

Contents

Contents	1
Committee Contacts	2
Chairman's Column.....	3
Subscription rates into the next Millennium	4
CQ-TV Commercial advertising rates.....	4
Deadline.....	5
13cm notch filter	5
TV on the Air	7
Quick Parabolic Reflector Focal Length.....	7
BATC Accounts - Help request	7
Hungary for it.....	9
Members' Services	11
BATC Publications.....	12
Satellite TV News.....	13
Sound-in-Sync.....	17
The Kenwood VC-H1 Hand-held SSTV Adapter.....	20
Photo Gallery	27
Home Counties ATV Group and SCART News 'Flash'	30
Flying Spot Scanner.....	31
Hollywood TV Times.....	32
Camera separates out background	35
Circuit Notebook No. 68	36
International Broadcast Convention 99.....	38
Improving the image.....	39
Satellite Receiver Conversion for 23cms ATV	40
Members only	42
SM/G4CRJ. First 2 way ATV contact in Sweden via the SK7CY ATV repeater 4 th June 1999.....	43
Post and News	44
Members adverts.....	46
Wanted.....	47
Index of Advertisers.....	48

Edited by Ian Pawson, circuits drawn by Allan Robinson, proof read by Peter Delaney. All rights reserved, all wrongs denied.

Copyright © 1999 by the BATC and contributors.

Legal Niceties (the small print)

E&OE. Whilst every care is taken in the production of this publication, the editor accepts no legal responsibility for the advice, data and opinions expressed. The BATC neither endorses nor is it responsible for the content of advertisements or the activities of those advertisers. No guarantee of accuracy is implied or given for the material herein. The BATC expressly disclaims all liability to any person in respect of anything and in respect of the consequences of anything done or omitted to be done wholly or partly in reliance upon the whole or any part of this magazine.

The contents of this publication are covered by international copyright and must not be reproduced without permission, although an exception is made for not-for-profit publications (only) wishing to reprint short extracts or single articles and then only if acknowledgement is given to CQ-TV.

Apart from any fair dealing for the purposes of published review, private study or research permitted under applicable copyright legislation, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopy, recording or otherwise, without the prior permission of the publisher. All copyrights and trademarks mentioned in this publication are acknowledged and no infringement of the intellectual copyright of others is intended. Printed in Great Britain. ISSN 1466-6790

Notice to Contributors

Authors are alone responsible for the content of their articles, including factual and legal accuracy, and opinions expressed by them may not reflect the editorial stance of the publication. Material submitted to CQ-TV should not infringe the copyright of other writers or bodies. Articles remain the copyright of their authors and following publication in CQ-TV, they may also appear on the BATC's web site and CD-ROMs, also in other not-for-profit amateur publications. Contributions are accepted for publication on this basis alone.

Printed by Clipper Print Ltd., Unit 13, East Goscote Ind. Estate, East Goscote, Leicester, LE7 3XJ, England. Telephone: 0116 260 9909.

Committee Contacts

BATC Chairman: Trevor Brown, G8CJS

Club affairs, Video tape library, Technical queries, especially relating to handbook projects. 14 Stairfoot Close, Adel, Leeds, LS16 8JR. Tel: 01132 670115. E-mail: chairman@batc.org.uk

BATC General Secretary: Paul Marshall, G8MJW

General club correspondence and business. Library queries relating to the borrowing or donation of written material. Fern House, Church Road, Harby, Notts., NG23 7ED. Tel: 01522 703348. Email secretary@batc.org.uk

BATC Hon. Treasurer: Brian Summers, G8GQS

Enquiries regarding club finances, Donations, and constitutional enquiries. 9 Prior Croft Close, Camberley, Surrey, GU15 1DE. Tel: 01276 677879, Mobile: 0797 0417875, Email: treasurer@batc.org.uk

CQ-TV Magazine: Editor Ian Pawson

Anything for publication in CQ-TV, Articles, Review items, Letters to the editor, and other material except as below. 14 Lilac Avenue, Leicester, LE5 1FN, England. Tel: 0116 276 9425, Email: editor@batc.org.uk

Photographs for the CQ-TV covers: - Please send any photographs by post, electronic images by email, to the editor at the above addresses.

TV on the Air: - Graham Hankins G8EMX, 11 Cottesbrook Road, Acocks Green, Birmingham, B27 6LE. Tel: 0121 707 4337

Satellite TV News: - Paul Holland G3TZO, Chatterton, Chapel Lane, Threapwood, Nr. Malpas, Cheshire, SY14 7AX. Tel: 01948 770429, Email: satnews@batc.org.uk

CQ-TV Advertising Manager: - Trevor Brown, 14 Stairfoot Close, Adel, Leeds, LS16 8JR. Tel: 01132 670115. Email: adman@batc.org.uk Members adverts for inclusion in CQ-TV should be sent directly to the editor and the above address, either by post or e-mail.

CQ-TV Awards: - Bob Webb G8VBA, 78 Station Road, Rolleston on Dove, Burton on Trent, Staffs., DE13 9AB. Tel: 01283 814582

Exhibitions

Graham Hankins G8EMX, 11 Cottesbrook Road, Acocks Green, Birmingham, B27 6LE. Tel: 0121 707 4337 Email: exhibitions@batc.org.uk

Club Sales

Members Services: - PCB's, components, camera tubes, accessories, etc. (NOT PUBLICATIONS). Peter Delaney, G8KZG, 6 East View Close, Wargrave, Berkshire, RG10 8BJ. Tel: 0118 940 3121

Publications: - Handbooks, Back copies CQ-TV, and anything related to the supply of BATC publications. Paul Marshall, Fern House, Church Road, Harby, Notts., NG23 7ED, England. E-mail: publications@batc.org.uk

Membership

Anything to do with membership, including new applications, queries about new and existing membership, non-receipt of CQ-TV, subscriptions, membership records, data protection act. Dave Lawton, G0ANO, 'Grenehurst', Pinewood Road, High Wycombe, Bucks., HP12 4DD. Tel: 01494 528899. E-mail: memsec@batc.org.uk

Club Liaison: - And anything of a political nature, co-ordination of ATV repeater licences. Graham Shirville, G3VZV, The Hill Farm, Potsgrove, Milton Keynes, Bucks., MK17 9HF. Tel: 01525 290343. E-mail g3vzv@amsat.org

Contests:- Richard Guttridge, G4YTV, Ivy House, Rise Road, Skirlaugh, Hull, HU11 5BH. Tel: 01964 562498

Repeater Liaison: - General enquiries and repeater affiliation. Graham Hankins G8EMX, 11 Cottesbrook Road, Acocks Green, Birmingham, B27 6LE. Tel: 0121 707 4337.

BATC web master

Anything to do with the BATCs web site. E-mail: webmaster@batc.org.uk

Chairman's Column

Congratulations to Ian Pawson for producing the largest CQ-TV ever (64 A4 pages). Because of the amount of copy received and the 50-year celebration, we went over budget on CQ-TV 187. Printing is an expensive process and we have received a tender that is considerably cheaper than our normal printer.

This issue is a test with that printer, fingers crossed it will look as good as CQ-TV 187. This together with the new subscription rate of £15, should enable us not to have to limit the size of CQ-TV in future, so keep the copy coming and see if we can fill Ian's hard drive.

The BATC web is also getting full, 30 MB seems to go nowhere these days. I hope we can enlarge the site and add one or two more bells and whistles, in particular members' pages. If we can achieve this, then you will be able to download a copy of the latest CQ-TV and also see one or two other goodies that are not available to the non-members.

I know that almost 50 visitors tried to open the private bit last month; there is nothing of interest there - its just where we fly the provisional copy of CQ-TV, so the committee can vet it for bugs and omissions prior to it going to the printers (honestly).

Speaking of bugs and omissions I have some BATC pens. They should have been printed with "BATC www.batc.org.uk", but due to a bug in the process somewhere, they say "BATC www.batc.org.co.uk". They are very nice and the web address can be scratched off and leave no marks. If you would like one then send me £1 and an S.A.E. marked 'pens'. I hope that we can get a future batch made and printed with "CQ-TV contributor" as a free gift to all those who contribute to our magazine - watch CQ-TV.

Those who attended our Rally back in April may have received a flyer called "does ATV matter?" from the UKRS. The flyer does misquote us a little, but drew attention to a potential problem. Fortunately relations with the RSGB have never been better and, after listening to the problems of the packet



fraternity, we reached a compromise. We have accepted packet in the bottom 250kHz of our TV allocation in return for the removal of the plan outlined in the flyer - i.e. digital communications 433.600 to 433.800 and 438.025 to 438.525.

I don't like giving away our Region 1 agreed space, but I think all parties would agree that 70cms is in need of a overhaul and what ATV users probably need most is an exclusive space for digital ATV of about 2MHz. The technology is not here yet, but estimates of the requirements of a DATV signal seem to agree that 2MHz will be adequate.

