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Note that we are unable to answer technical queries over the telephone and cannot provide information on spares other than that given in our Spares Guide.

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Next issue,  
dated August,  
on sale August 22



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## BINDERS

Binders that hold twelve issues of *Television* are available for £6.50 each from Modern Bookbinders, Pringle Street, Blackburn, BB1 1SA.

Telephone: 01254 59 371.

Make cheques payable to "Television Binders".

## Newstrade Enquires

by Seymour Distribution Ltd.,  
86 Newman St, London, W1T 3EX.

## ISSN 0032-647X

## Newstrade Hotline

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## Ofcom Consumer Panel

The second of the Ofcom Consumer Panel annual research examines many issues: residential and small business consumers' understanding of communications technologies; where people go for information to improve their understanding; ownership, use and attitudes towards technologies; experiences of switching suppliers and digital switchover.

The Consumer Panel conducted research amongst residential consumers aged 15+ in order to understand their experience of telecommunications (fixed and mobile), the internet (including broadband) and broadcasting – including digital switchover – and use of technology.

Consumers are less aware of the technical terms for communications services than they are of the types of services available – e.g. mobile video calling. Age continues to be a significant factor in keeping informed with developments – although more 65+ adults keep informed now than last year.

Broadband and Digital TV ownership increased significantly since 2004 but levels of involuntary exclusion remain similar - higher amongst low income households.

Younger mobile customers tend to make use of a wider range of activities than other demographic groups - but for internet breadth of use are more consistent.

Spend on communications is broadly similar across the UK - however, families with less disposable income are spending a higher proportion of this on communications.

Difficulties using devices is highest amongst older consumers, and those who experience visual or hearing difficulties – however, few in comparison use specialist equipment to assist them.

The mobile and internet markets rank highest in terms of perceived 'good value' although ratings across most markets have improved since 2004.

Despite higher levels of concerns, particularly in the internet market, few consumers are dissatisfied with their overall service.

Overall levels of switching remain broadly similar to 2004 – however, a significant minority of mobile customers regularly check whether they are on the best deal and a quarter have changed tariff.

Digital switchover – an increase in awareness and understanding but older people and those in low income households continue to lag behind.

In the case of small businesses and sole traders, Similar to residential consumers, small businesses are less aware of the technical terms for communications services than they are of the types of services available – e.g. wireless internet connection.

More small businesses say they keep informed now than in 2004 – however, levels are still below half of all small businesses.

Overall take-up of communications remains broadly unchanged with the exception of broadband. Sole traders continue to rely more heavily on mobiles.

Broadband users make wider use of the internet – notably for downloading, purchasing, banking and home-working.

Small businesses are less likely to consider they are getting 'good value' from their mobile service than last year and show higher levels of dissatisfaction.

Switching behaviour broadly similar to the residential market – mobile tariff checking is more common amongst those who keep informed.

**Boris Sedacca**  
Editor

## Carter stands down at Ofcom

Stephen Carter is to stand down from his role as chief executive officer of Ofcom, with effect from 15 October 2006.

From 1 August 2006 he will not be party to Ofcom's economic, competition and policy decisions. Carter was Ofcom's first chief after Oftel was disbanded to make way for a regulator overseeing broadcasting as well as telecoms.

David Currie, Ofcom Chairman, said: "Stephen took on an immensely challenging task - and has performed outstandingly.

"His legacy is an effective and credible organisation which plays



an important role in delivering greater choice, lower prices and greater innovation."

Stephen Carter said: "There is never a good time to leave a great job. However, Ofcom is now

firmly established, broadband and digital competition are delivering real results, and the recent extension of David's term makes for an orderly transition."

Carter's contract contains gardening leave restrictions up to a maximum of 12 months at the discretion of the Chairman.

The Chief Executive of Ofcom is a public appointment made by the Ofcom Board, involving an independent assessor and subject to approval by the Secretary of State for Trade and Industry and the Secretary of State for Culture, Media and Sport.



## Single-chip HD STB

Amino claims to have launched the world's first single-chip HD AVC/H.264 IPTV STB specifically designed for the hospitality industry.

The AmiNET130H is modelled on the AmiNET110H design deployed in hotels worldwide and will begin shipping in volume later this year.

"The AmiNET130H is based on Amino's proven IPTV technology and will allow hotels to not only meet, but exceed guests' expectations while generating new revenue streams and high value services," commented Roy Kirsopp, VP and General Manager of Amino Communications.

The unit features a second Ethernet port for additional services, such as high-speed internet access and Voice over IP (VoIP). It also features a TV interface, which enables a completely invisible installation where the whole system can be controlled from the television using one remote control.

## BBC launches free HD broadcasts

The BBC gave the UK's first high definition viewers a curtain-raising treat of the whole of Planet Earth part one, followed by classic Dickens drama Bleak House over the recent Whitsun Bank Holiday from 27 to 29 May.

Meanwhile research disclosed by the BBC in May suggests that an overwhelming majority of people who know about HD expect the BBC to broadcast in HD, and to do so free to air, funded by the licence fee.

They also expect high definition broadcasting to be available on all platforms including Freeview.

The BBC's HD stream started broadcasting on 11 May with a promotional preview. The broadcasts were initially

available to viewers on satellite who have the right HD equipment.

The BBC confirmed its HD stream will also be carried in some cable areas in time for the World Cup, following a successful carriage agreement with NTL Telewest.

BBC Director of Television Jana Bennett said: "These are small but exciting first steps in the BBC's ambition to offer the option of high definition to all in the future.

"It's clear that licence fee payers expect high definition broadcasts from the BBC, the same way they have moved to colour television, widescreen, digital radio and online services with us in the past."

GfK NOP conducted an online survey for the BBC

of a representative sample of about 1,500 respondents.

They were asked what they knew and thought about high definition television. 73% of the sample had heard about high definition television. The figure was much higher for men (83%) than women (62%) and digital homes (77%) rather than analogue homes (62%).

Of those that were aware of high definition, 87% said they expected the BBC to broadcast in high definition in future, 93% expected those broadcasts to be free to air, 95% expected high definition broadcasts to be available on all platforms - satellite, cable and Freeview - and 88% disagreed that high definition viewers should pay a higher Licence Fee.



## Gearhouse Broadcast verifies World Cup content

Gearhouse Broadcast, a UK rental, sales, project solutions and systems integration company, has selected Tektronix waveform monitors to provide content verification capabilities in support of the 2006 World Cup.

Gearhouse Broadcast will serve as a principal partner in providing technical production facilities to the host broadcaster in 12 cities throughout Germany for the 2006 World Cup.

The company has purchased a combined total of more than 50 Tektronix WFM700M and WFM601E Waveform Monitors for use during the broadcasts.

"The World Cup broadcasts require an immense amount of verification and restoration, and we're proud to rely on the gold standard technology included in the Tektronix WFM range," said Eamonn Dowdall, Managing Director, Gearhouse Broadcast.

"The Tektronix WFM700 Series offers the monitoring capabilities needed in the production, post-production, distribution and transmission of high-definition (HD) and standard-definition (SD) digital video content. It is basically everything a broadcaster needs for these applications in one package."

## LCD TV has wide viewing angle

Evesham Technology has unveiled its new high end HD Ready 32" LCD TV with a viewing angle of 176° and fast 8ms refresh rate for smooth picture imaging.

The V32EMRO-ZE3's integrated stereo speakers with BBE digital audio enhancer technology and SRS WOW reproduces audio with realism.

Hooked up to a PC, the Picture in Picture (PIP) function allows multiple viewing screens to be open at the same time, so users can watch more than one TV programme, or keep an eye on the news while watching a DVD, or watch TV while working on emails, surfing the net or working on documents.



## Swedish Space Corp selects BitBand for IPTV

Swedish Space Corporation (SSC) has selected BitBand to provide IPTV services to operators from its ground station, Stockholm Teleport.

SSC designs, tests, launches and operates space systems. Its ground station, Stockholm Teleport, provides satellite communication services, including uplink and downlink of TV and data.

It receives a number of TV channels and rebroadcasts them via broadband networks to various operators. BitBand will supply Maestro content distribution and server management suite and Vision servers.

"Choosing BitBand for providing our customers

with IPTV services is based on the company's proven experience in the IPTV market, as well as the solutions' high availability," said Karl Magnusson, manager of Teleport Services at SSC.

Ervin Leibovici (pictured), CEO of BitBand, said: "We are proud to support Swedish Space Corporation in their pioneering efforts to combine advanced IPTV services with their extensive activities in the satellite space.

"We are looking forward to working closely with SSC to enable new and profitable business models by providing flexible IPTV solutions to creative market needs."

## Europa Magnetic loses 92 staff in plant closure

Europa Magnetic in Cramlington lost 92 staff when its plant shut down in May.

The Taiwanese-owned electronics firm, which makes CD-R recordable discs and CD-ROMs, is expected to switch the work from the Nelson Park plant to others in Europe and China.

General manager of Europa Magnetic, Lynn Yellowley, said: "We had significant losses in 2005 and the forecast for 2006 is much the same.

"The cost of manufacturing has increased dramatically but the price of goods has gone down, and we can no longer operate at a profit."

## BBC Wales orders Grass Valley news production system

BBC Wales is installing a networked digital news system, including desktop editing and production servers, based on Grass Valley systems from Thomson.

The system, which will be rolled out during 2006, covers eight regional centres across the country, and is the first major installation in the UK of Grass Valley's K2 Media Server platform, launched at BIRTV and IBC in 2005.

K2 uses a new architecture, combining standard IT technology such as gigabit ethernet with specialised software for critical broadcast applications such as news.

At BBC Wales the K2 network supports browse resolution as well as online resolution storage.

The browse resolution content is distributed over



the existing network to NewsBrowse desktop editors, allowing journalists to cut their own stories quickly and accurately.

Packages that require additional treatment can be handed over to Apple Final Cut Pro editors, which are directly attached to the K2 server.

The Grass Valley digital news production system is

linked to the BBC's ENPS newsroom system via MOS, and to a new tape-based archive system.

Wyn Jones of BBC Wales said "We looked carefully at all the options for streamlining our television news production system.

"We needed a solution that delivers all the functionality we require, interfaces well with our Final Cut Pro editors, is future-proof should we need to move to HD, and is cost-effective."

"Producing news is all about the workflow," added Marc Valentin, president of the Grass Valley business within Thomson (pictured).

"The K2 Media Server uses standard IT protocols, which means that connecting third party editors like Final Cut Pro is simple."



## Encryption for IPTV STBs

Helius has announced MediaLock for IPTV, a software-based encryption solution for IPTV network operators, which extends the IPSEC encryption offered by Helius' patent pending MediaLock technology to IPTV set-top boxes.

The use of IP to deliver entertainment is growing and the two biggest concerns are secure delivery and access control.

Historically, broadcast systems have been limited by their dependency on smart card and other hardware centric technologies.

MediaLock for IPTV will consist of a client that runs on the provider Set Top Box (STB) which interacts with a MediaLock Server and Gateway.

"Using MediaLock, we provide security and access control to private network customers," said Ron Heinz, Chairman and CEO of Helius (pictured).

"A software-key, IPSEC implementation is the best way to protect delivery of IPTV content in a real time environment," said Mike Tippetts, CTO of Helius.

"The ability to change the encryption key at anytime provides the required flexibility of a real-time delivery environment."

## IPTV equipment sales hit \$400M in 2005

The fanfare around IPTV is more than just hype, says a new report by Infonetics Research.

According to the report, equipment sales, service revenue, subscribers, and service provider capital expenditure all increased

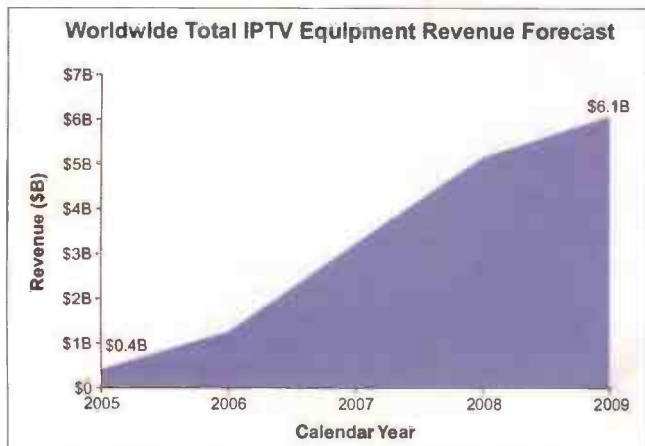
dramatically between 2004 and 2005.

Broadband service providers with DSL and FTTH services account for the bulk of IPTV service revenue now, but cable broadband providers will also migrate to all-IP

triple-play services in the next few years, and offer wireless services as well.

"Service providers expect huge returns from IPTV, and they are investing heavily in IPTV infrastructure to ensure those returns," said Jeff Heynen, directing analyst for IPTV at Infonetics Research.

"Right now they are focused on transport infrastructure, upgrading their access networks with higher-bandwidth ADSL2+, VDSL2, and FTTH platforms, and adding IP edge routers and Ethernet routers and switches to handle the expected traffic demands of the escalating numbers of IPTV subscribers.





## ITN discovers Police footage

Over 30 years ago, pop band The Police released its debut single, 'Fall Out/Nothing Achieving' in May 1977 on its own label Illegal Records.

ITN has now discovered original footage of the young and then virtually unknown Sting and Stewart Copeland, pasting up posters advertising the single on London's Kings Road.

The film is part of a reel of footage shot by an ITN cameraman who, by chance one Saturday afternoon, went down the Kings Road to collect some stock footage of punks.

The footage shows Copeland pasting The



Police posters and Sting holding them as they fixed them to the wall. This previously unseen footage

was shot well before The Police released the debut album 'Outlandos d'Amour' in November 1978.

## EEIBA suffers donors' demise

At the EEIBA's Annual General Meeting, outgoing President, David Dennison, reported that he had seen changes in industry that cause real problems for the Charity.

"2005 was a year which saw significant changes in the economic structure of the industry that we serve," said Dennison.

"One of the real problems that we continue to experience is the demise of some very large companies that were donors.

"We were left with a shortfall in income, which we have to fill and expand on."

## Pace launches free-to-air satellite STB

Pace Micro Technology has launched its high definition (HD) free-to-air satellite set-top box, giving viewers in the UK the ability to watch the latest HD content, such as the forthcoming FIFA World Cup matches being broadcast by the BBC.

To enjoy free-to-air HD content, viewers will need a satellite dish pointed to 19.2T or 28.2 (with BBC HD satellite programming only available on the latter feed) and an HD-Ready television set to watch the content.

The Pace HD box will retail around £299. It comes with DiSEqC 1.2 for easier satellite scanning and programming, and a CI slot for use with a

range of leading conditional access systems, such as Irdeto, Nagravision, Conax, Viaccess and CryptoWorks.

It is one of the first in the world to use advanced H.264 HD hardware decoding to deliver superb quality pictures while making the most efficient use of available broadcasting bandwidth.

The Pace HD set-top box uses new technologies, such as DVB-S2, to improve bandwidth efficiency by up to 30%, and HDMI with HDCP for secure connectivity to HD-Ready displays. The Pace DS810XE HD set-top box is not available for payTV HD programmes.

## Peak Atlas ESR meter doubles performance

Peak Electronic Design has announced that the Atlas ESR has undergone a major performance improvement.

The Atlas ESR, which measures both capacitance and ESR (equivalent series resistance) can now cope with double the dynamic range of ESR, now 20 ohms instead of 10 ohms.

This has been achieved by implementing enhanced hardware and new software without sacrificing accuracy or analysis speed - in fact, Peak claims that accuracy has been improved.

Just connect the Atlas ESR any way round to your capacitor (even in-circuit) and press test. The unit will automatically power-up, measure capacitance (up to 22,000uF) and ESR to resolution of 0.01 ohms.

As before, the Atlas ESR can even cope with highly charged capacitors thanks to its automatic



controlled discharge function and self protection feature.

Measurements are made at the industry standard 100kHz using low signal levels to ensure polarity independence and compatibility with sensitive circuits.

The Atlas ESR will automatically power down after a period of inactivity. Measuring 103mm x 70mm x 20mm, the Atlas ESR fits in the palm of a hand or in a pocket.

The Atlas ESR is available from many distributors including Farnell and Maplin as well as directly from the manufacturer for £89.00 inclusive of UK delivery and VAT.



## Philips claims optimised HD viewing

The 42PF9631D represents Philips' most advanced plasma TV to date, utilising a 1,024 x 1,080i ALiS panel and equipped with image processing and motion compensation, promising the best possible picture quality available with plasma technology.

