

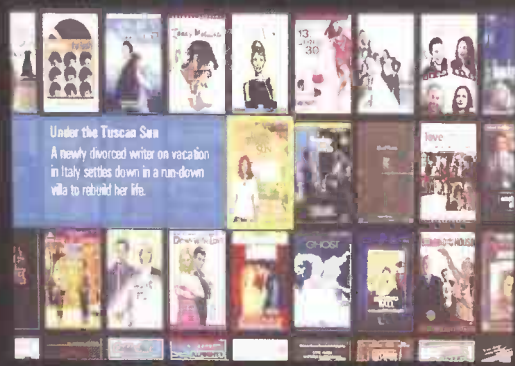
TELEVISION

& CONSUMER ELECTRONICS

NOVEMBER 2006

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IFA and IBC show reports



Trade
associations:
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The future
of IPTV



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TELEVISION

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DSGi LAYS DOWN A CHALLENGE

The DSGi group, owner of the Currys, Dixons and PC World brands and Europe's leading electrical retailer, has launched its own service and support division called Tech Guys (see page 764 for in-depth news report).

DSGi says it could have 200 specialist service and repair centres in the UK within three to five years, as a further £50 million could be ploughed into the scheme, creating a further 2,000 jobs to add to the 3,000 personnel the initiative already employs.

Now, many of these positions are call centre based, but Tech Guys is already employing 600 service and repair engineers and if the expansion plans go anything like DSGi hopes, a significant number of service and repair jobs will be created.

So what does this mean for service and repair as a whole? Is it the final nail in the coffin of the independent?

Certainly there are areas where DSGi will be have a big advantage. Its size and buying power will allow it to deliver low call out fees and very competitively priced parts and labour. Like-for-like, the average smaller operation is unlikely to be able to compete on price.

However, a group like DSGi does not invest in a sector unless it believes there is potential. Significantly, Tech Guys will not just provide repair and service, but installations of plasmas, projectors and other home entertainment products.

The initiative also seems too large to be supported financially by the rest of the group, it will have to make some money of its own. Even if this is not the case, it still means that the group believes there is a demand for these services.

So if DSGi is right, this should be good news for the service industry as a whole. At the very least it will provide training for new recruits delivering important additions to the ranks of service engineers. And at best it may even raise awareness of and even demand for repair, product installation, and aerial services.

Competing with this new entity will be a huge challenge. But with even the best intentions, large businesses find it hard to deliver the same levels of service and customer relationship building that the smaller concern can achieve. By sticking to the core values of great customer service, and adding installation and aerial services, switched-on concerns should be able to grab a slice of a market that DSGi clearly believes is growing.

What do you think of the Tech Guys initiative, good for the industry or bad?

This month also sees the start of a regular feature from The Confederation of Aerial Industries Ltd (CAI). The series will take a look at the opportunities and some of the technical challenges that this sector presents.

Daniel J Sait
Editor



John Clare, DSGi, chief executive, was on hand to help launch a major service venture by his company

Major service initiative from DSGi

DSGi, the owner of retail brands, Currys, Dixons.co.uk and PC World has introduced a major service and repair division. Called Tech Guys, the service is designed to provide fast and expert help for the increasingly technology reliant digital home. DSGi says the service consists of call centres supported by one of Europe's largest technical databases, a spare parts vault of 2 million components and specialist repair centres to provide fast, reliable support on installing, connecting, protecting, upgrading and fixing IT and audio visual technology.

From launch, the initiative consists of 3,000 personnel, 600 of which are field service engineers, who DSGi says, can deliver 16,000 home visits a week. DSGi will be able to offer a country-wide charging scheme for call outs and repairs will be offered on a 'no-fix no-fee' basis.

A further potential £50 million could be ploughed into the scheme over the next five years creating a possible further 2,000 jobs. The percentage of those 2,000 that will be service jobs will depend on how demand for that part of the initiative develops. Significantly, service and support will be available regardless of where the equipment was purchased.

The specialist repair centres will be located on main arterial routes to make it easy for customers to drop-off equipment for repair. The first is already open in Nottingham and the company hopes to have another six open by Christmas, with Bristol confirmed as one of the other sites. In the next three to five

years DSGi hopes this number will rise to 200.

Technical support will not just deal with repair and service, but will offer aerial up-grades as well as home installation and set-up of AV products. Most of the 600 service engineers already working have been recruited internally, but the company will be embarking on a

comprehensive recruitment plan consisting of press advertising and locally based initiatives.

A DSGi spokesman told *Television* that the company needed to attract the right kind of engineers to fit in with a specific vision. Of course recruits would need to be technically adept, but they should also be able to cut through jargon as well as have a passion for technology and high levels of customer service.

Service sector impact

A DSGi spokesman also told *Television* that the announcement ought to be regarded as good news for the service industry as a whole, he said: "We want to demonstrate the value of this type of service and that could raise awareness of this type of service as a whole.

"We would also welcome partnerships with local service providers and are keeping an



DSGi, best known for its retail brands like Currys has branched out into service creating 3,000 jobs



The Tech Guys Group services director Gary Robertson (front left) and DSGi chief executive John Clare (front right) with members of The Tech Guys service (supplied by Matthew Fearn/PA)

open mind on how this might work, as we do not know to what level demand for this type of service will rise to."

As to why the group has decided to make such a significant investment in the service and support sector, DSGi believes that digital technology is becoming like another utility such as gas or water. For assistance with utility services there is an obvious support structure, DSGi wants to create a service that is consumer's first port of call for any technology inquiry or repair issue.

John Clare, group chief executive of DSGi international, summed up the move: "The forthcoming national digital switchover programme, combined with the rapid development of digital technology, will have a huge effect on every home in the UK and create an unparalleled level of demand for expert technical advice."

Fujitsu launches two new plasmas

Fujitsu has introduced a couple of large screen plasmas, the 55" P55XTS55 and the 63" P63XHA51. Both have on board the latest version of the company's AVM II video processing system, a de-interlacing circuit designed to reduce jaggedness around contoured edges, MPEG noise and mosquito noise, while at the same time sharpening edges. Improvements over the previous versions of AVM II include pixel by pixel processing and detection, and four-frame referencing in order to deal with HD more efficiently.

The P55XTS55 operates a 1366x768 native resolution, and Fujitsu says the contrast ratio is 1800:1. The set also has a built-in analogue TV tuner, an HDMI input, three RGB SCARTs, component video jacks, and two D-Sub PC ports and comes with an external media box. The P63XHA51 also has a resolution of 1366x768, but lays claim to a higher contrast ratio of 7000:1. This screen's connections include an HDMI input, RGB SCART, component video input, and D-Sub PC interface.

Playstation 3 delayed again

The European launch of Sony's long-awaited PlayStation 3 games console will not now occur until March 2007. Ken Kutaragi, head of Sony's global computer entertainment division, explained the delay was due to a problem with the mass production of the blue laser diode's needed for the Blu-ray DVD player in the machine. In September *Television* highlighted speculation that the shortage of diodes may affect the delivery rate of Blu-ray

based products onto the market. If Sony (one of only two suppliers of the diodes) cannot secure enough of the diodes for its own planned product launches, then any knock-on effect for other manufacturers could be even more pronounced than previously thought.

Speaking at Sony's global headquarters in Tokyo, Mr Kutaragi apologised for the delays, but said the company had taken the decision to concentrate on the US and Japan in the run-up to the



2006, because of issues relating to the Blu-ray disc copy protection technology.

Ray Maguire, senior vice president and managing director of Sony UK, said: "We are extremely disappointed at news of this delay, and can truly empathise with everyone who was looking forward to PS3's imminent release.

"We will however be working tirelessly to ensure that the

March 2007 launch, is the biggest and best in the company's history."

peak season.

In March Sony had to postpone the original launch date, scheduled for spring

DABTV launched

BBC1, ITV1 and Channel 4 are being broadcast to mobile phones as part of a mobile TV service launched by BT using the existing digital radio broadcast (DAB) network BT Movio, in conjunction with Virgin

The service is the first TV content to be broadcast over the DAB digital radio network instead of the 3G phone system and includes up to 50 digital radio stations. The service was launched on the new Virgin Mobile Lobster

700TV phone, and customers on contracts costing £25 or more per month will get the phone and TV service for free. Alternatively customers

can buy the phone for £199 and take out a subscription which delivers the first three months for free and then at £5 a month.

Other phone operators are expected to offer the service in the near future.



Channel 4 will be available via the DAB network

Mobile, delivers BBC1, ITV1 and E4 live, with some films, sport and US shows removed from the line-ups. Main stream Channel 4 also appears as a highlights package with a view to adding a full live version in the future.

UK launch for hi-def discs

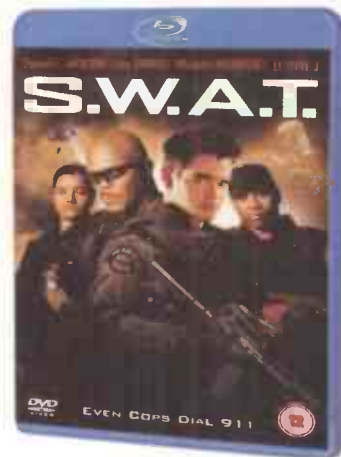
Warner Home video and Sony Pictures Home Entertainment (SPHE) have both announced the hi-definition disc titles that will be the first to hit the UK. Warner supports the HD-DVD format, and has revealed details of 15 titles to be released late in 2006 including *Rumour Has It*, *Constantine* and library favourites like *Troy* and *Goodfellas*.

"European consumers are primed for high definition content with their steady adoption of HDTVs. With the introduction of HD-DVD players and Warner Bros' HD DVD titles, we are poised to meet this growing demand," said Ron Sanders, president of Warner Home Video.

At time of going to press Sony's Blu-ray titles were pencilled in for an October launch so all being well they should be available now. Titles include what Sony described as a broad mix of

catalogue items like *The Exorcism of Emily Rose*, *SWAT*, *Tears of the Sun* and *Hostel*.

Until now most of the studios had been extremely tight lipped about their UK launch plans. However, the announcements suggest that these studios are confident that significant numbers of next generation disc players will be available in the shops this side of Christmas.



SWAT is now available in Blu-ray format

Sony expands BRAVIA range



Following its launch last year, Sony has increased the size and diversity of its BRAVIA range of televisions by adding five new lines. Within the LCD W2000-Series there is a choice of 40" or 46" screens, plus 1080 HD (1080p capable) resolution and high performance LCD panel technology for wide viewing angles. A Wide Colour Gamut backlight, precision matched filters in the screen and real time signal processing by the BRAVIA ENGINE combine to boost the actual range of colour the

W2000-Series can display. Sony says this Live Colour Creation system gives the W2000-Series a very distinctive and special advantage over conventional LCD TVs. Both models are equipped with an integrated digital TV tuner (DVB-T) and twin HDMI inputs for single-cable 1080 HD connection to HD set-top boxes, HD recorders and PlayStation 3.

The LCD U2000-Series contains 26" 32" and 40" models. All are HD Ready with support for 1080i and 720p HD modes. Essential

signal processing by the Sony BRAVIA ENGINE, a built-in digital TV (DVB-T) tuner, Virtual Dolby Surround sound and BBE Digital VIVA HD3D Sound enhancement are provided to make sure the U2000-Series sounds as good as it looks.

Sony says the E2000-Series Micro Display Projection TV uses a Sony 3LCD triple panel projection system to deliver 720p HD onto its 50" screen with no trace of colour 'breaking'. The Cinema Black Pro Iris shutter mechanism is included to allow precise adjustment of brightness and black levels, helping to elevate the picture to a new level of quality. Virtual Dolby Surround, BBE Viva 3D audio processing, a built-in digital DVB-T tuner and twin HDMI interfaces are all standard.

Sony says the 55" A2000-Series and larger 70" R2000-Series, take back projection TV still further. Both use 1080 HD (1080p capable) triple panel projection systems based on Sony SXRD technology (Silicon X-tal Reflective Display) for next-

generation picture quality. SXRD is said to virtually eliminate the 'screen door' grid effect visible on some back projection TVs.

Before the signal reaches the SXRD array it has passed through the multiple processing steps carried out by the most advanced version of Sony's image processing suite—the BRAVIA ENGINE PRO. In addition to functions including noise reduction, colour correction, motion smoothing and sharpening, the BRAVIA ENGINE PRO is designed to improve the resolution of 480i, 480p, 576i, 576p, 720p and 1080i inputs. This process, known as Digital Reality Creation HD-TV, ensures that whatever the input, the set takes full advantage of the 1920 x 1080 resolution on offer. Additional features present on both the A2000 and E2000 Series include Cinema Black Pro for pinpoint contrast and brightness control, Dolby Pro Logic II Virtual Surround, BBE Digital audio processing, an integrated digital DVB-T tuner and twin HDMI interfaces.

Freeview approaches eight million

Figures from market research group, GfK put the number of households in the UK who's primary source of digital TV is Freeview at 7.8 million (31% of total homes). The latest figures also show 1.1m Freeview Set-Top Boxes (STBs) and IDTVs were sold in the second quarter of 2006.

Sky reported in July 2006 that by the end of June 2006 it had 7,749,000 direct-to-home UK subscribers, though Ofcom figures show there were a further 645,000 free-to-view digital satellite homes at the end of March, leaving the total number of satellite households at

around 8.4m.

Freeview general manager Cary Wakefield said: "Freeview offers a fantastic channel line-up, with Film4 recently launched and Five US and Five Life to be added

shortly, all for no subscription. We can only expect Freeview's popularity to continue to grow and we look forward to becoming the nation's favourite way to watch television."

Freeview viewer numbers have shown a significant rise



Pure Digital launches PURE Care

PURE Digital, DAB digital radio manufacturer, has launched a focused sales, marketing and support programme for its network of electrical retailers.

Says Colin Crawford, director of marketing, PURE Digital: "PURE Care addresses the needs of our dealers in three fundamental areas. A toolkit for sales support, a market-leading and exclusive product and a high level of service both to the retailer and their customers."

PURE Care's line-up of sales and marketing tools includes retail display stands to act as a centre-piece for DAB sales, a training and promotional DVD so retailers can keep on top of the latest DAB features/sales tips, and point-of-sale which promotes the latest features to customers. There will also

be consumer advertising campaigns designed to reinforce the PURE brand and drive customers into store.

The scheme also includes independent retail exclusives such as special edition products only available through independent retailers and selected department stores.

It is also hoped that the initiative will encourage customer and dealer loyalty by including UK based customer services and technical support, a comprehensive web based service and product support portal and dedicated dealer e-mail addresses. More information is available from www.pure.com/purecare/.



Pure Digital has launched a special support package for its dealers

3DTV on the way

3D television could be available to consumers within three years, according to a European research consortium.

Funded by the European Commission, the consortium consists of 200 researchers in seven countries and is halfway through its four-year duration. The group is looking into all aspects of 3D technology, such as capturing 3D motion scenes, computerised representation, transmission and display.

Co-ordinator of the study is Prof. Levent Onural, who is a professor in the electrical and electronics department at Bilkent University, Turkey, he said: "We do think holographic 3D TV is feasible, but the technology is not in place yet.

"It will take another 10 years to get there, but some say it will take 14 to 20 years."

However, he does believe that the technology will offer a step-change in viewing, he added: "Take a football game. Viewers would be able to look at a TV that will be like a coffee table and see small-scale real football players made up from light running around on that table."

However, viewers may not have to wait too long to see the first generation of 'depth' TV as Professor Onural said: "Lower-end technologies, such as stereoscopic 3D (a method of displaying an image that gives the impression of depth) will be common place in homes and cinemas in about three years."

Panasonic adds Blu-ray recorders to Diga range

Panasonic has revealed what it says are the world's first Blu-ray disc recorders capable of playing back pre-recorded Blu-ray discs. The Diga DMR-BW200 and DMR-BR100 can burn content from their built-in hard drives to Blu-ray R/RE discs at 4x speed.

Most recordable drives for Blu-ray are PC based and none are able to play pre-recorded Blu-ray discs. Both models

support single and dual-layer Blu-ray recordable and RW media. There is 500GB of unformatted HDD storage capacity on the BW200 and 200GB on the BR100 model.

The DMR-BW200 also has a Firewire/iLink

connection as a way to connect a VHS player and copy over archive recordings onto the machine's hard drive and then onto Blu-ray discs.

Like other players in the Diga range, the new models contain SD card slots, which can also handle the new SDHC format.

The players can record and read DVD-RAM, DVD-R/RW and DVD-R DL media as well as DVDs and CDs.

The DMR-BW200 and DMR-BR100 go on sale in Japan this November, but there are no details of a European launch schedule.



Blu-ray recorders will join the Diga range

The Crestron panel mounted into the kitchen's work surface acts as the control centre for the home automation and security facilities



CEDIA

case study

The Custom Electronic Design and Installation Association (CEDIA) gives *Television* a guided tour around a £400,000 technology makeover for a six bedroom house in rural Dorset

For this particular installation the client turned to Bournemouth-based custom installer Dawsons. Like most clients, one of the main requirements was to provide an integrated entertainment-based system that all of the family could enjoy. However, with a budget of around £400,000 the gadget-obsessed owner could afford much more technology than the vast majority of clients.

Undoubtedly, the piece de resistance of the entire installation is the swimming pool area. The water slide and water cannon can both be controlled via Crestron colour touch screen panels as can the pool's counter swim facility (this works like a treadmill on a running machine so you constantly swim into the current). In addition, Dawsons has also provided a complete sound and vision set-up for those more relaxing moments by the pool. Mounted inside a special waterproof glass box is a 50" plasma screen and on the walls are two pairs of Artcoustic speakers. "Because acoustics in a swimming pool area are very

difficult, we find that full range speakers tend to work far better than in-ceiling speakers," says Dawsons designer Mark Buckfield.

Another particularly impressive entertainment area is the loft-based home cinema area. Initially, this space was going to be used for a games room with a pool table, but after seeing Dawsons' demonstration room, the client soon changed his mind. "He was absolutely blown away and decided he had to have it in his own house," says Buckfield. A floor to ceiling 8ft Stewart projection screen makes full use of space, while low-slung sofas enable the family to watch all of the action from the floor-mounted Sharp DLP projector (a PlayStation console is also connected to the projector so the kids can enjoy games on the big screen too.) The client insisted on white walls to give the long and narrow room a feeling of space, but tasteful brown suede panels either side of the screen help to dampen any harsh sounds and improve picture quality. Behind the panels are THX-based Lexicon processors

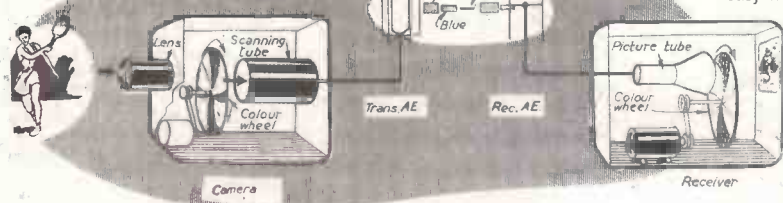
and a multi-region Lexicon DVD player with sound provided by five Artcoustic speakers: three mounted behind the acoustically transparent projection screen and two more at the rear of the room for stunning sound effects.

To this original specification, Dawsons have now introduced the ground-breaking Kaleidescape System.

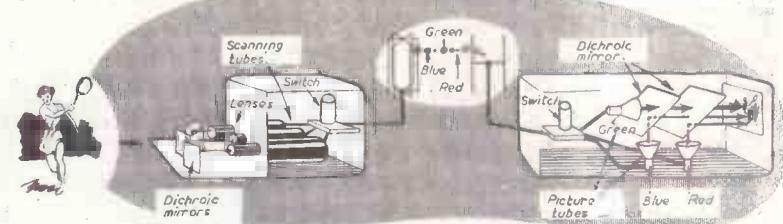
"After seeing the Kaleidescape System in action at our demonstration facility, the client was absolutely blown away" says Dawsons' designer Mark Buckfield. "He decided that this was a must-have for his own house".

The Kaleidescape System allows the client to collect, manage and enjoy his entire digital movie collection with breathtaking ease and speed for maximum viewing enjoyment. And not just in the dedicated home cinema, but in other rooms in the house. The Kaleidescape System stores all the family's DVDs and then provides multiple, simultaneous video playback through selected TVs in

Whichever system you used, colour wasn't easy in 1956

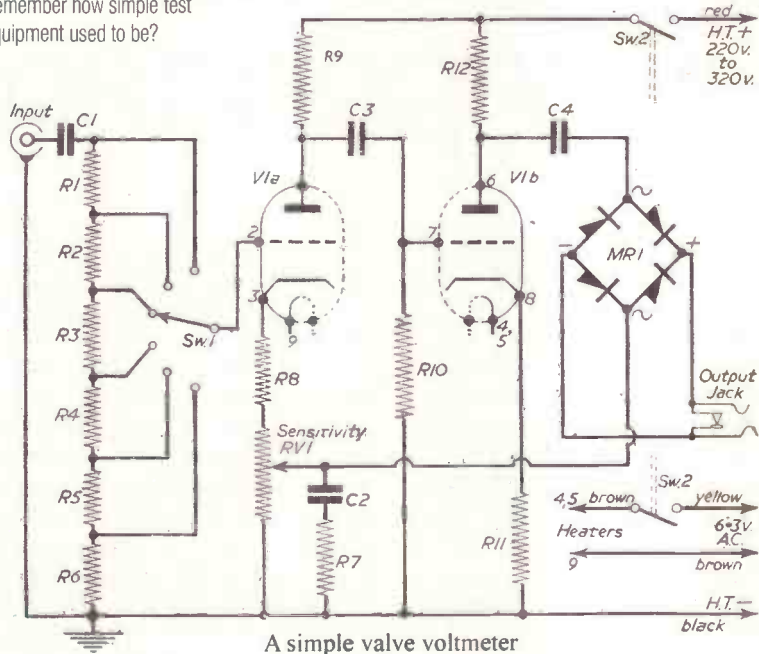


A disc colour system as used by the C.B.S. of America.