Shuttleworth came and went and it rained. I will not go into too much detail here, as it is fully covered elsewhere, but I would like to thank Ashley Booth for up linking the proceedings to satellite; Rens Maas for relaying coverage on PI6ALK; all those who brought along OB vehicles, in particular Paul Marshall for the newly painted Southern OB truck that made ITN sit up and take notice when it appeared in their control room via the satellite link; Ian Waters, Bob Platts and Bob Robson for the GB3PV link; Paul Pitts for the attempt at linking in PI6ALK (he was beaten by the rain) and the RSGB delegation of Hilary Clayton-Smith (RSGB President), Don Beatie (Vice President) and Carlos Eavis and Roger Jones of RMC. Also

not forgetting Grant Dixon, Doug Pitts Andrew Emmerson and Brian Kelly, along with everyone who manned the club sales and exhibit stands.

IBC is with us and Paul Marshall has been asked to put on a stand again. This year it's a TR70B VTR - see the front cover of CQ-TV 186 (the one in the background not foreground) and a Marconi Mk7 colour camera, along with an NBTV exhibit. Yours truly has been given the task of making the TR70B work in Amsterdam. It's currently up and running in Paul's garage, to the point where I made electronic edits on it last week. I can still even remember how to make physical edits, if necessary; fortunately the Smith's block seems to have been mislaid. This stand is supported by the organisers and those of us who man the stand, so is a "no cost" publicity event for the BATC.

Graham Shirville is also on his travels to Lillehammer (IARU Region 1 Tri-Annual Meeting), where the main ATV topic will be to vote down the intercarrier sound proposal. (See page 10 CQ-TV 187). The CQ-TV deadline for this edition is the first day of the IARU Conference. I hope all goes well; if we can not include any feedback in CQ-TV - and we will try - then don't forget the BATC website <http://www.batc.org.uk> for a full report, and link to the IARU website. Again, this effort is at "no cost" to the BATC.

The RSGB have also done us proud with an ATV front cover and a "Getting Started in ATV" article scheduled for this October and an ATV column in alternate issues starting February 2000.

Finally I can report that we will not be disappearing from the Rally scene next year, although use of the Skyblue Connexion is not possible, as it would result in excessive stand and admission charges. We are currently re-scheduled for May 7th at the famous Enigma station at Bletchley Park in Milton Keynes. Watch CQ-TV for details.

Trevor Brown, BATC Chairman
email: Chairman@batc.org.uk

Subscription rates into the next Millennium

By the Membership Secretary

The subscription rates to the BATC for the year 2000 are shown below. This is the first price rise in many years but, with the continuing rising costs of production, printing and postage, a price rise was inevitable.

However we hope you will agree that we have continued to improve the magazine with the change to the A4 format and use of colour within the magazine and agree with us when we say that this still represents excellent

value for money. I quote from the VHF/UHF column in The Radio Society of Great Britain's journal, "As ever, this 60 page magazine is one of the finest amateur publications you are likely to find".

Years	Surface	Airmail
One	£15.00	£21.00
Two	£29.00	£41.00
Three	£43.00	£61.00

Please note that the 'Surface' rate cover postage within the EEC.

We have also continued to improve our web site at www.batc.org.uk and this has proved to be very popular and is now attracting many new members.

If your subscription is due shortly you will find a renewal letter enclosed with this magazine.

You hope you will continue to support the Club and we look forward to receiving your renewal.

CQ-TV Commercial advertising rates



Size	Mono	Colour
Quarter page	£20	£25
Half page	£40	£50
Full page	£80	£100

Discounts of 5% for 2-3 insertions and 10% for 4 and above apply to the above prices.

If you would like to advertise in CQ-TV, then please contact our advertising manager, Trevor Brown, 14 Stairfoot Close, Adel, Leeds, LS16 8JR. Tel: 01132 670115. Email: adman@batc.org.uk



Free Internet Dial-Up Accounts for BATC members

Caladan Communications, a UK based Internet Services Provider are pleased to be able to offer BATC members free dial-up access to internet e-mail and news services. Contact Chris Smith (G1FEF) for more details:

E-mail: sales@caladan.co.uk Fax: 01933 666972, Web site: <http://www.caladan.co.uk/batc>

Or write to: 'Free BATC offer' Caladan Communications 25 Dando Close, Wollaston, Northants, NN29 7QB

Deadline

CQ-TV is published quarterly in February, May, August and November each year. The deadlines for each issue are as follows: -

February - 20th December, May - 20th March, August - 20th June, November - 20th September.

Please send your contributions in as soon as you can *prior* to this date.

Will all prospective contributors please be sure to read the 'Notice to Contributors' on page 1 so that you understand the implications of submitting an article for publication.

The CQ-TV A4 size Word 97/2000 document template can be downloaded from our web site. Select the CQ-TV magazine link from the home page at <http://www.batc.org.uk>

Commercial adverts should be sent to Trevor Brown, the advertising manager, at 14 Stairfoot Close, Adel, Leeds, LS16 8JR. Tel: 01132 670115. Email: adman@batc.org.uk

Members' sales and wants should be sent to the Editor. Email: editor@batc.org.uk

13cm notch filter

(Excerpt from TV-AMATEUR 111)

By Paul Elksnat, DH1PE

With ATV duplex or repeater contacts transmitting on 13 cm and receiving on 23 cm there is often interference at the receiver if no selective devices are used.

This is the case above all if the feeders

for both bands are integrated in one can, especially with full scale rings or square feeders. The 13 cm signal, because of insufficient selectivity, will saturate the receiver, mostly a satellite TV RX with only 30dB dynamic range.

The AGC will do its work and reduce the input gain thus greatly impairing the wanted signal on 23cm.

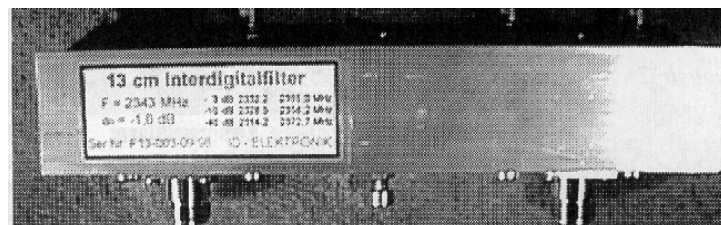


Fig. 1: Inter-digital filter for 13cm (right and left the two notches)

Filters can help to keep the interfering 13 cm signal away from the 23cm input or preamplifier. The filter layout shown here will fit

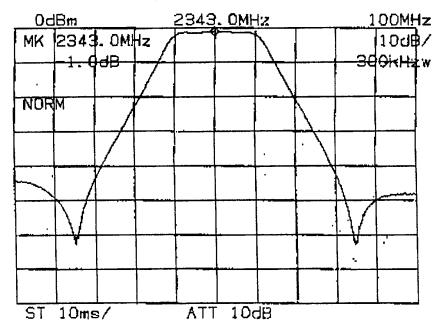


Fig. 2: Passband curve of the filter with a centre frequency of 2343MHz.

into a tinplate box 74x37x30mm. 13cm signal suppression measures 35dB, at the wanted signal frequency no attenuation can be measured with amateur equipment (approx. 0.5dB) if the filter is built properly.

Please mention that you saw it in CQ-TV when replying to advertisers.



GB3XT Kits and Bits have MOVED

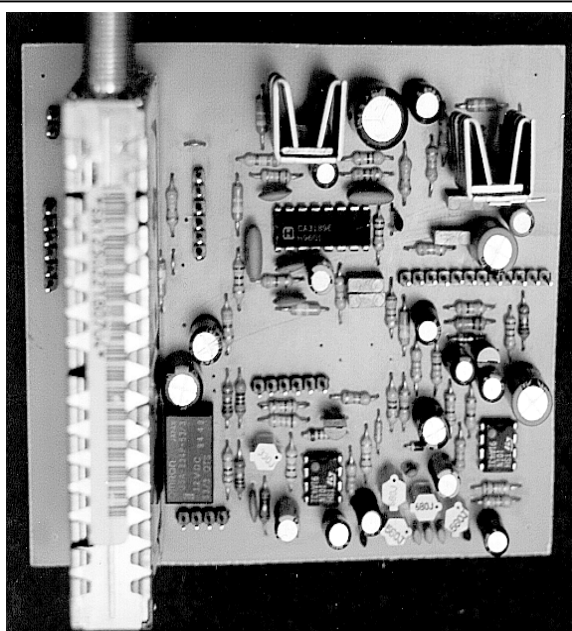
The new address and phone number for Bob Platts is:

Bob Platts
43 Ironwalls Lane
Tutbury
Staffordshire
England

 **01283 813392**



**3cms LNB. 0.7db noise figure, 9.0GHz local oscillator.
New price now only £35**



- The very popular Dove RX / IF kit.
- FM ATV Receiver or IF unit.
- 12vDC operation.
- Covers 925 – 1700MHz
- 6MHz (5.5, 6.5 available) intercarrier sound.
- Composite video output plus audio output to drive a loudspeaker.
- Baseband output. Pre-scalar output.
- Very simple to construct. No setting up or alignment required.