The HD-Ready 42PF9631D is Philips' first plasma TV to feature a 1,024 x 1,080 panel, ideal for displaying a 1,080-line high definition picture at its optimal resolution.

Through interpolation, the Pixel Plus 2 HD matches the input source to the display's resolution and then - via LTI - adjusts the values of the interpolated pixels to 'fuse' more accurately with surrounding ones, boosting sharpness and detail clarity.

In addition, the Pixel Plus 2 HD engine is said to employ a unique reduction system for MPEG noise, blocking and quantization to produce clean and natural images.

Philips claims it is still the only TV manufacturer

to successfully combine resolution enhancement with motion compensation courtesy of the Digital Natural Motion system. Motion compensation is essential if movies shot at 24 frames-per-second are not to suffer from judder.

The 42PF9631D is Philips' first plasma TV to feature a MPEG artefact meter, which measures the quality of the incoming signal and varies the level of processing accordingly, ensuring that SD feeds are not 'over' processed.

Philips also claims that

its ambient backlighting technology, Ambilight, has been proven to reduce eye-strain and improve perceived picture quality. The 42PF9631D is also the first Philips plasma TV to feature Ambilight 2, which provides a two-channel effect which independently projects lighting from the sides of the screen, allowing the colour and intensity to accurately match on-screen content.

Connectivity includes two HDMI and two RGB SCART sockets, component video input and USB.



## ADB supplies 450 trial STBs

Advanced Digital Broadcast has supplied set-top boxes to support BBC, ITV, Channel 4 and Five in the UK's first high definition (HD) digital terrestrial television trial.

The trial will consist of a limited sample of 450 users and is expected to allow the broadcast partners to learn more about the complexities of transmitting in HD format, while presenting consumers with a format that provides greater picture clarity.

Participants will have access to this summer's key sporting events, including tennis from Wimbledon in HD format.

ADB has supplied its latest 3800T high definition product for the trial. The unit provides HD reception and H.264/MPEG4 Advanced Video Coding (AVC).

The product features an advanced microprocessor for fast channel decoding, HDMI interface, and swift rendering of on-screen graphics and applications.

"ADB is delighted to support this prestigious trial in the United Kingdom", said Philippe Lambinet, CEO of ADB.

"The UK has led the roll out of digital television.

## Texas ships BrilliantColour

Texas Instruments' shipments of BrilliantColour technology for front projection products have exceeded 100,000 units.

BrilliantColour technology, introduced last year at InfoComm, enables a greater than 50% brightness increase in mid tone images,

common in video and natural scenes resulting in highly saturated images.

This year, six customers will be showcasing WXGA, XGA and 720p projectors featuring this new technology delivering vibrant colours and 1,000-5,000 lumens of brightness.

In addition TI will showcase native and dynamic contrast ratio with DynamicBlack for front projection products.

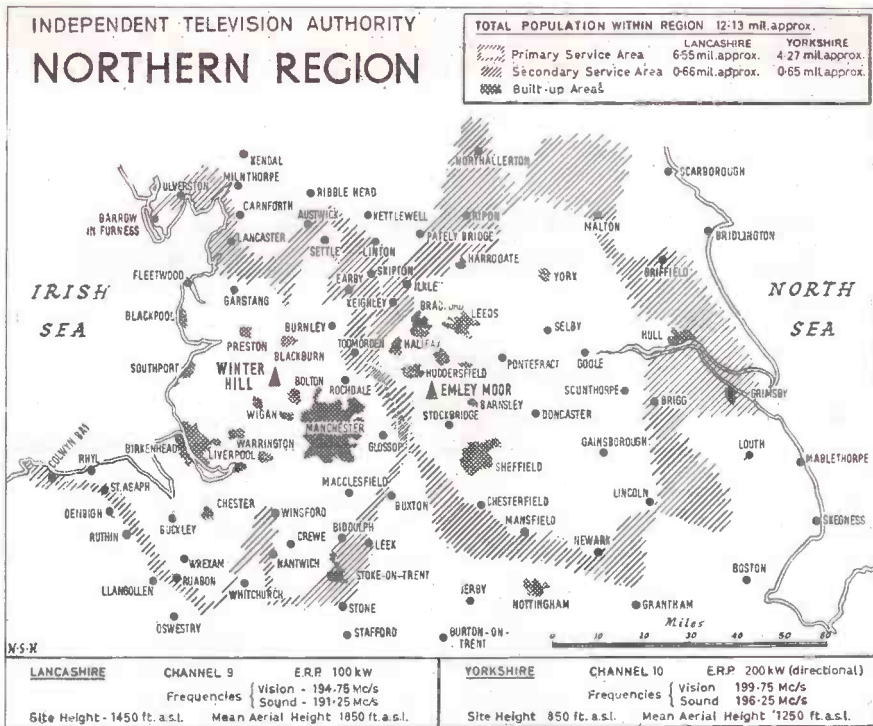
DynamicBlack technology allows

customers to achieve a three to four times increase in contrast ratio over native contrast ratio. For example, 3000:1 native contrast ratio products could achieve contrast ratios up to 12,000:1, creating a new benchmark for image quality.

Several DLP customers will be showing production products using BrilliantColour technology at InfoComm including BenQ, Dell, Mitsubishi, Optoma, Panasonic and Sharp.







Winter Hill was operating, but Emley Moor's opening was still months away.

9 with an ERP of 100kw. Granada provided Weekday programmes, and ABC Television those for the weekend. Viewers east of the Pennines would have to wait for Emley Moor (Channel 10) to open on November 3rd before they could get a reliable ITV signal.

In addition to these UK developments, the news pages also mentioned the opening of another television service, this time in Baghdad. The station, claimed to be the first in the Middle East, was reported to be offering a mainly educational service, and was said to be "greatly in advance of anything available in Britain." Rather different, unfortunately, from the news we currently see from Baghdad.

It is worth mentioning, incidentally, that not only did Pye supply all the equipment for the Baghdad station, but that staff from the company were also operating the station on behalf of the Iraqi authorities. Times certainly have changed!

Nearer to home, every viewer's aim was to get a bigger picture, which was hardly surprising at a time when 9-inch tubes were still common. In this issue, Lasky's Radio (remember them?) offered a not-to-be-missed opportunity to remedy this problem - a 16" metal cone CRT for just £9.19.6

(carriage and insurance extra). Equivalent to around £400 in

today's terms, this was an expensive upgrade, but a bargain compared with the tube's quoted list price of more than twice that. Of course, metal-cone tubes were not especially popular, as the whole cone was live at EHT voltage while the set was operating. The serviceman on the cover certainly wouldn't have enjoyed brushing his headphone leads against one of those.

### Interesting snippet

The News from the Trade pages had an interesting snippet, which at first sight looked to be about a pattern generator. A second look, however, revealed that it was actually a pattern remover. Band III converters were, at the time, in common use to allow single-

channel sets to receive ITV. Most worked by down-converting the ITV signal to the local Band I channel.

It is not hard to see that breakthrough from off-air Band I signals would be likely to produce patterning on the picture when the converter was being used to watch ITV, particular in areas where the Band I signals were strong.

The Spencer-West Pattern Remover provided an ingenious solution. As the text explains: "A signal equal in amplitude but 180° out of phase with the interfering signal is fed to the aerial socket of the receiver. This signal is derived from the Band I aerial via a network with two controls that allow the neutralising signal to be readily adjusted. The unit will remove completely the interfering signal."

Ingenious, yes, but I wonder how well it really worked, and I wonder just how often those controls had to be readjusted to maintain good results. SCART sockets may have their shortcomings, but they certainly take a lot of the hassle out of interfacing set-top boxes!



Above: Television from Baghdad was an altogether more peaceful affair in 1956.

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## Ekco U29 small table set

Mr Miller's letter on capacitor failures in the May 2006 edition of 'Television' must be challenged.

It could be read as a damnation of Variacs and all those using them for any purpose – including 'soft starts' for electronic equipment roused from a deep slumber.

I agree that catastrophic failures of electrolytics working within their rated limits are rare. In about 40 years I have experienced only one such event – strangely enough in a laboratory not far from Mr Miller's home.

This was during the mid 1940's. A sealed aluminium can capacitor of some 500µF exploded after several hours of normal operation at its rated 450V.

The cylindrical can took off leaving the base seal and most of the internals distributed on the chassis. The top of the can bore printed data, which was reprinted on the white ceiling a few feet above the bench. I am glad that I did not know about Mr Miller's dictum of 'not to face the seal end'. The other end was the dangerous one!

The quantity of stored energy in the capacitor can be quite large. In the case of my 500µF electrolytic it was about 50 joules. This is nearly a third of the muzzle energy of a 0.22" bullet leaving a proper rifle at the speed of sound. Nobody messes around with those.

Mr Miller's 'slow boil' type of failure may be the result of prolonged heating by leakage current plus sudden added heating caused by the discharge of stored energy.

That energy is appreciable in the case of high capacity high voltage types but becomes a minor item if capacity and voltage are both low. In the case of the 25µF 25V capacitor, it is only about eight millijoules. Hardly a child's peashooter.

I am reminded that at one time there was a stock demonstration for visiting VIPs at a high voltage laboratory near

Mr Miller's home.

An artificial lightning strike was directed at an innocent looking bit of tree trunk. The trunk flew apart because the discharge boiled water in the wood fibres and the flash steam disrupted the timber.

I suspect that the capacitor explosions are ultimately due to boiling off the water, which must account for a major part of the electrolyte. Was slash steam from the discharge of mine by itself enough to explode it?

On the vexed subject of 'to form or not to form', it is interesting to read Mr FE Terman in the McGraw-Hill 'Radio Engineer's Handbook'. He states that the aluming film originally formed on the



aluminium foil to be used in an electrolytic may be perfect when first made.

However that film may suffer mechanical damage during the assembly process. He submits that such very local damage can be repaired by mild electrolytic action within the completed capacitor by a 'forming' drill.

This requires the increase of the applied voltage quite slowly to its rated value. This limits any leakage current through a pinpoint fault and restricts any local temperature rises to acceptable values.

If Mr Terman is right, and he is seldom wrong, the slow dielectric

forming from a variac-controlled source can do no harm at all. Indeed in general terms this slow increase in applied voltage can only be good practice when repairs have been carried out on a complex piece of equipment.

Any faults apart from electrolytic faults can be identified before power levels become high enough to cause significant damage.

Claude Lyons did the industry a service when he decided to import variacs. They are elegant pieces of equipment, which are appreciated throughout the world both for their utility and for their impressive standards of manufacture.

Mr Miller should accept that these tapped toroids are valuable tools. Many of the lesser are quite respectable.

*Stan H Falmouth,  
Falmouth, Cornwall.*

## Up and Down Scaling

The existing PAL 625 line system in use in the UK and much of Europe has 576 interlaced picture lines per frame (576i).

The frame consists of 2x 288 line fields at 25Hz, interleaved to produce the 50Hz, 576-line picture frame. This method is used to reduce the transmitted bandwidth of the TV signal.

On CRT screens with phosphors, the two fields optically interleave to produce an acceptable picture, with fairly low interlace flicker.

All Plasma, LCD, LCoS, and micro mirror displays, with the possible exception of the TI wobulating mirror method, do not use interleaving, but display the picture frame by frame, in a progressive manner.

To meet the display requirements, some form of de-interlacing is required, in order to electrically interleave the two fields together, to produce the 50Hz frame.

For a stationary picture, the de-interlacing method is relatively simple. All that is required is to store field 1, and then weave it between the lines of field 2, to produce the 576-line frame.

This is, not surprisingly, called the weave method, and produces an excellent picture, with no loss of detail.

If there is movement between the two fields making up the frame, then the weave method will produce a result with jagged edges, as the two fields no longer match, the picture having moved between them.

In this case the best method is to blend the lines of field 1 and field 2 together to produce the desired 576-line frame. This method, however, reduces the vertical resolution by half, as information is lost when two lines are mixed.

The best overall method is to have a motion detection circuit, with two or more field stores, and choose either weave or blend as appropriate.

The best de-interlacers can change between the two, many times during the line interval, to produce a picture with the maximum available vertical resolution.

Films are recorded at 24 frames/second, and in the cinema each frame is shown twice to reduce flicker to an acceptable level.

When a film is shown on TV or from a DVD, there is no movement between the two fields making up the frame, as they are both produced from the same film frame.

If the film, or cinema mode is detected, the weave method can be used to produce a virtually perfect de-interlace. This is why some DVD players can offer progressive scan output as an option.

Having de-interlaced the picture to produce a 576-line frame, the next problem is to scale the picture to the number of lines available on the display.

Most of the earlier non-CRT displays, and a number of non HD-Ready, still on offer, only have 480 lines of pixels, to meet the requirements of the standard definition American NTSC system.

To enable the display to show the frame,  $576 - 480 = 96$  lines of information need to be discarded, effectively every 6th line.

This discarding of 96 lines in 576 results in a loss of vertical resolution of 16.6%.

Scaling is also required to up-convert a 576-line PAL de-interlaced signal to 720p, 1080i or 1080p, to display on the new range of High Definition TVs.

In this case the fractional addition of extra lines can be carried out by a straightforward algorithm, as no complicated motion sensitive weave or blend decisions need to be made.

The new range of HD Ready TVs and projectors, are available in three 'flavours': 720p, 1080i, and recently 1080p, although SKY will broadcast in 720p and 1080i.

The Blu-Ray DVD player will deliver its output in 1080p, if required, and it is rumoured that the next generation of HD DVD players will do the same, although the existing versions only output 1080i.

The best picture is always going to be when the signal and display match, and although a properly de-interlaced, and scaled signal can give very acceptable results, it can only approach the resolution of a high definition signal on a matching high definition display.

To future proof yourself as much as possible, always go for the TV or Display with the maximum available resolution. This allows you to display, in all its glory, the matching high definition signal.

Up-converting from a lower resolution will always give fine pictures on most modern TVs, with good internal processing, while down converting, no matter how elegant, will always result in loss of data, and thus definition.

*Barry Sandcraft,  
Waterlooville, Hampshire.*

## The state of the trade

Over the years that I have been a reader of this magazine, many articles have been written on the impending death of this trade, and I would like to add my opinion to this particular subject.

At 38 years of age I consider myself to be one of the younger engineers in this business. Whenever I go on manufacturers' courses I seem to be the youngest one there, so I don't remember the golden days if they ever existed.

When I entered this trade about 15 years ago everyone was telling me not to bother saying that it was in terminal decline and there would be no future in TV repair.

Being of a stubborn nature I was determined give it a go and see if I could eke out a living in the repair trade.

I paid my own way through college and got a job at a local repair shop. I took to the job straight away enjoying both the work and the people I worked with.

There was however a serious cloud on the horizon. The owner of the business had been in the repair trade for

nearly forty years and he had fixed in his own head that things were in terminal decline.

He could remember the 'heydays' and in his own mind, things were going from bad to worse.

Nearly every month in TV mag another letter was published saying the trade was at death's door. A look at the business for sale section at the back would be further proof that things were desperate.

Instead of trying to adapt to an ever-changing market, stagnation began to set in. When equipment came in for repair they almost seemed to try to talk the customer out of a repair saying things like: "it's just not worth it" or "you could go to Argos and buy a new one for what it would cost to repair this."

Eventually the inevitable happened: the company failed, the receivers were called in, and another 35 year old worthy family business was gone. Most of those employed in the company went to repair shops in the area.

One started his own aerial and installation business. The owner, with whom I remained friends, retired.

What about me at 33? I felt that I was too old to retrain. Besides I enjoy this trade too much to give it up just yet.

I bought the telephone number of the failed business and some of their tools, service manuals, etc, from the receivers and set up my own repair business on the same industrial estate.

Everyone told me I was crazy to do this and that it could never work, but so far they have been wrong. We have traded for five years very successfully now and are still making a good living from the repair trade.

The business is much smaller now than it was under its old ownership it consists of just three employees including myself.

Along with repair we have branched out into sales and installation. We find that our customers are happy to pay slightly more than superstore prices in order to get a personal service and at present we are thriving.

Each year of our trading life we have serviced approximately 1,000 customers, although this year things may have slowed slightly.

The future may not be as black as the doomsayers would have you believe. Hang on in there and keep evolving with the ever changing ever challenging marketplace.