The dichroic mirror system of the R.C.A.

Remember how simple test equipment used to be?



A simple valve voltmeter

register must have been quite a challenge.

To be fair, the article does introduce the shadow-mask tube, and gives a good explanation of how it works. Intriguingly, it also claims that sets can be converted from monochrome to colour by using such a tube adding, with perhaps a touch of understatement, that, as part of the conversion process, 'the necessary circuits are added to the black-and-white receiver'. I suspect that, even in 1956, it would have been easier and cheaper to start from scratch but, if anyone knows different, I'd be pleased to hear from them.

Emphasising the magazine's practical bias, the centre spread was devoted to a design for an easily built valve voltmeter. Its AC coupling must have limited its usefulness, but it is a very simple design based around a single 12AT7 double triode. One very strange feature, to modern eyes, is that it didn't include a meter or any other form of readout.

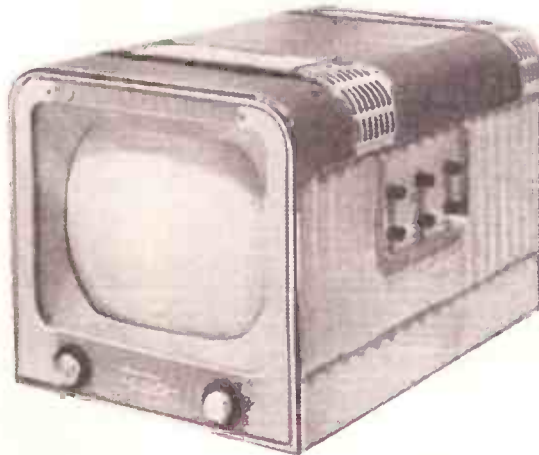
The explanation is simple; in those days, meters were expensive, so you bought just one, fitted it with a flying lead and a jack plug, and plugged it into whatever item of test equipment you happened to be using. Very economical, although it did mean either mental arithmetic or reference to a graph was usually required to find out what the meter reading actually meant.

Looking at the picture of the finished valve voltmeter, it's noteworthy that no attempt has been made to box it in, even though one of the terminals of the big capacitor next to the valve is at full HT potential. Don't try this today folks, or the health and safety police will undoubtedly come and take you away!

Why worry about a few live terminals on your valve voltmeter?

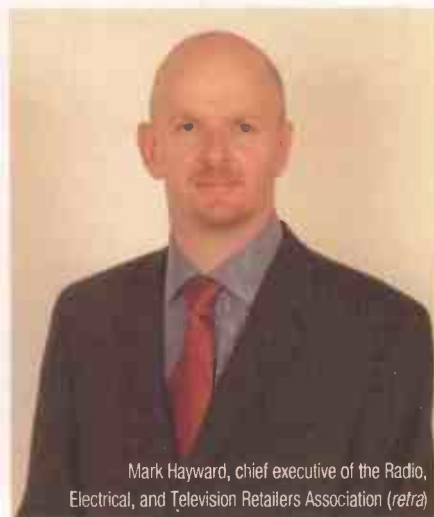


The Spencer West Teevy - without nursery pictures



retra represents

Mark Hayward, chief executive of the Radio, Electrical, and Television Retailers Association (*retra*), outlines the roles that the trade association fulfils in supporting the independent electrical retail sector, including those businesses focussed on service and repair



Mark Hayward, chief executive of the Radio, Electrical, and Television Retailers Association (*retra*)

the independent

retra is the UK's largest trade association representing the interests of independent electrical retailers. Founded in 1942 (as the R.T.R.A.) *retra* currently has more than 1460 members operating from over 2300 retail locations throughout the UK. Membership is increasing (up nearly 6% in 9 months in 2006) and *retra's* coverage of the sector in which we operate is nearly 66%. We are proud of this fact. Walk in to any 'independent' store in the UK and two out of every three will belong to *retra*.

retra's members retail the full range of white and brown goods. Some are generalists. Some are specialists. Some are 'high street' retailers. Some are in retail park locations. Some are in city centres, or suburbs. Some are in rural, or village, locations. Importantly, some are 'service/repair only' specialists. *retra* has a special membership category for these 'service' members. There are more than 130 'pure' service members in *retra*, though service/repair work is undertaken by well over half of *retra's* membership. The common thread that links all *retra* members is an ethos of customer care and a strong focus on pre and after sales customer care and support. The very things that you will

not find, either at all, or so readily, if you visit one of the UK's chain multiples or the supermarket electrical retailers. *retra's* members are required to follow a consumer code of practice which underpins the extent to which they take seriously good service to customers, and the operation of consistent standards in business.

retra's main roles

- To provide members with support services, guidance, and an increasing range of member benefits at either no cost, or low cost
- To promote members' views and concerns to manufacturers and other organisations within the electrical retail sector
- As an active member of the British Retail Consortium, and through our own initiatives, to represent members' views to 'Government' and in connection with current or pending legislation at either UK or EU levels.

Support and benefits

The primary reason why new members join *retra* is because, having taken a good hard look at the direct support and member benefits that membership provides, they see that

the immediate value they will be able to get is greater than the cost of the annual membership subscription that *retra* requires. The support/benefits *retra* provides includes credit and debit card processing (three deals with HSBC, Barclays and Bank of Scotland) and a range of other financial benefits. Service plan extended warranties (through a *retra* subsidiary – Retra Warrant Services) is also available, as is business stationary (including service invoice and service business stationary). Free legal help and advice with all employment and/or health and safety issues (backed up by low cost, tailored, guidance manuals) can also be obtained. A 'clearing house' service to settle all bills is also available to members as well as help with training and *retra's* own magazine – 'Alert'.

A new *retra* member joined recently in the aftermath of a messy employment tribunal case which was lost. The direct costs (the member was substantially fined) and indirect costs (his staff time and that of other employees) could all have been avoided via a short phone call to *retra's* head office – where the appropriate employment law advice and support was available.

Dealing with manufacturers and Government

retra has regular liaison meetings with the leading UK white and brown goods manufacturers and takes up the cudgels on behalf of its members at these meetings. Service and spares issues are, as you would expect, widely discussed at these meetings. *retra's* focus is always to support its members in their ability to undertake service and repair work. *retra* also operates a Spares Delay Scheme (which is self-explanatory) and its 'Expediter' Scheme – to help reduce the frustrations and delays that retailers (particularly those in the service environment) experience in their engagement with manufacturers. Though the picture is not perfect, the lesson from these schemes is that manufacturers make an extra effort where *retra* is involved.

When *retra* speaks to 'Government' it does so with one clear aim in mind – to ensure that the interests of its members, both as small businesses and as electrical retailers, are understood and that there is a 'voice' speaking out on their behalf. The range of matters with which *retra* is engaged is wide, and getting wider. These include the EU WEEE Directive; the developing 'Better Regulation' agenda; Consumer protection legislation where *retra's* consistent focus is to ensure that, where existing consumer rights require amendment or addition, the burden does not fall upon *retra* businesses that already serve their customers to a high standard.

retra is also a campaigning organisation in connection with single issues. Earlier this year *retra* was part of a broad coalition of interests that ensured that the current Sunday trading regime was not, as the Department of Trade and Industry intended, further liberalised contrary to the interests of our members. Together with the British Retail Consortium (BRC) *retra* is currently leading a 'fairer rents' campaign on behalf of its members who operate from leasehold premises and are not able, as yet, to pay their rent monthly, as opposed to quarterly. As part of this campaigning work *retra* gives



Today's new technologies raise important challenges for repair and service businesses



members the means to help themselves – for example, practical advice and guidance for raising the 'rent monthly' issue with landlords has been made available.

Members who join *retra* initially for the direct benefits and services that *retra* provides, often come to appreciate its manufacturer and 'Government' roles as reasons for staying in membership subsequently. After all, there is no other organisation that is as well placed to speak on their behalf in these areas. If *retra* did not do this work, it would not be done.

Members are highly satisfied with *retra* as an association that meets

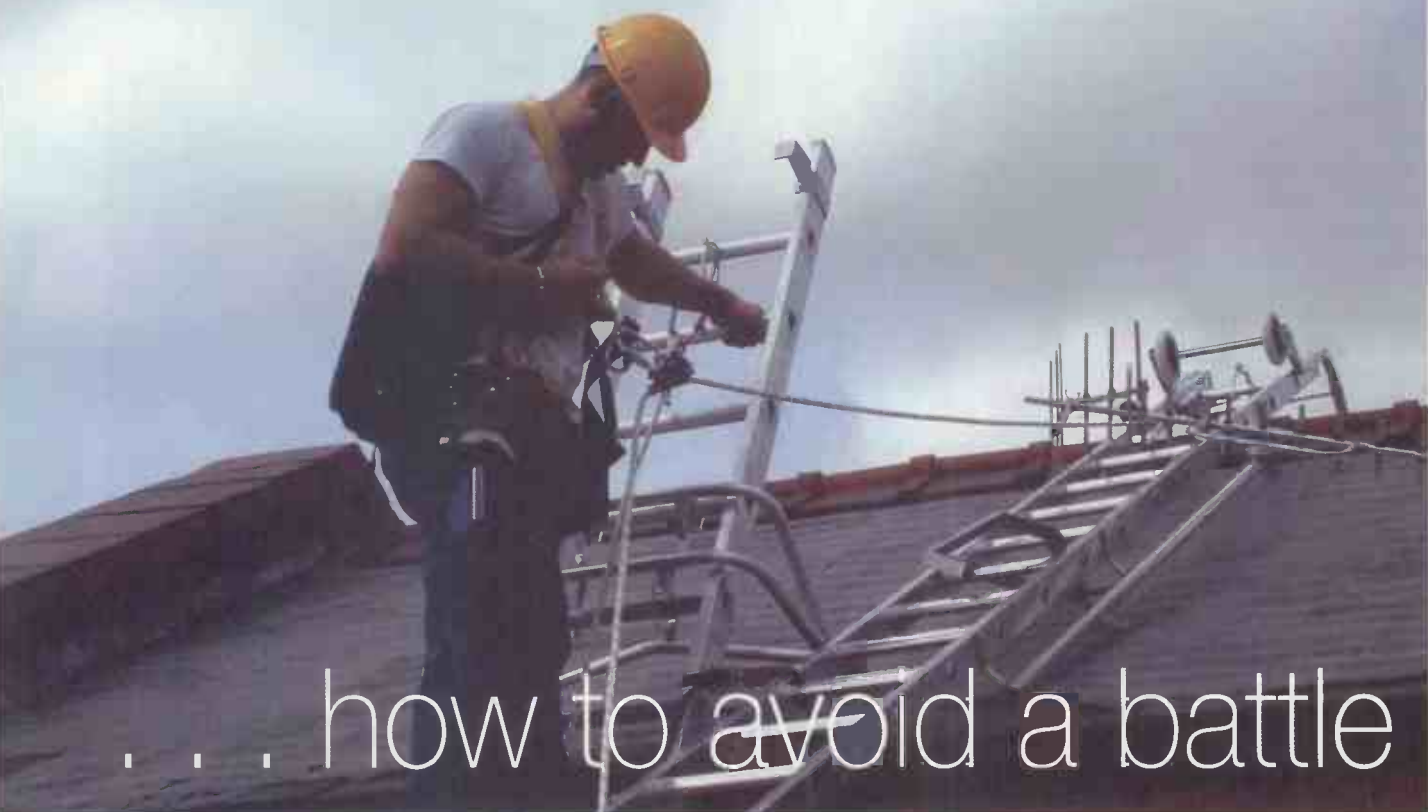
their needs. In July of this year *retra* completed a comprehensive business plan exercise with which members were actively engaged. Questionnaire survey responses demonstrated, in particular, a strong correlation between the *retra* activities that members regard as important to them and their perception of *retra's* performance in delivering these activities.

A good time to join

The service environment is tougher now than it has ever been. Manufacturers have, in some cases, upped the standards needed to be an authorised service or repair agent. Spares are harder to come by and the products themselves that are 'for repair' have an ever-shorter life span in the market place. Price deflation has eroded the extent to which repair is, in any case, economically worthwhile. The future for the service environment will depend upon the extent to which these issues are grasped and responded to. *retra's* membership includes many successful 'service' members who are looking at the future of their businesses and are confident enough to plan for growth. This is especially true of those who are focussing upon installation work and improved product support to customers. These 'independents' are, and will remain, the real 'Tech Guys!'

For further details about *retra* membership phone 01234 269110, or email: retra@retra.co.uk

Aerial combat . . .



. . . how to avoid a battle

In the first of a series of articles, **Tim Jenks**, senior executive at The Confederation of Aerial Industries Limited (CAI) explains his organisation's aims and the aerial sector's opportunities

Since its inception in 1978, the Confederation of Aerial Industries Limited (CAI) has become the largest recognised body representing companies and individuals from all parts of the TV and radio signal reception industry. The CAI has been at the forefront of setting the standards in signal reception, raising the level of competency and technical ability in the process. Membership ranges from the country's sole proprietors installing TV aerials, right through to the largest manufacturers and distributors of antennas and ancillary equipment.

However, the vast majority of members (around 85%) are either installers or have installing capabilities. Membership levels have increased rapidly during the last 10 years and the current total is over 850 member companies throughout the UK, representing nearly 40% of the UK aerial and satellite industry.

A TV or radio is only as good as the signal provided by its aerial. But the aerial industry is a highly competitive business. The cost of entry appears to be low and profit

levels high to someone looking to start up a business. The consumer can therefore be easily misled by nefarious practices. There is always someone trying to be more competitive by cutting corners and quality does not always come cheap. Broadcasting technology has become increasingly complex with the advent of digital and therefore the receiving systems are correspondingly complex, as are the choices available. In order to meet these challenges the Confederation has four main aims.

- To raise standards within the industry
- To represent its members to broadcasters, Government, local authorities and national bodies
- To unite the industry on its common aims
- To keep abreast of technological change

Membership/education/skills and code of conduct

Gaining membership of the CAI is by no means an automatic procedure. This is not a 'club' you join by sending in your subscription.

Applicants must satisfy the board of directors that they conduct a sound and reputable business, have appropriate levels of insurance cover, are able to comply with the standards laid down in the codes of practice, fulfil minimum trading requirements and are subject to in the work-place assessment. The CAI has a full-time assessment executive who carries out a preliminary visit to an applicant to confirm the company's ability to conform to CAI codes.

Members are required to guarantee all of their installations for a minimum of 12 months. In addition, with respect to individual receiving systems, the CAI undertakes to guarantee their workmanship for this period. The customer can feel confident in using a member of the CAI as, should the company fail to honour its guarantee, they still have the CAI to back them up. As well as issuing guarantees, all members have to prove that they carry the necessary insurance levels related to the type of business they conduct.

The CAI has an ever-expanding education and skills training programme in place and the industry now has its very own NVQ for signal reception. A complete section of the CAI's website is dedicated to training courses relevant to all areas of the signal reception industry. The members are constantly kept up-to-date with information from the CAI via its website, its regular newsletter, *Connect*, the quarterly journal *Feedback* and numerous mail-shots throughout the year.

With over 85% of the membership dedicated to installation services, the CAI has virtually nation-wide coverage. There are even member companies that can provide service cover across the whole of the UK.

The CAI is one of the few service trade associations that has been able to base its growth on enforcing standards. Its codes of practice are mandatory and the membership uses the enforcement of the codes to provide quality work at a fair price. Efficient after-sales service and courteous dealings with the consumer complete the all round quality service. To ensure this quality service, the CAI issues all its members with a code of conduct that will help resolve customer problems should a dispute arise.

All members are expected to resolve complaints generated by the

actions of their company, but in the unlikely event of dispute-escalation, there is a procedure enabling conciliation and resolution.

Health/safety and guarantees/warranties

Members have to satisfy the CAI assessors that they employ reputable people with the appropriate skills to carry out visits and work on customers' premises.

One of the huge issues having to be addressed by the aerial industry at this time is health and safety. The Health and Safety Executive (HSE) has identified the need within the industry to re-evaluate the way its engineers work at height. The CAI, in conjunction with the major installation companies and the HSE, has formulated a guideline document detailing safe working practice at height. This has become a definitive statement that can be adopted by other business sectors that work above ground using ladders.

The CAI has also recently produced guideline templates relating to various health and safety issues, such as method statements, risk assessments and generic health and safety policy statements. Members can download these from the CAI website or obtain them free of charge from the CAI administration in order to make sure their business fully complies with all statutory requirements.

CAI members have to guarantee their installations for a minimum of 12 months from the date of purchase. Any work requiring remedial action under guarantee should be dealt with within 14 working days from notification of a problem.

Members must clarify extended warranties at the time of work completion and also clearly state terms and conditions on receipts or invoices relating to the work.

The settlement of disputes is an important part of the CAI's work. The CAI senior executive and membership chairman assess every complaint received by the CAI office. This conciliation service attempts to resolve the complaint to the satisfaction of both parties. In any difficult cases, the complaint is put before the full board of directors to decide the best way to resolve the matter. All members have to abide by the decision of the complaints

committee, as laid down in the CAI regulations.

Only a quality service will give consistent results. We encourage the public to access the members list on the CAI website if they need aerial service and have access to the Internet. The listing searches county by county or knowing the name of a company enables an A-Z search.

Big opportunities

The aerial trade has never been more buoyant and under the public spotlight. The employment of a certified engineer for TV and radio signal distribution could well be a minimum regulatory requirement in the future of telecommunications and broadcasting, if European legislation advances in its current direction.

Whatever the future holds, with the digital switchover now upon us and with the complexities we are meeting, it makes sense to consider carefully if you are involved in signal reception that you are 'up-to-speed' by being a member of the CAI.

The CAI can be contacted on 020 8902 8998 or at www.cai.org.uk/asp/home.asp




This high-gain aerial is one way of ensuring quality and consistent reception



Today's technologies present new challenges and new opportunities

Flat Wall Mount Universal LCD Bracket



Basic but robust wall bracket for mounting LCD screens upto 30" in one fixed position.

Display size : 10"-30"
Max. display weight : 20kg
VESA standard : 50/75/100

Carriage Charged at £ 3.00 + vat

Order Code : LCDBKT8S
Price : £ 6.00 + vat

Close Fitting Universal LCD Bracket



Close fitting yet has tilt and swivel fuctions.

Display Size : 10" - 24"
Max. display weight : 15kg
VESA standard : 75/100

Carriage Charged at £ 6.00 + vat

Order Code : LCDBKT9S
Price : £ 13.00 + vat

Single Arm Universal LCD Bracket



Single Arm with tilt and swivel movement

Display Size : 10" - 24"
Max. display weight : 15kg
VESA standard 75/100

Carriage Charged at £ 6.00 + vat

Order Code : LCDBKT10S
Price : £ 20.00 + vat

Fully Articulated Universal LCD Bracket



Fully articulated bracket with tilt and swivel movement.

Display Size : 10" - 24"
Max. display weight : 15kg
VESA standard 75/100

Carriage Charged at £ 6.00 + vat

Order Code : LCDBKT11S
Price : £ 25.00 + vat

Universal LCD Small Plasma Bracket



A versatile design thats ideal for Small Plasma and LCD's upto 32"

Display size : 20"-32" (50-82cm)
Max. display weight : 40 Kg
VESA standard : 75/100/200

Carriage Charged at £ 6.00 + vat

Order Code : LCDBKT4S
Price : £ 40.00 + vat

Tiltable Wall Mount Universal Plasma Bracket



Universal tiltable (+15% / -15%) wall sup for large plasma and LCD

Tiltable : +15° / -15°
Display size : 30"-63"
Max. display weight : 75kg

Carriage Charged at £ 6.00 + vat

Order Code : PLASBKT1S
Price : £ 50.00 + vat

Twist Arm for PLASBKT1S



Twist arm with two articulations to apply to the above Plasma Bracket.

Two turningpoints 180° and 40°
Distance from wall min. 6 cm, max. 30 cm
Max.weight : 75Kg

Carriage Charged at £ 6.00 + vat

Order Code : PLASBKT3S
Price : £ 35.00 + vat

Universal Wall Mount Plasma Bracket




This plasma bracket can be used with most plasma and LCDs, due to its universal mounting possibilities.