Only £42

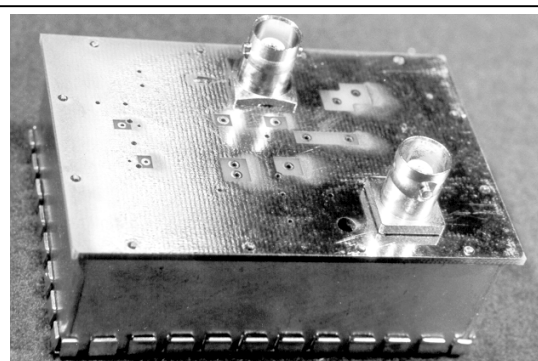
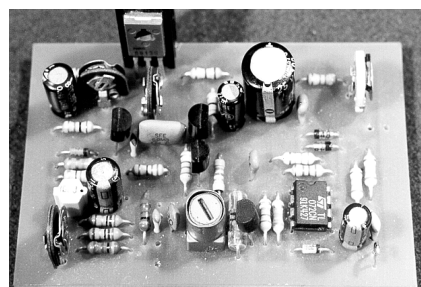
Note: For 24cms a preamp is recommended.

Look out in a future issue of CQ-TV for the synthesiser article for this kit.

Gunmod2. The best selling Gunn diode or DRO Modulator.

- 5.5, 6.0 or 6.5MHz sound (state). Fully adjustable for video & audio deviation, output voltage & subcarrier.
- 12v DC supply.
- Easy to assemble and set up.

Only £20



24cms pre amp.

- 40db gain 1db noise figure.
- Strong tin-plate enclosure.
- Quality BNC connectors.
- 12 – 20vDC supply via co-ax.
- Idea for use with satellite RX's or Dove kit.

£60 kit, £70 assembled and tested.

TV on the Air

By Graham Hankins G8EMX

This is the last TVOA of the 20th century! The page is usually full (?) of activity reports, but as there are no specific reports to give, I will list the repeaters that are currently available. This will at least present a guide to the 'state of ATV' within the U.K. as we enter the new millennium.

So starting north and moving roughly south, there is on 24cm –

- EY – North Humberside
- YT – Bradford
- TM – Anglesey
- TT – Chesterfield
- VL – Lincoln
- UD – Stoke on Trent
- NV – Nottingham
- DH – Derby
- TN- Norfolk
- GV – Leicester
- RT- Coventry
- PV – Cambridge

- AD – Stevenage
- TV – Dunstable
- HV – High Wycombe
- EN – Enfield
- ZZ- Bristol
- UT – Bath
- KT – Kent
- AT – Southampton
- VR – Brighton,
- VX – Eastbourne
- WV – Dartmoor.

On 10GHz –

- XY – Hull
- XT - Burton – on – Trent
- DJ – Telford
- BG – Sedgley, West Midlands
- TG – Milton Keynes
- XG - Bristol
- RV – Brighton.

Now there may be others planned, under construction, very recently licensed, or very recently deceased (off-air). This is a guide to what is out

there to the best of my information. If you live anywhere near any of them, please use them, lots of keen volunteers built 'em, licensed 'em, maintain them!

And, of course, I am sure there still is ATV activity on 70cm! Tell you what, if you are using 70cm ATV, or even still have equipment for 70cm ATV, give me a phone call. All I would like to know is name, callsign, area or town, and what use you make of 70cm ATV. All of that can be said in a few seconds onto my answering machine for around 5p. We can then have some sort of information both for the 'powers that be' and for any new or existing BATC member who wants to re-activate 70cm.

Wishing everyone a very merry Christmas and an absolutely brilliant, P5 Millennium New Year!

Quick Parabolic Reflector Focal Length

By George W. Allen, N1BEP

To find the focal length of a parabolic reflector for microwave use, the following method has been found to be quick and useful.

1. Fasten four one-centimetre square mirrors at the four quadrants of the reflector, near the edges. If the reflector is off-centre fed, a fifth reflector may be placed at the centre. (Plain glass has been used if mirrors were not available.)
2. Face the parabola into the sun. Locate a white target somewhere in the centre where the focus may be expected. By moving the target around, a position will be found where the four reflected images coincide, provided that the parabola is facing the sun squarely, or appropriately for an off-centre dish. The target should be small compared to the parabola area.
3. The images should exactly coincide if a) the parabola is geometrically good, and b) perpendicular to the sun. This spot will be the focal position, at the phase centre.

All the mirrors should be oriented in the same direction with respect to a north-south centre line. Silicone cement was used for attachment.

reflected images coincide, provided that the parabola is facing the sun squarely, or appropriately for an off-centre dish. The target should be small compared to the parabola area.

3. The images should exactly coincide if a) the parabola is geometrically good, and b) perpendicular to the sun. This spot will be the focal position, at the phase centre.

BATC Accounts - Help request

At the Shuttleworth general meeting a request was put forward for a volunteer to verify/audit the clubs accounts. The task is to check the balance of the clubs ledgers and verify the amounts in the BATC's bank accounts. If you think

you may be able to help the BATC save the cost of the accountants fee by doing this please contact me. My address details are on page 2 of CQ-TV.

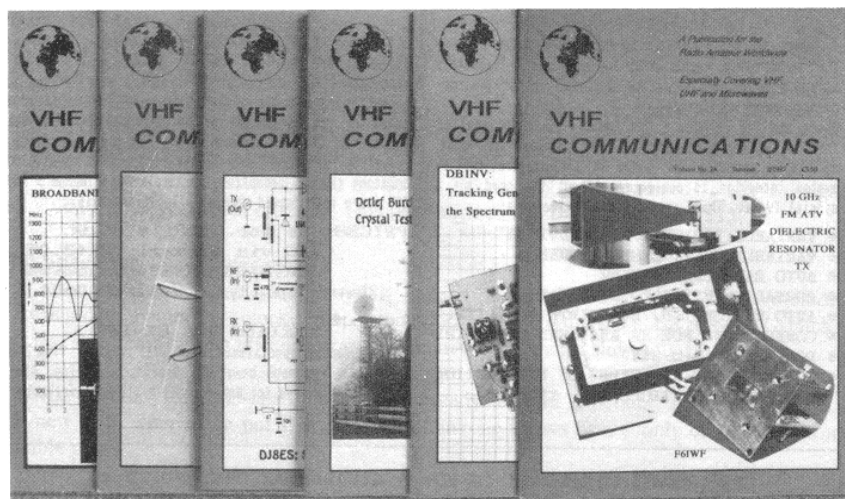
Brian Summers, Hon. Treasurer.
September 11th 1999. Email treasurer@batc.org.uk

VHF COMMUNICATIONS

VHF COMMUNICATIONS magazine is published quarterly and is available from **KM Publications**, 5 Ware Orchard, Barby, Nr. Rugby, CV23 8UF, England.

Telephone: 44 (0) 1788 890365, Fax: 44 (0) 1788 891883

Email: vhfsubs@vhfcomm.co.uk



The 1997 subscription rate is £18.00 for cash or personal cheque (drawn on a UK bank, or bearing the name of a UK banking agent), postal orders or bankers draft made payable to KM Publications. Payment may also be made by any major credit card at £18.90. The subscription included surface mail charges, airmail is extra at £6.50 per year (£6.85 by credit card). The magazine is a MUST for the radio amateur and professional engineer interested in VHF, UHF and Microwave working, containing, as it does, detailed construction articles for equipment operating in these bands.

Back Issues: special offers -

enquire for details

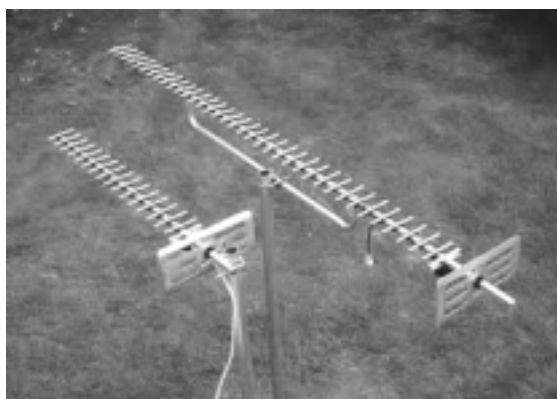
Binders to hold 12 issues £5.50

Complete Index 1970 - 1995 £2.75

Email: vhfsubs@vhfcomm.co.uk Web site: <http://www.vhfcomm.co.uk>

Secure credit card page: <https://www.vhfcomm.co.uk/saleform.htm>

Sevenside Television Group



All of our 23cm aerials are specifically designed for ATV use – although they can be used for other modes as well. Wideband characteristics mean that you need only one aerial to cover the repeater input and output channels. Our famous wideband yagi's come fully-assembled in two versions:

38-ELEMENT HIGH-GAIN: 14dB gain, 1.8 m long, **£26.00** plus p&p.

18-ELEMENT STANDARD: 10dB gain, 0.9 m long, **£15.00** plus p&p.

Don't forget our **20-ELEMENT CONVERSION KIT**, which converts your existing 18-element aerial to the full 38-element high-gain specification: **£13.00** plus p&p.

All our aerials feature an SWR of less than 1.5:1 and are supplied with mast clamps suitable for masts up to 55mm diameter (mast poles not supplied).