*Andrew Lyon,  
Visiontech, Wootton, Oxford.*



# The making of **BROKEBACK MOUNTAIN**

Based on a short story by Pulitzer Prize winning author Annie Proulx, director Ang Lee's *Brokeback Mountain* is a poignant tale of forbidden love. Ennis Del Mar (Heath Ledger) and Jack Twist (Jake Gyllenhaal) are two young men who meet while herding sheep in the high country of Wyoming in the 1960s, setting off a complex and heartrending relationship that lasts more than 20 years.



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July 2006 TELEVISION



Golden Globe winner  
Ang Lee (right).



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**D**irected by Golden Globe winner Ang Lee from a script by Larry McMurtry and Diana Ossana, *Brokeback Mountain* features outstanding performances from Ledger and Gyllenhaal, as well as from Michelle Williams and Anne Hathaway, who play their wives.

The story also hinges on an exacting attention to artistic detail, both visually and sonically.

For example, Lee selected a beautiful yet remote piece of preservation land in Calgary for shooting exterior scenes on *Brokeback Mountain*, and he made sure that everything from the radio announcements to the sound of the wind was authentic.

"From a story perspective, this film is really straightforward. It's an unrequited love story," says Jeff Roth, vice president of postproduction at Focus Features, the production company for the film.

"Ang's a super down-to-earth guy, but he is very demanding. He'd ask every team member to go the extra distance on every shot," says Roth.

### A Universal Story

Dylan Tichenor, who shared editing credits on the film with Geraldine Peroni, who passed away at the end of production, was particularly attuned to the rich development of the characters. He edited the film with a fine eye toward nuance.

"It was especially important to craft this material into what people say the film has become – a universal love story," says Tichenor.

"We didn't want the homosexuality to be pushed over

the top. Editorially, it was about how much interest do they show in each other and when. How many looks were exchanged? Were there enough, but not too many looks?

"You want their first get-together to be a surprise, but not totally out of the blue. All of that is about crafting performance and story arc. It also takes place over a long period; the story spans some 20 odd years.

"These characters go from being kids to being adults with kids of their own. The challenge was how to show the passage of time and go through, with a sort of shorthand,

*“ The challenge was how to show the passage of time... all of that is about crafting performance and story arc ”*

the story of the rest of their lives.”

Because of the film's relatively small budget of \$13 million, the filmmakers agreed to control costs by foregoing film prints for dailies and screenings.

Instead, all of the dailies were screened on an Avid Film Composer system, and studio-screening tapes were output to DVCam directly from the system.

The quality of the Film Composer system's on-screen images and output enabled the filmmakers to work in the meticulous detail required to create this visually striking film, which includes a range of scenes, from quiet private sequences to sweeping vistas that establish the raw beauty of the American West.

### Expansive Filmmaking

Some of the outdoor scenes required effects work to add specific visual touches to the landscape to match the storyline, for example, to enhance the shape or color of the clouds or to add hail.

The Film Composer system's ability to easily handle these effects sequences was essential.

Tichenor is quick to praise the skillful visual effects created by Buzz Image Group, using multiple Softimage XSI 3D animation workstations.

He explains: "Buzz did a tremendous amount of work - sky replacements, set extensions,

erasures. But the big thing was sheep replication: 700 sheep were on set and we needed 2,500 in some scenes."

The sounds of the American West were also vital for establishing the desired emotional backdrop for this story.

"I would say that the critical sound component of the movie for Ang was wind," says supervising sound editor Eugene Gearty of C5 in New York, who also acted as sound designer, sound editor, and re-recording mixer on the film.

"It was the most interesting, dramatic, and affecting sound that we worked with throughout the film.

"The juxtapositions in this film – from the intimacy of two people to

*Brokeback Mountain was a film that Ang wanted to make for a while*



*Brokeback Mountain was made for only \$13 million.*



the vastness of the natural landscape – were emphasised by the wind.

“We wanted to tell this story through the power of the wind? through nature’s forces.”

Gearty relied on a Digidesign Pro Tools HD system and its ability to work in 5.1 surround sound to fully develop everything from house-rattling gales to short, quick gusts.

C5 also handled Foley, ADR, dialogue editing, and pre-mixing using a variety of Digidesign Pro Tools products, including multiple Pro Tools HD and Pro Tools LE systems.

As with the Softimage XSI files that were used for 3D animation, audio files from the Pro Tools systems were easily exchanged with the Film Composer system for an easy collaborative workflow.

### **An American Classic** This poetic epic has already

received the prestigious Golden Lion Award at the 2005 Venice Film Festival, the Golden Globe for Best Drama, and numerous awards and nominations from a variety of critics’ groups.

“I’m just really proud of this movie. It meant a lot to me personally,” says Tichenor.

“I was a huge fan of the story, which I read in a Best American Short Stories collection.

“When I heard Ang was doing the film, I thought: ‘That is perfect.’ When I heard Gerri was cutting it, I thought: ‘Great, that’s perfect.’

“It was a crazy confluence of events that I ended up on this film, and it was a great experience on so many levels. Making this story into a film was a really tall order? and I think it really works.”

When Focus Features vice president of postproduction Jeff Roth first met director Ang Lee five

years ago, the two men crossed paths just as *Crouching Tiger, Hidden Dragon* was going into distribution.

“I had just been hired. At that time, I was working with Good Machine International, which eventually became Focus Features,” says Roth.

It was several years before Roth had the opportunity to work on a film with Lee, and it was a special one.

“*Brokeback Mountain* was a film that Ang wanted to make for a while. Producer James Schamus and Ang loved the story. They knew it would be challenging, but they really wanted to make this movie.”

To handle the postproduction on the film, Roth knew he needed to meet Lee’s expectations for excellence on every level.

Roth began work on the film as soon as it got the green light, reading the script and drafting a post budget based on early discussions with the director and producers.

“I like to get involved early, to understand the director’s intent for a movie - its construction and visual style,” he says.

“I also like to meet with the director of photography early on in the process and understand his working style and preferred workflow - how to handle emulsions and processing, and whether to use photochemical processes or DI.

“I like to choose all the labs, set up telecine processes, give specs to editorial about how their work and the audio will be handled, set up the editing gear.

“I need to know how everything will work downstream. I do that by doing my homework up front. I like to do it once and get it done right.”

Roth’s thorough preparation in the pre-production and postproduction stages pays off for the films at Focus Features, which are often high-quality projects with modest budgets, such as *Broken Flowers* and *The Door in the Floor*.

*Brokeback Mountain* was made for only \$13 million. “Good storytelling and good editing go hand in hand. You can fix some things in post, but it’s better if you have good building blocks,” he says.

### **Editing Decisions**

Because *Brokeback Mountain* was being edited in the greater New York area, and Lee’s long-time





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editor, Tim Squyres, had a scheduling conflict (he had just signed on to edit *Syriana*), Roth made a list of four or five local editors for Lee to meet.

When Lee met Geraldine Peroni (*The Player*, *Short Cuts*), he felt he had found the right partner.

"The director/editor relationship is so specific," says Roth.

"Editing is different than any other crew position. These two people sit together for hours on end, for days and weeks at a time.

"The editor shapes what the director shot and must see his vision. It's important that they click."

Sadly, Peroni passed away just

emotionally appealing choice as well. Lee met with Tichenor, and they hit it off.

"Dylan took over for Gerri, which was very touching," says Roth.

Overseeing as many as eight pictures a year for Focus Features, plus films for its affiliate, Rogue Pictures, Roth knows how to run a streamlined editing operation.

"We cut on Avid systems because they are tried and true," he explains.

"The Film Composer system has just been really, really stable for us. Plus, in terms of workflow,

## Getting There

With an extensive background in production, Roth ended up in a postproduction position because, he says, "I'm a geek at heart." Even as a production executive earlier in his career, Roth was often responsible for aspects of post such as working with the lab or delivering masters.

In college, he studied comparative literature and focused on film theory. While he had aspirations of being a screenwriter or director, and wrote a screenplay early in his career, his first real job in the industry was on the crew for a television show.

From there, he worked as a location scout, production manager, line producer, assistant director on music videos and commercials, and as a producer of a low-budget film.

His advice to those seeking jobs in the film industry? "Go learn production first," he says.

"You can definitely go the corporate film assistant route instead, but I think those people are less prepared. You are better off spending five years making movies before doing anything else.

"The greatest people in the business have done everything and seen every aspect of filmmaking inside and out. If you are going to work in films, you should have a full understanding of the whole process."

*“ I’m just really proud of this movie. It meant a lot to me personally ”*

as production ended, and Roth quickly reached out to agents in the New York area to assemble a new list of editors for Lee to meet.

Dylan Tichenor (*The Royal Tenenbaums*, *Magnolia*), who is typically based in LA, happened to be in New York at the time.

Roth liked his film background and credits. Tichenor had also been Peroni's assistant early in his career and viewed her as a mentor, which made him an

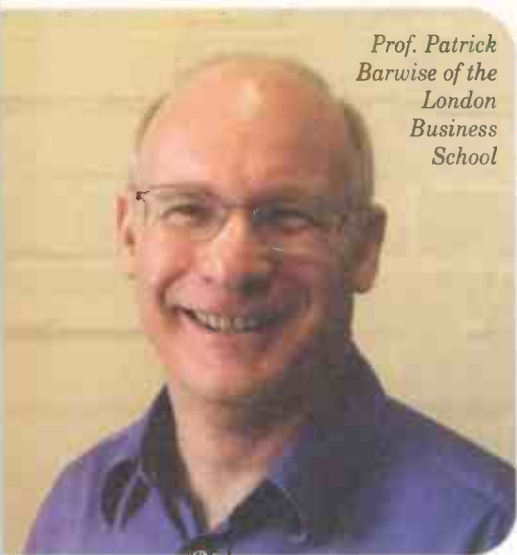
editors and assistants are really familiar with Avid systems.

"Dealing with things like list management or audio, you just know that everything is going to work. There is never a concern with the technical details.

"There's plenty of pressure when you are making a film, and I just want the editors to be able to focus on cutting. I don't want them worrying about whether their systems will work or not."



# Grade: "Public supports BBC's investments"



*Prof. Patrick Barwise of the London Business School*

**T**he BBC's licence fee bid was made public at an early stage. It was based on a costing of the Government's tasks for the Corporation, as set out in last year's Green Paper.

The bid had by that stage already been independently scrutinised and amended by the Governors – again for the first time - with their own advisers, PA Consulting.

The new BBC Charter establishes new governance arrangements for the BBC, at the core of which lies a clear separation of the new Trust from the BBC executive.

It places on the new Trust a clear responsibility to ensure that the licence fee is properly, effectively and efficiently used, and requires it to be fully accountable to those who pay it.

Grade said: "We are already proceeding on that basis. We know that the public wants a wide range of quality services from the BBC.

"We have recently received an independent report from Professor Barwise, which concludes that there is strong public support for the BBC's investment plans.

**BBC Chairman Michael Grade has said the current consideration of the BBC licence fee is by a very long way the most open and most transparent there has ever been. Grade made the opening comments at the Licence Fee Seminar in early May, chaired by Lord Burns, Government-appointed Independent Advisor on the review of the BBC's Charter.**

"The Green Paper set out ambitious tasks for the BBC. But we are very conscious that these and other objectives must be delivered at the lowest possible cost.

"While the BBC must have the means to deliver the purposes which it has been given, it is also clear that the level of the licence fee should not be seen as a badge of institutional virility."

## **Proper balance**

There is a proper balance to be struck between the public appetite for range and quality on the one hand, and on the other their efficient delivery at the lowest possible price.

In its continuing focus on value for money, the Board is continuing to exert pressure on costs, for example with regard to the proposed plan to move significant elements of the BBC from London to Manchester.

Any ways which are identified to decrease the cost of the licence fee or to improve what the BBC can offer will be welcomed by the Board.

The licence fee represents a deliberate intervention in the market. The value and benefits of that intervention are well understood, but the wider effects must always remain under scrutiny.

Grade added: "What the BBC does affects other businesses – and, I would add, not always negatively.

"We will doubtless hear a lot of commercial anxieties today, and understandable advocacy of particular interests. And there are

also those who would doubtless find life much easier with a much smaller BBC.

"But all those with legitimate concerns about the market impact of the BBC should be reassured by the White Paper's imposition of real and detailed duties on the new Trust.

## **Paper promises**

"This is not the land of paper promises: the service licences, PVTs and other tools are there to do a job, and to do it transparently.

"I should also emphasise that our duty to represent the interests of the licence fee payers is not narrowly focussed on what the BBC provides. Our remit extends to safeguarding their interest in sustaining choice in the wider market.

"The decision on the level of the licence fee is of course one for Government alone. It has a complex equation to consider, involving broadcasting aspirations, public appetites, public policy objectives, commercial impact, and value for money."

In January 2006, the Board of Governors commissioned Professor Patrick Barwise (pictured) to carry out further research to provide them with an up-to-date view of what licence fee payers think about the BBC's proposals for the next Charter period, following publication of the BBC's licence fee bid.

The Governors wanted to satisfy

themselves that they had the best understanding of licence fee payers' opinions before the final stages of the licence fee settlement process.

Furthermore, the Governors wanted to understand licence fee payers' reaction to the Government's plan to fund targeted help via the licence fee.

The report brings together, and draws conclusions from, new and earlier research. The report addresses three issues:

1. The likely reaction of licence fee payers to a licence fee rising to £150 (in 2005 pounds) in 2013/14, as proposed in the BBC's bid.

2. Licence fee payers' responses (as both consumers and citizens) to the new investment

proposals in the bid.

3. Public reactions to the Government proposal to use the licence fee to fund targeted help for vulnerable citizens during digital switchover.

The report includes a number of rather detailed recommendations about future research on, and communication to, the public.

It concludes with a brief comment on the overwhelmingly positive "bigger picture" which consistently emerges from the various research studies on specific consumer/citizen views and preferences, especially when the public is shown the practical policy options and given enough time and information to give a considered response.

In conclusion, the research demonstrates a high level of support for the BBC, its role in driving digital Britain, and most of its proposed new services, and a willingness to pay a licence fee of £150 (in 2005 prices) by 2013/14 in order to fund it.

Research on public responses to the proposed new services suggest that, in 2013/14, roughly 70-75% would be willing to pay £150/year for the combination of existing and new services.

This estimate corresponds to a five percentage point drop from today's 75-80%. With good management and resource allocation, and good communication of the BBC's offering, the reduction in support could be less than this or even eliminated.

## Recommendations

A number of recommendations arise from the analysis in this report:

1. The public's willingness to pay for the BBC should be monitored regularly, for example, every three years.

2. Prof Barwise also recommends further R&D on the measurement of public value in the following areas:

(i) Using digital technology to test people's actual, rather than claimed, willingness to forgo BBC services.

(ii) Exploring the implications of consumer psychology theory, for example reference prices, for estimating the BBC's 'consumer' public value.

(iii) Exploring the implications of recent psychological research about how the public thinks about public services and public expenditure. This research may suggest better ways to evaluate the 'citizenship' aspects of public value.

(iv) Conducting further work on the 'counterfactuals', that is, both the likely and the perceived (by respondents) situation which would occur if the respondent says s/he would not be willing to pay the licence fee or an equivalent subscription.

3. Prof Barwise recommended that the BBC conduct specific research on the minority who disapprove of it and/or say that, given the choice, they would choose not to pay the licence fee even if this meant losing all

BBC services (i) for themselves and their household or (ii) for the whole country.

4. When conducting further research for the public value tests for specific proposed new services, the BBC should ensure (preferably through hands-on demonstrations) that respondents/participants understand the service in question as well as possible, for example, which services would be delivered by television and which by broadband PC. In the case of local TV, research is needed which (a) covers areas where the service would and would not be available and (b) demonstrates the nature and quality of the content, for example, by showing material from a pilot test.

5. If the Government proceeds with the proposal for a licence fee supplement to fund targeted help, this should be communicated as simply a necessary part of digital switchover, that is, ensuring that the vulnerable are not excluded. In order to ensure that the help goes to those who need it, Barwise also suggests that research is needed to clarify who are the most vulnerable citizens in this context: doubtless many of the over 75s and severely disabled are vulnerable, but many are not, and many of the most vulnerable are neither over 75 nor severely disabled.

6. The range of the BBC's services is already much greater than a few years ago even before the

likely addition of new ones. It may be becoming too complex. At the least, the BBC must ensure that it communicates the full range clearly. It should also consider simplifying its offering. Above all, it must on no account allow its enthusiasm for new services to distract it from its primary purpose to inform, educate, and entertain by providing top-quality programmes. Compared with this, everything else pales into insignificance.