Display size : max. 61"
Max. display weight : 80kg

Carriage Charged at £ 6.00 + vat

Order Code : PLASBKT4S
Price : £ 45.00 + vat

Simple Wall Mount Universal Plasma Bracket



Simple but very robust wall bracket for mounting Plasma and LCD big LCD televisions to the wall in one fixed position.

Display Size : 30"-50"
Max. weight : 60 kg
VESA standard : 50/75/100
Distance between TV screen and wall: 2,5 cm

Carriage Charged at £ 6.00 + vat

Order Code : PLASBKT5S
Price : £ 30.00 + vat

HDMI Cables



Length	Code	Price
1 m 19 pin HDMI to 19 pin HDMI.....	HDMI1	£12.00 + vat
2 m 19 pin HDMI to 19 pin HDMI.....	HDMI2.....	£ 15.00 + vat
3 m 19 pin HDMI to 19 pin HDMI.....	HDMI3.....	£ 17.00 + vat
5 m 19 pin HDMI to 19 pin HDMI.....	HDMI4.....	£ 20.00 + vat
7.5 m 19 pin HDMI to 19 pin HDMI	HDMI5.....	£ 25.00 + vat
10 m 19 pin HDMI to 19 pin HDMI.....	HDMI6.....	£ 30.00 + vat
15 m 19 pin HDMI to 19 pin HDMI.....	HDMI7.....	£ 50.00 + vat
20 m 19 pin HDMI to 19 pin HDMI.....	HDMI8.....	£ 65.00 + vat

HDMI Distribution Box



Splits a HDMI signal either 2 or 4 ways without loss in quality of signal for upto 20m
HDCP Compliant
Supports 480p,720p,1080i and 1081p Video format

2 Way Distribution
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4 Way Distribution
Order Code : HDMIDIST4 **Price : £ 150.00 + vat**
Carriage Charged at £ 6.00 + vat

Universal RF Modulator



Ideal for distrution of Scart signals via aerial amplifiers.

Small, stylish design

Simple selection of RF channels with a digital Display

RF , Phono and Scart Inputs

Combines existing RF signals to new one

No scart break box required - comes with scart out

Order Code : ILS102 Price : £ 20.00 + vat
Carriage Charged at £ 6.00 + vat

Mini AV Trasmmitter



Unique design allows out of sight installation
Connects directly to scart outlet of DVD, LCD TV, PLASMA TV...etc.

Also acts as an infred remote extender

Built in antenna

Come with scart locking connectors

Video Trasmmitter Operates upto 80m

Remote Extender Operates upto 5m

Order Code : VIDT150 Price : £ 35.00 + vat
Carriage Charged at £ 6.00 + vat

Mini AV Trasmmitter



This system is ideal for satellite , cable , VCR and audio systems.

Extend the signal upto 50m

Stylish and Modern design

Order Code : ILS103 Price : £ 15.00 + vat
Carriage Charged at £ 6.00 + vat

48 Element CAI Wideband Aerial



New and improved 48 element high gain Aerial suitable for all UK TV reception areas, covering UHF bands 21 to 68.

Receives both digital and analogue TV signals.

Suited for weak and poor signal strength areas.

Supplied with F connector and clamp for vertical or horizontal polarity (fits 57mm masts).

Order Code : 27884R

Price : £ 20.00 + vat Box of 5 - Price : £ 80.00 + vat

Carriage Charged at £ 6.00 + vat

TV Mains Switches



Suitable for Matsui

Order Code : SW50
Price: £3.00 + vat



Suitable for Vestel , JVC, Medion , Tevion

Order Code : SW52
Price : £ 2.50 + vat



Suitable for Philips 276.13603

Order Code : SW54
Price : £ 1.50 + vat



Suitable for Sony 1-554-762-51 and ITT 4112 2170

Order Code : SW53
Price : £ 2.00 + vat

Transistors & IC's

Item	Price	Item	Price
2SD 1880	£ 3.60 + vat	STRS 6707	£ 4.50 + vat
2SK 2545	£ 2.50 + vat	STRS 6708	£ 4.50 + vat
BU 2508AF	£ 1.10 + vat	STRS 6709	£ 4.00 + vat
BU 2508AX	£ 1.30 + vat	STV 9379	£ 2.00 + vat
BU 2508DF	£ 1.20 + vat	STV 9379FA	£ 3.00 + vat
BU 2520DX	£ 1.50 + vat	TA 8427K	£ 2.00 + vat
BU 4508DX	£ 1.50 + vat	TDA 1541A	£ 6.00 + vat
LA 7845N	£ 1.00 + vat	TDA 3654	£ 3.50 + vat
MC 44608P40	£ 2.50 + vat	TDA 3654Q	£ 3.50 + vat
MC 44608P75	£ 2.50 + vat	TDA 7293V	£ 5.50 + vat
STK 392 - 010	£ 7.00 + vat	TDA 7294V	£ 5.50 + vat
STK 392 - 040	£ 8.00 + vat	TDA 7295	£ 1.00 + vat
STK 392 - 110	£ 7.00 + vat	TDA 7296	£ 5.00 + vat
STRF 6653	£ 3.50 + vat	TDA 8174AW	£ 2.00 + vat
STRF 6654	£ 4.50 + vat	TDA 8177F	£ 3.50 + vat
STRF 6707	£ 5.00 + vat	TDA 8350Q	£ 2.00 + vat

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Ricability



Subscription based STBs like the Sky Box scored well in tests

Recommends Recorders

An independent report has come down heavily in favour of personal video recorders (PVRs) as the best way to convert analogue TVs to digital. However, not all stakeholders are impressed by the report, *Television* took a closer look

Ricability, an independent consumer research charity, has tested 23 digital Set-Top-Boxes (STB) and Personal Video Recorders (PVRs) in an effort to find the most user-friendly.

The report, commissioned by the Department of Trade and Industry (DTI), concluded that while some products were well designed, many were not, and by far the most effective way of digital conversion was a PVR. PVRs were considered superior mainly because of ease of use and the increased feature sets they deliver. The report also recommended that consumers who were thinking of buying a new TV, choose an integrated IDTV so their purchase would be future proof. IDTVs will be the subject of a further study from Ricability that will appear later in the year.

Each STB and PVR was put through a series of laboratory tests at Intertek Research & Performance Testing

(RPT). The tests were designed to check the product's features, its picture and sound, how well it worked with other equipment and how easy it was to use.

Technical measurements and practical viewing and listening tests were also carried out to check sound, picture quality and synchronisation.

Ease of use was evaluated by three usability experts. Tests focused on things viewers would want to do – from changing the volume and channels to setting-up and viewing favourites. Tests were designed to take into account not just technology literate youngsters, but also people who were used to only analogue TV.

In terms of general performance, Lindsey Etchell, principal researcher at Ricability, said: "The digital TV recorders were generally easier to use. Sadly if you want a cheap, basic STB at this stage you will have to live with some awkward features.

Right: The MG-TU1 from Humax came top of its category

Below: The DFTA1000 from Bush scored well on energy use



"The tests also covered STBs from subscription services BSkyB, NTL, Telewest and Homechoice. The results found these boxes generally scored better than the terrestrial STBs."

Commenting on the findings Margaret Hodge, Minister of State for Industry and the Regions, said: "This second set of reports is a welcome first look by Ricability at STBs and digital TV recorders, which have a key role in converting existing analogue TV sets and VCRs to digital reception."

"Consumers will be able to use this information to help them choose the most appropriate equipment for their particular needs."

"Ricability's findings will also help inform work under the DTI's Usability Action Plan which is seeking to encourage the market provision of digital TV equipment which is as easy to use as possible."

Ford Ennals, chief executive of Digital UK, the organisation leading the UK's switch to digital television, said: "Millions of households are already using STBs and satisfaction levels are high, but switchover will increase demand still further. Ricability's research highlights the potential for making STBs even easier to use."

"The challenge is for manufacturers without the benefit of subscription funding, to see if they can match the exceptionally high usability standards set by pay-TV companies such as BSkyB. We look forward to supporting them in that."

However, not all commentators were so positive about the validity of



the exercise. Adrian Northover Smith, digital development manager, at Sony UK described the tests as nothing more than a waste of tax payers money, being particularly piqued that no Sony products were highlighted in the tests. Mr Northover Smith said: "All of the manufacturers that have gone to any of the DTI's briefings have asked what the point of this type of study is when there are loads of consumer magazines that have already carried out the same type of tests."

Mr Northover Smith also was also puzzled by the number of tests carried out (23), when there are a vast amount of products on the market. He

also felt that many of the products were a little old and wondered whether the products used were carrying the very latest software updates.

Mr Northover Smith also told *Television* that he was not looking forward to the report on IDTVs planned for latter in the year, and that he would be calling Ricability to enquire on its product selection criteria.

Ricability itself was founded by Which? more than 40 years ago and generally focuses on work with disabled or older consumers. Although digital switchover will affect everyone, the DTI's decision to use

Ricability underlines its continued concern that older or disabled consumers are not left behind in the switch to digital.

Report details

The report split its findings into delivery categories, recommending what it felt were the best products based on how the digital signal was being delivered into the home. Phone based systems, from NTL, Telewest and Homechoice were tested but all received similar scores to each other, so are not included here.

Through an aerial

Via an aerial, the report concluded that the best STB on the block was the Humax MG-TU1, costing £64.50. Ricability concluded the box had a good range of straightforward features and a well laid-out remote control. However, the on-screen menus had a lot of show-through from the programme below, so were less easy to see.

The cheaper Bush DFTA 1000 at

£49.99 also received a favourable report, particularly in areas with strong reception. It is an adaptor rather than a box and plugs straight into the back of the TV. It used less energy than the rest, but the on-screen TV guide was single channel and the remote was considered a bit small.

In terms of PVR's the Humax PVR-9200T at £229.99 and Topfield TF5800 at £267.99, were thought to have plenty of features, good, clear on-screen menus and TV guides and were easy to use. Key advantages here were the presence of twin tuners and the ability to connect without needing a SCART socket.

The DigiFusion FVRT90 £94.99, a straightforward terrestrial digital TV recorder, also scored high in terms of ease of use.

Scoring lowest in the category for STBs was the Warfedale DV832B. The report claimed the product had a poorly laid-out unintuitive programme guide. The Remote control was also said to be poorly laid out, with the advanced features

not being intuitive and the instructional manual unhelpful. The Yamada DTV-3000HDD PVR scored the lowest for the terrestrial PVRs. The report said the system had some unusual protocols and quirks that hindered use of the basic as well as advanced functions. This product was also said to have a poor instruction manual.

By a satellite dish

Top STB in this category was the BSKYB Pace 2600C1 box that comes with the Free-Sat service and Sky satellite subscription services. It was considered to have a good number of features whilst being intuitive and easy to use. It is also one of only a couple of products that has audio description for visually-impaired people.

The Sky+ Thomson 160 scored highest for PVRs. Number of features, twin tuners and intuitive usage were key. *Television* would also add that this box has a really good speed to command ratio, a problem that can blight some PVRs.

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Liquid ASSETS



The Compose series from Loewe is the world's first LCD to have built-in HD recording

Television gathers some of the latest news and views on the future of LCD TV

Seen by some as the natural successor to CRT, LCD technology has seen its star rise rapidly over the past few years. Many manufacturers have invested massively in ramping-up production to meet what they hope will be a huge demand for LCD, driven by the desire to go digital and the more attractive form factors that slim profile TVs deliver. For example, Sony has announced plans for a new production facility built especially to meet demand from the European market. Based in Nitra, Slovakia, with an initial investment of 73 million euros, the move marks a significant investment and signals the company's belief that demand will increase. After going on-line, the factory will be able to produce three million sets a year and will replace the existing Trnava plant, also in

Slovakia. Sony is not alone in this expansion. In recent times Samsung has built a new LCD production every year to increase its production and efficiency. Sharp says the crystallization of its LCD technology has come thanks to the opening, in January 2004, of its advanced facility for the integrated production of its AQUOS brand – from the manufacturing of LCD panels to assembly of final products – in Kameyama, Japan. However, the company says a second plant has been bought on-line this year at the same site as a result of a massive rise in demand.

Sharp has long been a big supporter of LCD and Hans Kleis, chief operating officer, Sharp Electronics Europe, is very bullish on the future, he says: "The market share of LCD TV has been rapidly

increasing. Even faster than most people had predicted, and this increase is even greater than for plasma. This is because plasma is only efficient for large models of at least 37", while LCD TVs come in many sizes for a variety of applications. My belief is that LCD TVs will continue to increase their market share in Europe, exceeding 50% in 2007 and become the main player in the TV market, while the primary screen size will shift from 30" to 40".

Sharp also points to research carried out by market analysts Meko. Bob Raikes of Meko, says: "LCD TV will be the biggest selling flat panel technology in Europe in the future, partly because of the wide range of sizes that use the technology. PDP, in contrast will only be strong in the TV market in the size range of 50"



Sanyo's Y:TV concept has a built-in 160GB hard-drive



Many manufacturers, including Samsung, now use backlights powered by LEDs

and above in the near future.

"The analysis is easy, coming down to two main factors. On the one hand, plasma manufacturers only manufacture plasma for TVs and professional displays of sizes generally ranging from around 40" to 60". They're not used for anything else, meaning the number produced each year depends entirely on the sale of TVs of this size. In other words we are talking about around a few million units in 2006.

"On the other hand, LCD technology is becoming increasingly present in our



The Individual Compose from Loewe has a built-in HD-TV tuner

daily lives, with panels of all sizes all around us – in the car, in every room of the home.... even in hotel lifts. The overall market for LCD panels is estimated at somewhere around a billion units. Consequently, research and development and economies of scale correspond in their enormity. We have arrived at generation 6 and 7 factories for LCD, meaning the size of the glass area allows for greater efficiencies, as 8 x 40" LCD TV screens can be cut from the same substrate."

However, not everyone feels the future is such a cut and dried affair. Kevin Kelly, head of sales and marketing at Linnsight Limited, distributor of German brand Loewe in the UK, says on the predicted take over by LCD: "If you look at the rapid increase in volume sales of LCD during this year and the forecast for the coming years, then you could make that assumption. However, it is very difficult to assess the uptake of the very large panel displays and therefore the effect plasma will have. We will have at least two technologies in the home for the next two or three years at least."

Brains as well as brawn

Ramping-up production is just half the story. Manufacturers have been working hard to improve some of the performance issues that LCD's critics have pointed to. Kevin Kelly, of Linnsight sums up: "Obviously there have been many process and manufacturing developments over the last 12 months or so, but the major advances seem to be in the improvement to the contrast ratios and the general panel response times."

Sharp is one of the companies that has been leading the charge here, and the company recently introduced 4 millisecond response times on its Aquos LC-46XD1E and Aquos LC-52XD1E LCDs. Other new LCD sets, like the Aquos LC-42XD1E and LC-37XD1E, are no slouches either, with response rates of 6 milliseconds.

Contrast ratio scores have also gone up, although caution is needed here as there are no hard and fast rules as to how these readings are taken, but definite improvements have been made. Back-lighting improvements have helped many company's achieve higher contrast ratio scores. As reported in this months IFA show report (see page 808) Toshiba has introduced a

feature on its WLT68 LCD that analyses the required brightness levels of each image and adjusts the backlight accordingly. Several company's are now using LEDs in the backlight to improve contrast levels. LEDs help in producing a more homogeneous light source, which in turn produces a more consistent back-lit level across the screen.

Robert Wojcik, category head, visual marketing, Panasonic UK Ltd, says the company's recently released LXD600 LCD series (models TX-32LXD600 and TX-26LXD600) have contrast ratios of 1200:1. This level of performance is down to the Active Light Control and Active Contrast Systems included on the range. Mr Wojcik explains: "Detecting the input signal brightness level, the Active Contrast Control increases contrast by dynamically extending the output luminance signal, resulting in improved detail in both darker and brighter parts of the image.

"Meanwhile, the Active Light Control adjusts the backlight in real time, offering a dramatic improvement over conventional LCDs, which often suffer from insufficient maximum brightness and a lack of depth due to weak black reproduction. Active Light Control expands the dynamic range to more than two times that of the previous range.

"In addition, C.A.T.S (Contrast Automatic Tracking System) automatically senses the ambient light conditions and adjusts the screen, making it easier to see by brightening it when the room light is bright, and darkening it when the room light is dark."

Sharp's take on the backlight issue has been to introduce its Four-Wavelength Backlight System. This includes an additional Crimson Red as well as the standard RGB (red, green blue) colours, and has been introduced to deliver more natural reds, and enable smoother reproduction of neutral shades, such

as clear or translucent colours and skin tones.

A further area where performance has been improved is in viewing angles. This is an important area if LCD is to become the technology of choice for the family's main TV, as the screen needs to deliver a strong performance to multiple viewers rather than just one viewer who can place themselves in the optimum viewing position. Panasonic, Samsung and Sharp have all made improvements here, with many sets now rated at around 176°, both horizontally and vertically.

Straight forward performance levels are not the only area where manufacturers have looked to improve. Added value features are increasingly being turned to in order to grab the attention of the consumer. Built-in hard drives for recording and pausing of live TV are increasingly common. Sanyo is very proud of its Y:TV concept. This has a 160GB hard disk which the company says represents as much as 24 hours of recording space. Loewe has taken things a step further with the Individual Compose product in 40" and 46" versions. Designed as a home cinema solution complete with its own set of speakers, the sets also have the world's first integrated hard disc recorder able to capture HD images.

Loewe says the Individual Compose DR+ can record up to 200 hours of footage, whether pre-programmed or activated during a programme. The sets also come with a revised Assist+ guide system designed to work logically and intuitively by means of a clearly structured screen menu, providing fast access to personalised settings such as recorded content stored on the hard-drive.

Service impact

The advance of LCD of course has big implications for repair and service, with many problems migrating from physical problems to more software or set-up based

issues. Mr Kelly, of Linnsight says: "The software overhead will continue to increase with manufacturers software applications developing in complexity. The extra overheads associated with MHEG5 applications also make the servicing more onerous, meaning that you will always need to ensure that your TV software, as well as your DVB software, is always up to date. This is especially relevant when replacing internal firmware modules."

All this complexity has encouraged manufacturers to be increasingly protective of who they encourage, or even allow, to carry out work on their equipment. Approved service agent schemes are the order of the day for many and Mr Kelly of Linnsight makes no apology in stating: "Here at Loewe we are not going to repeat the mistakes of the past, whereby untrained local service agents effectively got access to our after sales services. We are currently rolling out regional service agents who are dedicated to larger geographical areas, but who commit to annual training and are supported by our technical liaison officers out in field.

"With this in place we can ensure that all our service agents are aware of all issues in the market – for both hardware and software – and deliver excellent support services to them as well as a commensurate remuneration scheme that makes it worth their while to invest in our training."

These types of scheme do look set to increase in number and many engineers are weighing up the pros and cons. On the one hand of course there is the loss of 'freedom' that entering into this type of scheme means. But then there is the guaranteed support that they provide. LCD manufactures are unlikely anytime soon to loosen the reigns in this area. Increasingly engineers could be forced down this route whether they like it or not.

TOOLS of the trade

Television provides a round-up of the latest repair, service and testing kit

The S-7800 series are recent additions to Sefram's family of professional field strength meters. There are four models in the new low-cost series and each is designed to meet the particular installation and maintenance requirements of antenna, cable and satellite systems.

The S-7802 and S-7803 cover the 45 to 865MHz bandwidth for terrestrial analogue and COFDM digital TV applications. The S-7804 is dedicated to cable TV systems (both analogue and QAM digital) from 5 to 865MHz. Finally, the S-7805 covers analogue and QPSK digital satellite TV requirements from 900 up to 2150MHz.

Sefram distributor, Metrix Electronics, says all models feature powerful, yet easy-to-use facilities. Just four keys provide direct access to the primary measurement functions. A simple user guide, printed inside the lid of the case, shows the operator how to access the signal level, BER and MER measurements as well as spectrum display, memory and serial interface facilities.

The sturdy compact case is 170 x 160 x 95mm in size and, with its adjustable neck/carrying strap, is described as ideal for field use. Overall weight is about 1kg, including the rechargeable NiMH power supply batteries.

Another new product from Metrix is an analyser for digital satellite and terrestrial TV system installers.

The S-7825STM is the latest addition to the company's family of professional TV signal analysers and this model is designed to configure, document and trouble-shoot digital satellite and terrestrial communal TV distribution systems. It also satisfies the requirements for installing and maintaining analogue and digital terrestrial antenna (45 to 865MHz) and satellite dish (950 to 2150MHz) systems.



The S-7825STM is the latest addition to Metrix Electronics' family of TV signal analysers

The built-in MPEG-2 decoder enables free-to-air digital and analogue transmissions to be viewed on the backlit colour screen. All QPSK and COFDM digital measurements are included as are signal level, spectrum, BER, MER and constellation, plus a fast CheckSat dish alignment aid. An impulse response mode checks for COFDM echo problems.