Postage: £3.75 for one aerial, **£5.00** for two or more. Orders from outside of the U.K please write first for a carriage quotation.

Cheques should be made payable to "**SEVERNSIDE TELEVISION GROUP**" and sent to (*new address*):

13 Downs Road, Westbury-On-Trym, Bristol BS9 3TX

Available soon from Sevenside Television Group:

A long-overdue update of G8VPG's "**Guide to ATV**", now available on **CD-ROM**, viewable with your current Internet Browser. This CD includes copious amounts of colour pictures and diagrams for the ATV enthusiast both new and old.

As demonstrated at the BATC Rally. Enquiries to the above address.

Hungary for it

Dicky Howett reports from Europe and checks out a corner of the TV preservation scene. Did you know that MTV has a television museum? No, really? Well, actually it's not Music TV but Magyar TV, the Hungarian state broadcaster. The Magyar TV Technical Museum can be found, with difficulty, tucked away in a side street, behind a workshop, down an ally and up some steps in Budapest. This museum is tended lovingly by retired MTV technical manager, Janos Koreny. But all is not well. Janos Koreny relates, "I only open twice a week but things are tough at the moment. We have little cash, and it looks like we may have to close down because of re-development."

This would be a pity. Jano's modest museum houses a lot of Magyar Television kit, some of it preserved from the first regular Hungarian TV transmissions which began in 1957. Although a proportion of the equipment on display is Russian and Hungarian, most seems to be British and American with an interesting cross-section of cameras made by EMI, Marconi and Pye.

These include an EMI 203 4 1/2" image orthicon from 1960, (sitting on a



Dicky Howett poses in front of the MTV Pye van

Hungarian copy of a Vinten Mk 3 pan head!) a Pye Mk III ca.1968 and two Marconi Mk IV's from 1963, plus a hefty EMI 2001. None at present are in working condition.

Also in the MTV museum, Janos has displays of camera tubes plus several consumer TV sets with exotic names such as 'Orion', 'Venus' and

'Munkacsycolor'. However, Janos Koreny is disparaging about his display of Russian equipment, which he dismisses with implicit irony as "only American copies!" Janos has also constructed a small but realistic 'presentation' studio complete with control room and autocue. This studio houses a couple of Marconi Mk IVs, which currently have only vidicon tube inserts to produce a 'pretend' image. This is sufficient for casual demonstrations. Other preserved cameras include a Philips PC 60 (1968) and a Sony Betacam (1978) that are operational.

Historic image-recording kit is represented by an impressive Ampex VR2000 (1967), an Ampex HS 100 slow motion disc recorder, and a brutal-looking EBR 100 beam recorder that apparently produced very hard black and white images. There are also an IVC 961S and a Philips EL3400. Lurking in another room is an interesting Fernseh twin Arriflex 16mm off-screen recording system, a cost-effect way to capture live productions and also, perhaps, back in the political dark days a way of checking for any political transgressions!

Although Hungary didn't begin regular television transmissions until well into the 1950s, Hungarian involvement with television technology goes back to the



Janos Koreny with some of his museum exhibits

beginning of the 20th century and coincides with the European television researches of, amongst others, John Logie Baird, August Karolus and Dr. Max Dieckermann. It was the Hungarian physicist and former Hussar cavalry captain Denes (Denis) Mihaly who began television experiments as early as 1919. It was later, using oscillating mirrors and beam scanning that he managed to transmit an instantaneous 'coarse and blurred image scanned from a distance by electrical means'. Although the pictures were recognisable they were little more than fuzzy shapes and silhouettes. Later in 1928, Milaly demonstrated in Berlin his 30 line 'Telehor' receiver which showed half tones and views using a conventional Nipkow disc rotating at 600 revs per minute.

Russian émigré Vladimir Zworykin is credited as having invented the first practicable video imaging device (the iconoscope) which was first successfully tested in November 9th 1931. But it was the Hungarian Kalamán Tihány, who working concurrently, cracked the image 'storage' problem, enabling iconoscopes to work at all. Today, little credit is given to these Hungarian television inventors, proving once again that big bucks and RCA always win. However, one Hungarian, namely Dr Peter Goldmark had more success. Whilst working for CBS in 1940 he demonstrated field-sequential colour

TV. Goldmark found fortune later by inventing the ubiquitous LP record.

Since his retirement 7 years ago Janos Koreny has administered the historic MTV collection with base funding from MTV. Janos Koreny and a colleague had originally collected the television kit as a private venture whilst still employed at the station. Recently, Janos Koreny's biggest restoration project involved the revival of an entire 1958 Pye monochrome mobile scanner van. Only one other Pye scanner van is known to exist, (that's the Australian Museum's restoration project overseen by Barry Lambert which will form part of the ABC TV promotion for the upcoming 2000 Olympic Games in Melbourne).

In Budapest, the Hungarian 'Magyar Televizio' Pye scanner van has been carefully restored back to original condition. The van has a complement of three Pye Mk III 3" image orthicon cameras, (one with a Taylor Hobson Mk I zoom) plus complete production and control equipment, all laboriously recovered from various sites and re-installed with painstaking accuracy.

Janos Koreny explains, "We at MTV used the Pye van for 15 years; I was actually manager of it. The van then was given to a Hungarian college where it was used to teach students. It was left out in the college yard for ten years. A few years ago I rediscovered the van in a sorry state and approached

our National Hungarian Cultural Museum for possible restoration funding. I was delighted when the money became available and restoration began. Luckily the bodywork and Morris engine of the van were okay but they still needed to be stripped down and overhauled. This work was undertaken by the Cultural Museums' own staff of skilled technicians."

The end result speaks for itself. Janos Koreny and his colleagues have every reason to be proud of their museum work, and in particular the restoration of the Pye ob van. It is immaculate and stands as a testament to an increasingly urgent need to preserve the technological history of that truly neglected corner of modern electronics, ie television. The MTV Museum in Budapest is at 1096 Lenhossek u. 35 Budapest. District IX (directions would be needed as the museum is quite secluded and would be difficult to find unaided.)

The museum is open on Tuesdays and Sundays 10am-2pm and is free. Unfortunately, the Pye ob van itself is not generally available for inspection and is at another site.

For further information about the MTV Technical Museum check the web site on

www.mtv.hu/departments/muzeum/indeng.html

S. Marshall

20dB gain 10GHz horns **£25.00**

Waveguide 16 and 17 flanges **£5.00**

Slot antennas and filters made to order.

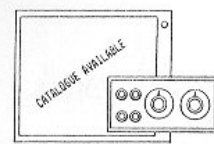
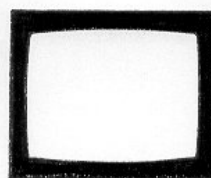
For further information, contact: -

**S. Marshall, G6NHG,
25 Carlcroft,
Stonydelph,
Tamworth,
Staffs., B77 4DL.**

**Telephone: 01827 897920. 7:30pm -
10pm weekdays.**

HS PUBLICATIONS

7 Epping Close, Derby DE22 4HR, England
☎ 01332 38 16 99



- DX-TV CONVERTERS • VHF-UHF TV AERIALS
- DX-TV PUBLICATIONS & VIDEOS
- AMPLIFIERS • FILTERS • HARDWARE
- TECHNICAL BOOKS
- BBC TEST CARD MUSIC C.D's
- TV CLOCKS & ARCHIVE PUBLICATIONS

Send 3 First Class stamps for our latest Catalogue
Personal callers by prior arrangement only please.

Members' Services

	All prices in UK pounds (£)	Each	P&P	Qty	Total
Camera Tubes, Scan Coils, Bases & Lens Mounts					
3.....	One inch Vidicon base.....	£1.20	£0.30	.....	.....
4.....	2/3 inch Vidicon base	£0.80	£0.30	.....	.....
6.....	Camera tube (see previous note).....	*	£1.20	.....	.....

Video and I²C Circuit Boards/Components

7.....	Sync pulse generator PCB	£12.00	£0.43	.....	.....
12.....	Teletext pattern PCB**.....	£3.50	£0.43	.....	.....
13.....	Greyscale/Colour bar generator PCB.....	£3.50	£0.43	.....	.....
19.....	Video filter PCB	£1.20	£0.30	.....	.....
20.....	Video processing amplifier**.....	£4.70	£0.43	.....	.....
21.....	Vision switcher matrix**.....	£4.70	£0.43	.....	.....
26.....	Video level indicator PCB	£5.90	£0.43	.....	.....
40.....	I ² C CPU PCB.....	£10.00	£0.43	.....	.....
41.....	I ² C VDU PCB.....	£10.00	£0.43	.....	.....
42.....	13.875 MHz crystal	£4.70	£0.30	.....	.....
70.....	6.0 MHz Teletext crystal	£1.75	£0.30	.....	.....
43.....	SAA5231 genlock IC.....	£8.80	£0.30	.....	.....
44.....	SAA5243PE Teletext IC.....	£14.70	£0.30	.....	.....
45.....	PCF8583 Clock IC.....	£7.00	£0.30	.....	.....
39.....	LM1881N Sync separator IC.....	£3.50	£0.30	.....	.....
81.....	I ² C 27256 EPROM	£9.70	£0.30	.....	.....
38.....	PCF8574P Input expander IC.....	£4.70	£0.30	.....	.....
10.....	I ² C Relay PCB	£6.50	£0.43	.....	.....
9.....	PCF8574A Input expander IC	£4.70	£0.43	.....	.....