7. Having seen the results of an earlier deliberative workshop (conducted by MORI for Ofcom) and now directly observed, and closely studied the results of, the OLR citizens' forum reported here, Barwise recommends that the BBC continues to use this approach when exploring what the public thinks about issues too complex to research by simple questionnaire surveys. The participants can be recruited to be representative, unlike those who respond to public consultations or turn up for public meetings. The latter approaches are also important, especially for allowing individuals or small minorities with strongly held opinions to communicate their views. It can also be helpful for policymakers, managers, and regulators to hear people's views direct and unmediated. But it is important to check the representativeness of the views expressed via a well-designed survey or citizens' forum.

## Conclusions

Barwise concludes: "We need to remember that the BBC today operates in markets that are both competitive and extremely dynamic.

"The costs assumed in its bid need to be checked and each of its major proposals for new services will, quite rightly undergo a public value test much tougher than in the past when there was less separation between the Governors and management of the BBC.

"At the same time, given the huge uncertainties in its markets – technology, consumer preferences, competition, supply – we should not be asking the BBC for a Soviet-style plan which says exactly what it will be doing, and how it will

allocate its resources, in five or seven years' time."

There is a 'bigger picture', which emerges consistently from all research, which presents the public with realistic policy options for the BBC and requires them to think carefully about their responses.

In this 'bigger picture', the BBC is highly trusted, highly valued, and assumed to be the public's most important guide to the transition to a fully digital broadcasting world.

To play this role, it will need enough resources and enough flexibility to adapt to changes in markets, technologies, and the needs of society. Inevitably, the costly transition to digital (infrastructure, services,

communication, and probably targeted help) will require a higher licence fee for the next few years than if these costs did not arise.

Barwise continued: "My interpretation of the public's view is that most – although not all – want to see the BBC continue as one of the main pillars of British broadcasting.

"Inevitably they will often complain about perceived shortcomings in the BBC's programmes, and of course they would prefer to receive the services without paying, but when faced with the practical alternatives, most people would prefer a bigger, stronger BBC to a smaller, weaker one, despite the extra cost of a few pounds per month."

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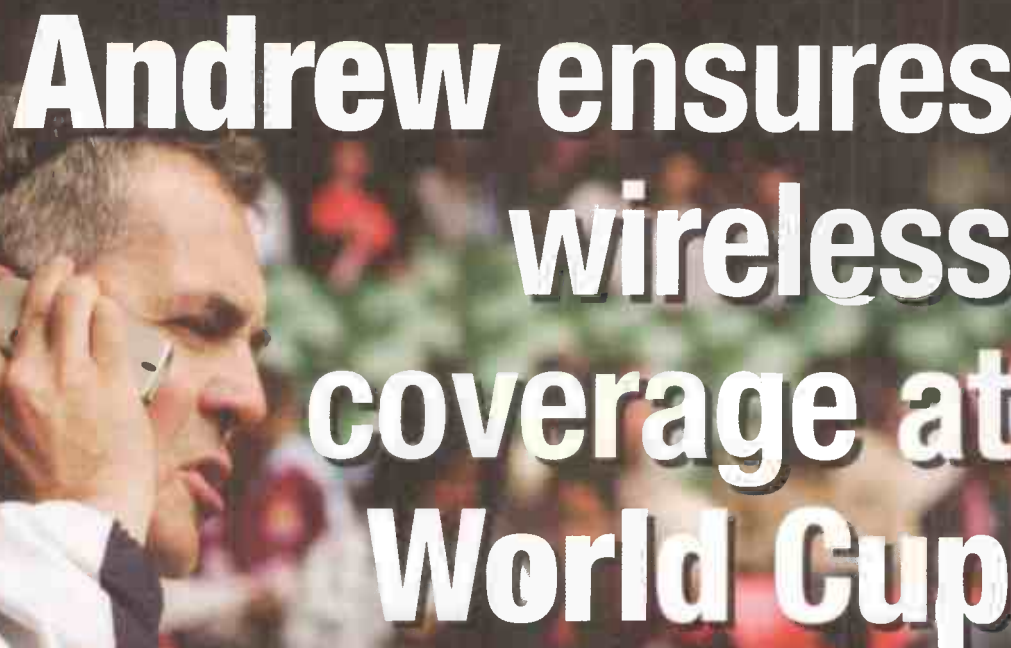
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# Andrew ensures wireless coverage at World Cup

**A wireless network has been installed by Andrew Corporation throughout most of the tournament locations at the 2006 World Cup matches in Germany.**

**M**ost German wireless operators turned to Andrew Corporation to furnish the indoor coverage and capacity distribution systems needed to support the high volume of wireless traffic expected at the month-long tournament, which began June 9 in Munich.

Andrew designed, supplied, and installed single- and multi-carrier indoor coverage and capacity systems in nine of the 12 stadiums to be used during the games and in metro rail systems in several of the German host cities.

The systems will ensure enough network capacity to enable the approximately 40,000-60,000 visitors per game to call a friend, send a text message or photo, or download highlights from other games without the risk of overloading networks and frustrating users.

"The international prestige of the World Cup requires a world-class solution to ensure that spectators and working journalists enjoy full network coverage," said Andrea Casini, vice president of Europe, Middle East, Africa sales, Andrew Corporation.

"With Andrew's support, mobile operators in Germany now can seamlessly handle huge spikes in network traffic during the matches, while their customers stay in contact with friends and family during the games, making the spectator experience that much more enjoyable."

Andrew installed wireless indoor

solutions at the following World Cup sites: Olympiastadion (Berlin), Westfalenstadion (Dortmund), Waldstadion (Frankfurt), Arena Auf Schalke (Gelsenkirchen), Fritz-Walter-Stadion (Kaiserslautern), Zentralstadion (Leipzig), Allianz Arena (Munich), Frankenstadion (Nuremberg), and Gottlieb-Daimler-Stadion (Stuttgart).

## Multi-band systems

For several metro railways in World Cup cities, such as Stuttgart, Cologne, and Hamburg, Andrew also provided optical multi-operator/multi-band systems of considerable size for distribution of wireless signals down tunnels and throughout stations, much like is done to carry signals to hard-to-reach places inside stadiums.

Andrew's ION(TM)-M distributed antenna and repeater system, the coverage and capacity distribution solution chosen by most of the wireless operators for these World Cup-related projects, supports the GSM900, GSM1800, and UMTS frequency bands.

The ION-M's flexible design and high power output resulted in easy customization to the unique spatial requirements of each stadium and railway, and success in overcoming outside signal interference.

The systems' basic architecture involves fiber optic and coaxial cables, master and remote units, and other subsystem products that receive and transmit signals from dedicated

operator base transceiver station radio equipment to customer handholds throughout the indoor facility, and vice versa.

"Andrew's indoor wireless solutions include everything from network planning and system design to equipment supply, installation, commissioning, and maintenance," said Bob Hudzik, group president, Wireless Innovations Group, Andrew Corporation.

## Signal-challenged venues

"Ensuring wireless customers get coverage in signal-challenged venues such as stadiums at international sporting events, airports and underground rail systems, or large public buildings and convention centres is one of the things Andrew does best."

Andrew offers a complete line of robust and field-proven distributed communications system solutions for difficult coverage areas, tunnels, metros, and buildings, and has more than 15 years of experience in designing, installing, and managing large and complex radio frequency distribution systems for metropolitan railways, building owners, and public mobile radio and telephone operators throughout the world.

Major projects include the Hong Kong metro, Dallas-Ft. Worth International Airport, Sydney Olympics, Montreal metro, Turin metro, and Germany's Inter-City Express high speed rail.

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105936.4	.....LOT1148	£19.00	1142.5079	.....LOT1164	£15.00	40348A-12	.....LOT2184	£16.00	OV 2076/21921	.....LOT2376	£14.00
10593640	.....LOT1148	£19.00	1142.5081	.....LOT1164	£15.00	<b>GRUNDIG</b>			OV 2076-21921	.....LOT2376	£14.00
10593640.P2	.....LOT1148	£19.00	1342.0006	.....LOT1148	£19.00	29201.029.63	.....LOT1987	£15.00	OV207621921	.....LOT2376	£14.00
106122.8	.....LOT1814	£14.00	1342.0006	.....LOT1148	£19.00	29221.029.63	.....LOT1987	£15.00	<b>HITACHI</b>		
10612280	.....LOT1814	£14.00	1342.0006	.....LOT1148	£19.00	M 29221.029.63	.....LOT1987	£15.00	BW 02862	.....LOT2374	£20.00
106552.2	.....LOT1545	£19.00	1352.5008	.....LOT1167	£12.00	<b>L.G.</b>			BW02862	.....LOT2374	£20.00
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106699	.....LOT2184	£16.00	1342.0006	.....LOT1148	£19.00	M 12-130	.....LOT2238	£15.00	FA014WJH	.....LOT2374	£20.00
10669900	.....LOT2184	£16.00	1342.0006	.....LOT1148	£19.00	M 12-133	.....LOT2238	£15.00	<b>SONY</b>		
10669900-P1	.....LOT2184	£16.00	1342.0006	.....LOT1148	£19.00	M 12-138	.....LOT2238	£15.00	1-453-308-11	.....LOT2196	£17.00
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058.434 TR 4	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	8-598-834-30	.....LOT2196	£17.00
058.834 TR 1	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	8-598-834-40	.....LOT2196	£17.00
058.834 TR 2	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	8-598-834-50	.....LOT2196	£17.00
058.834 TR 5	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	<b>THOMSON</b>		
3311159	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	105009.8	.....LOT1505	£19.00
3311167	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10500980	.....LOT1505	£19.00
3311187	.....LOT2238	£15.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10500980.P1	.....LOT1505	£19.00
3313110	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10531460	.....LOT1505	£19.00
3313110	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	105660.6	.....LOT1505	£19.00
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M 12-130	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10566060.P2	.....LOT1505	£19.00
M 12-133	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10566060	.....LOT1505	£19.00
M 12-138	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10566060	.....LOT1505	£19.00
M 12-157	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10566060	.....LOT1505	£19.00
M12130	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	105880.8	.....LOT1505	£19.00
M12133	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10588080	.....LOT1505	£19.00
M12138	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	10588080.P2	.....LOT1505	£19.00
M12157	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	15128140	.....LOT1505	£19.00
RO 682	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	15128140	.....LOT1505	£19.00
RO 685	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	153144.6	.....LOT1505	£19.00
TR 682	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	15314460	.....LOT1505	£19.00
TR 685	.....LOT2238	£14.00	1352.5006	.....LOT1814	£14.00	M12138	.....LOT2238	£15.00	1531447 A	.....LOT1505	£19.00
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			40313-16	.....LOT1814	£14.00	<b>PHILIPS</b>					
			40348-02	.....LOT1148	£19.00	21921	.....LOT2376	£14.00			
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## FOR DISPOSAL:

Quantities of new and exchange Thorn 300, 8500, Grundig, Philips modules plus a few salvage items. Also used but good A42-570X, A51JXC61X13 CRT's. London area. Contact Alan Bray on 020 8907 2920.

## WANTED:

Good working Syscon panel (numbered LIPSY1-4230V06800E) containing the LM6402A chip. Panel is for the Sanyo VTC 5000 Betamax VCR. All expenses will be met. Contact Frank: Tel 0033 5 53826267. [flvfg@ctacom.fr](mailto:flvfg@ctacom.fr)

## WANTED:

Colour televisions from 1967 to 1975. Any make: Thorn, BRC, Ferguson, HMV, Ultra, Marconiphone, GEC, Decca, Bush, Murphy, Baird, Pye, Ecko, Dynatron, ITT, Philips, Teleton. Hybrid or transistor. In any condition. Parts or service manuals also wanted. Looking in particular for BRC 2000, 3000, 3500, 4000, 8000 TVs. Can travel anywhere in UK. Please contact Wayne at 01709888854 or e-mail me at [sales@anytimeuk.fsnet.co.uk](mailto:sales@anytimeuk.fsnet.co.uk)

## FOR SALE:

Leak Stereo 20A. Point I stereo Pre Amp. Trough Line II FM Tuner. Offers. Michael Marcangelo 01946 590477.

## WANTED:

17inch CRT type A41EAM40X01 new or used. Chris Hart: [chartelectron@aol.com](mailto:chartelectron@aol.com)

## WANTED:

A remote control for a Schneider SVC-612 VCR. No remotes are available for this model anymore. If you have one please contact Tony on 01740 650536 or e-mail: [tonygill@dishcom.freeserve.co.uk](mailto:tonygill@dishcom.freeserve.co.uk)

## WANTED:

A power supply scan PCB for a Philips 28CL6770/05Z with FL1.0 chassis or does anybody know why the standby power supply blows up intermittently? Chris Hart: [chartelectron@aol.com](mailto:chartelectron@aol.com)

## WANTED:

Quad 33, 34 or 44 Pre-amplifiers, 303 or 405 Power amplifiers and FM3 or FM4 Tuners for spares. Also boards and Modules for these Units. Contact Mike on 01758 613790

## WANTED:

working scan board known as D board for Sony KV28LS60U at reasonable cost. If you can help, please call Bob on 01323 766993 or email me at [costen@freenetname.co.uk](mailto:costen@freenetname.co.uk)

# Turn your Mac into a **PVR**

**Miglia Technology has launched TVMini a USB device that allows Mac users to watch and record DVB-T programmes. Boris Sedacca plugged one in to his iMac.**

**T**VMini ships with EyeTV 2 software that lets you watch digital television on your Mac. You can change the way you watch TV with the time shift feature, allowing you to pause or rewind live television at any point.

EyeTV 2's Active Recording is constantly recording as you watch, giving you the ability to instantly replay, pause, rewind or even fast-forward (but obviously not into the future – only into material that has already been transmitted and recorded).

An integrated online TV guide, tvtv, allows you to schedule TV recordings in advance. There is no need to be sitting at your Mac to start the recording.

The built-in editor lets you edit recorded programmes to save only the parts you want to see again and leave unwanted footage like advertisements behind.

In addition, your recordings can be exported into a variety of video formats and edited with iMovie HD, FinalCut Pro/Express HD, iDVD or DVD Studio Pro.

You can also export a recording to iTunes to extract the soundtrack and play it on your MP3 player.

The tvtv guide allows you to search for shows by actor name, type (sports, comedy, action), or show title, and tell you when to catch it. With tvtv you can even schedule recordings of shows from a remote site from the Internet or a mobile phone.

TVMini includes an infrared remote control and comes with a portable TV antenna. An adaptor also lets you connect your standard roof-mounted antenna. These components are pictured above.

I first tried the portable antenna with limited success. The base of the aerial has a magnet that attaches to a suction cup, so the aerial may be mounted horizontally, on the back of your Mac for example, instead of vertically on a tabletop.

I thought this was a handy feature so I set it up horizontally. Then I started the auto-tuning, but the system did not find Channels 1 to 4, but only Channel 5 onwards.

It did find BBC1, BBC2, ITV and Channel 4, but much higher up the channel number list.

Even when I placed the portable antenna upright on my tabletop, I could not capture all the available channels.



Eventually I used the adaptor to my roof-mounted antenna, and was rewarded with a stable, crystal-clear image and reception on all channels.

## Installing EyeTV

To install the EyeTV software, insert the CD-ROM into your CD-ROM or DVD-ROM drive, and drag and drop the EyeTV application where you would like to install it. Miglia recommends your Mac's Applications folder.

When launching EyeTV for the first time, navigate to the folder where you installed the EyeTV Software and double-click the EyeTV icon.

The first time you launch EyeTV, a Setup Assistant will guide you through the complete setup and configuration of your EyeTV software, as shown in the next photo.





When you complete the Setup Assistant, the EyeTV Programs window, an EyeTV viewer window and the EyeTV Controller will appear, as shown here.

The EyeTV Viewer window displays live or pre-recorded programs on your Macintosh.



## Live Television

With EyeTV you can watch live television in several different window sizes or in full screen mode. A live television window usually appears immediately after EyeTV is started.

Live television can be manipulated (i.e. paused, instant-replayed, fast-forwarded) at any time using the Controller buttons or using commands from the Controls menu.

EyeTV supports multiple Viewer windows so you can watch live television in one window and/or multiple pre-recorded programs in other windows.

With digital television products EyeTV can play and record two or more TV channels that reside on the same transponder/multiplex simultaneously.

Digital TV channels are often subdivided into multiple sub channels. That means there could be multiple channels of related content available, instead of just one.

For example, a network like NBC could have a channel for regular content, and a separate channel for 24-hour weather.

With this new feature, you can watch both the NBC weather channel and NBC regular channel at the same time.

Multiplex is a collection of digital TV channels that are broadcast on the same frequency; therefore a device with a single tuner can receive all of them at the same time.