A unique feature is the Mosaic Mode. This simultaneously displays all signal quality measurements, and according to Metrix, this makes the S-7825STM one of the most user-friendly TV analysers available. The company adds that the product is also light in weight at just 3.5kg, and has a long 4 hour battery life. The padded carrying bag has a protective hood and adjustable neck strap. This is designed to leave the user hands-free to connect and operate the analyser safely. Channel setups and measurements can be stored in memory and downloaded to a PC via the serial interface.

Peak performance

Peak Electronic Design Limited has launched an enhanced version of its Network Cable Analyser the Atlas IT (model UTP05).

Peak says, the Atlas IT has always had the unique ability to analyse many types of RJ45 based network cabling, including Ethernet, token ring, patch cables and crossover cables. The connection pattern of the cables is automatically recognised and shown on the unit's display as well as confirmation of the full connection pattern.

However, now the Atlas IT has been enhanced with cable definitions of eight more cable types, including Cisco terminal cables, Linn Audio network cables, Ethernet Economisers, 4 line crossovers, voice/data cables and many more. Additionally,

for the first time ever, the Atlas IT

can now recognise the cable type even if there are connection faults (such as missing connections, swapped lines or other errors). It will display the cable type and highlight any lines that have errors.

Peak says the Atlas IT hardware has had a boost too, as it can now cope with connection to live comms systems and even withstand the

The RJ45 from Peak Electronics has been up-dated to cope with more cable types

high telephone ring voltages (up to 80V) associated with mixed voice and data cabling.

Peak recons using the Atlas IT could not be easier, the user simply connects the main unit at one end of the cable run and the miniature (18mm cube) terminator at the other end. For socket testing, engineers can use the supplied mini patch leads. Press the test button and after a few seconds the results of the analysis are displayed on the clear alphanumeric display. If the unique Identified Terminators are used, the Atlas IT will identify the cable run too, allowing the easy testing and identification of many cable runs (up to 24) without having to make lots of trips to swap terminators.

The Atlas IT will automatically power down after a period of inactivity, so forgetting to switch off is not a problem. The unit measures just 103mm x 70mm x 20mm, small enough to fit in the palm of the hand or it can even dangle from a network socket. When it's not in use, it can be stored safe and sound in the supplied custom machined carry case along with accessories, terminators, cables and a spare battery.

Users of the older version of the Atlas IT can contact Peak to discuss firmware and/or hardware upgrade options, firmware upgrades in most cases are free of charge.

The Atlas IT is available from many distributors including Farnell and Maplin, as well as directly from the manufacturer for £89.00 fully inclusive of UK delivery and VAT. Details from sales@peakelec.co.uk or at www.peakelec.co.uk



Fault REPORTS

TV/Satellite/DVD/VCR Faults

Test Case 527

Les Mainstone
David Packham
Neil Baker
Bob Longhurst
Philip Salkeld
Charles Arundel
Peter Exeter

Solution to Test Case 527

Daewoo DTY2880GB
Matsui DVDR100
LG RZ15LA32, ML024A Chassis
Philips 20PV220 (Combi)
Pacific PTV7017 (11AK37-11)
Sony KV28DX30U
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Philips 28 PW 6332/05, Chassis MD 1.2E
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Grundig T55-731FT/GB (CUC7303)
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Bush 2868 Chassis 11AK19
JVC AV-28GTISJF Chassis 11AK45B5
Wharfedale 32PF1
Philips 14PV184/05 COMBI
Ferguson 59P7, Chassis ICC5
Bush 2017SIL, Chassis 11AK30
Toshiba 2987DB Chassis C8SS
Technosonic CTV020T
Daewoo Model DSL20D3 SL110P Chassis
Daewoo Model 21B4GB CP520 Chassis
Daewoo Model DUB2850 CP780 Chassis
Daewoo Model DSC3210EGB SC140 Chassis
Daewoo Model DSC3210EGB SC140 Chassis
Daewoo Model DDT21H9S CP099F Chassis.
Daewoo Model DDT21H9S CP099F Chassis
Daewoo Model DUB2850 CP780 Chassis
Daewoo Model DLP3212 SL210P Chassis
Daewoo Model DSL17D3 SL120 Chassis
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LES MAINSTONE

Daewoo DTY2880GB

The front LED on this large silver beast flashed from red to green for several seconds before returning to red. A quick check of the power supply indicated its working status. No shorts in the line stage, but a faint whine from the line flyback transformer. A replacement cured all problems.

Matsui DVDR100

This DVD/tape recorder arrived completely dead. A check around the power supply found C14 and C14a (2000µF 10V) capacitors to be leaking and D8 & D8a (40v20a or BYS27-45) diodes both producing peculiar readings. Replacing the above brought the machine to life.

LG RZ15LA32, ML024A chassis

Not having much experience with LCD as yet, I approached this one with some trepidation. There was no LED so I checked with SEME and was amazed to discover a CD manual for mere pennies. With its help I quickly found T701 had an open circuit primary. It's the SMPS transformer in the set's power supply, although on the SEME listings it's marked as a coil. After replacing it, a pat on the back when the set kicked off.

Philips 20PV220 (Combi)

I stripped the TV chassis out of this dead set and had a quick look around. I/C 7310 (MC44608), in the primary side of the power supply had cooked, so in went a new one. Although TR 7300 (2SK2750), appeared OK, I changed it anyway and, after a thorough cold check, I confidently switched on. Still no life, not even a glow from the front LED. The line stage check revealed no problems. HT measured 9.2V with no 5V start up voltage. A check in the standby circuitry revealed a short across the collector/base on TR7381 (BC557c), replacing it brought up the 5V standby rail, but the HT had risen to only 29.3V. By this time the age old worry about the economic sense of carrying on reared its head, so I decided to give it just fifteen more minutes. A good job I did, the next component I checked was the thyristor type device 7341 (TL431CZ), it had shorts all round. A replacement brought the set to life.

Pacific PTV7017 (11AK37-11)

This arrived completely dead with no front LED. The main reservoir capacitor was fully charged leading me to suspect a primary power supply fault, wrong! A cold check around this circuit revealed no problems, as did the line stages. I normally start scratching my head at this point but, by spreading my cold

search to the secondary side of the power supply, I came across a short circuit diode D805 (BYD33D), it supplies the 12V rail. A replacement revealed no other problems.

Sony KV28DX30U

I dislike this chassis because of the difficulty of PCB removal. Any work carried out in the line stage in particular requires multiple plug removal. The job itself seemed straight forward, a dead set with a short circuit line output transistor, Q802 (2SC5251). The line flyback transformer showed peculiar waveforms on my scope, so both items were ordered after the usual haggling with the customer. This is where things went awry. After two days on the soak bench, I confidently returned the unit to its ungrateful owner. Five minutes after I left the house, the set packed up again. I had fitted a cheap version of the transistor instead of the Sony original, so be warned!

Panasonic TX28DT (chassis Euro 10D)

I see quite a few of these sets from another dealer, and I must say the majority of faults are associated with the processing side (when factory repair of the XV board is the only option) or corrupt software. Therefore when the above set arrived with both front LEDs lit, but the remainder of the set dead, I

TEST CASE 527

Van driver Todd is not a qualified engineer and he doesn't get engineer's money, as he will tell anybody who'll listen. However, since the company does not employ field technicians as such, it often falls to Dave to troubleshoot equipment in customers' homes. In a way it's self-regulating, whereby Todd will do what he can to avoid awkward carrying jobs.

There was no question of bulk or weight with the Sky+ receiver he was sent to recently. The customer had found that its HDD storage disc had gradually filled up to the point where it began to dump recorded material. The on-screen indicated memory capacity had steadily dropped over a period of a few weeks, so that now the indication was that just 25% was available, but with only two recordings present. Finally the machine stopped recording with what appeared to be a full disc! It seemed unlikely that anything

could be done about this on site, but Todd, helpful as ever, phoned the Sky technical advice line from the customer's home. After about twenty minutes of recorded announcements and music, he gave up, scooped up the PVR and brought it in.

There was another satellite-box collection to be done that day, and the story Todd heard was an interesting one. The customer, possessor of a surround-sound system, had bought this receiver, a Sony model VTX-S760, on eBay on the strength of it having an optical audio output port. The box had been installed and connected to a Yamaha 5.1 Dolby Digital surround sound amplifier. With the whole lot up and running the customer was less than impressed with the performance of the Sony set-top box, even on Sky Movies where he knew that good Dolby 5.1 soundtracks were available. See page 796 for the solution.

suspected software. After removing the chassis the set momentarily fired up with full screen and graphics, but no remote control. I moved the chassis to take some measurements and the set shut down. Much moving and flexing resulted with the set starting again. After a lot of wasted time, I came upon the TV TEXT PRO IC (84 pin IC1101 SDA5550), its surface mounted on the G board. A replacement from a scrap chassis cured all of my problems.

Goodmans W322NS or any using F19 chassis

Why do customers tell you whoppers? 'Been like it for two months,' the blond lady said, not looking me in the eye. The set had 6 or 7 centimetres missing from both sides with a slight East/West bow on an otherwise reasonable picture. Having replaced loads of charred C73 and burned R82/R83 (15K) components on the F19 chassis, I confidently quoted for the repair expecting to get the go ahead. 'I'll have to think about it,' she replied. I ground my teeth hard, thinking of the wasted fuel and time and left the house. Next day she rang again. 'The sounds gone now!' I resisted the urge to slam the phone down and informed her that the set would have to come in to the workshop. 'The price you gave yesterday would cover that then,' she whined. I'll not bore you with my diplomatic reply, but needless to say I ended up removing the back, finding only two screws instead of the normal eight holding it on. Out came the chassis and surprise surprise, bright new solder around the main suspects and not a dry joint in sight. One of our less able colleagues in the trade had partially put the fault right, but then messed around with the geometry. Bells then rang with the no sound. I quickly turned the set off, held the volume up button on the set and switched back on using the mains switch, immediately pressing the standby button on the remote and the set came on in the service mode. Pressing the down arrow button until I reached INIT CTVFOR-P V1.3, then pressing right arrow button, I waited a few seconds and the sound popped on. A thorough set up of the remaining geometry cured all the problems. Press the yellow button (MEM), to store the settings.

Tatung T14RF70W (F series)

The frame folded itself up from the bottom on this portable at switch on. I replaced the frame output I/C (TEA8172) to no avail. Diode D411(1N4003) had a peculiar reading in circuit, although once removed pleaded its innocence. I replaced it and this cured the fault.

DAVID PACKHAM

Hitachi CPT2658

This oldie but goody suffered from no sound or picture, but had two bars in the display that eventually faded to one bar and the set could then be switched on with the remote control.

I checked around the electrolytic capacitors in the secondary side of the power supply and found a number of them had a high ESR reading. I replaced C604 and C606 (both 1000µF 35V) C604 (1µF 63V) C610 (2µF 63V) and C601 (10µF 63V).

I switched on to be rewarded with a completely dead set, no display or anything, guess what? The on-off switch had gone open circuit. A replacement switch got the set working properly again.

Bush 2863NTX/A (AK19)

The fault was no sound or picture with the standby light lit and all the voltages from the power supply correct. The line output transistor was OK, as was the LOPT. There was 150V to the line stage and 150V on the CRT base, although a working set would produce 200V here. My frequency meter showed that there was no drive to the line driver transistor. While scanning around the board, I noticed that there was a coil (not in the manual) in the earth return from the audio IC that looked distressed and sure enough was open circuit. I measured from this point to chassis on the low ohms scale and discovered that there was no connection. I followed the print and it led me to the emitter of the line output transistor. Tracing this back brought me to jumper wire J613, which connects the line output transistor earth to the line transformer earth. Measurements here proved that one end of the jumper was open circuit.

Philips 21PT4457 (L1.02)

This set was dead with no LED lit. There was 300V on the drain of the chopper transistor, but there was only 12V on pin 8 of the control IC (TEA 1507). There should be 300V present at this point and tracing the circuit back I came to R3527 (2k) that was open circuit. A replacement cured the fault. I should mention that something had been spilt via the bottom front of the CRT and left a brown mess around the area, so this could have caused the problem.

Naiko N-2850W (PT92-110)

This TV came to me with the complaint that it had gone off with a terrible smell. When I tried it, the set would revert to standby. With the back off, I had a good look around to see if there was anything obvious. It didn't take long to spot CD18 a 2nF 2000V disc ceramic capacitor which had burnt up. A replacement restored normal service.

Samsung SP42W5HPX

Rear projection sets are always difficult, but at least you can charge a reasonable amount for the repair. The complaint with this one was no green. I was ready to condemn the green tube, although tapping the tube did not seem to make a lot of difference, whilst tapping the base panel could sometimes instigate the fault. I re-soldered the base panel, which made no improvement. I eventually traced the fault to the focus pin on the CRT base itself. A replacement provided a cure.

Grundig T70-540

This set came in with a bright white screen with flyback lines before it tripped off.

Sure enough the 200V supply fusible resistor was open circuit because the RGB amp on the CRT base was short circuit. Replacing the TEA 5101A and 10Ω resistor got things working again.

Sony KV28FS20U (Chassis BE3E)

This was dead with no EHT surge and no LED flash. Into the van with it then. When I got it onto the bench, I found that the HT was about 28V instead of 135V. The other voltages on the secondary of the power supply were right as was the standby 5V. The line output transistor was

short circuit from base to emitter, so I replaced it certain that the set would work. No such luck. All the reports on the BE3D/E chassis suggested that either the 39k Ω resistor in the power supply, the line output transformer or the EEPROM were faulty. Even though the tranny read OK I replaced it to no avail. Eventually I got round to checking the voltages on IC602 which were 28, 50 and 155V. These were obviously wrong as pin 3 was supposed to be connected to chassis via R608 a 0.47 Ω 2W safety resistor. This proved to be open circuit and a replacement mended the thing.

Thomson 33MS25UD (ICC17)

This set was dead with the LED flashing. I made various checks in the customer's house but was still faced with the prospect of bringing the set into the workshop. Out of respect for my back, I decided to just take the chassis into the workshop. On the bench I tested the usual suspects, LOPT etc. before measuring from pin 3 (V. supply) of the frame output IC (TDA 8351) to chassis. This measured short circuit and further checks proved that ZL13 was open circuit. Replacing these two components got it working again.

Ferguson T59N

This set was intermittently going off tune. Various colours also kept disappearing. Gentle tapping on the mother-board proved that the area around IV01 was extremely sensitive. There were no obvious dry joints, so I removed IV01 from its socket and cleaned its pins. The set then worked well.

Sony KV 21T3U

The complaint with this set was intermittent red, green and blue dropping out. I soon found that the three output transistors on the CRT base were dry jointed. Re-soldering provided a cure.

Grundig T70-540

This TV had a bright screen with flyback lines before tripping out. Checks on the CRT base proved that the 200V supply was present at the input connector, but not at the RGB amp IC (TEA5101). The fusible resistor supplying 200V to the IC

base was open circuit of course. Why? Because the RGB amp IC (TEA 5101) was short circuit. Replacements affected a cure.

Toshiba 32MW7DB (C7SS)

Dead set. It didn't take me long to find that the HT fuse F470 (1.25A) was open circuit. Logically the first place to go is the line output stage and sure enough the line transistor was short circuit. A replacement lasted about 20 seconds before it too met its fate. I removed the LOPT which smelt as though it had been arcing internally, so a replacement was ordered and fitted. I turned the set on, with my fingers crossed, and was rewarded with sound and picture. Then the width began to reduce and I turned off the set quickly to save the transistor.

I checked all the capacitors, diodes and resistors in the output circuit, but all read OK. Then I noticed in the driver circuit an electrolytic that was positioned perfectly under a 5W wire-wound resistor, C416. It was (100 μ F 63V 105 $^{\circ}$) and it decouples the HT to the line driver transformer and sure enough it read open circuit. A replacement and a soak test proved that the set was now OK.

Panasonic TX-28LD1

This TV had two faults. The first was intermittent sound and picture that could be instigated by tapping the tuner. Re-soldering the earth points and the IC's in the tuner cured that problem. The second fault was red and green flyback lines at the top of the picture that were caused by the frame flyback capacitor C456 (220 μ F 63V) which was open circuit.

Philips 28DW6734 (MD1.2E)

The customer said that they had smelt burning before this set went off. I found that the mains fuse was open circuit and D5545 and the bridge rectifier diodes were all short circuit. These faults were all caused by item 2544, disc ceramic capacitor (2nF 2kV) which had split. I replaced all these components and D2543 (2nF 2kV) as a precaution.

Ferguson T49F

This TV was off tune and the raster was displaced vertically. The voltages to the tuner were ok, but

the tuning menu couldn't be entered. Turned out that the EEPROM was faulty, a replacement cured the faults.

Toshiba 36ZP38P

This set produced a confusing array of faults from video smearing, through various colours on the screen, lines down the screen and no picture at all. A deal of head scratching went on until I came to the digital DFS panel that was very sensitive to movement. There proved to be dry joints on the voltage regulators and also on the micro-processor on the reverse of this dual sided panel.

Philips 28PW5324 (A8.0E)

The complaint from the customer was that they couldn't read the subtitles and teletext was not working. When I got to the house sure enough the frame was too high, but also the width was too wide and the East/West was bowed. There is a widescreen and cinema East/West panel on this TV which is soldered to the motherboard. When I removed the panel to do cold checks on it, I noticed a dry joint on the East/West transformer. Re-soldering this and other suspect joints sorted the picture faults. The teletext? The customer only used a satellite receiver and did not have an aerial.

NEIL BAKER

Matsui 2107ns Mk 11

This set arrived with field fold over at the top. On examination, the electrolytics C414 100 μ F 35V, C413 1 μ F 250V and C412 470 μ F 35V all read low. Once these had been replaced, a normal picture was produced.

Philips 28 PW 6332/05, chassis MD 1.2E

This set was tripping making the usual chirping noise. Once the back was off, we went straight for the blue capacitors in the line output stage. One of them C2420 152k at 2kV was split and black, a replacement cured this monster.

Matsui 28M1 Mk11 chassis EB4-A28

The job report was dead, standby

LED flashing. The power supply had no out-put so we began checking components in the power supply and found that R621 120k was open circuit. Also check/replace R620 120k.

Maxim CTV 11-53 TF2PT90 BG/I

We have had a number of these in for repair lately, the soldering is poor. This one suffered from frame collapse, so I checked the frame IC, it looked reasonable. Running over the legs with the soldering iron and a perfect picture was restored.

Bush RF2185NTXSIL CTV

This relatively new TV came in with frame collapse. All that was required was a new frame IC TDA 8174AW, once this had been replaced and after a good soak test, it was returned to the customer.

Aiwa HVGX955K VCR

Dead no display, only the green one touch playback light was on. Checks in the power supply led us to replace C116 1000µF 16V electrolytic and a clean of the tape path brought the machine back to health

BOB LONGHURST

JVC AV-28H77SK

The tripping was caused by a short circuit line output transistor – Q521. A very expensive 2SC5904. As no definite cause could be found, the HT line drive and the flyback transformer were all OK, a cheaper BU2727AF was fitted. It too immediately failed. The subsequent cause was found to be the 200V rectifier Diode – D553, short circuit. When replaced, plus the 200V smoothing capacitor, with the correct line output transistor fitted, all was well.

Panasonic TX28PK2

Q51 the line output transistor was short circuit. The cause was a badly arcing focus spark-gap within the CRT base socket. Unfortunately the Panasonic socket is obsolete. However, I had in stock an identical socket used in the Thomson ICC17 chassis (part number 80298800). When compared they both have an

extra pin. The extra pin on the Thomson socket can be cut off. The extra pin found on the Panasonic socket can be ignored as this pin is not there on the Thomson socket. Once fitted all was well with the TV.

Grundig T55-731FT/GB (CUC7303)

This TV refused to acknowledge any of the remote control handset commands. The fault proved to be the three-legged black plastic encapsulated infra red receive. I had an identical unit on a scrap TV, which cured the fault.

Bush BTV18SIL/VA

With this TV Combi the remote control hand-unit worked for an hour or two and then that was it. This fault proved to be the three legged infra red receiver unit (CHS Part No.ALB2039).

PHILIP SALKELD

Bush 2868 Chassis 11AK19

This is a fault I should have reported before now. The set came in dead with the usual tripping noise, and the resultant BU2508AF line-output transistor short circuit. This is normally caused by dry joints on the tuning capacitor or the scan coil plug. However, on three occasions they have all been perfect. Inspecting the board, there is a small coil, circuit ref. J649, which is either open circuit or burnt out (I replaced it from a scrap board). This coil is connected to the scan coils, which is the cause of its failure. Between the aquadag of the CRT and scan coil yoke, there are four rubber wedges. These become contaminated, which effectively shorts the scan coils to chassis. What I do is to give the scan coils and rubber wedges a good spray of WD40, and let it soak in for 30 minutes. This will bring the set back to working order. Run the set for a couple of days to remove any odour it may leave.