RX, TX and SSTV PCB's and General Components

47.....	70cm up converter PCB.....	£13.50	£0.43	.....	.....
50.....	108.875 MHz crystal	£8.20	£0.30	.....	.....
86.....	24cm solid-state amplifier PCB.....	£10.50	£0.43	.....	.....
55.....	Gunn diode modulator PCB.....	£3.00	£0.43	.....	.....
56.....	10GHz head unit PCB set**	£3.00	£0.43	.....	.....
57.....	Tuneable IF PCB**	£3.00	£0.43	.....	.....
88.....	XR215 phase locked loop IC.....	£5.00	£0.30	.....	.....
60.....	G4ENA colour etc. SSTV mod PCB set.....	£5.90	£0.43	.....	.....
61.....	G4ENA SSTV transmit mod PCB.....	£7.00	£0.43	.....	.....
62.....	G4ENA auxiliary PCB	£2.35	£0.30	.....	.....
37.....	GX414 Video switch IC	£8.80	£0.30	.....	.....
68.....	4.433618MHz crystal	£3.25	£0.30	.....	.....
69.....	5.0MHz crystal	£3.25	£0.30	.....	.....
46.....	4 Rail power supply PCB.....	£3.50	£0.43	.....	.....

Stationery & Station Accessories

73.....	BATC blue diamond clutchpin badge.....	£1.75	£0.30	.....	.....
74.....	BATC cloth badge	£4.00	£0.30	.....	.....
75.....	BATC equipment label (6)	£0.25	£0.30	.....	.....
76.....	BATC square windscreen sticker.....	£0.10	£0.30	.....	.....
78.....	BATC test card	£0.50	£0.43	.....	.....
79.....	BATC reporting chart	£0.10	£0.43	.....	.....

Total Goods and Postage - Amount Enclosed £.....

The indicated **P&P** prices for Members Services are for postage within the UK only. Will members outside the UK please either try to estimate the extra postage required, or write for a quotation. All cheques **MUST** be drawn on a UK bank. (Eurocheques, in £ sterling, are acceptable). Items marked thus: ** are available only until present stocks are exhausted.

Members Services orders **ONLY** to: **Mr. P. Delaney, 6 East View Close, Wargrave, Berkshire, RG10 8BJ, England.** Tel: 0118 940 3121 (Evenings, Weekends only please). Items from these lists can **ONLY** be supplied to **CURRENT** members of the BATC. These lists supersede all previous ones

A description of the various PCB's and components can be found in the 'What's What' guide, or on the BATC Internet pages. URL <http://www.batc.org.uk> (A printed copy available on request, if you send a S.A.E.). Components for club projects are not available from Members Services unless contained within these lists. All club crystals are HC18/U (wire ended). To avoid delay and inconvenience, please be careful to include the correct payment with your order – please do **NOT** send stamps or cash. Post and packing costs are for despatch of one item to United Kingdom members.

Circuit Details can be found as follows:

Revised ATV Handbook (vol. 2): PCB's 21, 22. **An Introduction to ATV:** PCB's 10, 25, 36, 40, 41, 47, 85, 86. **TV for Amateurs:** PCB 19. **Slow Scan TV Explained:** PCB's 59, 60, 61, 62. **Amateur TV Compendium:** PCB's 12, 27, 54, 55, 56, 57. **CQ-TV (Issue No. in brackets):** PCB's 7(174), 13(128), 20(130), 26(142), 58(139). Item 46 is supplied with circuit details, etc

CAMERA TUBES A tube guide appears in CQ-TV 149 and 150. Tubes are now difficult to obtain and members requesting information on availability, prices or other types of tubes or equivalents are asked to send a stamped addressed envelope for their reply.

BATC Publications

Publication	Each	Qty	Total
An Introduction To Amateur Television (225gm)	£5.00	.....	.....
The latest handbook full of detailed information on how to set up your ATV station, plus lots of new video and RF construction projects.			
The Amateur TV Compendium (155gm)	£3.50	.....	.....
The BATC handbook featuring construction articles on video units, 24cm and 3cm ATV, a Digital Frame Store, and much more.			
The Best of CQ-TV (150gm)	£3.50	.....	.....
A compilation of the best construction articles from CQ-TV's 133 to 146			
CQ-TV Back Issues:	£1.50	.....	.....
The following issues are still available. Please circle those required: 142, 143, 144, 147, 150, 153, 154, 156, 158 159, 162, 163, 164, 166, 167, 168, 169, 170, 171, 173, 174, 175,176, 177,178, 179, 180, 181. 182, 183, 184			
Special Offer: Any four of the above issues	£5.00	.....	.....
185, 186, 187, 188	£2.50	.....	.....
CQ-TV Binders (old A5 sized)	£3.50	.....	.....
The BATC CD	£5.00	.....	.....

Total Goods and Postage - Amount Enclosed. £.....

The indicated prices for **Publications** include postage within the EEC. Will members outside the EEC please either try to estimate the extra postage required, or write for a quotation.

Publications orders *ONLY* to: **BATC Publications, Fern House, Church Road, Harby, Notts., NG23 7ED, England.** Tel: 0152 270 3348 (Evenings/Weekends only). E-mail: publications@batc.org.uk. Publications can also be ordered via our web site at www.batc.org.uk

Name		Mem No.	
Address			

PLEASE MAKE CHEQUES PAYABLE TO 'BATC'.

Satellite TV News

By Paul Holland G3TZO

Satellite TV News rises again, Phoenix like from the ashes! One download too many was enough to see off my last PC so here we are again with a shiny new Pentium III and 20GB of Hard Disc to crash all over again. On a serious note I for one will not be opening .exe files without checking they are fully compatible with my PC again.

Since last writing much has happened with both successful and unsuccessful launches, new channels and the inexorable development of digital services. The writing is now boldly written on the wall for analogue with B-Sky-B probably looking to close its analogue service towards the end of 2002. It is unlikely all the spare capacity will be filled with more analogue services. In this issue we reflect some of the changes over recent months and look again at the developing digital Satellite TV technologies.

Eutelsat News

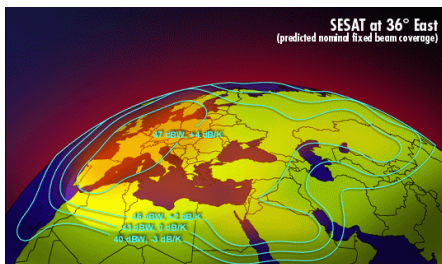
EUTELSAT and France Telecom have reached a partnership agreement whereby the Telecom 2 satellite currently operated by the latter at the 8 degrees West position will be incorporated into Eutelsat's fleet. According to the agreement EUTELSAT will take over the 11 Ku-band Tp's on France Telecom's Telecom 2 satellite at 8 degrees West until the end of its nominal lifetime which is due in the course of 2004. By this time a new satellite will be deployed at 7/8 degrees West. The incorporation into the fleet of the Telecom 2 satellite at 8 degrees West will also contribute to the development of Eutelsat's "Atlantic Gate" at the neighbouring 12.5 degrees West position, both slots offering comparable earth visibility.

In another agreement with Deutsche Telekom, Eutelsat will provide follow-on capacity for Deutsche Telekom's DFS Kopernikus satellite at 28.5 degrees East via a new 24-transponder Ku-band satellite that will be launched by the end of the year 2000. Eutelsat's follow-on satellite will encompass the same FSS frequencies (11.45 to 11.70

GHz and 12.50 to 12.75 GHz) as those used by DFS Kopernikus at 28.5 degrees East. It will also carry FSS Tp's in the 11.20 to 11.45 GHz range which will enable EUTELSAT to increase the offer available from 28.5 degrees East, notably for multimedia services. This could provide an opportunity for those equipped to receive Astra 2A at 28.5 Deg E to receive FTA services from Eutelsat on a standard Digibox.

And finally EUTELSAT and Société Européenne des Satellites (SES) have reached a comprehensive intersystem co-ordination agreement. According to the agreement, SES, in addition to the continued provision of services in the BSS band (11.70 to 12.50 GHz) at 28.2 degrees East, will also use frequencies in the FSS band (10.70 to 11.20 GHz) for Direct-to-Home Services. EUTELSAT will use at 28.5 degrees East the frequencies in the FSS band (11.20 to 11.70 GHz and 12.50 to 12.75 GHz) This will ensure the continuation of services currently carried on Deutsche Telekom's DFS Kopernikus satellite at that orbital location. SES will use frequencies from 12.50 to 12.75 GHz at 28.2 degrees East for operations outside of Europe.

The Agreement also extends to mutually interference-free operations within the arc 16 degrees East to 21.5 degrees East for both operators.