A DVB-T or ATSC multiplex usually contains between three and five standard definition TV channels, or one high definition (HDTV) and one standard definition channel. Cable and Satellite multiplexes/transponders can contain 10 or more channels.

To open an additional live TV window, hold down the Control key while selecting Open Live TV Window from the File menu.

You can open as many additional windows as you like, but two or three are a practical upper limit on most machines.

All live TV windows can be paused, time shifted, recorded, etc. independent of each other. Since there is only one tuner, changing any window to a channel on a different multiplex will change all other open windows to channels on the new multiplex.

## Digital multifeeds

EyeTV software supports Multifeed. Multifeeds are sub-channels that can be accessed from a portal channel. If your provider offers multifeeds and you have a subscription and/or a smartcards that entitles you to receive these channels you can use the onscreen remote to open the portal channel and then access the multifeed sub-channel by choosing View > Multifeed.

Please note that providers tend to change the location of multifeed channels, which might require a fresh Auto Tune from time to time. Scheduling recordings on these channels is not supported. Recordings need to be started manually.

EyeTV will automatically try to choose the correct aspect ratio. Typical TV has a 4:3 ratio, while a few

widescreen formats also exist. Choices are 4:3, 14:9, 16:9 and Wide. Some ratios may visibly remove part of the image to make it fit that shape without otherwise stretching or distorting the picture.

You can adjust how the Viewer Window presents video by selecting Display Option from the View menu. You can control the overscan and interlacing, which can improve the image quality of the viewer window.

For all EyeTV models that support the PAL broadcast standard, EyeTV has subtitling support via Teletext pages. To access subtitles, go to View - Teletext and use the keypad to navigate to the Teletext page that contains the subtitles for the current channel. You can also invoke the Teletext display by using the coloured keys on the hardware remote control.

## DVB Subtitles

EyeTV can display DVB-based subtitles, as shown in the photo below. To access them, go to View - Subtitles. You can show subtitles, and select a particular track, if multiple tracks are present.



## Overlay Window

Information about the current program is displayed in an overlay window as shown in the next photo. This window is displayed automatically on every channel change, and can also be invoked by pressing either Command-I on the keyboard, or the OK button on the EyeTV infrared control.



Pressing the return key on the keyboard forces it to display for a few seconds. You can control how long it will display, by using the General Preferences ("Display program information after channel changes").

The amount of information available varies. Full information (program title, start, duration, rating, genre, next program) is typically available for digital broadcasts.

Generally the amount of information available depends on the broadcaster. EyeTV uses all sources available in a broadcast (XDS, Teletext, DVB event information, ATSC PSIP).

## Programs Window

The EyeTV Programs window is organized into a number of sections, accessible from the Categories column on the left. Recordings, Schedules, Channels and Program Guide are the default sections, and Favourites and Playlists can also be added to the Categories column.

At the bottom left corner of the Programs Window there is a button with a + sign as shown in the next photo. Use that to add a Playlist or Favorite Channels list. You can also add those items from the File menu, with New Playlist or New Favorite Channels.

Each time you record something using EyeTV, a new entry will be added to the list in the Recordings section of the EyeTV Programs window.

While watching live TV, pressing the record button on the remote starts a recording, and a new recording is automatically added to the EyeTV Programs window.

By default, the manually started recording's duration is set to 180 minutes. If you want to record a longer program, call up the Info window, and adjust the desired length there.



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Bush 2038TSIL (Beko chassis)

JMB 66W (Vestell11AK19 chassis)

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Daewoo Model DTY21B4GB incorporating chassis CP520

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Daewoo Model DUB2850 incorporating chassis CP780

Daewoo Model DSC3210EGB incorporating  
SC140 chassis

Daewoo COMBI CTV/DVD Model DDT21H9S incorporating  
CP093 chassis

Daewoo COMBI CTV/CTV Model DDT21H9S incorporating  
CP093 chassis

Daewoo DVD/VCR Recorder Model DF4150P

Daewoo DVD/VCR Recorder Model DF4150P

Daewoo DVD/VCR Recorder Model DF4150P

Daewoo DVD Recorder Model DR2100P

Daewoo DVD Recorder Model DR2100P

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Firstline FL2801STS-N (11AK19 P5 chassis)

Daewoo 2594ST

Goodmans GTV66W1

Daewoo DWF 2881

Schneider STV 2803T

Philips 32PW9576/05R 32" Television  
(1EAA chassis)

LG RZ15LA32

Akura CX10

Toshiba 48" Rear Projection set Model  
CTV48PJ6DB (C5SS chassis)

Philips 21PT1666/05 (LO12EAA chassis)

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# 2006 TV/VCR SPARES GUIDE

THE FOLLOWING LIST GIVES SPARES DEPARTMENT ADDRESSES AND TELEPHONE NUMBERS OR, WHERE THESE ARE THE SAME, SERVICE DEPARTMENT OR HEAD OFFICE ADDRESSES AND TELEPHONE NUMBERS. ALSO INCLUDED ARE DETAILS OF VARIOUS SPARES DISTRIBUTORS. STOCKS OF SPARES MAY NO LONGER BE AVAILABLE FOR DEFUNCT BRANDS.

## **Aiwa Business Division**

See Sony. Dealer spares:  
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Fax 0870 1699 603.  
email:  
rosemary.small@eu.aiwa.com  
Account holders only.  
See also CPC, KSA Wholesale Components, and Seme and Willow Vale.

**Akai** See Charles Hyde and SEME.

**Akura** See Iain Stewart and Wiltsgrove.

**Alba Radio Ltd.**, 12  
Thames Road, Barking, Essex  
IG11 0HZ. Spares for Alba,  
Bush, Roadstar and some  
Goodmans and Hinari mod-  
els. Some Brother microwave,  
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Fax 020 8787 3010.  
See also CPC, SEME and  
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**Amstrad Spares** handled  
by CPC. See also Willow Vale  
and SEME.

**A.R.D. Electronics Plc.**,  
Unit 12B, Metcalf Drive,  
Altham Business Park,  
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Lancashire BB5 5TU  
Tel 08706 006686  
Fax 08706 006687  
email:  
sales@ardelectronics.com

**Beko Plc.**, Beko House,  
36/38 Caxton Way, Watford  
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WD 8QZ.

Tel 0870 774 1059  
Fax 0870 774 1090.  
email:spares@beko.co.uk  
See also Seme.

**Bang and Olufsen UK  
Ltd.**, 630 Wharfedale Road,  
Winnersh, Berks RG41 5TP.  
Tel 0118 969 2288  
Fax 0118 969 3388.

**Binatone Telecom plc.**,  
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Estate, East Duck, Lees Lane,  
Enfield EN3 7SP.  
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Fax 020 8344 8877.  
Trade only.

**Black Diamond** See SEME

**Bush** See Alba Radio Ltd.  
Also CPC, SEME and  
Willow Vale.

**Canon Consumer  
Imaging Service  
Centre**, Unit 130 Centennial  
Park, Elstree WD6 3SE.  
Tel 0870 241 2161  
Fax 020 8731 4139.  
www.canon.co.uk/service

**Comet Accessories**  
Direct PO Box 92, Preston  
PR2 9GY.  
Tel 08706 052 020  
Fax 01772 664 835.  
email:  
accessoriesdirect@cpc.co.uk

**CPC Plc.**, Component  
House, Faraday Drive,  
Fulwood,  
Preston, Lancs PR2 9PP.  
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Fax 08701 20 25 31.  
email:sales@cpc.co.uk

online:www.cpc.co.uk  
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for AEG, Aiwa, Alba,  
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Technics, Technogas,  
Technolec, Thomson,  
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and Zanussi

**Crown Spares** available  
from Key Electronics. See also  
SEME.

**Daewoo Electronic  
Sales UK Ltd.**, Daewoo  
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Road, Winnersh Triangle,  
Wokingham, Berks RG41 5TP.  
Tel 01189 252 577  
Fax 01189 252 532.  
Note: Daewoo brand prod-  
ucts only, not OEM products.

For the latter, refer to the  
original distributor. Account  
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**Decca See Tatung (UK)  
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**Denon Spares** available  
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Fax 01753 880019

**Elftone Electronics  
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Wembley, Middx HA0 1YZ.  
Tel 020 8902 6222  
Fax 020 8903 5011.  
email: enquiry@elftone.com

**Etron** Brand name used by  
Nikkai Imports Ltd.

**Eurosat** Distribution Ltd, 5,  
Oxgate Centre, Oxgate Lane,  
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Tel 020 8452 6699  
Fax 020 8452 6777.  
www.eurosat.com  
email: sales@eurosat.com

**Expert** Sets use Tatung,  
GEC, or Luxor chassis.

**Ferguson** Spares available  
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Unit 1, Zone D Chelmsford  
Road Industrial Estate, Great  
Dunmow, Essex CM6 1XG.  
Tel 08450 902 004  
email: spares@thomson.net  
See also CPC, Charles Hyde,  
SEME and Wizard.

# TV/VCR SPARES GUIDE

**Fidelity** Spares available from CPC and HRS.

**Finlandia** See SEME.

**Finlux** Spares available from GenServe Ltd

**Fisher** Spares available from Sanyo Europe, Sanyo House, Otterspool Way, Watford, Herts. WD2 8JX.  
Tel 01923 477 350  
Fax 01923 477 156  
See also SEME

**Fullers Ltd**, Technical Centre, Riverside View, Wickham Market, Suffolk, IP13 0TA  
Tel 01728 746500  
Fax 01728 746900  
email: spares@kenwoodspares.co.uk  
See also CPC, KSA.

**Fujitsu General**, Unit 150 Centennial Park, Centennial Avenue, Elstree, Herts WD6 3SG.  
Tel 020 8731 3450  
Fax 020 8731 3451  
email: ann.north@fujitsugeneral.co.uk  
www.fujitsugeneral.co.uk

**GEC** Spares available from HRS and SEME.

General See Fujitsu General.

**GenServe Ltd**, 11 Caen View, Rushy Platt, Swindon SN5 8WQ.  
Service 01793 886 333  
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Spares available for Finlux, I TT, Nokia, Luxor, Salora and Skantic.  
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email: info@genseve.co.uk  
www.genseve.co.uk

**GoldStar** See LG Electronics UK Ltd. Also A.R.D, CPC, Charles Hyde and Seme and Willow Vale.

**Goodmans** See Alba Radio Ltd. or Comet Group plc. depending on model. Also CPC.

**Grundig** Spares available from Charles Hyde. Spares for VCR4000 and SVR4004 ranges available only from Willow Vale.

**Harwood** Spares available from Key Electronics.

**Hinari** Spares available from CPC, SEME and Wiltsgrove.

**Hitachi** See Charles Hyde, CPC, HRS, SEME and Willow Vale.

**HMV** Sets use Ferguson or Fidelity chassis.

**HRS Electronics Ltd.**, Medco House, Connect Business Park, Bordesley Green Road, Birmingham, B9 4UA.  
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Fax 0121 766 7274.  
email: mailorder@connect-distribution.co.uk  
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email: im.stewart@ntlworld.com

**ITT** See Genserve

**JVC (UK) Ltd.**, JVC House, JVC Business Park, Priestley Way, Staples Corner, London NW2 7BA.  
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Fax 020 8452 5415.  
email: accessories@jvc.co.uk  
Account holders only.  
See also CPC, Chas Hyde and Willow Vale.

**Konica** Plane Tree Crescent, Feltham, Middx TW13 7HD.  
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Fax 020 8755 0681.

**KSA** 582 Green Lane, Small Heath, Birmingham B9 5QG.  
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**Lloytron plc**, Laltex House, Leigh Commerce Park, Greenfold Way, Leigh, Lancashire WN7 3XH.  
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Fax 01942 687 070  
email: mail@laltex.com

**Logik** Brand name used by Dixons. Spares available from Partmaster, CPC, HRS and SEME.

**Loewe** Spares available from Wizard.

**Luxor** Spares available from GenServe Ltd.

**Manhattan**, Eurosat Distribution Ltd., OXgate Lane, London NW2 7JA.  
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Fax 020 8452 6777.

**Marantz Hi Fi UK Ltd.**, Kingsbridge House, Padbury Oaks, 575/583 Bath Road, Longford, Middx UB7 0EH.  
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Fax 01753 680 428.  
See also Charles Hyde.

**Matsui** Brand name used by Currys and Dixons. Spares available from Partmaster. Also CPC, Charles Hyde and SEME.

**Mitsubishi** Spares available SEME and Willow Vale.

**Morphy Richards** Spares available from Roberts Radio Technical Services (R&M Technical Services).

**Naiko UK Ltd**, Naiko House, Spear Fir, Bardsey, Leeds, LS17 9EA.  
Tel 0193 757 9888



**NEI** See Iain Stewart.

**Nikkai** Spares available from HRS, Iain Stewart, Key Electronics.

**Nokia** Spares available from GenServe Ltd. and Charles Hyde.

**NordMende** Spares available from Thomson Multimedia.

**Orion** See CPC and Charles Hyde.

**Pace Micro Technology plc**, Victoria Road, Saltaire, Shipley, West Yorkshire, BD18 3LF.  
Tel 01274 532000  
Fax 01274 537128  
email: eesa.bismillah@pace.co.uk  
www.pace.co.uk  
Spares also available from SEME, Eurosat, HRS, and CPC.

**Panasonic (UK) Ltd.**, Panasonic House, Willoughby Road, Bracknell, Berks RG12 8FP.  
Tel 01344 860 133  
Fax 01344 861 598.  
See also Charles Hyde and SEME Ltd.  
email: spares@panasonic.co.uk

**Partmaster Direct**, PO Box 1924, Sheffield S2 5XX  
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Fax 0870 909 0333.  
www.partmaster.co.uk  
email: sales@partmaster.co.uk  
Spares for Dixons/Currys ranges – Matsui, Link, Logik, Prinz, Saisho – and Sanyo. Most manufacturers parts available.

**Philips Consumer Electronics** Philips Centre, Guilford Business Park, Guilford, Surrey GU2 8XH  
Tel 01483 293 439  
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email: cespareuk.help@philips.com  
Account holders only supplied.

See also CPC, HRS, Chas Hyde, KSA, Willow Vale and Wizard.

**Pioneer (GB) Ltd**, Pioneer House, Hollybush Hill, Stoke Poges, Slough SL2 4QP.  
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Fax 01753 789 534.  
Account Holders only.  
See also CPC, KSA and SEME.

**Prinz** Brand name used by Dixons. See Partmaster.

**Proline** Brand name used by Comet Group plc.

**Pye** See Philips Consumer Electronics. Also CPC, HRS and SEME.

**Roberts Radio Technical Services**  
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Fax 020 82329739  
Helpline 020 8758 0338.  
email: spares@robertsts.com

**Roadstar** See Alba. Also CPC and SEME.

**Saisho** Brand name used by Dixons. See Partmaster, CPC, HRS, Charles Hyde, SEME and Willow Vale.

**Salora** Spares available from GenServe Ltd.

**Samsung Euro Service Centre**, Unit A, Stafford Park 12, Telford Shropshire TF3 3BJ.  
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Fax 01952 293 459 (spares only).  
Also CPC, Charles Hyde, KSA, Willow Vale and Wizard.  
Agents in Ireland Don Berg Electronics Ltd., School Masters House, Ranafast, Co Donegal, Eire.  
Tel 00 353 754 8275  
Fax 00 353 757 1031.

**Sanyo Europe**, Sanyo House, Colonial Way, Watford, Herts WD24 4PT.  
Tel 01923 477 350  
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www.sanyo.co.uk  
See also Chas Hyde & Sons Ltd.

**Schneider** Spares available from SEME.

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**Sharp** Spares available from A.R.D. Electronics, CPC, Charles Hyde, HRS, SEME Willow Vale, and Wizard.

**Siemens** Spares available from Appliance Care Limited, Unit F4, Ballymount Drive, Ballymount Road Industrial Estate, Walkinstown, Dublin 12.  
Tel 00353 145 02655  
Fax 00353145 02520.

**Skantic** Spares available from GenServe Ltd.

**Sony UK Ltd.**, Spares Division, PO Box 58, Newbury, Berks RG13 9LQ.

Tel 01635 861 133  
Fax 01635 874 099.  
Sony and Aiwa account holders only. See also CPC, Charles Hyde, SEME and Willow Vale.

**Ssanyong** Spares available from Key Electronics.

**Steepletone Products Ltd.**, Park End Works, Croughton, Northants NN13 5RD.  
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Fax 01869 810 784.