JVC AV-28GTISJF Chassis 11AK45B5

This set came in with a blanking fault, but when selecting teletext it was perfect. When you came out of teletext the picture appeared momentarily. It was difficult to look

beyond the EEPROM IC502, for where the fault lay. I have reported before there had been difficulties with this device. When placing the order, what arrived was another EEPROM with the modified part number, VE-20120620-SA. I decided to only fit the EEPROM to see what the outcome would be, the result being it cured the blanking problem, and minimum amount of geometry adjustment was required. The teletext was slightly dull, so going into the service menu and selecting teletext brightness, (ADJ148) and teletext contrast (ADJ149) and adjusting them to 100 and 120 respectively, produced a sharp teletext display. A couple of days later another one of the models came in with the usual not coming out of standby problem. In went the new EEPROM and with a little bit of patience a satisfactory result was obtained.

Wharfedale 32PF1

The customer complained the picture went out of focus. On soak test I noticed that the picture width jumped in and out. This chassis I have never seen before. There is a vertical board that plugs into the main chassis, next to the LOPT. This is where the dry joint was revealed on L2 an East/West coil.

Philips 14PV184/05 COMBI

The set came in totally dead. After removing the back, it was clear the mains fuse, T1.6A had violently blown. An obvious short circuit somewhere, but after checking the bridge rectifier diodes and chopper transistor, no shorts were observed. Next step was to remove the PTC circuit ref. 3310 and try the set. This worked perfectly apart from purity errors. A new PTC was ordered and when it arrived the next day it was replaced, and the fuse immediately blew. I decided to remove the degauss plug to isolate the coils around the CRT, but once again the fuse failed. Out of desperation I up-rated the fuse from T1.6A to 2.5A. I tried the set again and it worked. A few days soak test showed no further problems.

Ferguson 59P7, Chassis ICC5

The customer said the set was working until the grandson started to

play with the handset, which rendered the set into standby. The assumption from that was the set was in child lock. As this set was old, it meant searching through dozens of manuals to find out how to come out of it. Fortunately I found out: With the remote control press the fastext buttons in the following order, red, green, blue and yellow.

Bush 2017SIL, Chassis 11AK30

This set was dead and when you brought it out of standby the LED went to green then reverted back to red. During the time it was on green, all the HT and the LT rails were correct. The rail volt of about 12V was present on the collector of Q601 line driver transistor. I removed Q601 STX112AP which I am not familiar with, and there was the added complication that the circuit diagram does not indicate that it is a Darlington type transistor. There were strange readings on its legs which prompted me to order one. Replacement of Q601 restored line drive and in turn a working set.

Toshiba 2987DB chassis C8SS

This set came in with excessive height. Using the hairdryer and freezer did alter the height variation. The usual coloured case 2.2 μ F and 3.3 μ F capacitors were not in this model, they were always the fault in height problems with older Toshiba models. I had a TA8859CP Q302 in stock, so for the want of doing something I replaced it. To my surprise it cured the fault.

Technosonic CTV020T

This set was dead with the mains fuse black. Once I checked TP01 P4NK60ZFP chopper transistor as short circuit, you had to suspect serious problems in the power supply. It did not let me down, RP01 5 Ω open circuit, RP06 3.9M Ω 1/2W open circuit, RP13 1M Ω 1/2W open circuit. I also replaced IP01 TDA16846P to be on the safe side. I changed all these components in block.

CHARLES ARUNDEL

Daewoo Model DSL20D3 SL110P Chassis

This set produced a badly

solarised picture and it was decided that the fault was on the main video processing PCB.

It was established from DAEWOO spares dept. that they could supply a complete replacement chassis. However, after fitting it and powering it up, it could only produce a white raster with HEAT RUN on the screen.

A call to Daewoo Technical, revealed it was necessary to use a service remote control to switch this option off and enable all functions to work correctly.

Daewoo Model 21B4GB CP520 Chassis

When powered up, the set came on with flyback lines on the picture. Then there was a pop from the speaker and the picture appeared.

The cure was to reset the G2 voltage to the CRT whilst in service mode.

This is achieved by selecting channel 91, reducing the sharpness to minimum, exiting all on screen display menus and pressing sequentially the following buttons on the customer's remote control, Red, Green, Menu. This will put the set into service mode. You can then toggle down to G2 adjustment and then adjust the screen potentiometer on the LOPT to put the green line in the middle.

Daewoo Model DUB2850 CP780 chassis

The set was dead. The fault was traced to a dry joint on resistor R834 in the power supply section.

Daewoo Model DSC3210EGB SC140 chassis

Set won't power up. Diode D880 in power supply was found to be faulty. Type DRGP15J

Daewoo Model DSC3210EGB SC140 chassis

This time the set would not come out of stand-by mode. The fault was traced to a faulty capacitor in the line stage C430, 680pF, 2kV. This usually means R420 1.5k and diodes D520 and D521 type 1N4148 are damaged, but in this case they checked out OK.

Daewoo Model DDT21H9S CP099F chassis.

When powered up, this set

wouldn't come out of stand-by mode. It was noted that the HT tried to come up then died away. The fault was traced to a faulty EEPROM causing a very distorted line drive waveform. Therefore, the line stage would not open up correctly and damped the HT.

Daewoo Model DDT21H9S CP099F Chassis

The horizontal width needed increasing by about 1/8th inch, either side of the image. This could not be achieved by adjusting the width in service mode.

A call to the manufacturers revealed that you can adjust the width using a service remote control, if the CRT is type A51ERF135X70, but if the CRT is type A51ERF135X80 the width cannot be adjusted.

Guess what type was in this set, you guessed it, the one ending in 80. The manufacturer goes on to say check the main + B voltage in the Power supply, the power I/C, the Micronas I/C and the related components in the horizontal circuit.

Daewoo Model DUB2850 CP780 Chassis

The picture was shifted to the left by several inches.

The fault was traced to a faulty chip ceramic capacitor CC521 (2200 μ F 50V) situated on the main side of the PCB connected to pin 16 of I501.

Daewoo Model DLP3212 SL210P Chassis

The customer complained that the left side of the picture was darker than the right side with a vertical line down the middle, separating the two images.

Initially, this was thought to be a fault, but it was eventually discovered that the set had accidentally been put into DEMO mode. This DEMO mode is actually the MGDI mode, selectable in the OSD features menu and can be switched on or off.

It's purpose is to show how wonderful the MGDI engine (Meta Genuine Digital Image I/C) is at improving the quality of the image!

This is demonstrated by letting the left side of the picture be produced without the MGDI I/C working and the brighter right side of the picture, showing you the improved image.

Daewoo Model DSL17D3 SL120 Chassis

This set had no sound or picture, the LED was green showing that power was entering the unit and it had come out of stand-by mode.

It was known that Daewoo currently only supply complete PCB's for this chassis rather than expect you to work down to component level. The power to this set is supplied by a 12V A/C adapter. Therefore, there is no separate power module in the set. It only has a main video processing PCB, an inverter board and screen.

The input voltage to the inverter was present and there was a slight glow coming from the screen when viewed in the dark. So it was decided to replace the Main PCB and this affected a cure.

Daewoo DSC3210EGB SC140 Chassis

High pitched whistle after sets

been on for a while. This problem is usually caused by loose windings on the line linearity coils, circuit reference L401 and L402. However, it has now been discovered that a capacitor circuit reference C408 0.3µF 400V which is the A/C coupler of the East/West correction waveform to the line scan coils, can also be the cause of this high frequency whistle.

The cure is to re-solder the capacitor into the PCB making sure it is pushed hard down into the board as you solder, so it can't vibrate. If this does not cure the problem, replace the cap but also mount it close to the PCB.

PETER EXETER

Panasonic DMRES30 VCR/DVD

Bought in with the symptom dead and tape stuck inside. When

we switched on, it powered up OK and the tape ejected. We then tried play and record, which performed OK. Next the DVD side was tried out, and we found that it would play a disc OK, but after about five minutes of recording, the whole machine shut down, and stayed that way until it was unplugged for a while.

The next step was to check voltages on the power supply, and the SW5R8V supply was about 4V. This dropped somewhat when DVD record was selected and eventually the machine switched off. The fault was traced to C1209, and as soon as the DVD mechanism was removed, it could be seen that the cap had blown its top. Had the cap not been located under the DVD mechanism, it might have not taken so long to trace the fault. A replacement cap brought the machine to life again and restored the DVD record function.

SOLUTION TO TEST CASE 527

Satellite receiver boxes can be very hard to deal with when they get into trouble, especially with the lack of technical support.

Much of what is known about them has been disseminated by magazines like this one, and via technical forums on the internet. That was how Sage in the workshop knew just exactly how to deal with the PVR with the bunged-up HDD.

He phoned the customer for permission, then invoked an internal sort-out by going to the menu and keying the sequence SERVICES-4-0-1-SELECT, then selecting

'Sky+ planner rebuild'. This has the effect of resetting and rationalising the recording system without any side-effects in terms of existing recordings on the disc or previously booked recordings.

Unfortunately the second problem was not so easily solved. Although the Sony VTX-S760 is apparently capable of dealing with Dolby 5:1 digital sound, it has never been enabled by Sky to perform this function. Thus the best it can do is Dolby Pro-Logic surround sound, much inferior to the real 5:1 McCoy.

We welcome reader's fault reports

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Faults DIRECT

DAEWOO PLASMA FAULTS

Model DP-42SP chassis SP115

Fault: Broad black band down left side of screen.

Solution: Initially the service agent diagnosed the screen to be faulty and replaced it. Unfortunately, this did not effect a cure.

The fault was eventually traced to four open circuit resistors RCC1, RCC2, RCC3 and RCC4. These resistors are situated on the extreme right of the Right Connector PCB and feed the Data Drive I/C's bonded onto the flexible connector that feeds the screen.

Fault: The customer complained that on his brand new Plasma, there was one green pixel missing on the image.

Solution: Although the screen was replaced in this instance to satisfy the customer, Daewoo's policy on missing pixels is, no more than 3 missing in the outer circle of the image and no more than three missing on the inner circle, total six.

So the customer's Plasma screen was well within specification.

It is actually very difficult to produce a screen without one or two pixels missing and therefore a decision was made to adopt the above policy when these screens are manufactured, so as to keep the cost down. It is considered, that up to six missing pixels are hardly noticeable on a moving picture, at a reasonable viewing distance.

Fault: The fault description on the report that accompanied this Plasma was 'a line across the screen'.

Solution: A line across the screen would normally be caused by a faulty connection to the upper or lower scan boards where they feed the screen via the four flexible connectors. Alternatively it could be a fault on one of the 8 I/C's on the scan boards.

However, a thorough examination of the flexible Data Drive connectors along the bottom of the screen that feed the

screen from the 28 driver I/C's via 7 connectors, revealed that the centre connector was split down the left hand side. This split was diagonal only about 1/2" long, but long enough to extend into the printed wires within the flexible cable, so breaking the circuit of three wires, thus causing the fault.

It is considered that the engineer involved in the initial repair of this product did not mean the fault was a line across the screen, but a line down the screen, and upon checking for correct connection of the central flexible DATA cable to the screen from the connector on the Right Connector PCB, he probably damaged it by being careless when he removed it from the connector board.

Admittedly, the process of removal and reconnection of this flexible connector to check correct seating is difficult without tearing the plastic. This is because of the confined space between the connector on the board and the heat sink for the DATA drive I/C's.

The sensible thing to do is to remove the two screws holding the heat sink, which then allows easier access to undo the hinge which retains the flexible cable to the connector.

Fault: The fault was several vertical lines across the screen.

Solution: Replacement parts were fitted to establish the cause of the fault as follows:

- Replaced the DIGITAL PCB because this generates the Data that eventually addresses the Pixels on the screen. (The lines were still apparent)
- Replaced the white flexible ribbon cables to the CONNECTOR LEFT PCB and CONNECTOR RIGHT PCB because they feed the data from the digital board to these Connector boards for onward transmission to the Drive I/C's. (The lines were still apparent)
- Checked the three data drive connectors PC5 to PC7 on the CONNECTOR LEFT PCB and the four

on the CONNECTOR RIGHT PCB, because these connectors feed the Data directly to the Drive I/C's. (The Lines were still apparent).

- The X Sustain Board was now replaced because this also feeds the Connector boards with timing signals.
- This only leaves the Drive I/C's which are bonded onto the flexible ribbon cables that are attached directly to the screen.

Therefore, the whole screen needed replacing because it is not possible to replace these Data drive I/C's without specialised equipment.

Fault: The fault was faint ripples across the screen. These took the form of alternate horizontal light and dark lines about a 1/2" wide across the whole screen.

Solution: This problem only occurred when the plasma was first switched on and the lines gradually faded away after 5 minutes. From then on, the picture was fine until the set was switched on again from cold.

The fault was traced to the Video board because replacement of the board cured the fault. Unfortunately, it was not possible to trace the actual component causing the problem because circuit diagrams are not available from DAEWOO only complete PCB's

Daewoo TV faults

Model DUB2580 USING CP780 CHASSIS

Symptom: Slight 50HZ buzz, mainly from left-hand speaker, when volume set very low. The buzz disappears at minimum volume.

Reason: Earthing loop pick up problems.
Cure: Remove wire link J071, situated adjacent to the switch mode power supply transformer T801.

If level of buzz is still apparent, then also remove wire links J015 and J016, situated behind the audio amplifier I/C 1602, black heat sink.

Model DTY2880GB CP520

Faults DIRECT

CHASSIS

Symptom: Set dead due to several components burnt up in the power supply. The following have been reported as being damaged but not all in every case: I801, R804, R806, R808, D809, C805, C810, D820 AND I804

Reason: It appears that certain waveforms in the power supply that control the current are not 100% accurate. Therefore, this makes the STR (I801) go short circuit causing R804 to become defective. This creates a chain reaction and most of the above components will be damaged. Therefore, to protect this sequence of events from recurring, after the components have been replaced, up-rated values have now been fitted on the production line and are listed below.

Cure: Immediate difference is that resistor R804 has been changed from an R-M Oxide type to a 2W 0.18 Fusible

resistor part number RF02Y188K. Four capacitors have also been changed. C810 from a 470pF to a 1000pF 1kV part number CCXR3A102K
C820 from a 1000pF to a 470pF 1kV part number CCYR3A471K
C850 from a 820pF to a B 1500pF 52V part number CCXB1H152K
C808 from a 10uF 50V to 10uF 100V part number CEXF2A100V.

When the above components have been replaced, check/replace the STR I801, the Opto-Coupler I804, R806, R808, D809, C805 and D820.

Model DTY2880GB and all models using CP520 CHASSIS Model DWX2880GB and all models using the WP895/CP885 chassis

Symptom: Set will not come on using the ON-OFF button and the front control buttons and the LED flash

RED and GREEN.

Reason: The set is in CHILD LOCK mode. This possibly occurred if the tube flashed over and corrupted the EEPROM, rather than the customer accidentally entering Child Lock mode.

Cure: Switch on the set, using the customer's remote control. Enter MENU, toggle down to Features, select Child lock and turn it off.

DAEWOO COMBI TV/DVD Model DDT-14H9/21H9S

This bulletin has been raised because of the confusion over the main parts required for above models due to two different chassis being fitted to our TV/DVD Combi's, but using the same model number.

For main parts list, noting differences in chassis and model number, see table below.

PRODUCT DATA		MAIN PARTS				
MODEL	FACTORY MODEL	CHASSIS	DVD LOADER PART NUMBER	NUMBER PRINTED ON DVD LOADER	REMOTE CONTROL PART NUMBER	LOPT PART NUMBER
DDT-14H9S	DDT-14H9ZF-S	CP-099F	97QD020700	DDM-4011	48B5552B02	50H0000177
DDT-14H9S	DDT-14H9UZ-S	CP-099F	97QD020700	DDM-4011	48B5552B02	50H0000177
DDT-21H9SL	DDT-21H9FCF-S	CP-099F	97QD020700	DDM-4011	48B5552B02	50H0000235
DDT-21H9S	DDT-21H9UCF-S	CP-099F	97QD020700	DDM-4011	48B5552B02	50H0000235
DDT-21H9S	DTD-21H9UCF-S	CP-093F	4850M09010	DDM-4041	48B5552C1901	50H0000279
DDT-21H9S	DTD-21H9UCP-S	CP-093F	4850M09010	DDM-4041	48B5552C1901	50H0000279
DDT-21H9S	DTD-21H9UCP-S	CP-093F	4850M09010	DDM-4041	48B5552C1901	50H0000279
DTD-14H9GB	DTD-14H9UZ-S	CP-093F	4850M09010	DDM-4041	48B5552C1901	50H0000209

NB. Please note that the two chassis can be easily identified because the CP099F chassis is a double decker, having the power supply as a separate PCB mounted on a plastic frame to the rear and above the main signal PCB. The CP093F has the power supply as part of the main board. Both chassis then have a separate DVD loader mounted on the main board towards the front.

DAEWOO LCD Model DSL-17D3/DLP-17D3, DSL-20D3/DLP-20D3

This bulletin has been raised because of the confusion over the part number of the main signal PCB used in these LCDs that have the same or similar model numbers, but

use different chassis.

In fact, the two chassis concerned can easily be identified by the position of the aerial socket and the power adaptor input socket, when the set is viewed from the rear.

In short, if the aerial socket is on the right and the power input socket

is on the left, then the chassis is SL-110P.

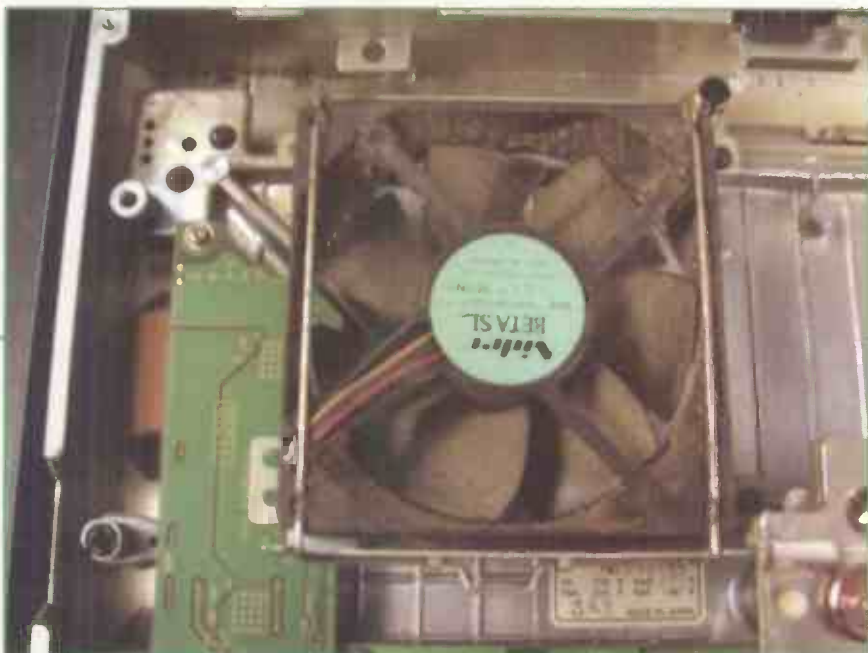
If the aerial socket is on the left and the power input socket on the right, then this has an SL-120P chassis.

For main Signal PCB part number list, noting differences in chassis, see table below.

MODEL	CHASSIS	Screen Type	Aerial Socket	Main signal PCB
DLP-17D3	SL-120P	N/A	LEFT	PTMPMSA122PC
DSL-17D3	SL-110P	N/A	RIGHT	PTMPMSA929
DSL-17D3	SL-120P	N/A	LEFT	PTMPMSA122PC
DSL-20D3	SL-110P	N/A	RIGHT	PTMPMSE033
DLP-20D3N	SL-120P	LG	LEFT	PTMPMSD125
DLP-20D3N	SL-120P	AUO	LEFT	PTMPMSD122

Servicing at **Fujitsu** **Plasmavision**

Graham Goodburn, UK service manager, Fujitsu-General, explains the company's servicing policy and offers some advice on plasma repair



Fan covered in dust and fluff. This got into the bearings so the fan began rattling. For repair, fan was sprayed with WD40. This only gave the dust something better to stick to, so it failed altogether.

As a high-end plasma manufacturer, Fujitsu takes great pride in both its products and the service experience that customers receive when buying and owning a Fujitsu panel. It's difficult to overstate the importance of quality service and repair, whether in or out of warranty, to the overall customer experience of owning a Fujitsu plasma.

For that reason we keep pretty tight control over all servicing for Fujitsu panels. For warranty work, we operate our own "in house" facility which leads all servicing in conjunction with a single service partner. Both have full factory support for parts, modifications and service information.

With failure rates currently one of the lowest in the industry - under 0.6% generally and under 0.2% for most models - we don't get a large number of screens back under warranty, so it makes logistical sense to keep the service "network" small. This also has the benefit of ensuring that those people responsible for servicing panels really are experts. This guarantees almost first-time problem resolution so that customers get their screens back as soon as possible. It also means that we can fully investigate and report any unusual failures to HQ with reference to any modifications

needed in future screens.