Due for launch towards the end of this year is Eutelsat SESAT that will be located at 36.0 Deg E. The satellite's 18 Tp's will enable EUTELSAT to develop new markets in far eastern Europe and central Asia, as well as provide full interconnectivity with western and central Europe. SESAT has 6 Tp's between 10.950-11.200 GHz, 6 between 11.450-11.700 GHz

and 6 between 12.500-12.750 GHz. It will replace Eutelsat II F3.

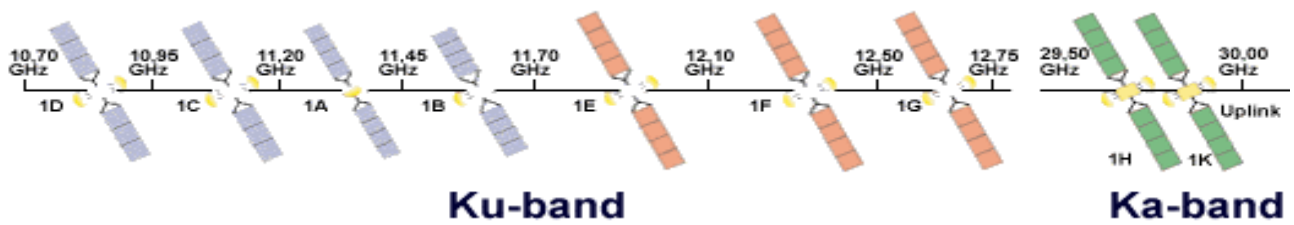
January should also see the launch of Eutelsat W4 with 31 Ku Tp's between 11.700-12.500 GHz. It also will be located at 36.0 Deg E. In addition to a steerable spotbeam W4 provides one fixed Widebeam over Russia and one fixed Widebeam over sub-Saharan Africa.

Astra News

ASTRA 1H, which was successfully launched with a Russian Proton D-1-e rocket from the Cosmodrome of Baikonur back in June, commenced testing in late August.



ASTRA 1H is the ninth SES satellite in the ASTRA series and the eighth to be co-located at the orbital position of 19.2° East. In addition to 30 Tp's in the Ku-band, ASTRA 1H carries the world's first commercial Ka-band payload for use over Europe. This payload is the first of its type to offer broadband interactive applications to low-cost user terminals. ASTRA 1H acts as an "in orbit" spare for other SES capacity at 19.2 Deg. The following graphic illustrates the current deployment at 19.2 E and the frequency plan for each satellite.



ASTRA 1A			A BAND					
ASTRA 1B				B BAND				
ASTRA 1C		C BAND	A-Backup					
ASTRA 1D	D BAND	C-Backup		B-Backup	E-Backup			
ASTRA 1E	D-Backup	C-Backup		B-Backup	E-BAND			
ASTRA 1F			A-Backup		E-Backup	F-BAND		
ASTRA 1G					E-Backup	F-Backup	G-BAND	
ASTRA 1H					E-Backup	F-Backup	G-Backup	Ka BAND
ASTRA 1K	D-Backup	C-Backup	A-Backup	B-Backup				Ka BAND H-Backup
	ASTRA "LOW BAND"				ASTRA "HIGH BAND"			ASTRA "Ka"
	64 TP'S				56 TP'S			2 TP'S

Astra 2C & D

SES is looking to purchase the 12th and 13th satellites in their fleet which will be located at 28.2 Deg E.

The satellites are to be named ASTRA 2C and ASTRA 2D. Astra 2D, an HS-376HP satellite, will launch in late 2000 on an Ariane rocket. It will operate 15 active Ku-band transponders throughout its 12 years in orbit. Astra 2C, an HS-601HP body-stabilised spacecraft, will launch early in 2001 aboard either a Russian Proton rocket or Ariane. Astra 2C will operate 28 active Ku-band transponders and is

expected to be in service for more than 15 years.

Look out for a large influx of Asian Services joining this digital platform. As we closed for press two new services, B4U and Sony Entertainment TVB launched within the Sky Electronic Programme Guide. Other services rumoured to be launching (with their possible EPG number includes;

- 676 Zee TV
- 677 Zee News
- 678 Zee Music
- 679 Bagnal TV (Bengali)

- 679 Pakistani TV (Urdu)
- 682 Asia

All these services are likely to be subscription based.

Transponder News

It is almost impossible to reflect the actual changes taking place on a quarterly basis. Some services come and go, change their name and parameters almost daily. For the most accurate up to date information possible I suggest two sources from the Internet. For daily updates of changes there is a Free Mail Service which can

be subscribed to from <http://www.sat-hagedorn.de/maillinglisten.htm> and <http://www.lyngsat.com/>

Turksat 1C 42 Deg E.

Another Turkish package has started on 11.469 GHz (V) (SR 22500,FEC 3/4). Services include;

- Kral TV/TeleOn
- Prime Produksiyon
- Guncel Produksiyon
- Boyut Produksiyon

Astras19.0 Deg E

TCM Spain has started on Astra 1H, 12,168 (V), SR 27500 FEC 3/4 MPEG-2 Clear. **Teleclub** will be switching to digital-only in January releasing its Astra 1D analogue transponder 10,803GHz (H) to German news service N24.



KRAL TV on Turksat 1C

Eutelsat W2, 16 Deg E

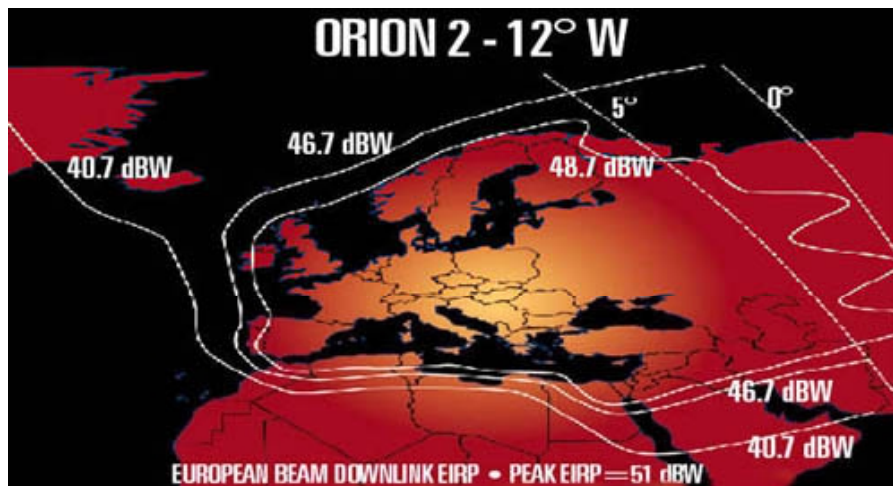
The Dutch amateur-television PI6ALK has moved from 12.680 GHz h to 12.727 GHz (h) SR 2000, FEC 3/4.

Hot Bird 1-5 13.0 Deg E

Dubai Sports Channel and Radio Dubai Sports is now on Hot Bird 4, 12.654 GHz (H) SR 27500, FEC 3/4, MPEG-2 Clear.

Worldhaus TV, a cultural channel as part of Weimar's year as the European Cultural Capital, is now part of the Belgacom package on 12.476 SR 27500 FEC 3/4 in MPEG-2 Clear GHz Hot Bird 3.

Dutch BVN TV has closed its analogue service in PAL on Hot Bird 1 on 11.283 GHz. It is now in digital on Astra 1G 12.574 GHz SR 22000 FEC 5/6 MPEG 2 Clear.



Orion 2 European Beam

Game Network, an Italian computer games channel, launched in mid-September as a free-to-air digital service on 12.673GHz (V) SR 27500, FEC 3/4.

Sirius 1/2 at 5 Deg E

Travel has moved from Sirius 1, 12,015 R to Sirius 2 on 12,322 V, D2-MAC/Eurocrypt M. **NSAB/Teracom** has been seen on 11.727 GHz (h) in clear Pal.

TELECOM 2 C, 3 Deg E

The Irish sports-programme **Setanta Sport** can be found on Sundays using 12.606 GHz (v), in clear Pal with sound on 6.60 MHz.