**Tascam** See Charles Hyde.

**Tatung (UK) Ltd.**, Service Division, Stafford Park 10, Telford, Shropshire TF3 3WF.  
Tel 01952 290 111  
Fax 01952 292 096.  
Dealers only. Non-account holders should contact Wizard or www.service-bridge.co.uk.

**Teac** See Charles Hyde.

**Technics** See Panasonic and SEME.

**Telefunken** Spares available from Thomson Multimedia (see Ferguson).

**Teleton** See Fujitsu General.

**Textet** Spares available from The Hira Co, Ltd.

**Thomson** see Ferguson. Also CPC, Charles Hyde and SEME.

**Thorn** brand equipment. Spares available from Wilts Grove and SEME.

**Toshiba** European Service Centre, Units 6/7 Admiralty Way, Southern Trading Centre, Camberley, Surrey GU15 3DT.  
Tel 01276-694 000  
Fax 01276-600 521.  
www.toshiba.co.uk  
See also SEME.

**Trical** Brand name used by Hinari Consumer Products Ltd.

# TV/VCR SPARES GUIDE

**Trio** See Kenwood Electronics.

**Wharfedale** See Wiltsgrove.

**Willow Vale Electronics Ltd.**, Connect Business Park, Bordesley Green Road, Birmingham B9 4UA. Tel 0870 6000 271 Fax 0870 6000 272. email sales@willowvale.co.uk Web www.willowvale.co.uk Appointed spares distributor for JVC and Sharp. Spares distributor for Alba, Amstrad, Aiwa, Bush,

Grundig, Hitachi, LG, Mitsubishi, Pace, Panasonic, Philips, Saisho, Samsung, Sony, Tatung, Thomson, Toshiba. Distributor for Altai, Antex, AWI, Classic, Electrotube, ERL, Hameg, Kamasa, Labgear, MBO, Mercury Telecraft, One for All, Philex, Portasol, Servisol, Treston, TTI, Uniross, Vogels, Wavetek, Weller, and many others.

**Wiltsgrove Ltd.**, 35-38 River Street, Digbeth, Birmingham B5 5SA. Tel 0121 772 2733 Fax 0121 766 6100.

email: sales@wiltsgrove.co.uk Official distributor for Antex, CME, HR Diemen Transformers, One for all Remotes, Philex, Ruwido Remotes and Thorn. Spares also stocked for Aiwa, Akura, Alba, Amstrad, Beko, Bush, Daewoo, Decca, Ferguson, Fidelity, Finlux, Goodmans, Granada, Grundig, Hinari, Hitachi, Hyundai, JVC, Kenwood, LG, Matsui, Orion, Panasonic, Philips, Proline, Roadstar, Saisho, Samsung, Sansui, Sanyo, Schneider, Sharp, Sony, Tatung, Thomson, Toshiba, Wharfedale.

**Wizard Distributors**, 78 Warrington Road, Statham, Lymm, Cheshire, WA13 9BT. Tel 01925 759627 Fax 01925 754276 email: sales@wizard-distributors.co.uk Website: www.wizard-distributors.co.uk Sole authorised distributor for Tatung/Decca. Approved distributor for Ambersil, Antex, Classic, Mercury, Servisol and Sharp and B-Tech.

**Yamaha** Spares from Charles Hyde.

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**Cricklewood Electronics** 40-42 Cricklewood Broadway, London NW2 3ET. Tel 020 8452 0161 Fax 020 8208 1441. www.cricklewoodelectronics.co.uk

**Economic Devices**, PO Box 73, Oakengates, Telford, TF2 8WR. Tel 01952 273130 Fax 01952 405478. e-mail: john@telepart.co.uk

**East London Components**, 63 Plashet Grove, East Ham, London E6 1AD. Tel 020 8472 4871 Fax 020 8503 5926.

**Electromail**, PO Box 33, Corby, Northants NN17 9EL. Tel 01536 204555 Fax 01536 405 555.

**Electrovalue Ltd.**, Unit 5, Beta Way, Thorpe Ind. Park, Egham, Surrey TW20 8RE. Tel 01784 433 604 Fax 01784 433 605.

**Express Tubes**, The Mill, Mill Lane, Rugeley, Staffs WS15 2JW. CRTs only supplied Tel 01889 577 600 Fax 01889 575 600.

**Farnell Electronic Components**, Canal Road, Leeds LS12 2TU. Tel 0870 1200 200 Fax 0870 1200 201.

**Grandata Ltd.**, KP House, Unit 15, Pop In Commercial Centre, Southway, Wembley, Middx HA9 0HB. Tel 020 8900 2329 Fax 020 8903 6126. e-mail:sales@grandata.co.uk

**J.W. Hardy**, 231 Station Road, Stechford, Birmingham B33 8BB. Tel 0121 784 8478 Fax 0121 789 7931.

**Irwin Electronics**, Unit 200, JC Albyn Complex, Burton Road, Sheffield S3 8BX. Tel 0114 2838534 Fax 0114 2838535

**W1 Broadcast S** 5 Whitfield Street, London W1T 2SA. Tel 020 7323 2107 Fax 0870 0662898

Manor Supplies, 9 Whitchurch Parade, Whitchurch Lane, Edgware, Middx HA8 6LR. Tel 020 8952 8808 Fax 020 8952 8809.

**Maplin Electronics**, Freepost NEA9433, Barnsley S73 0BR. Tel 0870 429 6000 Fax 0870 429 6001. e-mail: sales@maplin.co.uk Website: www.maplin.co.uk

**MCES**, 15 Lostock Road, Davyhulme, Manchester M41 0ES. Tel 0161 746 8037 Fax 0161 746 8136. Email: sales@mces.co.uk www.mces.co.uk

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**Nikko Electronics**, 358 Kingston Road, Ewell, Surrey KT19 0DT. Tel 020 8393 7774 Fax 020 83937395.

**Philex Electronic Ltd.**, Philex House, Kingfisher Wharf, London Road, Bedford MK42 0NX. Tel 01234 263 700 Fax 01234 267 400. email: sales@philex.com

**RS Components**, PO Box 99, Corby, Northants NN17 9RS. Tel 0845 8509911 Fax 01536 201 501

**TW Electronics (Newbury) Ltd.**, Beacon House, Harts Lane, Burghclere, Newbury, Berks, RG20 9JZ. Tel 01635 278 678 Fax 01635 278 266.

**Vista Electronics**, Unit 2, Wingate Grange Industrial Estate, Wingate, Co. Durham TS28 5AH. Tubes:Tel 01429 837 100 Components: 01429 838 057. Fax 01429 837 101.



# Elderly people

## "happy with digital TV"

**N**inety eight per cent of participants felt watching digital TV was better or the same as watching analogue and 93 per cent thought the process of switching to digital TV had been easy.

The trial also highlighted the importance of support from family and friends in installing and using the equipment and the need to give older and disabled people time to adapt to using new television equipment.

But in response to the results of the nine-month trial, Steve Winyard, RNIB's Head of Campaigns, said: "We urge the Government to seize this opportunity to get switchover right for blind and partially sighted people.

"This means extending their targeted help automatically to registered partially sighted people as well as blind.

"We very much welcome the report's support for our long held view that blind and partially sighted people require digital TV equipment that meets their needs and the report's assertion that audio description is a key benefit.

### Paltry

"The Government should therefore increase the current paltry 10 per cent audio description target to at least 20 per cent and get Ofcom to deliver on their duty to make equipment accessible to people with sight loss - including audio output on EPGs."

The Bolton trial, which started in July 2005, tested the process for supporting vulnerable consumers through switchover, assessing the costs and identifying and addressing any issues arising.

Over 400 households took part in the trial, all in the Hulton ward of Bolton. Reflecting the groups to be covered by the national scheme, each trial household was home to at least one person aged 75 or over or one person with significant disabilities.

The results of the trial, run jointly

**The vast majority of older people in a digital television trial thought switching over was easy and liked watching digital television, according to a report published by Broadcasting Minister Shaun Woodward.**

by the Department for Culture, Media and Sport (DCMS) and the BBC, also show that:

- 69 per cent of participants were able to install equipment themselves or with the help of friends and family.
- Once their equipment was installed, 67 per cent said they most liked the extra channels, whilst 20 per cent most liked the improved reception.
- 92 per cent found the specially prepared and clearly written instruction booklet helpful.
- Older and disabled people need time to adapt to using new equipment - after four weeks, 74 per cent of people were reporting problems with their equipment but more than 80 per cent reported no problems with equipment just four weeks later.

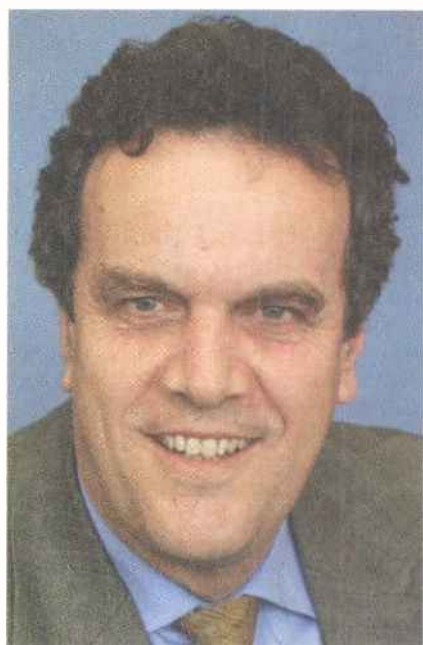
### People like it

Broadcasting Minister Shaun Woodward said: "Seventy per cent of UK homes now have digital television, so we know it's a product people want. And now we know they like it.

"The Bolton trial reveals that people who may need extra help making the switch become as keen on digital television as anyone else, once they have it.

"Ninety eight per cent felt it was an improvement on or as good as analogue viewing. The findings of this trial add further encouragement as we move towards switchover.

"It will be used in our work with the BBC to establish a nationwide targeted assistance scheme, ensuring that no one is left behind when we move to digital only television



Winyard: "We urge the Government to seize this opportunity."

between 2008 and 2012.

"As intended, the trial has highlighted the areas we need to look at closely as we prepare for the scheme, such as the important role that families, friends and volunteers will play.

"Bolton has also shown that vulnerable consumers need equipment that is easy to use and has clear instructions. So we will need to consider carefully what equipment is given to older people and those with disabilities under the nationwide scheme.

"I urge manufacturers of digital television products to consider the needs of vulnerable consumers in developing equipment."

# Carrier Ethernet hastens IPTV

**The telecommunications industry is undergoing upheaval - on one hand many subscribers now use a wireless phone as their primary phone, on the other many have defected to the cable companies for their voice services. As a result, the number of households with landline phones is decreasing, reveals Paul Indoo of Nortel (pictured).**

**T**raditional wire line services are now considered to be a commodity and are suffering from price erosion.

Telephone service providers are responding to these pressures by bundling voice, Internet and entertainment like television, music and gaming services together as a 'triple-play' service.

The belief is that by offering residential customers an innovative broadband service the Average Revenue Per User (ARPU) will increase and customer churn decrease because users are no longer subscribed to a simple voice service.

Virtually every service provider believes that this triple-play is vital to future success and as a result it has become the hot topic in telecommunications.

Central to the success of these triple-play deployments is Internet Protocol Television (IPTV). Gartner Dataquest forecasts that the number of IPTV subscribers in Western Europe will grow to 16.7 million by 2010.

IPTV provides customers with the broadcast television, premium channels and Pay Per View (PPV) services that they would expect from their cable or satellite provider.

In addition service providers can create further value for their customers by combining the delivery of TV with IP data and telephony services.

For example customers can view and respond to email using the television as a monitor, display information about an incoming call on their TV screen and - if they want to take the call - can automatically record the programme they are watching.

The IPTV service can also be personalised to suit, determining the multimedia content that they access and how they interact with other users while accessing this content.



It is this flexibility that is the real differentiator helping service providers to respond to today's competitive threats.

## Infrastructure

Delivering all three services (voice, data and video) over a single connection requires a high bandwidth access network.

In general 20 Mbps per residential household is considered the minimum required to offer triple-play services, but the current broadband infrastructure supports only 1-2 Mbps to each home.

Metropolitan aggregation and core networks also need additional capacity, to cope with the explosion in bandwidth requirements.

To provide additional bandwidth capacity, service providers have turned their attention to Carrier Ethernet, a term that has emerged in the last 12 months to describe technologies that extend the performance and reach of Ethernet from the LAN (Local Area Network) into the WAN (Wide Area Network).

The main reason service providers

are interested in this is cost. Ethernet is the dominant networking protocol in the LAN.

Almost every computer or networked device in the home or office has an Ethernet port, and as a result of its ubiquity Ethernet has experienced significant cost reductions.

This means that Ethernet is a more cost-effective networking technology than traditional WAN protocols (e.g. ATM, Frame Relay).

But it is not just the cost benefits that attract service providers; Ethernet is also very flexible because it allows bandwidth to be increased in increments of 1 Mbps up to 10 Gbps.

These increments enable customers to match the size of their bandwidth subscription to their requirements, instead of settling for fixed bandwidth pipes such as 2 Mbps and 34 Mbps that resulted in oversubscription.

Carrier Ethernet allows enterprises to transparently integrate their LANs in different locations across a national or international network using native Ethernet, removing the requirement to translate Ethernet into an alternative Layer-2 protocol (e.g. ATM).

Not only does this remove an additional element of cost and complexity from the network, but protocol translation can introduce jitter and delay to the network, which can badly affect performance of real-time applications like IPTV and Voice over IP (VoIP).

This means that Carrier Ethernet is better suited to supporting the roll out of IPTV services.

Because Ethernet is so widely used, it is well understood and that means that the network is easy to operate and manage, allowing service providers and customers to address their operational expenditure.

## Challenges

While service providers are convinced of the advantages of using Ethernet in the WAN, they are aware that the new network must achieve the same levels of performance as existing Frame Relay and ATM networks.

In other words Ethernet has to be carrier-grade. This means that Ethernet must match the scalability and reliability of existing networks, services must support Hard Quality of Service (QoS), service providers must have access to the comprehensive service management tools and the network must support legacy services for existing customers.

Figure 1 summarises these carrier-grade Ethernet attributes as defined



a reserve programme feed to London.

All vision and audio signals, whether from the host broadcaster or from a BBC Outside Broadcasts' unit, are delivered initially to the BBC area in the IBC in Munich.

A selection of these signals can be routed either to Berlin, or directly to London. Commentaries from all matches will be adjusted in the BBC area in the IBC and sent with the appropriate match pictures to Berlin or London.

The main feeds will be transferred between Berlin and Munich and Munich and London via fibre, with some satellite back up.

The Munich-Berlin fibre capacity comprises an STM-4 with 600 mbps capacity. This carries all HD/SD vision and audio circuits, together with communications, telephones and a large IT WAN.

The Munich to London circuits comprise two STM-1s (300 mbps) on fibre, with a satellite backup from Link 21.

Given the size of the country, it is not feasible to travel to every ground, every day, especially with three or four games on many days.

For live matches where a BBC Outside Broadcasts unit is not used, match feeds will be mixed with studio presentation in Berlin and sent back to Munich to be passed on to London.

When a venue studio is used in conjunction with a BBC Outside Broadcasts unit, the output will be sent directly from Munich to London. To cut down on the number of technical processes involved, however it will be sent to Berlin for monitoring.

### High bit-rate

Transferring media between the Munich and Berlin sites and back to London for playout is very complex, particularly because of the HD signals. The HD signals carry a lot of encoding and decoding, so a high bit-rate is needed, which in turn requires a high-bandwidth to support transmission.

The HD aspect generates other problems too. There is very high demand for HD equipment, as other big sporting events, such as Wimbledon, are also being captured in HD this summer. Some HD equipment is tough to procure.

BBC Post Production, part of BBC Resources, is supporting BBC Sport with VT and editing

equipment, editors and assistant editors.

The majority of the programmes will be edited in the IBC in Munich, where BBC Post Production will turn-around highlights inter-cut with footage from Berlin.

### Avid editing

There will be a smaller LSM and Avid editing operation in Berlin, which will provide the studio with HD and SD inserts and analysis.

There will also be a Piero analysis operation working in HD. Piero is a simulated sports field system, which enable viewers to see 'play' from angles that cannot be captured by conventional cameras. Piero is also being used on Unit 10.

The host broadcaster is providing connection to a large media server system in Munich, on which will be loaded many individual sources and feeds not seen in their match mix, such as extra player and bench feeds.

This will give BBC Sport access to match coverage, supplementary feeds and unseen match material.