Outside of the warranty period - two years for all-in-one models with tuners and three years for all other screens, with the option to extend to five years - the same model still applies. Customers either contact us directly or go through the dealer they originally purchased the screen from.

Local co-operation/main service issues

However, we recognise that this model might not be economic for screens over five years old, typically Fujitsu's PDS models which can be over ten years old, where the transport costs might tip the repair bill over the value of the screen. Where this is the case, customers will look to local servicing operations to keep costs down.

In which case Fujitsu's service team will work directly with the service company to help them fault-find and resolve the problem. We deliberately only provide service manuals, modification lists and other related materials on request rather than through the website. This is so we can maintain a degree of input into as

many servicing events as possible. This isn't interference for the sake of it, in fact we'll often provide some pointers when contacted for service manuals to help the service operation get things resolved quickly. The aim is to ensure that all repairs are to the highest standards and we keep customers happy. Parts are available from Portables Direct (details below).

The main issues reported on older models normally centre around either poor maintenance, overheating or old age. We see issues that have been caused by poor previous routine maintenance, either using sub-standard components or without access to the modification list for that model. It only takes a minute to email or call the service team at Fujitsu, we're here to help avoid these issues. Poor or zero routine cleaning can lead to fan failure which can bring on a number of issues caused by overheating. This might be component failure or dry joints, dried out capacitors and similar heat and age related issues. Similarly, over a long time period, power supply components can dry out and fail. It is rare for any other issues to be found that cannot be traced back to these initial problems. These are incredibly rare,



This panel was overheating. Panel was repaired by bypassing the protection circuit so it didn't turn off anymore. It eventually overheated to the point where it caught fire



Heat sink. If fluff and dust is concentrated in one place this blocks heat dissipation and can lead to the component underneath failing



Ventilation blocked, as the back of the panel hasn't been cleaned this can lead to the unit over-heating

but we know what to look for so can advise service operations accordingly if they get in touch, possibly asking that they refer the screen to us for repair.

Prevention and advice

Prevention of failure revolves around making sure adequate air circulation is available and timely preventative measures, including occasional modifications, are all carried out as appropriate. Ignoring the early warning signs of a unit switching itself off (the internal protection circuit) and continually trying to get the screen to power up after the protection circuit has

activated, normally results in other more serious failures. These can occur on the X/Y sustain boards or even the embedded line driver circuitry which may be either uneconomic or impossible to repair on older screens. Replacement would normally be offered in these cases at a discounted rate to the customer, but of course timely service intervention would always be cheaper.

We always try and communicate our service procedures to anyone that is servicing one of our panels and we ask that they be followed when possible and appropriate. We always soak test a repair for many days. In some cases of a

reported intermittent fault, at least a week, to lessen any chances of a repeat failure. Plasma screens are expensive to buy, repair, courier and re-install, so anything that is done to lessen both the cost and inconvenience of a repeat failure is one of our main service aims. If other parts in the unit have been excessively stressed as a result of poor previous repair or maintenance, it may take a little while before they exhibit a problem. Even if the initial cause was repaired, historical evidence of the likely weak points after such failures help enormously, further re-enforcing Fujitsu's stance that an in-house led service provision offers the best all round solution to our customers.

Transporting plasma screens often results in additional problems occurring due to a lack of suitable packaging being available. Fujitsu will only ever recommend the original packaging, if in good condition, or custom built flight case for transporting units. Plasma screens should always be transported upright, properly packed and with due regard given for any transport induced stresses. This should include the orientation of the box in the transport vehicle - the box should never be placed across the vehicle. Any unit delivered for repair would also need to be in a suitable plasma carton due to the nature of the warehouse/workshop/collection point cycle. Proper support and storage of customer's units can only be ensured if they are in the correct packaging.

Screens that are delivered wrapped in bubble wrap, or worse, lying on the boot floor, rarely survive the experience and it never fails to surprise me just how badly some are transported. Fujitsu always refuses to accept such deliveries. We really have seen it all and it is worrying that such an expensive item would be treated in such a way. We have a full returns procedure which is sent with every repair request and naturally can always supply a proper box, at cost, if requested. It is an interesting fact that customers rarely insure their screen for transport. We point out in our returns procedure that it is strongly recommend they do.

For all service and technical matters call: 0208 731 3450 (ask for Plasma service).

For non approved service centres wishing to obtain parts for Fujitsu screen repairs, they can be obtained via our trade sales outlet: Portables Direct <http://www.portables.co.uk/> phone (M-F, 9AM to 5.30PM): 020 8968 1222 or 020 8968 1444.

The **Pace** of change

Mark Rooney,
head of IPTV,
Pace Micro
Technology,
argues that
Internet Protocol
Television (IPTV)
has the
attributes to
accelerate TV
services to the
next level

IPTV continues to emerge as a serious competing technology to digital cable, satellite and terrestrial television. We are now starting to see major telcos and ISPs engaged in implementing IPTV rollouts and, in countries such as Italy, France and China, established high volume customer bases.

However, the challenges faced by IPTV operators to compete with cable, satellite and terrestrial broadcasters will be considerable. Moreover, the latter group will not remain still, introducing IP elements themselves into hybrid boxes to increase interactivity and neutralise the advantage IPTV has in this area.

The key areas we will look at here are, to what extent IPTV can make its mark in an already crowded digital field, the role that the Set-Top Box (STB) will play in this new emerging market, and how STB suppliers such as Pace can play a supportive role for operators and end consumers alike.

The future form of IPTV

Key "pure" IPTV providers are major telcos (particularly the former tier 1 incumbents in each country) and ISPs. The major launches have been France Telecom, PCCW, Telefonica, Fastweb, and Free. IPTV presents an exciting advance into triple play for telcos fighting their competition following deregulation, and moving from a defensive position to an offensive

strategy by seizing the opportunity to compete for video delivery. Most major Telcos launching IPTV operations have the financial muscle to upgrade their networks, a large database of consumers and commercial knowledge of them and possess sophisticated methods of customer accounting and billing mechanisms. All these elements place them in a very strong position for the future in this market.

Most independent market analysts predict that, by 2010, of the 30 million IPTV STBs expected to be deployed in the world, around 50% will be hybrid, i.e. IPTV combined with some form of digital cable, terrestrial or satellite front end. Different providers will be attracted to IPTV for varying reasons. For satellite broadcasters, an IPTV element in the unit will enable the inclusion of VOD (video-on-demand); cable operators see the introduction of IP as potentially reducing network costs by enabling both internet access and VOD services; while digital terrestrial operators see premium services and interactivity offered through an IP return channel as reinforcing their free-to-air television products and enabling interactive advertisements.

Fig.1 illustrates the typical hybrid unit, in this case a satellite hybrid STB.

Commercially, the hybrid is a very attractive proposition since it purports to provide a simple route into IPTV. Operators are increasingly demanding an Ethernet interface be included in the



Pace's TIP850 high definition PVR IPTV set-top box

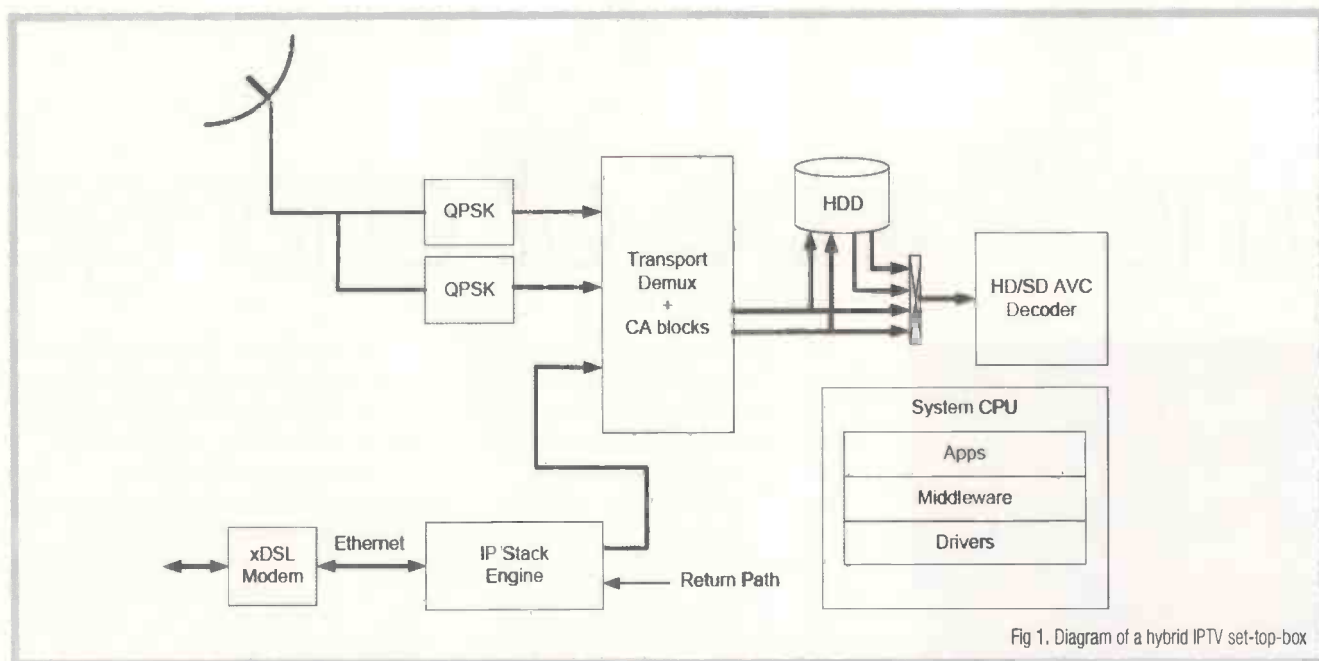


Fig 1. Diagram of a hybrid IPTV set-top-box

specification of the product, the idea being to add IPTV services at “some point in the future”, once they have had time to truly consider the network provisioning. From an engineering perspective, the challenge is to plan ahead for the bouquet of services that the IP port will be expected to handle. The STB has to be designed in such a way as to ensure that software upgrades are only necessary to cater for the future IPTV functionality by, for example, ensuring that enough flash memory exists for the TCP/IP and IPTV media stacks. The middleware requirements (software that connects software components/applications) must also be understood and engineered to provide a seamless television experience to the consumer, who has little concern for whether the service is provided via the IP or DVB inputs. Middleware vendors such as OpenTV and NDS are already engaged in solving these issues.

So what’s the distinction between “pure” and “hybrid”? Pure IPTV STBs rely upon the IP network connection for their operation; disconnect the Ethernet cable and they cease to function. Adding DVB inputs to the pure IPTV unit removes the need for the operator to broadcast essentially free-to-air services on their IP network, allowing the bandwidth to be freed for revenue-generating opportunities and improved triple-play offerings. The hybrid, on the other hand, relies upon the DVB aspects for the majority of services, with the IP port simply augmenting the package by adding a reasonably high-bandwidth backchannel.

IPTV is ripe for sustained growth

In the pioneering days, IPTV had one key advantage over satellite and cable: the backchannel. This enabled true interactivity and promised a myriad of additional services such as online banking, email and Internet gaming, traditionally only available to those with a PC. However, none of these were very successful either because they consumed expensive network bandwidth to provide the service, which commercially did not pay off, or because the TV simply wasn’t the preferred medium for the provision of such services. The backchannel became confined to supporting VOD, using RTSP (real time streaming protocol), and Internet browsing, using HTTP. This was often a “walled-garden” service because the embedded browser technology simply wasn’t capable of rendering complex HTML pages.

The technology simply did not work reliably enough to provide a compelling TV and VOD service over a Telco IP connection. True, this can all be demonstrated successfully running under ideal (laboratory) network conditions. But scalability on a live network is paramount in any serious IPTV deployment and, if not engineered correctly, the service rapidly degrades with the addition of each new subscriber.

The reason why IPTV now excites not only the television and media industry, but also public imagination, is because IPTV can sustain a top quality user television experience comparable, if not better than digital terrestrial, cable or satellite. This transition is because of

ten key developments.

1. Better Internet infrastructure

Recent years have seen major breakthroughs in overcoming the physical constraints of building IPTV networks and migrating customers across to it. With privatisation, deregulation and local loop unbundling, competition has driven up the level of internet network infrastructure investment, making accessing the Internet much faster. Typical of this are the rollouts of ADSL2+ and VDSL2. Providing 24Mb/sec maximum for copper distances of less than 1.5km, ADSL2+ is considered the minimum necessary to carry HD multicast TV and VOD alongside PC Internet access. VDSL provides a solution for operators wishing to deliver a multi-room experience via the IP connection, where two or more multicast streams need to be routed into the home. Whilst VDSL2 is potentially capable of an aggregate data rate of 200Mb/sec, the performance degrades markedly with copper distance: at 1.6km line length its through-put is equivalent to ADSL2+.

2. Increase in broadband speeds

The Internet access speeds that the end consumer has available to him from his service provider are increasing exponentially. Only a few years ago we were mesmerised by 56kb/s dialup modems, and high-speed connectivity was largely provisioned in the form of expensive ISDN lines. Today, speeds of 2Mb/s are common place with 8Mb/s increasingly becoming the consumer expectation. This is fine for VoIP and

PC browsers, which demand low-bandwidth or burst access to the Internet, but top of the list of bandwidth hungry applications by far is video and IPTV, which require a sustained and preferably uninterrupted data rate. With quality-of-service (QoS) being of paramount importance for video services and an increasing need to support multiple IP-enabled devices in the home, the need for higher bandwidths is increased still further.

The successful increase in broadband speeds is a self-fulfilling prophecy – it allows new technological developments such as HDTV, which in turn continues the new drive for further increases in bandwidth. This is a crucial element in IPTV. For standard definition MPEG-2 services, sustained bit-rates of between 2Mb/s and 5Mb/s are necessary, whereas for a high definition MPEG-4 service, around 12Mb/s is required to provide good picture quality. IPTV needs to deliver a robust multicast video and VOD service as a bare minimum, only now is the bandwidth becoming available to provide this base package.

3. Better compression technology

The improvement in digital

compression techniques such as the development from MPEG-2 to MPEG-4 and H.264 AVC, means high quality video can now be transmitted using lower speeds. The provision of high bit-rate video services therefore becomes more efficient either through savings in bandwidth or through enabling high definition television. In markets with a strong pay television history, this will be important for IPTV operators as they must not only match, but also exceed rival digital services.

4. High broadband penetration worldwide

Broadband penetration has had to reach critical mass for IPTV rollouts to be viable. There are now around 250 million broadband subscribers spread evenly across the world. With this critical mass, knowledge and understanding of the power of high-speed Internet is now almost universal, enabling video seamlessly to be added to data and voice (see fig. 2).

5. Increased high quality content

IPTV operators are now starting to win more content rights. Previously, major content providers, mainly the major film studios and sporting rights

holders, have been disposed to allowing cable, satellite and terrestrial broadcasters a clear run to use their content. IPTV operators had to overcome a vicious circle. When the number of subscribers to an operator remains small, the content rights holders are unlikely to give the operator content, even if the price they are bidding for is on a par with bids from cable, satellite and terrestrial. However, IPTV operators need to secure more content to increase their subscriber base. Still, in the past 12 months this vicious circle has shown signs of breaking down. VOD is central to IPTV operators' business models and this enables closer links with the eight big film studios. Wider use of sporting rights such as goal clips, near live matches, on-demand repeats, also gives options for content rights holders to slice the cake in many different ways. T-Online in Germany now has the rights to the Bundesliga and, for example, BT Vision recently signed for near live rights to Premiership matches.

6. Positive support from major telcos

The desire from major telcos to be in the IPTV market place has grown. At

**Broadband internet subscriber growth in Europe: Source - Dataxis
Sept 2006**

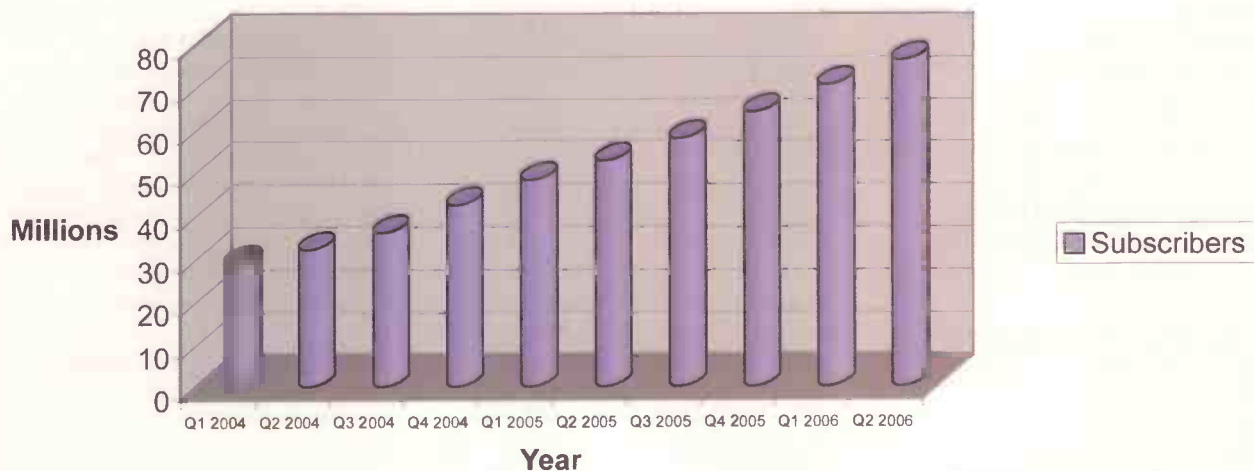


Fig 2. Broadband subscriber growth in Europe

this stage, virtually every major Telco worldwide is involved in some form of IPTV trial. The telcos will be keen to maximise bandwidth utilisation for voice, data and video and will obviously tailor their activities to ensure all areas are exploited.

7. Better interactive applications

There has been an increase in the refinement and innovation for interactive applications that can exploit extensive two-way activity. In the past, this has often been cited as a key area for IPTV growth and service differentiation. Only now is it starting to truly deliver.

8. Advances in video-on-demand storage capabilities

VOD, PPV (pay per view), and NVOD (near Video-On-Demand) have been present in the broadcast market for some time and VOD services are now being rolled out as a large number of companies vie for the head-end network server business.

IPTV, through its fundamentally two way technology and strong interactive capabilities, is well positioned to offer VOD. It principally offers two types. There is the traditional method of the consumer "pulling" a selected film from a library of titles. Secondly, by storing a huge amount of video on network based servers to provide network PVR (nPVR), IPTV operators can offer the consumer the ability to catch up on television programmes he or she may have missed for a relatively small fee. Network PVR is attractive to IPTV operators because it offers a solution to the problem of moving content over the network. Instead of trickle-charging to local PVR discs overnight, the operator can be certain that the network bandwidth is being used for content that consumers actually want (see fig. 3).

9. The development of Secure Conditional Access/DRM solutions for IPTV

Conditional Access (CA) allows the consumer access to content at the entry point of the process. Digital Rights

Management (DRM) defines how, where and when the consumer can use the content. CA typically uses hardware – a smart card – in the STB. DRM is more likely to be software-based security. Where there are two-way IP based networks, DRM is therefore a much wider issue to address and police.

Over the past three years, significant progress has been made by content security providers to introduce the added logistical benefits of software, whilst keeping the robustness and advantages of the smartcard hardware technology. Hardware providers have introduced solutions which effectively move the hardware functionality to the head-end and, where this does not overload the network, this gives them the best of both worlds. The new emerging DRM companies have sought to reinforce their software authentication with additional measures to tighten the access control of the network as a whole, such as watermarking and digital forensics.

The hybrid market brings in additional complexity, where content is available from multiple sources (satellite, cable, DTT, IPTV) and must be handled by differing CA systems. How these systems interoperate in order to guarantee security of content is just one example of a difficult integration problem being addressed today.

10. Next generation, intelligent IPTV set-top boxes

The key final factor is the availability of next generation STB terminals with advanced capabilities.

The simplest STB needs to be able to connect with service node and allow video decoding, channel change, control of the GUI (graphical user interface), VOD and delivery of signal to the television set. For IPTV operators (as for broadcasters) consumers will not accept anything less than a completely trouble free television service.

The type of IPTV home devices deployed will reflect the intelligent nature of IP-centric applications. While today many IPTV products are only

expected to execute simple applications, the complexity of the terminals provided will undergo considerable change. There will be a paradigm shift in IPTV over the next five years from operators requiring dumb terminals as extension of the network, to products significantly extending service delivery capabilities. Therefore a family of products from basic terminals to multifunctional Home Servers with increasing functionality is essential.