Thor 1,2 & 3 . Int 707 1.0 Deg W

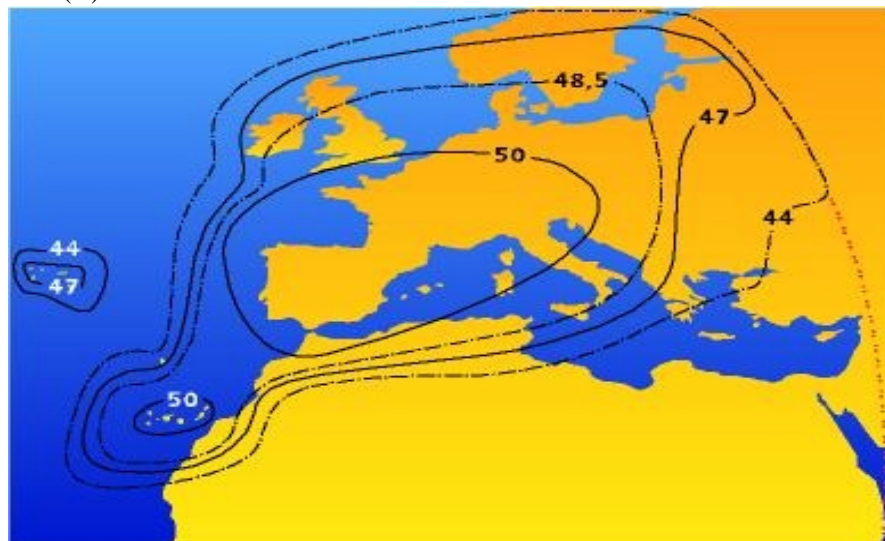
The all-news channel **NRK Alltid Nyheter** has closed on Thor 3 12.322 GHz (H). It can be found now on Thor

2 in D2-MAC on 11.325 GHz (H). **Norway's TV2** has begun on Thor 2 on 11.261 GHz (H) in D2-MAC. It closed on Intelsat 707, 11.555 GHz (H) on October 5. **CANAL PLUS** launched its third pay-film channel, **Canal Plus Blue** on Thor 2 on 11.278 GHz (V) using Conax encryption SR 24500 FEC 7/8. To make room in the digital package there, **Hallmark** has moved to 12.303 GHz (V) on Thor 3. **Telecom 2B 5 Deg W**

TV 5 Europe has started on 12,648 GHz (V) in clear PAL.

Eutelsat II-F2, 12,5 Deg W

This satellite has now re-located from 10 Deg E to provide Eutelsat's "Atlantic Gate". **SIC Portugal** was seen testing in late September between 15.00 & 00.10 on 12.573 GHz (V) SR 4340, FEC 1/2.



Hispasat 1C European Beam



The Digital Satellite News Gathering truck

The resulting signal rate is at 5.632 Msym/s with an FEC of $\frac{3}{4}$. Check out Eutelsat IIF3 at 36.0 Deg E on the following frequencies to see the truck in action; 11,072.375 MHz, 11,080.375 MHz & 11,088.375 MHz

New Technology

With the demise of Analogue services manufacturers at this years Cable & Satellite Show were concentrating firmly on digital reception. A number of stands were demonstrating PC cards capable of both DVB TV reception and satellite delivered high speed Internet services. About to be launched now is the Skymedia 300 PC card from Telemann. This card is an advance on most similar cards available in that it has an integral Common Interface for Conditional Access Modules.

The card is capable of receiving; DVB/MPEG-2 TV Broadcasting, DVB/MPEG-2 Audio Broadcasting and- DVB-Data Broadcasting (ETSI 301 192)

Other features include;

Demodulator

- Waveform QPSK
- Symbol rate 2~45MS/s(Option:Guaranteed 1MS/s Version)
- SCPC and MCPC capable

Video decoder

MPEG-2 Main profile @ Main level

Intelsat 801, 31,5 Deg W

Football feeds can be seen every Saturday for Canal Satellite Numerique. Games start at 20:00 CET. Check out; 10.963 GHz (V), 10.987 GHz (V), 11.005 GHz (V), 11.014 GHz (V), 11.022 GHz (V) all SR 5632, FEC $\frac{3}{4}$. A British Telecom promotion is sometimes on 10.980 GHz (V) also SR 5632, FEC $\frac{3}{4}$.

Launch News

Upcoming launches of interest to the UK include;

Orion 2 – 12.5 Deg W. 22 Tp's in Ku Band between 10.950 GHz and 12.5 GHz due for launch about now from Kourou on an Ariane 4.

Eutelsat W4 – 36.0 Deg E. 31 Tp's in Ku Band between 11.7 GHz and 12.5 GHz replacing Eutelsat IIF3 due to launch in January on an Ariane 5.

Astra 2B – 28.2 Deg E. 28 Tp's in Ku Band between 11.7 & 12.750 GHz due to launch in February aboard an Ariane 4.

Hispasat 1C – 30.0 Deg W. 22 Tp's in Ku Band with spot beams over Iberia and Europe due to launch in March aboard an Atlas AC-158.

Shuttleworth

Those of you who missed the Shuttleworth event during the summer

missed a great opportunity to inspect a Digital Satellite News Gathering (DSNG) truck at first hand. Ashley Booth, G8DPH, was in attendance with his ITN truck (pictured above)

The truck is one of 5 SISLink owned vehicles based in London and operated by ITN. Powered by a 14kVA diesel generator the units 2 High Power Amplifiers provide 150w output to the 1.2m steerable antenna on the roof giving an EIRP of 64.2dBW. The baseband input can be either analogue or digital with Sony Beta and Panasonic DVCPRO tape machines. Digital video signals are fed into an NDS MPEG encoder sampling at 4:2:2.



Ashley Booth at the Controls



**Skymedia 300 with external ISO
7816 smart card reader**

- Video formats 4 : 3, 16 : 9
- C band and Ku band

Audio decoder

- MPEG-2 layer I & II (Musicam Audio)
- Mono, Dual channel, Stereo, Joint stereo

LNB/Tuner input

- Connector 1xF-type
- Input frequency 950..2150MHz
- LNB supply 13/18V/OFF, Max.

- 400mA
- Band switch control 22KHz (DiSEqC2.0)

Conclusion

There was no postbag to report on this time so please do write with your news and views. Lack of feedback could indicate no interest and ultimately no Satellite TV news. As usual the email is paul.holland@btinternet.com or telephone 01948 770476.

Sound-in-Sync

By Ian M. Waters, G3KKD

I note with interest the recent proposal from the Netherlands to remove the sound sub-carriers from our 23 cm and SHF ATV channels and to employ some sort of sound-in-sync system. I do not propose, at this stage, to comment on the merits or otherwise of this idea but to recall some of the background to S-I-S.

The roots of S-I-S probably go back to the latter part of the war, when Pye Ltd. Cambridge developed and manufactured Wireless Set (WS) 10 for the British army. This provided a fairly secure 10-channel telephone/teleprinter link for trunk communications behind the advancing invasion of Europe. From memory it worked by generating a 100 kHz train of pulses each nominally about 5 microseconds wide. Time division multiplex was used with every tenth pulse width modulated by one of the audio channels. The signal was carried on a microwave bearer, I believe in the region of 2GHz. At the receiving end every tenth pulse was selected by a gate and integrated by a low pass filter to recover the modulation. The whole equipment was accommodated in a large 4-wheeled trailer with dishes on the roof.

As soon as the war was over, Pye switched its research effort to television broadcasting. Before the BBC service from Alexandra Palace had restarted in 1946, Pye had built an experimental/demonstration studio with Iconoscope cameras. It then went on to develop VIDEOSONIC. In this system the broadcast television sound was

carried by a width modulated, nominally 5-microsecond, pulse inserted into the line sync interval. The system offered several potential advantages. The cost of the TV sound transmitter, with its (in those days) separate aerial and feeder could have been rendered unnecessary. There would also be some saving in occupied bandwidth. Receivers could have been made less expensive with the sound rf/IF circuits replaced by a gating circuit. Although probably not foreseen, because transposers were then a long way in the future, its use would have been beneficial when gap filling became necessary. Combined vision and sound power amplification, used in transposers and in some types of main transmitters, always suffers from amplifier non-linearity giving rise to intermodulation products between the vision, colour and sound carriers. Life would have been easier without the sound carrier. The down side of VIDEOSONIC was that with a 405 line TV system, a 10kHz line scan and only one audio sample per line the maximum audio bandwidth was less than 5kHz. In those days the BBC was proud of its HiFi TV sound, so much better than old MF/LF radio. Pye did a demonstration to top industry executives. A VIDEOSONIC transmission from the demonstration studio was linked to some receivers at a Cambridge hotel. All went well until, just as a senior Pye executive was making a speech, one of the receivers went out of line hold. They often did in those days. The sound gate swept over the video signal and a loud raspberry came from the loudspeaker. The system was not adopted!

The system surfaced again in the early 1960s, when it was used by ATV operators in the Cambridge area on 70 cm. A width-modulated pulse was inserted into the sync interval. A modification kit was produced for receivers/monitors. This extracted the video signal and fed it to a box where it was gated, integrated, amplified and fed to a loudspeaker. A signal was also fed back to the monitor CRT to suppress spurious modulation that appeared on the line fly back. Although the system worked well and 5kHz audio was adequate for amateur purposes, it failed to catch on because people were unwilling to modify their, in those days very valuable, TV sets and transmitting sound on 2 m was much easier. The sound channel was secure because anyone listening on the band could not pick out the sound from all the video "buckshot". However if video was faded to black then sound signals could be heard, using a communications receiver, every 10 kHz over some 4-5 MHz of the 70 cm band! This did not impress other band users and I am glad we never found out what the Post Office (now the RA) would have said.

The story now moves to the BBC Research Laboratories at Kingswood Warren who, in the late 1960s, developed the sound-in sync system we know to day. This was not for public broadcasting but to carry the sound with the video on programme contribution and studio to transmitter links etc. Up to then sound and vision had been conveyed separately often using different routes and a combination of microwave links and

GPO landlines. It resulted in valuable network simplification and removed the possibility of the sound getting lost or the wrong sound being broadcast.