### Tapeless System

Three 'On the Road' BBC Post Production crews will use the Panasonic P2 Tapeless system and Avid Newscutter Xpress laptops to edit on the road.

Building on the successful trials at the Winter Olympics 2006 in Turin, BBC Post Production chose to adopt the P2 system for BBC Sport.

Coverage will be captured at the

matches and team training by several AJ-SPX900 P2 Camcorders working at a DVCPRO 50 data rate.

To complement the P2 Camcorder a P2 store (AJPCS60) system is being used for field storage. The footage will then be ingested four times faster than real time and edited in an Avid Mobile NLE Edit System.

P2 ingest is via the AJ PCD10 P2Card reader directly in to the Edit System. Footage and edits will be played out live from the AJ-SPX900 P2 Camcorders via SDI into the BBC feed.

BBC Post Production, in partnership with Siemens Business Services, has transferred HD media between BBC sites for the first time without the need for dedicated HD circuits.

Utilising a combination of Avid DNxHD compression, the existing SD infrastructure inside each building and new fibre connectivity between Bristol Broadcasting House and London Television Centre provided by Siemens Business Services, HD material was moved between BBC Post Production's Bristol machine room and London eQ Suite.

Avid DNxchange compression technology reduces high bandwidth HD-SDI down to an SDTI bit stream capable of being carried by existing SDI circuits.

### Native HD infrastructure

Decoding back to HD-SDI allows the HD signal to re-enter the native HD infrastructure that supports BBC Post

*BBC Resources is converting the fourth floor of the Akademie der Kunst into a custom-built presentation studio.*





An inside shot of the studio being constructed.

Production's HD production village at Television Centre.

In a further step, the raw DNxchange bit stream was routed via Avid AirSpeed into one of BBC Post Production's Avid Unity/Avid Media Composer Adrenaline systems.

Using the Frame Chasing ability of the system it was then possible to start editing the incoming HD material within seconds of its arrival.

The experiments carry significant implications for future HD tapeless workflows and may form the foundations of a practical method of moving HD between sites at short notice in the immediate future.

Clive Hodge, Head of Operations BBC Post Production, says: "By pushing the boundaries of the existing technology, we have demonstrated a method to enable content creators to rapidly transfer

HD media for effective working.

"DNxHD is one of a number of compression technologies available. However our familiarity with it as part of the post production process is an advantage as is the compatibility with some of our existing HD editing systems.

"The fact it utilises the current SD infrastructure, without the need for expensive HD lines, means that it is cost effective too."

## The Year London Blew Up

BBC Post Production Editor Paul Binns, has been nominated for this year's British Academy Television Craft Awards for his work on 'The Year London Blew Up', made for Channel Four by Blast! Films.

The two-hour drama documentary retells the story of the 1974 IRA bombing campaign in London and uses a combination of drama recreation, documentary and archive footage.

The Year London Blew Up follows the IRA active service unit's operations in London over a 12 month period, when fifty explosions rocked the capital at a rate of one per week, leaving 35 people dead and scores more maimed for life.

The programme runs chronologically, beginning with the arrival of the main character - gang leader Joseph O'Connell - from Ireland and the Guildford Pub bombing and ending with the Balcombe Street Siege, where the perpetrators were caught.

Paul Binns edited the entire programme entirely on Avid. A key challenge was blending the three elements of drama, documentary and archive to tell a satisfying story.

There was a mixture of formats to deal with, with the drama and documentary material on Digibeta whilst the archive footage was mainly on film.

BBC Post Production is increasingly working

with independent production companies. In addition to The Year London Blew Up for Blast! Films, other recent Indie credits include IWC's 'Ten Days That Made The Queen' for Channel Four and 'Who Do you Think You Are' for Wall to Wall for BBC Two.

Paul Binns is currently working on three-part documentary series for Silver River, called 'Reader I Married Him', which will go out on BBC Four.

The Year London Blew Up was directed by Edmund Coulthard. Mark Hayhurst, producer and writer, ensured that the programme was painstakingly researched, detail by detail.

It is based on unique accounts from the IRA bombers and includes interviews with eye-witnesses and victims - from the bus conductor who was kidnapped in the boot of a car to Rosemary McWhirter who answered the doorbell to see her husband shot dead in front of her.

Sir Peter Imbert, the chief police negotiator with the IRA, also gives his first interview on how the police trapped the gang and how he talked them out of Balcombe Street at the hair-raising climax.

The Year London Blew Up went out on Channel Four on 1 September 2005. Winners of the British Academy Television Craft Awards were announced at a ceremony on Friday 19 May 2006.



## Two Pints of Lager Ends in Horror

From decapitating heads and bodies being cut in two, to legs and even crisps attacking people, the final episode of the latest series of 'Two Pints of Lager and a Packet of Crisps' finds itself outside the comedy sitcom zone and into the realms of horror.

BBC Post Production London, part of BBC Resources, has supported BBC Entertainment on fifty-five episodes of the highly successful comedy since its launch in 2000.

As with the RTS award winning musical extravaganza in the previous series, the horror episode of Two Pints of Lager and a Packet of Crisps posed a new challenge for the team, both from a content perspective and technically.

The genre demanded a different pace and narrative style for the programme, as well as more complex pictures and sound – a large quantity of effects were needed for the thirty-minute episode.

BBC Post Production Editors Mark Lawrence and Nial Brown were involved in the project very early on.

They worked with the producer, director and designer at the script writing stages, to establish what effects were feasible and help decide what to create in the camera and what to create in post production.

Mark and Nial also attended the shoot, which took place over six days at Pinewood Studios and BBC Studios, to ensure the right footage was captured to make the effects believable.

A key challenge was making sure the perspective was right in the green screen shots, as while you could adjust the size of the object or person you were keying in post production, the angle could not be altered.

Mark, who has won an RTS Award for his editing on Two Pints of Lager and a Packet of Crisps, was responsible for all the Avid editing. It involved lots of

fast cutting between multi-source material to achieve realistic effects.

Mark also performed the initial audio track-lay, drawing on BBC Post Production's extensive Sound Effects Library to create moods and effects, such as a hammer blows to the head and accentuated blood squelching. Some sound effects were also created in the studio – for example sawing bones!

BBC Post Production Fire expert Nial Brown was responsible for the CSO (Colour Separation Overlay) green screen effects, for example removing the hands which operated the crisp packet and the character Donna's upper-body when it was sliced in two, leaving only her legs.

He also added lightening effects and applied extra blood, which required pain-staking detail to ensure continuity.

Mark says: "Although the final scene looks pretty straight forward, it was actually quite a nightmare to achieve!

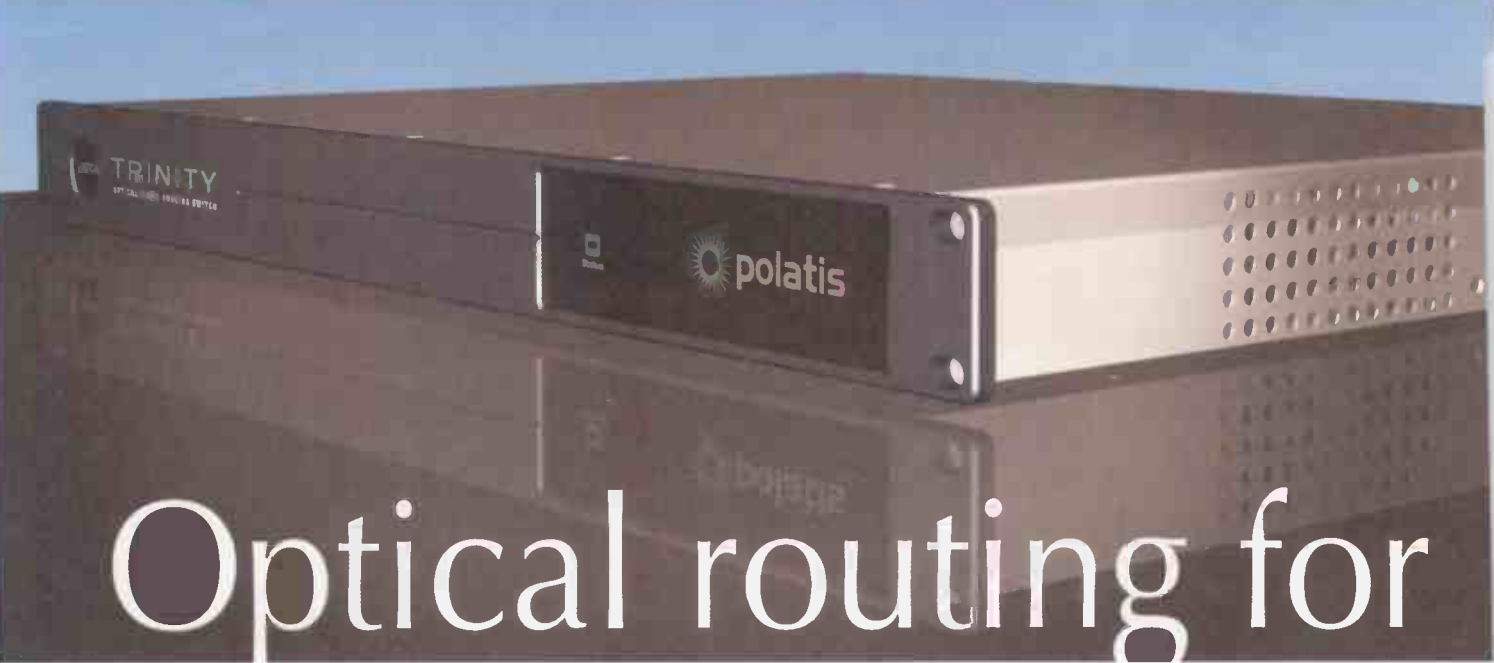
"In order to sustain dramatic tension, the production team wanted to see the main character Janet leaving the house on a bright sunny day. However, on the day of the shoot, it was grey and overcast.

"We therefore had to find footage of the house from a previous episode, when the sun was shining and Nial then had to adapt it in the Fire.

"We made sure all the details matched the horror episode - putting in scaffolding for example - and then key in Janet. It looks great though... if you don't notice it, then our work has been done!"

The final episode of Two Pints of Lager and a Packet of Crisps went out on Sunday 30 April on BBC Three at 10pm.





# Optical routing for

## HD

Polatis has released a new series of products for routing high definition signals. While the vast majority of audio and video transport signals are carried over copper today, distances are limited to only 50-100 meters for transporting new high definition standards such as 1080p. The Trinity family of optical video routing switches permits far greater distances without amplifying and re-clocking.

**T**he Trinity series is designed specifically for the video transport and broadcast market.

It supports virtually all protocols and feed rates – AES, SMPTE-276M, 259M, and 292M, ASI/DVB, NTSC, PAL, QAM, and others.

Under-pinning the Trinity design is Polatis' unique beam-steering technology. Unlike other photonic solutions, Trinity can establish and maintain connection routes without a signal present, in a pre-provisioned 'ready and waiting state'.

Not relying on an optical signal feedback to maintain the connection also means no modulation is introduced to the signal. Like all Polatis products, traffic can be bi-directional, and carry single or multiple wavelengths.

"We believe the timing is right for this product, as optical interfaces on video routers become more commonplace, and the bandwidth for contribution-quality high-definition signals naturally drives the infrastructure towards fiber", commented Aaron Bent, Polatis VP of Marketing.

"Optical switching can simply be viewed as a logical and flexible extension to the existing protocol layers in video routing. To ease implementation, we've designed Trinity to integrate seamlessly with the existing routing infrastructure.

"It supports the popular SMS-7000 Native Protocol for control, and even

supports familiar strategies like global tie-line management."

### Optical losses

Trinity boasts optical losses less than 1 dB for its 16x16 product. Polatis is introducing two products, a 1RU product, managing up to a total of 32 fiber interfaces, and a 3RU product, managing up to a total of 64 fiber interfaces.

Trinity is designed to integrate seamlessly with the existing routing infrastructure. It supports the popular SMS-7000 Native Protocol for control, and works with familiar strategies like global tie-line management.

Operating as an integrated protocol layer to existing infrastructure, optical routing allows bypassing of multiple electrical conversion points, extending the operating range to 20 km or more.

With zero latency of the signal, there is no need to re-clock/frame sync with a house reference (restore time base of incoming signal). Unlike electrical routing, no jitter is accumulated through multiple switches.

Asymmetric port configurations are available, from 4x4 to 4x32. The Trinity-R model permits re-assignment of ports, eliminating the need to dedicate input and output ports, providing 32 total fiber connections in any 1:1 connection mapping.

All models support simultaneous bi-directional traffic, for single and multi-

wavelength signals.

Under SMS-7000 control, Trinity will support Global Tie-Line Management, allowing for transparent routing of signals between levels, so that sources on a remote routing matrix become available to users on the local matrix through software-controlled interconnections.

### Matrix mapping

It also supports Logical Matrix Mapping, maximising crosspoint efficiency by partitioning a physical matrix into multiple logical matrices.

Optical path connections in the Trinity series are made using DirectLight beam-steering technology, unique to Polatis, originally designed for network carrier applications.

Trinity claims it has the lowest optical signal loss (only 1 dB in its 16x16 crosspoint matrix), highest signal stability (0.05 dB), highest return loss (>55 dB), and lowest channel crosstalk (<-70 dB). The result is maximum optical transparency for high bandwidth signals.

Applications include remotely connecting fiber trunks, where the major goal is remote management and eliminating the errors and damage caused by repeated manual patching.

Implementations include managing large production facilities under a single routing control plane, utilising the fiber layer for optimal transfer of content from various locations.



## Applications include:

- Mobile production vans: fiber source/destination mapping
- RF over Fiber: managing RF signals from antennae arrays
- Cable head-end: remote management of fiber trunks for backhauled content
- Inter and intra-facility fiber management: remote mapping fiber facilities between campus sites
- Minimizing or sharing of optical-electrical converters between long distance links
- Switching for secure communication or video networks
- Sharing expensive processing equipment for post-production houses

## Specifications:

### Inputs & Outputs

- Port sizes (1RU): 4, 8, 16 (NxN and asymmetric MxN)
- Port sizes (3RU): 24, 32 (NxN and asymmetric MxN)
- Wavelength band: from 1260 to 1620 nm single-mode optical
- Connector types supported: LC, SC, ST
- Return Loss: 55 dB
- Input power: switch dark fiber to +20 dBm

### Signal Formats

- Video: all formats (analog & digital), including
- Audio: all formats (analog & digital), including
- Data rates: 3 Mb/s to 40 Gb/s+

### Optical Performance

- Optical power loss: less than 1 dB
- Signal stability: less than 0.05 dB
- Channel crosstalk: less than -70 dB
- Signal jitter: none
- Signal delay introduced: none

- Re-clocking: not necessary

### Switching Performance

- Switch speed: 17 msec
- Pre-set path latency: none\*

### Power

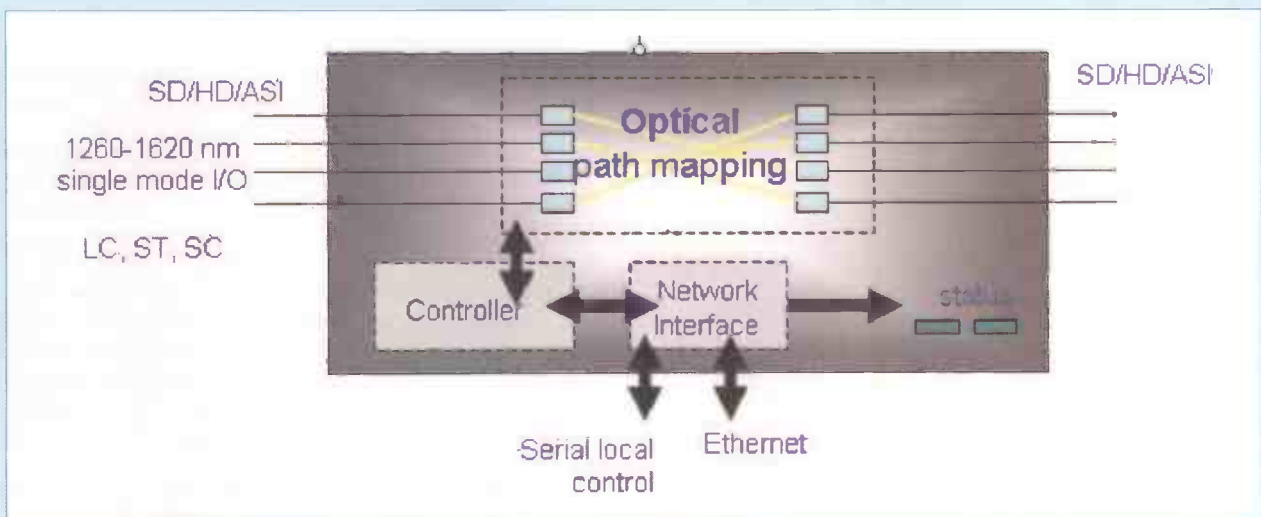
- 90-250V operating voltage, 50-60 Hz
- 48 VDC option
- Power Consumption: 30W max (1RU), 60W (3RU)

### Environmental

- Operating Conditions: 10 to 40 C, <85% RH non-condensing
- Storage Conditions: -40 to 70 C, <40% RH non-condensing

### Indicators and Controls

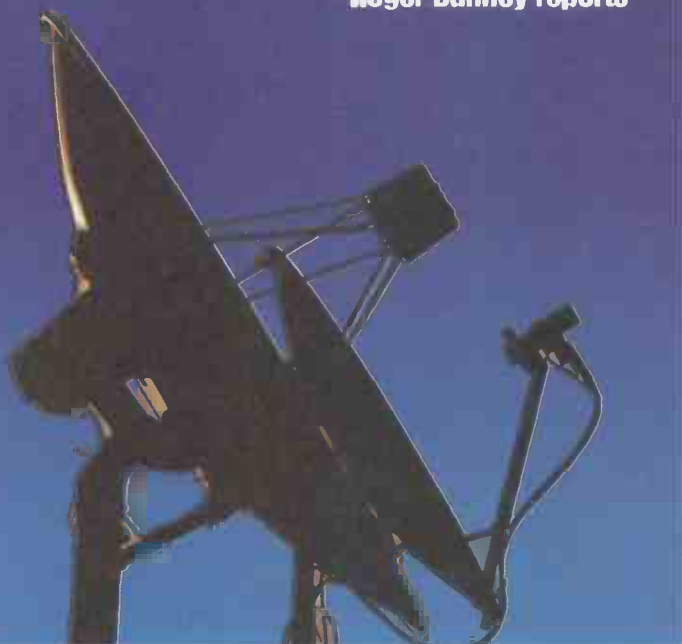
- Indicators: Power and Status
- Controls interfaces: Ethernet (RJ-45), Serial RS-232 (DB-9)
- Protocol: SMS-7000 Native Protocol, TL1



# DX and Satellite Reception

- Terrestrial DX and satellite TV reception reports.
- Broadcast and satellite TV news.