Vision for the future

The home network will be the key to the future viewing and listening needs of the end consumer. IPTV will undoubtedly reap the benefit of this. Regardless of the method of transmitting the signal into the home, distribution around the domestic network will be IP. Only IPTV, by definition, will be able to offer end-to-end IP. This gives an element of future proofing in five key areas:

1. Connected IP devices

IPTV inherently lends itself to a considerable degree of interactivity between the network and the main box (thick client), thin client boxes (secondary terminals) and a variety of connected home devices. Emerging wired and wireless home networking alternatives support multimedia and there are a variety of interoperability standards in place. Connected IP enabled home devices are now the main growth driver of the digital home and are expected to reach sales of hundred of millions annually within five years. These will include games consoles, audio devices, still and moving cameras and IP mobiles. All these are likely to be readily accessible on the family televisions scattered about the home using the thick client (the home media server) as the repository for the material.

2. Multiple tuners and distribution around the home

In the future it will be a fundamental consumer need to have access to unlimited numbers of channels using

IPTV and nPVR figures for Western Europe: Source - Strategy Analytics, May 2006

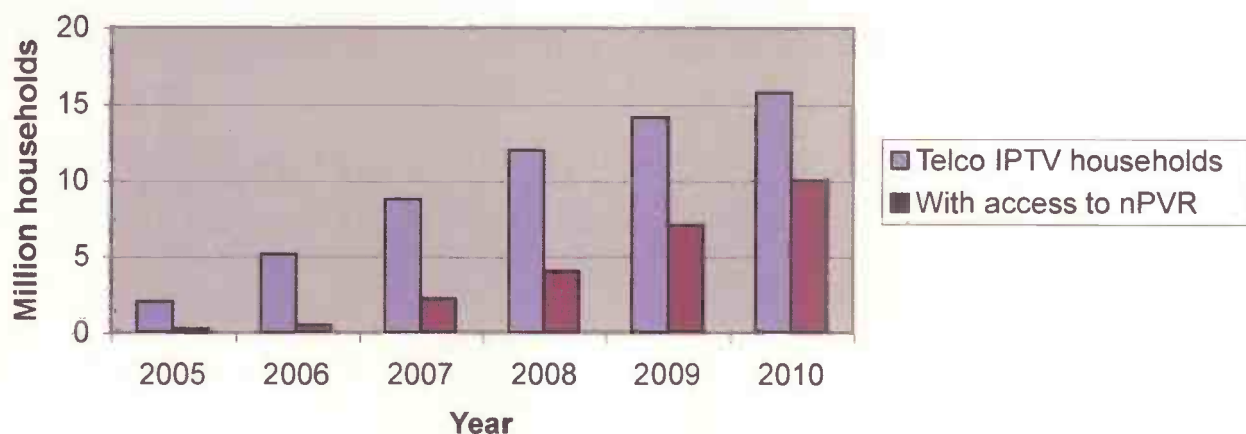


Fig 3. IPTV and nPVR households

multiple tuners for distribution around the house. This will enable the user to fully exploit the benefits of video-on-demand, utilise more interactivity, relish in more tailored and localised programming, benefit from targeted advertising and enjoy VoIP and video conferencing. By embracing and utilising this technology, IPTV operators will be able to build up strong consumer loyalty, increasing average revenue per unit (ARPU) and reduce churn.

3. HDTV growth and the need to record and replay in same high quality

HDTV is here to stay. New launches are now commonplace around the world, stimulated initially by the huge take up in the US, and there is no doubt sales of HDTV sets will grow exponentially. Increasingly, no consumer will want either to be limited to SD or worse still only able to watch HD on "appointment to view" rather than time shifting.

The need to record and replay in HDTV will become more prevalent. HD and DVR will become increasingly joined at the hip. In addition, the consumer will not want to be restricted to having this facility in only the main viewing room. Added to this is the aggressive marketing of new high definition formats for retail products.

The growth of HDTV will therefore drive penetration of home media servers and IPTV can play a leading role.

4. Advances in connectivity within the home

With IP at the centre of the connected home, IPTV operators also have the chance to further improve their offering to end consumers by fully utilising the huge advances that continue to be made in this area. Connectivity within the home network will become increasingly sophisticated as the different methods of home networking – Ethernet, Co-ax, HomePlug, HomePNA and wireless – continue to become more developed, robust and mature. Again this will allow operators to ensure customer loyalty.

5. Seamless migration for IPTV operators from triple to quad play

Central to the business strategy of many IPTV operators is the provision of triple play (the provision of voice, video and data services together). However, even before IPTV reaches maturity, triple play is starting to appear outdated with the movement towards "quad play" - incorporating mobile content access. The take-up of mobile television will be considerable. At the end of 2005 there were 750,000 mobile television handsets, predicted to rise to just under 2 million by end 2006. It is estimated that there will be over 100 million television handsets for broadcast mobile television by 2010, with over one half using the DVB-H standard and a further quarter T-DMB and MediaFlo. IPTV sits comfortably with "quad play" and its flexibility will reinforce its products and offering.

Conclusion

IPTV will reach maturity in late 2007 when it reaches 10 million subscribers worldwide. This is also the point the 10 key drivers (see above) for the successful deployment of IPTV will reach maturity and the whole becomes bigger than the sum of the parts.

Two final factors are crucial. The telcos themselves have an overwhelming desire to increase revenues and to protect their current market advantage and share in the traditional revenue streams of voice and data. An IPTV service gives them the opportunity to offer triple play. This in turn enables them to lever their extensive customer bases to increase ARPU and reduce churn. Central to this strategy is the final factor - the availability of sophisticated STB solutions for the home which will completely revolutionise how television is viewed by the end consumer.

As IPTV continues to grow, Pace's past heritage, present implementation and vision of the future, will provide support and assistance to IPTV operators in order that they can gain full advantage of a wide range of distinct technologies as they converge to give the consumer greater scope and breadth.

Pace has been proud to play a major part in the excitement of the past 10 years. The next five years will see greater change and greater pace of change. Pace's technological leadership, integrity, foresight, engineering excellence, and ability to forge long lasting and successful relationships with industry partners will continue to stand it in good stead.



Letters

A good day all round

It was a beautiful morning, the sky was a crystal blue colour, the sun was beaming and so was my face. The traffic had been unusually light on the way to work and every traffic light was on green. The key glided effortlessly into the bolts that hold our shutter door firmly closed over night. I went into the building and made straight for the kettle.

What better way to start the day than with a nice cup of Typhoo? I sat down at the reception desk and the phone rang. "Hello Visontech how can I help you?"

"Hello Andy", sang a cheerful voice at the end of the line that was instantly recognisable to me. It was Ken the caretaker of a nursing home in a nearby town.

"What can I do for you Ken?" I said.

"Well we are after two large widescreen TV sets with DVD players and VCR's, can you help us at all."

"Can I help? Is the pope catholic?"

Ken settled for two of the latest Toshiba picture frame sets that came as a package with DVD and VCR for a price of £489.00 each. Excellent equipment at a ridiculously cheap price and what a start to the day for me.

Mr Keen came in next. "I've seen these Freeview boxes advertised on the BBC. Can you tell me more about

them young man?"

Young man! Could this day get any better? Mr Keen bought a labgear box for £89.99 and went through the door looking really pleased with himself.

Waiting on my bench was an Hitachi C28W410 with a nasty fault that up until now I had drawn a blank on. When it came in, it had frame collapse. This was easily cured by replacement of the TDA8350Q frame/East West correction IC, but now the frame was low and many hours had been spent trying to trace the fault to no avail. Should I risk trying again and spoiling the day?

My train of thought was interrupted by a customer. She placed her Matsui 14V1R onto the front desk and cheerfully announced that the bulb had gone. "The bulb?" I said in a puzzled voice.

"Yes I have perfect sound but the bulb doesn't make the screen light up."

"Ah I understand, leave it with me and I'll see what I can do."

I made some space on the workbench and within 10 minutes I had found a dry joint on the frame scan coil plug, re-soldered it and put the set back together. I moved it to the soak test bench and stared defiantly at the Hitachi. It stared back at me.

The time had come to brave the recalcitrant Hitachi. Why didn't the frame scan to the full height? I studied the circuit diagram again. I'd checked everything time and time again. In the negative feedback circuit I noticed two low value resistors R006 and 007 2.2 and 1.8Ω respectively. They seemed to measure OK but I changed them just on a hunch really. When I switched on the frame was back to its

full height. This was a good day and I thought to myself when things do go well in this trade, don't they go well.

A.D Lyon Visontech

Plasma problems

I currently have a 50" Sony plasma in for repair and I have found the fault. It is a large chip on the scan board. Because I am not a Sony dealer, I asked SEME to order the chip from Sony. I had a reply back from SEME saying that Sony would not supply the chip and I was advised to take the plasma to a Sony dealer!

I was stunned at the reply because why should a Sony dealer get all the repair profit and not myself? Is my business not good enough just because I haven't got a Sony account?

It is these types of situations that are gradually putting more and more nails in the coffin of small businesses. We seriously need some kind of support or retaliation to these 'too big for their boots' companies!

In contrast to Sony, there is a lot of 'Mickey Mouse' CE products around that are near impossible to get parts for. This must also be addressed somehow. There has got to be something negative to be said about all these plasmas and LCD sets, surely they are not all designed to be thrown away if they go faulty, so where are the spare parts?

Your Magazine is telling us a lot about the latest ideas and technologies that are coming out and also telling us a lot about how well manufactures are doing, and how many sales they have made, etc. That is 'shop floor' talk not workshop info!

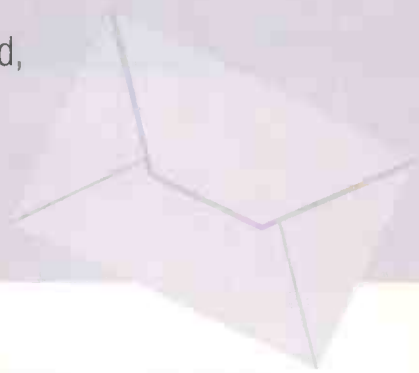
Take the September issue for instance. There was the usual News Section in which I always enjoy reading about the new technologies and what's hot and what's not. Then we have a section about DAB. OK it states how many sales have been made and then it gives a list of all the different tuners and radios available, but nothing to do with servicing them if they go wrong! Then there is an



Andrews near perfect day included a juicy sale of some Toshiba Picture Frame TVs

Please send letters to: Television, Nexus Media Communications Ltd,
Media House, Azalea Drive, Swanley, Kent BR8 8HU

Email: Tveditor@nexusmedia.com, using subject heading 'Television letters'



Lots of readers have asked for more info on the latest technology, see page 666



and informative to the small service engineer like myself.

Manfred Jarvis

(Your wish is our command Manfred, see pages 797 and 799 for plasma info)

Subject search

Ref ITT Compact 80R –
110/2 Chassis 5861. 72. 48.

I am seeking information on the above colour receiver.

I understand that *Television* ran a series of articles on this set, which commenced with an article in your magazine in February 1995 by Chris Watton on page 261.

The mains is reaching both the operational unit and the main chassis, but the set is dead, no sound, no vision, no EHT, could it be locked into standby?

I have acquired a circuit diagram of the main chassis and a layout of the chassis PCB. But I have no information on the operational PCB which is fixed to the front of the set and houses the infra red receiver etc, and on which there are several ICs of whose purpose and operation I have no idea.

I would appreciate any information you can provide.

Paul Jarvis, Walsall

(Ed. I have supplied Paul with a copy of the article he was interested in, but wondered if any one else might be able to help with some insight on this)

article about HDTVs, telling us about the new TVs on the market, which sounds more like the 'what video' or 'what home cinema' magazine.

I really hope the magazine will get back to its "old" ways (but with new technology) as it was much more fun

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Grax Manchester 0161 747 2007 www.grax.co.uk
Grax Leeds 0113 26 33 500 www.grax.co.uk
Solutions Group 08456 444 000 www.solutionsgroup-plc.com

Or contact Horizon direct for your local supplier
on +44 (0)20 8344 8230
or email sales@horizonhge.com

IFA show report

The IFA event acts as a product launch-pad and an opportunity to examine future trends



The IFA show is described by its organisers as the world's largest consumer electronics trade fare. *Television* took a look at some of the major innovations and themes showcased at the event

With 1,202 exhibitors from 40 countries attracting 225,000 visitors on an exhibition space of 160,000sqm, this show posted some impressive numbers. Taking place at the Berlin Funkturm (radio tower), the show organisers also quoted a figure of 2.5 billion Euros for the amount of orders for new products and services placed at the show.

The event's success had led many companies to use the show not only as a showcase for new products, but to make policy statements about consumer electronics in general, highlighting trends they believe will be important in the near future.

A speech given by Rudy Provoost, chief executive officer of Philips Consumer Electronics, underlined what he believes to be a fundamental shift in consumer behaviour. Mr Provoost described how the formerly passive consumer of electronic products has now become both individual and interactive, carefully selecting his or her own content and then personalising it. Mr Provoost believes manufacturers must break free from the confines of traditional

entertainment, imagine what customers want, and create effective innovations. Any close analysis of recent consumer habits and trends tends to suggest that Mr Provoost is right. More than ever consumers do expect to have control of how they gather, interact with and organise content. In many instances it is consumers who have dictated which technologies have flourished. Take the explosion in mobile-phone texting for instance. This was never intended to be a major aspect of the mobile phone landscape by many networks or manufacturers. It was consumers who picked-up on a minor function to give birth to a world-wide phenomenon.

This type of behaviour means that manufacturers in a sense will have to reverse their way of product development. Instead of coming-up with products and innovations they think the public will want, they must deliver products that have 'open-ended' content manipulation platforms that indulge consumers' desire to adjust and control not only how the product performs, but what it performs.

The MCP9480i Media Centre from Philips reflects consumer's desire to control and create content



Toshiba has posted its colours firmly to the HD-DVD mast and consequently Yoshihide Fujii, corporate senior vice president, Toshiba Digital Media Network Company, described a future that he believes will be decided by a combination of High Definition TV (HDTV) and HD-DVD. He is also convinced that the interlinking of audiovisual media and computers will acquire increasing importance. Consequently Mr Fujii argued that there will be a need to combine HD-DVD players and recorders with hard drives as well as HD-DVD capacity with PC interfaces and downloading capabilities.

This relates closely to the suggestions made by Mr Provoost of Philips in that it is computer, or on-line based processing power, that will deliver the flexibility of content manipulation that Mr Fujii describes. It is not only hardware that is getting in on the interaction and control band wagon. In the past, disc technologies have always been largely 'dumb technology' in that they merely played back content. However, even here manufacturers have made sure that choice is key as both HD-DVD and Blu-ray provide ways for the consumer to access on-line data to enhance and change the viewing experience.

TV choice

Recognising consumer trends is only half the job for manufactures. There is also fierce competition in terms of improving performance and nowhere is this more intense than in TV technology. Many in the industry now regard LCD as the natural successor the CRT, and for this reason many are trying to tackle what are seen as some of the format's flaws.

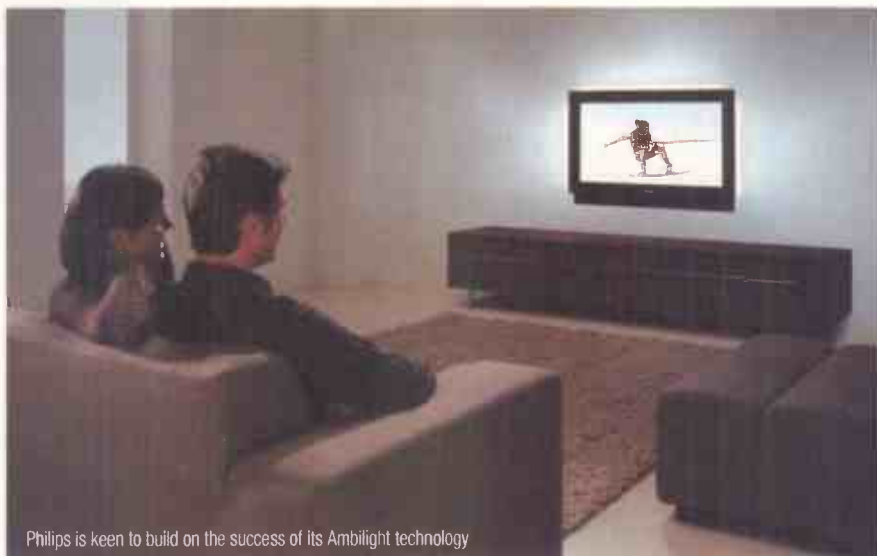
Samsung used IFA to show it first LCD-television which is backlit via

LEDs, designed to give a more life-like feel from the picture. Instead of CCFL-lamps, an arrangement of LEDs is used in conjunction with special 'diffuser-disks' which spread the light out so that a white homogeneous light source emerges. The effect is a backlit level that is consistent across the panel, which in turn allows a more natural performance from the screen, particularly in the level of black attainable. Samsung says a contrast ratio of 10,000:1 can be achieved.

Toshiba's latest addition to its REGZA family - the WLT68 series, was also on display. More commonly encountered as way of reducing flicker on CRTs, 100Hz technology is employed on this series for a different reason. Toshiba's M100 technology scans the input signal at 100Hz to reduce the amount of blurring on fast moving images. Because this results in exactly twice the number of half-frames on the TV

set, no complicated calculations are required to predict and display movement, resulting in sharper contours. Toshiba is also concerned with improving backlighting on LCD. Consequently the WLT68 has a unique feature that analyses the required brightness levels of each image and adjusts the backlight accordingly. Like the Samsung set, this delivers much better contrast levels.

Performance improvements came in the form of content manipulation on LG's LCDs, with integrated hard-drives demonstrated at the show. The success of products like Sky+ has encouraged manufacturers to add the same levels of choice built into the TV chassis. It is unlikely to be too long before hard-drives become common place on the average family TV. LG demonstrated a series of LCDs with in-built hard drives allowing viewers to time-shift, pause and record live TV on an 80GB hard drive. An LG spokesperson told *Television* that although the sets on display were analogue versions, a digital version was on the way next



year and that the company hoped to launch in the UK, although no definite date has been set.

Philips has a different take on back-lighting and was keen to talk about the success of its 'Ambilight' technology. Philips says the system adds a new dimension to the TV viewing experience by projecting background lighting from the rear of the TV on to the wall behind the set. The company says the result is an improvement in the perceived picture quality in terms of contrast, colours and detail. Philips is building on this with the introduction a new four-sided Ambilight FlatTV display. Called Ambilight Full Surround, Philips says this features a dramatic colour and light effect on all sides of the screen to draw consumers even

deeper into the action. Philips also says that Ambilight reduces eye fatigue by decreasing pupillary contractions caused by changing on-screen light intensities.

Boxing clever

Away from the world of TV, content manipulation is an even more important product feature.

Media centres that collect, manipulate and then deliver content to the user's TV and around the home over a network, is an area many manufacturers have identified as key. Media based PCs which can already perform these functions have been around for some time, but products are now appearing with the same functions, but in the guise of a more straight-forward

consumer electronics product.

Perhaps furthest down the road here is Philips, who, following the launch last year of the first Philips Showline Media Centre, introduced two new models, the MCP9360i and the MCP9480i at IFA.

Philips is particularly proud of the MCP9480i which, with its 320GB hard-drive, has the additional feature of a 'My Philips Zone'. This enables easy access to a host of applications with only two clicks on the remote. Applications include Blu-ray disc playback and burning, digital video (DV) capture from camcorders, and DVD movie creation for organising and re-packaging content recorded from the TV or downloaded from the Internet.

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IBC show report



The IBC-conference showcases broadcast delivery and application developments

With the emphasis on methods of content creation and delivery, IBC provides a useful view of the nexus between broadcasting enhancements and the products that are emerging to deliver those enhancements.

An important aspect here is broadcasters' increasing desire to provide viewers with enhanced or interactive TV viewing. To this end, The Digital Television Group (DTG) used IBC to announce a special working group to define and deliver a specification for a broadband return path for interactive television on the UK Freeview platform.

A Freeview return path would allow the implementation of services such as voting, games, sending in comments and the purchasing of goods and services. It would also open up the possibility of more advanced services such as streamed data over a broadband connection. The adoption of a return path would put Freeview on a closer footing with digital services from the commercial sector such as Sky and the BBC, Teletext and QVC have already signed-up to the project. The working

group will encourage interested parties to join in helping to develop and deliver the specification for a broadband return path as an extension to the existing interactive TV software UK profile MHEG-5.

Amongst the companies wanting to grab a slice of this future market in Set-Top-Boxes (STB) that deliver the next level of quality and interactivity, is Advanced Digital Broadcasting (ADB). It used IBC to display a new IPTV product, the ADB-3800TW, which combines IPTV, digital terrestrial television and High Definition Television (HDTV) in a single unit. The product is based on an advanced single-chip architecture, which provides decoding of MPEG-4/H.264 content, to ensure that operators can distribute HDTV services cost-effectively. Also on show was the ADB-5800S HDTV, a hybrid satellite and Ethernet Set-Top Box (STB), that enables operators to enhance their service portfolio with high-bandwidth applications such as Video on Demand (VoD) delivered via broadband. ADB also showcased its flexible Push-VoD platform for operators who wish to maximise

With 800 exhibitors and 40,000 attendees, the IBC event is billed as the premier trade event for the creation, management and delivery of content for the entertainment industry

Advanced functionality Set-Top-Boxes like the Mood 400 from tilgIn were a feature of IBC



revenues by distributing content directly to consumers' Personal Video Recorders (PVRs).

