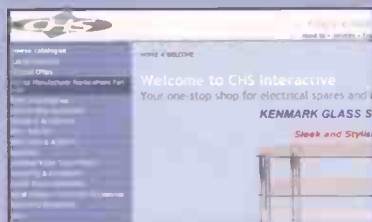
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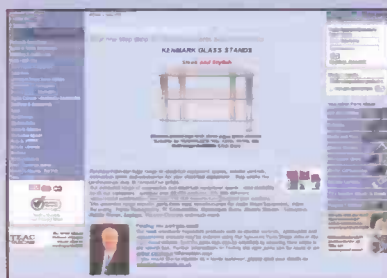
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PC2400 I²C FIELD SERVICE PROGRAMMER



EASY TO USE



The PC2400 is ideal for reprogramming EEPROMs in TV sets and similar products. It is fitted with high-quality DIL and surface-mount (SO), zero-insertion-force (ZIF) sockets for programming components.

A special lead with clips for DIL and SO parts is provided for in-circuit programming.

• USB CONNECTIVITY

Works with modern PCs which do not have RS232 or Centronics ports

• PROGRAMS NVM 24CXX EEPROMs

Also programs other I²C parts

Displays checksum after all relevant functions

• OPTIMISED FOR IN-CIRCUIT PROGRAMMING

An LED is lit when correctly connected

Can program selected devices on the same bus

Automatically caters for different Vccs

Extensive protection against wrong connection

Master data can be downloaded from a file or another device

• OPTIMISED FOR FIELD SERVICE

Self-test facility to save time in case of a suspected fault

As the programmer contains no firmware, updates for new devices or facilities can be distributed by simply updating the PC program

Data can be read from a device and stored in a file

The device type can be automatically indicated from the data file

Easy-to-use file viewer with edit facility



SPECIFICATIONS

PHYSICAL

Dimensions: 115 x 75 x 35mm

Weight: 125g

ACCESSORIES

USB lead

In-circuit programming lead

8-pin DIL dip

8-pin SO dip

CD-ROM

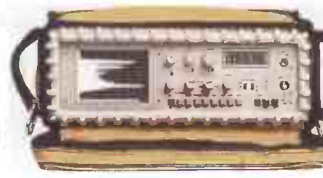
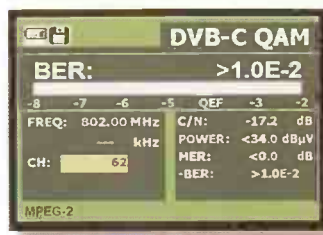
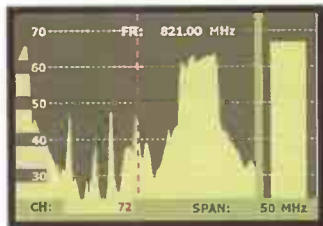
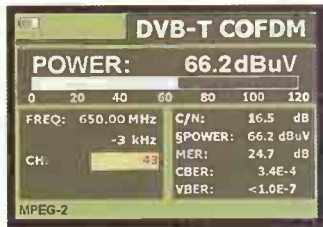
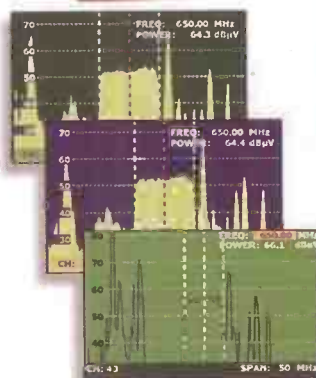
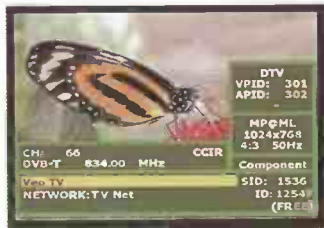
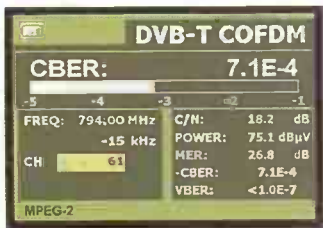
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