Roger Bunney reports



**T**errestrial TV-DX lives on! By mid-May I began to wonder if all the Band 1 TV transmitters in Europe had closed. May 17th however changed those thoughts with strong Sporadic E (Spe) signals from the South into the UK. Good news was that the Spanish TVE chs. E2 and E3 transmitters long promised for closure are still on the air and strong signals in recent days!

12th 14th May BT (Belarus) ch.R1  
16th. RTP (Portugal) ch.E2  
17th. TVE (Spain) ch.E2; RAI (Italy) chs. IAx2; IB; Tele-A (Italy) ch.E2-;  
TDF (France) chs.L2, 3, 4; RUV (Iceland) ch.E4  
18th. YT (Ukraine) ch.R1; RAI IA,IB  
19th. RAI IA,IB; TV Luna ch E2-; TLA ch.IA (last 2 Italian commercial)  
20th. SVT (Sweden) chs. E2,3,4; YT ch.R1  
21st. TVE E2, E3; RTP chs. E2,3,4; NRK (Norway) ch. E2; RAI ch.IA,B;  
Hugh Cocks (Algarve) notes North American reception ch. A2 on three offset frequencies + weak ch.

A3, (all 2130-2230hrs GMT) 23rd. SVT E2, 3; TVE E2

A live TV-DX camera running on ch. A2 continuously at Lexington, Kentucky relays any North American TV signals when received and DX TV can be identified easily – there's no 'local' channel A2 present. Check [www.dxfm.com](http://www.dxfm.com) anytime.

Sad news arrived from Robert Copeman (Melbourne) that well-known Japanese DXer Kazunori Ushigome has passed away.

## BROADCAST NEWS

**Farewell** – The analogue transmitters in Germany at Biedenkopf ch.E2 and Kreuzberg/Rhon ch.E3 have now closed down. All the analogue transmitters of the Dutch national channels of Nederland 1,2,3 will close down at midnight, October 29th. A favoured TVDX ch. E2 (SVT-1) transmitter Orebro, Sweden has also closed. The Czech Republic has also announced a phased closedown of analogue TV transmissions over the 2008-2012 period as DTT digital is introduced across the country.

**Malaysia** – 'TV9' is a new UHF terrestrial channel that opened end April aimed at a Malay speaking audience of nearly 7 million across the Peninsula region. Offering general entertainment, kids programming and news, the intention is to transmit own produced material from the opening of the channel.

**UK** – OFCOM are asking for reaction to their plan to allocate the 55-68MHz Band 1 spectrum to a low power transmitting use for 'Audio Distribution Systems' [ADS]. The allocation will allow transmission of local material such as information, commentary etc for venues such as sports arenas, football grounds and including commercial content. Restricted Service Licences [RSLs] conditions are also being relaxed to bring low power radio transmissions over long periods – rather than the usual 28 licence days – to allow community radio stations, theme parks and shopping centres to operate radio stations for periods of up to 5 years with minimal restrictions.

**Japan** – Public broadcaster NHK will retain their two terrestrial channels ('Sogo' and 'Kyoiku') in a major shake-up in broadcasting. It's likely NHK will lose at least one radio and TV [satellite] channel in this move as the government attempt to thin down the public broadcaster's organisation.

**India** – A channel for transmitting parliamentary activity is now on-air in India. 'Lok Sabha TV' will summarise the proceedings in Parliament, expanding to twin 24 hour political TV channels in August. Then to be called 'Sansad Television' the channels will cover proceedings in each of the Lower and Upper Houses of Parliament, intending to involve and interest the population with the government process. The national TV channel Doordarshan is embarking on an expansion of the TV network across North Eastern India where TV coverage reaches to about 84% of the population. This will involve new transmitters and studio sites, increased outside broadcast coverage and ENG units, one problem being the large number of languages and local dialects, coupled to enhanced satellite coverage. The expansion phase should be completed over the next 10-12 months.

**Cuba** – The Cuban government has again complained over the radio and TV transmissions from the CIA sponsored Radio/TV Marti transmissions from airborne





End of playout from Kings Reach (W1)



'Channel 1' thought to be a Sri Lanka commercial station (W2)



A menacing image from an opening montage playout (AB-1)



Off-screen logo from NTA Nigeria (W1). [screen patterning is a digital camera effect]

transmitters beamed into Cuba. Despite the use of higher powers on both radio and TV transmissions, the Cubans claim to be successfully jamming the TV programmes. Another interesting development is the suggestion that the present analogue 10kW TV transmissions may be replaced – or supplemented – with a digital TV transmitter.

## DIGITAL NEWS

Computer equipment supply company 'Novatech' in Portsmouth are selling USB DVB TV receivers from £28 upwards. Their Leadtek DVB-T USB2.0 offers HD and SD TV display on your computer, picture in picture, snapshots and digital TV with IR control. Another USB stick offers UHF digital TV. Their Leadtek DTV2000 hybrid analogue and digital TV board offers MPEG-1,2,4 digital TV, analogue TV, digital radio and many other features – check out – [www.novatech.co.uk/novatech/specpage](http://www.novatech.co.uk/novatech/specpage).

The government of the Ukraine is preparing to enter the digital age with the allocation of 4 channels in Kiev for digital TV test transmissions. All digital options are open for discussion covering radio, TV and communication. During the Summer, government agencies will be offering development licences for both WiFi and WiMax technologies to determine future standards. Curiously the Ukraine authorities noted that use of dedicated digital standards could prevent use/viewing of their transmissions from neighbouring states.

The soon-to-air [about Christmas 2006] French international news channel – CFII – will transmit in digital and air by satellite across Europe, the Middle East and North Africa, together with an eventual terrestrial TV service in mainland France.

DAB radio will be testing in the Auckland region of North Island, New Zealand from the autumn for about a year whilst the communication authorities decide a frequency allocation plan and a DAB timetable for opening both the commercial and public broadcasting networks. Subject to a successful test period the first DAB radio services will open in September 2008. Meanwhile DAB radio sets have been selling well in the UK with supermarket prices down to the mid £30s. Spring 2006 saw over 3 million DAB radios in use with a further 2 million possibly adding to this total by Christmas 2006 – helped by the FIFA World Cup football series this summer. DAB radio receivers tend to sell for use within the kitchen and portable appliance market though the quality Hi-Fi market tends to favour FM analogue. Unfortunately both Saga FM and Prime Radio have now departed DAB, popular with the more mature listener market.

WRN provides a rebroadcast service over the airwaves of selected broadcasts from the world's main international broadcasters, being accessible on both radio and Sky satellite. WRN have now introduced a

'podcasting' service, which can be found as a direct download on the WRN site and includes a selection of programmes supplied by broadcasters for specific 'pod use'. Typical programme sources are overseas transmissions from Eire, Czech Republic and China. The download contact site is [www.wrn.org](http://www.wrn.org).

## SATELLITE NEWS

The PAS-3R and PAS-1R at 43 and 45° West respectively can easily be accessed from the UK – given a clear 'look' toward the South West but the NSS-806 @ 40½° West is rarely reported. NSS, or New Skies Satellites, is part of the SES-Astra Group who bought into NSS [a Dutch company that was formed from an Intelsat holding] with aspirations of becoming a major player in the global satellite communications market. A recent press release noted NSS-806 as a new FTA channel – a Brazilian Catholic channel 'Rede Cancao Nova' – was on board targeting both Latin America and Europe. The Eastern footprint covers from the Canaries and into Western and Eastern Europe and should be a strong signal (that direction is now blocked by landscaping tree growth at the writer's home!) SES Astra's press release in late April advised that their new Astra 1KR had launched successfully from Canaveral into the 19.2° East Astra-1 slot, is on test and will hit the air waves end June.

Construction contracts are flying around at the moment with Loral/Space Systems collecting the order of AsiaSat-5 to launch into a 100½° East slot mid 2008 carrying both C and Ku band transponders. The new satellite will join AsiaSats' 2, 3S and 4 in the same slot to increase down-linking capacity and to replace no. 2 which is now ageing and to continue the provision of broadcast TV and telecomms traffic. Another bird launching in 2008 is the AMC-21 for the SES Americom group to provide down-linking of the PBS TV network and internet comms across North America and the Caribbean. AMC-21 is totally Ku band with 24 transponders and reckoned to have an in-orbit life of at least 16 years in the 125° West slot. At the time of writing the floating rocket launching rig 'Sea Launch' is preparing the Galaxy 16 for launch on a Zenit-3 space rocket. 'Sea Launch' can be towed to any sea location but normally on the equator to optimise the launching rocket trajectory straight into the geostationary orbiting belt.

'UPC Romania' has bought out the Rumanian satellite operator 'Focus Sat' and will be investing large sums into improving the DTH service across Rumania and neighbouring countries. 'Focus Sat Romania' went on air in November 2004 offering the first home market digital satellite TV service for Rumania.

Middle East broadcaster MBC is launching a satellite service for the UAE from a studio centre in Morocco. Previously MBC carried much of its programme production out of London.

# TELEVISION BOOKS

AND HOME ELECTRONICS REPAIR

The Television Book Service offers access to our team of specialist publishing experts. We can order any book or CD-ROM currently in print from *War And Peace* to the *Newnes Guide to Television and Video Technology*. All books are delivered free of charge within the UK unless otherwise stated. Contact us at the numbers below:

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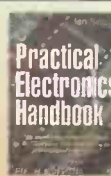
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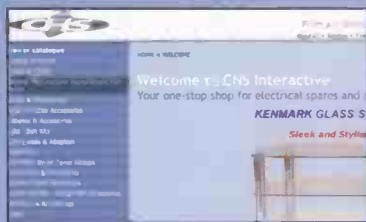


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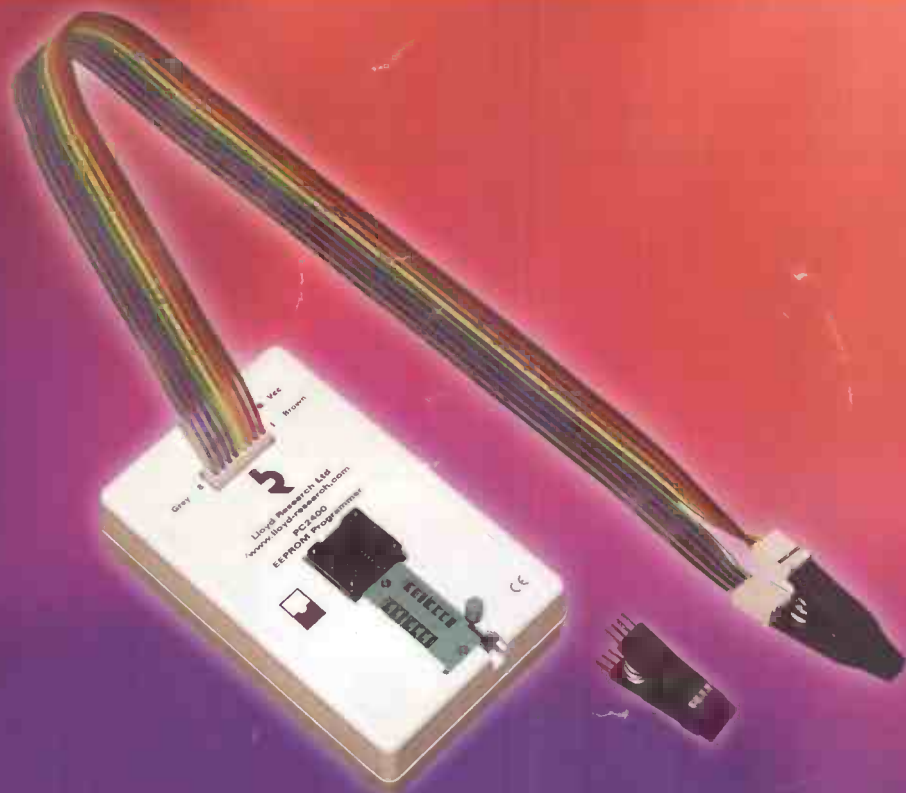
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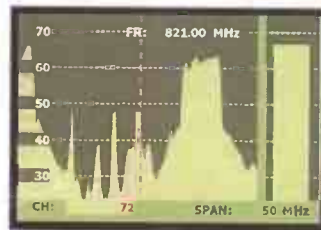
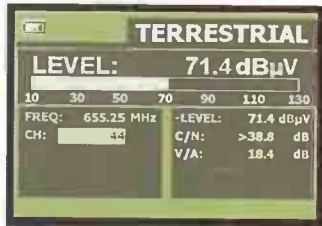
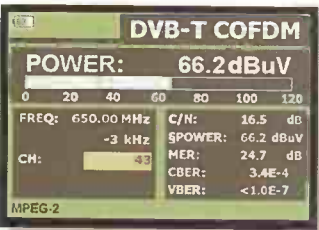
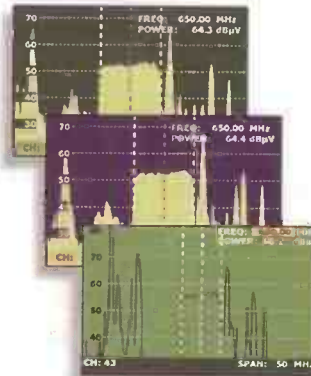
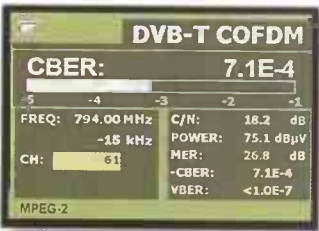
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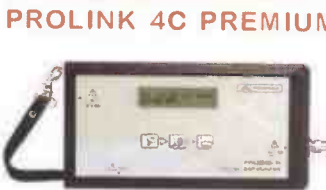
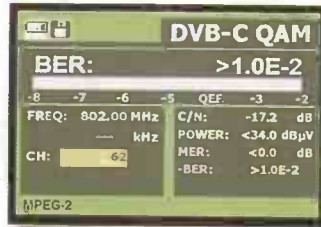


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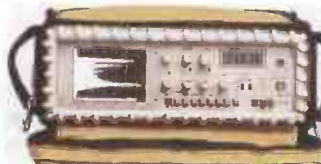
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