The area of increasing revenue via STB functionality is an increasingly important one, particularly for commercial broadcasters. As advertising revenues shrink, in part because of the choice and content manipulation delivered by digital, the same technology is being looked at to generate important extra income. Manufacturers that can deliver efficient ways to exploit these opportunities will be on a definite winner.

Another company looking to push the envelope on enhanced multi-media applications was Texas Instruments (TI). The company demonstrated a platform for running converged digital streams across a single digital signal processor. Based on its own DaVinci technology, the processor is targeted at manufacturers wishing to add multi-function capability easily and across a wide range of products including STBs, media centres and portable devices, without the cost of extra processors.

TI has extended application programming interfaces (APIs) to allow converged functionality by offering access into the framework to enable, for example, an existing STB application to provide video telephony functionality without requiring another processor. As a result, other than the addition of a camera and microphone, designing a converged internet protocol television (IPTV) STB with video telephony functionality becomes a matter of introducing new software. Using these types of systems, manufacturers should be able to deliver converged multi-media applications whilst still using the same cost effective base hardware. This should significantly cut development times and costs at manufacturer and consumer levels.

The big picture

Away from the world of hardware applications, IBC also provides a view of the future of broadcast applications and technologies. For those still getting

to grips with the implications of HDTV, Japanese state broadcaster NHK was on hand to demonstrate its Ultrahigh-Definition Wide-Screen System (U-HDTV). This uses a video format with 7680 x 4320 pixels which is around 16 times as many as HDTV. NHK says the system delivers ultra-clear, realistic three-dimensional images as well as greatly enhanced sound reproduction. As the system is intended for use within television, critics have pointed out that current technology means U-HDTV can only be shown on a cinema screen using a state of the art projector. Indeed there are no current TVs with a high enough resolution to display its pictures and equally there is no broadcast system that could cope with the amount of data needed. However, it is well to remember that NHK was the broadcaster that developed HDTV around 40 years ago and exactly the same could have been said then. Even more significantly, with the pace of the development of increasingly powerful compression and delivery systems, it is unlikely to take as long for U-HDTV to make an impact; current estimates put it at 25 years, it could be significantly sooner.

As far as improvements to existing broadcast infrastructure is concerned, there were plenty of companies wanting to offer ways of rationalising the switch to higher bandwidth technologies.

Broadcast specialist, Tandberg Television, used IBC to unveil its next-generation high definition (HD) and standard definition (SD) MPEG-4 AVC encoding solutions.



Tandberg says the move brings a step change in digital video distribution, by combining the broadest choice of density and enhanced encoding features, with the industry's leading picture quality versus bandwidth performance. The company says bandwidth improvements of up to 50% over currently deployed MPEG-4 AVC units are possible. Also announced was Tandberg's next-generation compression across the company's encoding family in the form of the EN8030 MPEG-4 AVC SD and EN8090 MPEG-4 AVC HD/SD ultracompression broadcast encoders. Alongside these were the new MPEG-4 AVC HD and SD ultracompression encoding modules for the Plex range of high density, multi-channel encoders.

Basically the new encoders enable HDTV services to be

delivered at data rates below 6Mbps, with similar improvements to SD services.

More efficient broadcast solutions are in turn enabling programme directors to introduce increasingly complex analytical additions to live TV events. Just one example of this is ITV's adoption of Red Bee Media's Piero system for coverage of the UEFA Champions League and UEFA Cup, highlighted at IBC. Piero is the first technology of its kind that enables better analysis of sports games, enabling viewers to see 'play' from angles that are not captured by cameras.

The Piero technology places pictures of real players into a virtual stadium, where it is possible to view and analyse play from different angles in animated sequences. It is the only technology

of its kind with a seamless transition between original footage and a virtual stadium. Offside, passing and other tactics can be seen from the best angle for analysis - even if the play has not been captured at this angle.

To form an inclusive graphics package, Piero also features the ability to track players across the grass and place pointers, badges and scores on the pitch in 'live' video. It can also be used to place virtual advertising in real footage or virtual stadiums.

Overall, this year's IBC and IFA shows demonstrated that the next 12 months will see a frantic struggle from broadcasters and manufacturers alike to grab the attention on the increasingly diverse, demanding and fickle audience that the new digital age has given birth to.

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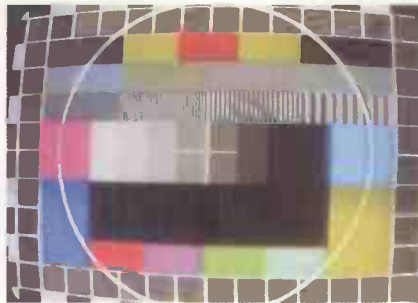
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Kurdistan TV, received from AB-1



Unknown test card via satellite (W1)



Mark Carr enters a private aircraft en route to Colorado (W1)



11.526GHz-H. And for a couple of days on September 12/13 'ABC NEWS DSNG' were 'up' on 45° East, 11.569GHz-V with NTSC content and colour bars in down time, both these transmissions using the common parameters 5632+3/4. The South African ASBA Currie Cup rugby series continues including Friday night floodlit games as on September 15, when the Cheetahs hammered the Pumas into the ground – 11.517GHz-V (6109+3/4)

Mark John Karr was the accused in the American child beauty queen murder, and August 24 saw his extradition to Colorado. A news chopper 'eye in the sky' provided live pictures as the cop van arrived on the tarmac, Karr was transferred – in irons – into the small passenger aircraft and we saw the airplane take off into the sunset. The APTN 'UP4' news distribution slot carried live

pictures [ex LA] of the prisoner transfer – W1, 10.972GHz-H (4167+5/6). Into September and the 'UP4' downlink appears to be increasingly encrypted and running with lower received signal strengths, not good news!

Bad news in the city of York on August 31 when the Odeon Cinema showed its last film. The listed mid-30s cinema was closing down as 'unviable' to run, following the planners refusal to demolish and rebuild with a multiplex, shops and flats. The BBC's sat truck 'UKI-827 NEWCASTLE' transmitted live links and vox-pop content from the York pavement on this rather sad occasion over Atlantic Bird-1 (AB-1), 12 1/2° West, 11.062GHz-V (4226+7/8).

Football, and a Manchester United game appeared over 3 channels on September 9 over Intelsat 10-02 @ 1° West. 'R162' and

'R161' were down-linking @ 11.467 and 11.485GHz-V (both 6111+7/8) together with 'LINK MAN U' @ 11.476GHz-V (6076+7/8). Jordan TV was seen using their SNG truck over 2 evenings [1830 hrs BST] for floodlit football matches in Amman end of August. Arabic tilting meant that the teams couldn't be identified. They signed as 'JRTV SNG-1 ENG' over W1, 12.743GHz-V (4167+5/6). This is the first time that Jordan TV has been reported with SNG equipment. Less encouraging football news was the suspension of Ben Thatcher for 8 games with an option to 15 should on-pitch aggro re-occur. September 12 found the Sky Sports' sat truck 'UKI-511 PATH 1' on the pavement outside of the FA London HQ to provide coverage of the 'spokesman' voicing the FA decision, live news into Sky Sports/News – down-linked at 12.535GHz-H (5632+3/4).

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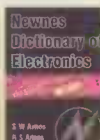
S W Amos; R S Amos

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VALVE AMPLIFIERS

Morgan Jones

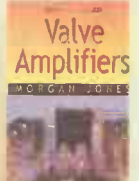
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Edited by Peter Marlow

A distillation of the most-used fault reports from 11 years of *Television* magazine. Arranged by make and model, it features over 2000 reports on over 200 models of VCR, including diagnosis and repair advice.

Mar 2000 ▲ 447 pages ▲ Illustrations ▲ PB

Published in UK

Code 0-7506-4634-9

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VCR IC DATA FILES

J Edwards

This text aims to provide the workshop technician and the field engineer with a convenient method of fault-finding without the need to consult workshop manuals. The most popular ICs used in video recorders are covered. Each device is presented graphically with data given against each pin.

Jul 1998 ▲ 448 pages ▲ 200 line illustrations

PB ▲ Published in UK

Code 0-7506-3993-8

£20.99



VIDEO AND CAMCORDER SERVICING AND TECHNOLOGY

Steve Beeching

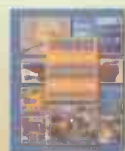
A comprehensive guide to domestic VCR technology and repair techniques. This edition brings the information fully-up-to-date, with expanded coverage of camcorders, sections on DVD equipment and the latest VCR technology.

5th edition ▲ Apr 2001 ▲ 323 pages

Illustrations ▲ PB ▲ Published in UK

Code 0-7506-5039-7

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VIDEO DEMYSTIFIED

Keith Jack

This edition has been updated to include information on digital television, datacasting, interactive video, digital camcorders and VCRs, and video interfacing. Coverage is international, including European, Asian and North/South American video standards, methods and techniques.

3rd edition ▲ Jul 2001 ▲ 784 pages & CD-Rom

References ▲ Glossary ▲ Index ▲ PB

Published in UK

Code 1-878707-56-6



THE DIGITAL SATELLITE TV HANDBOOK

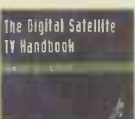
Mark E Long

A handbook and CD-ROM pack on digital satellite television. It provides an overview of all the digital TV platforms in use world-wide. It includes satellite coverage maps and transmission parameters that readers will need to receive digital TV services from any location in the world.

Sept 1999 ▲ 207 pages & CD-Rom ▲ PB

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Ian Poole

This is a guide to the technology and applications of modern radio and communications equipment. The author's approach provides a useful foundation for college students and technicians seeking an update on the latest technology.

Jul 2003 ▲ 352 pages ▲ Index ▲ PB

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Charles Miller

A practical manual for collectors, dealers and service engineers of valve audio and radio equipment. This edition includes new material on restoration and valve amplifiers.

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▲ 10 half-tones ▲ 50 line illustrations ▲ PB

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Eugene Trundle

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Approved Digital Advisor Scheme is launched

Full details of the Approved Digital Advisor Scheme have now been released, *Television* takes a look

Digital UK, the organisation leading digital TV switchover, has officially launched the Approved Digital Adviser Scheme ('Ask Digital'), backed by the Department of Trade and Industry. The idea of the scheme is to ensure consumers are well advised when buying any new digital TV or consumer electronics equipment.

Obviously retailers will be a key resource of advice for viewers looking to convert analogue equipment or go fully digital. Consequently the Government wants to make sure the industry meets certain standards so consumers get accurate advice.

Digital UK will promote the 'Ask Digital' service as part of its on going national information campaign. It will also commission a regular 'mystery shopping' audit of around 250 stores at a time, to monitor the standards of customer service being offered by staff during switchover. The results of which will be shared with retailers and consumers groups.

Under the Approved Digital Adviser Scheme, a version of the logo with the strap-line 'Ask Digital' will be licensed for use in stores and on staff badges.

To qualify for using the logo, retailers must ensure that most shop-floor staff involved in TV sales have undertaken a training programme which includes approved information on digital switchover.

Retailers will be offered the flexibility to decide how best to deliver and verify training, but staff will have to demonstrate knowledge of certain key areas in order to qualify as Approved Digital Advisers.

Under the scheme, Retail firms are responsible for delivering training to their staff. They are also responsible for demonstrating to Digital UK that they have proper staff assessments in place in order to verify that individual staff members have successfully qualified to become Digital Advisers. In most cases, this will be achieved by using the training and assessment module provided on the website www.digitallogo.co.uk

A list of all stores which have been registered via an Approved Digital Adviser licence is available from the same website under the Adviser Search section.

Those getting the qualification will have to demonstrate knowledge in six key areas, these are:

- What switchover means to consumers
- When switchover is happening locally
- What options are available to consumers – today and following switchover
- Specific advice about equipment including:
 - Primary TV sets
 - Secondary TV sets
 - Recording equipment
 - Free and pay TV options
 - Reception and help with aerial upgrades
- Services designed for those people with special needs
- Where to seek further help and advice about switchover

Retailers, who already hold a 'promotional licence' and can certify that 75% of their retail staff have received the appropriate training, can apply for an Approved Digital Advisers licence which allows them to use the logo in their promotional material. The 'promotional licence' on its own, only involves a commitment to advertise and sell digital products without any commitment to a specific level of knowledge.

Digital UK already encourages consumers to look for the 'digital tick' logo, which identifies products and services designed to work through digital switchover.

All licensees have access to all the relevant artwork for the certification mark including artwork for use on information leaflets, display stickers featuring the 'digital tick' logo as well as the 'get set for digital' strapline. The artwork is available in different formats and Welsh language versions are also available.

Detailed brand guidelines specify how the artwork must be used and licensees must ensure that there are no breaches of the licence when using the artwork.

To help promote switchover, retailers, wholesalers and rental companies who apply for a promotional licence will receive one free 'starter pack' of branded point-of-sale material for each of their retail outlets registered. Licensees can order additional POS material. A contribution towards the cost of this material is charged, via Pay Pal.

Margaret Hodge, Minister for Industry and the Regions, said: "As we move towards the implementation of digital switchover, it is more important than ever that consumers receive reliable information about the digital options available to them.



The Ask Digital art work will be available to those who have passed the scheme

Approved adviser

"The introduction of the Digital Adviser Scheme, as part of the digital switchover certification mark, should ensure that retailers can play a key role in putting consumers in the picture."

Ford Ennals, chief executive of Digital UK, added: "We have worked closely with major and independent retailers from the start of the switchover project, because their staff are the primary source of advice about digital for many consumers. Now we are asking retailers to ensure the quality of that advice by signing up to this important national scheme."

The Radio, Electrical and Television Retailers' Association (*Retra*) is backing the project. Mark Hayward, chief executive of *Retra*, said: "We plan to encourage stores to sign up and train their staff to be Approved Digital Advisers. It's a very positive development that will raise the bar for switchover advice in stores across the UK."

Steve Gambling, manager of Brighton Sony Centre, is confident the Approved Digital Advisor Scheme will deliver



The level of knowledge needed to qualify for the scheme is not exactly taxing. A bit of basic product knowledge, some awareness of region switchover and options open to those with special needs just about covers it. As the scheme will receive some very high profile advertising from UK digital, it seems only sensible for those involved in selling kit to take advantage and get themselves on the register.

Case study

One of the first retailers to qualify was a Sony Centre branch in Brighton, East Sussex, after taking part in a pre-launch trial of the Scheme. Steve Gambling, who manages the store said:

"Taking part in the Advisor Scheme was very straightforward, and the logon system was easy (www.digitallogo.co.uk). I don't think anyone in this industry will have any problems using it."

The Sony Centre was already a member of the 'digital tick' scheme, which identifies products and services designed to work through switchover. Brighton is part of the Meridian TV region, which doesn't switch to digital until 2012. But Steve believes it is vital for staff to provide accurate switchover advice now, as television sets often last longer than the average seven years.

"A lot of people keep their TVs for much

longer," Steve says. "We're really encouraging people to buy digital, because lots of them will keep their sets for 10, 12 or even 15 years. So by the time of switchover they'll need to be digital, if they're not to need adapting with a set top box."

Steve and his staff are also urging customers to consider buying a digital TV recorder if they're replacing their video, as that will allow them to record one channel and watch another after switchover.

The Meridian area in southern England has one of the highest levels of switchover awareness in the UK. According to research by Digital UK and Ofcom, 79% of people in the region have heard of switchover, compared to 66% nationally.

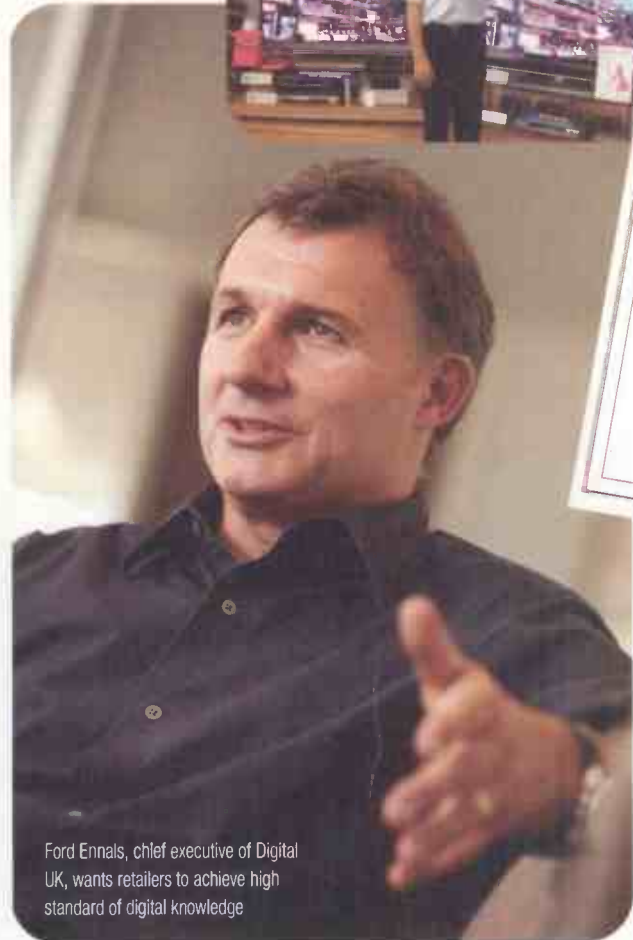
After qualification, advisors will get a certificate to verify completion of the course



"The public seem to be quite switched on to what's happening and when," Steve confirms.

"But people still have many questions about what it means for them, and it's vital for staff to be able to answer them promptly and confidently.

"I think the Advisor Scheme will really help as staff have to be able to give accurate information and offer basic things like postcode checks."



Ford Ennals, chief executive of Digital UK, wants retailers to achieve high standard of digital knowledge

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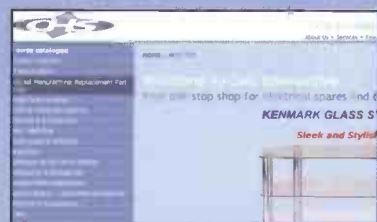
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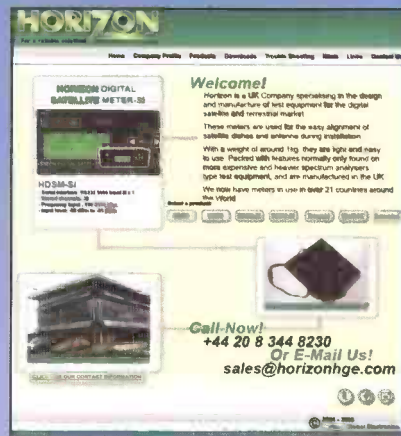
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www.horizonhge.com

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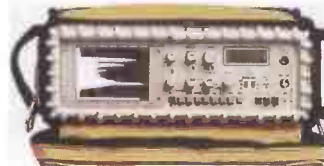
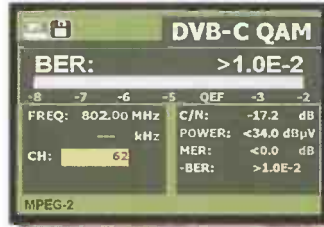
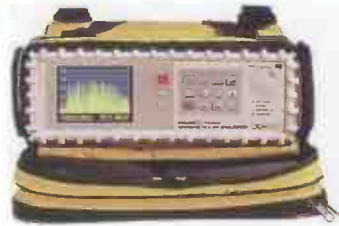
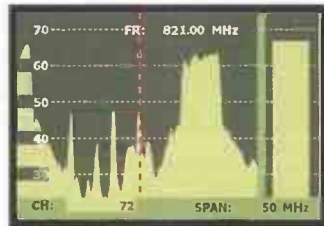
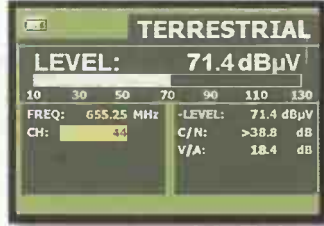
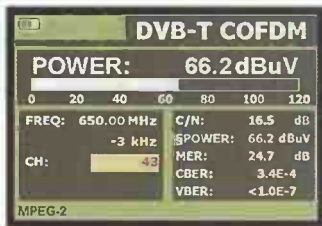
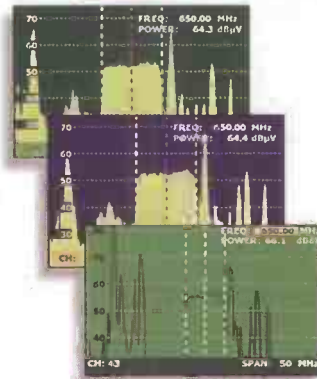
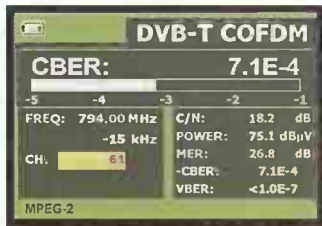
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