By now television was on 625 lines with a 15kHz line scan. The original S-I-S carried a single sound channel. Briefly the sound signal was sampled twice every line thus permitting an audio bandwidth of 14kHz. The two samples were converted to pulse code modulation, using a 10 digit binary

code, delayed, compressed in time and the sound information lasting 4.0 microseconds was inserted into the next line sync interval. Large amplitude pulses with a 2T form are used to make the system immune to interference and distortion and the order of the binary digits are reversed so that the least significant digits are transmitted first.

Subsequently with the advent of stereo television sound using NICAM, it became necessary to develop a two-

channel/stereo version of this equipment. Considerable quantities of S-I-S, both mono and stereo were manufactured by Pye TVT Ltd to the BBC designs over many years. It has been used extensively on terrestrial and satellite links within the UK and worldwide. One wonders if some new variant optimised for amateur needs will now emerge.

9GHz DRO pucks £6 each

Also small quantities of

8.6, 9.4, 9.75/9.8, 10.3 and 10.6GHz.

Exact frequency depends on operating conditions.

Cash or cheque made payable to:

Beacons Repeater Group,

40 Monument Avenue, Wollescote, Stourbridge

DY9 8XS, or telephone Alan Kendal G6WJJ

01384 894512 7-9pm weekdays

We heard recently of the sudden death of Manfred May, DJ1KF, chairman of the Koeln-Aachen district of DARC and vice chairman of AGAF. He died on the 30th July 1999 following an accident at his home a week earlier, and he seemed to recover from his injuries at first, so the news of his death came as a shock to his relatives and friends.

Manfred had been a DARC member since 1967. He obtained his 'C' licence (DC6EV) and soon became involved in ATV. He installed one of the first ATV repeaters - in a Cologne high school (DL0AK) and planned transmission of amateur radio lectures through it with several physics teachers. Initially, the licence authorities suspected a commercial TV intention, and only allowed still pictures to be shown, but Manfred - with Ernst Schoenmann D3ORR - were able to negotiate for full video transmission as intended.

From 1975, Manfred was special modes expert for the Koeln-Aachen district for almost 10 years. He was also involved in AGAF activities, becoming a regional speaker for his part of Germany, and being elected AGAF vice chairman in 1994, in which role he was the contact to DARC and the licence authorities - a difficult task. In 1978 he began to develop an ATV bulletin repeater, and with 5 amateurs, set up a multimedia repeater (DB0K0) with ATV in 4 bands, SSTV, RTTY and Fax on 2m, and a meteosat receiver. From March 1993 he headed the Koeln-Aachen district bulletin service, with a team of 30 amateurs in 12 teams who produce and transmit district and DL news on 80m, 10m, 2m, and 70cm, and 23cm ATV (and higher) bands. He became the district chairman in October 1997, being re-elected in the spring of this year.

Manfred was also the author of many specialised articles - particularly to help newcomers to amateur television. His commitment to recruiting and inspiring them will be remembered. He also looked after the "Monitor" page in the DARC magazine for two years.

He was prepared to fight for the amateur radio developments he believed significant for the future, but knew some could only be achieved by compromise. Despite opposition, he preserved with those challenges - notably in making digital technologies accessible for amateur radio, although he will not see the results of the Digital ATV project he initiated.

His relatives and friends will miss him but the results of his involvement will keep his memory alive.

Worthing & District Video



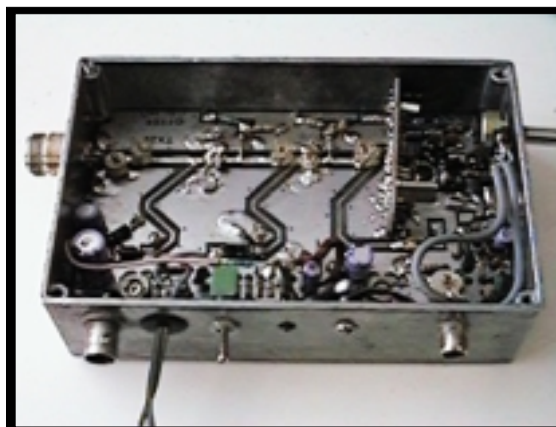
Repeater Group

GB3VR GB3RV & GB7VRB



1Watt FM-TV 24cms Transmitter

The 1 watt transmitter generates its signal at the wanted frequency which can be set anywhere in the band, colour or B/W. On board intercarrier sound and fixed pre-emphasis are standard features. The kit includes the PCB all the on board components, pre-drilled heat sink, an Eddystone Di-cast box and full and comprehensive instructions. Building time is three evenings work. The new price for this kit is £85.00, P&P £2.50. Only available to licensed radio amateurs.

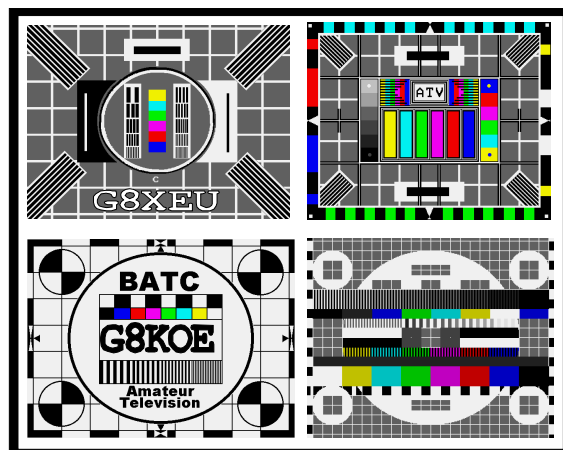


Two channel phased locked loop kit.

This add-on kit vastly improves the overall stability of the 1-watt transmitter. Two crystal locked channels and a third free running tuning position are available. Kit price £30.00

Amiga ATV Program-2

The New Amiga ATV program has more features than ever, up to 56 testcards, 20 wipes, superb text control, 30 screens of text messages, QRA calc, Testcard music, selectable displays, and this version has a DTMF tone pad to control your repeater. All testcards are over-scan i.e. the whole screen is used, Load in your own customised testcards, Extra large text, scrolling text, clock, callsign extensions, Hot key operation, Doc reader, ATV Cli, Cross Hatches, Purity and a comprehensive section for genlock users. For any Amiga with 1meg or more, state callsign and QRA (if known) when ordering, this three disk set is now only £10.00 P&P 75p



Spectrum ATV Program

Still selling after all these years, why, it's good, its cheap and it works on all spectrum based machines. The 48k version has over 60 commands which include 7 Testcards, Memo pad, clock, maps, tones, QRA locator, various size printing, plus disk transfer routines and much more. Now only £5.00 P&P 75p

Visit the all new GB3VR-RV web site at: - <http://www.g8koe.demon.co.uk/>

Orders should be sent to:-

Treasurer of GB3VR, R. Stephens, 21 St. James Ave., Lancing, Sussex, BN15 0NN.
Cheques payable to "W&DVRG" Tel (01903) 765760, 7 to 8pm.

The Kenwood VC-H1 Hand-held SSTV Adapter

Reviewed by **Brian Kelly**
GW6BWX

In days gone by, Slow Scan TV involved clever home-brew transmitters and long-persistence Cathode Ray Tubes to show received pictures. Nowadays, SSTV transmission and reception is almost entirely achieved with computers and sophisticated software. Many, including myself, will argue that this progression of technology and the availability of cheap hardware have lessened the fun of communicating by slow-scan.

Having been so negative about high-tech solutions to low-tech modes, I can reveal that I was pleasantly surprised at a new SSTV product recently released by Kenwood. Although the VC-H1 is undoubtedly a highly advanced unit, Kenwood have made it easy and practical to use. In fact after playing with it for a week, I found I was falling in love with it and reluctant to give it back!

Description

The VC-H1 is described by Kenwood as "Interactive Visual Communicator" which is an accurate assessment of its function. It can be used with any voice transmitter on any band for sending and receiving SSTV signals. Its body is about the same size as a computer mouse and houses an extension loudspeaker for the rig, the microphone, all the controls and the LCD screen. Four AA size batteries fit in a compartment behind the loudspeaker. The LCD screen measures 37mm wide by 28mm high (quoted by Kenwood as 1.8in when measured diagonally) and gives a sharp colour picture. A CCD camera mounted in a detachable box sits on top of the main body. The camera can be rotated through 360 degrees, which allows the unit to work like a conventional camera or to see a backward looking "mug shot". With the camera looking left or right it can be unplugged from the body. The unit can still transmit SSTV without the camera but can only send pictures stored in one of its memories.



The VC-H1 (right) with the TH-D7 used in the review

Ins and outs

It plugs into Kenwood's own transceivers through a special cable but the pin-outs are listed in the handbook and can easily be adapted to other makes and models. The only connections needed to make the unit work are an audio input from the rig's speaker socket, and output to the microphone socket and a PTT line. Connections to the rig are all made through a single socket in the bottom of the body. On the right side there are three small sockets. Near the bottom is the DC 6V input from the mains adapter which is included with the unit but, sadly, cannot be used to recharge internal batteries. Nearer the top of the right side are two 2.5mm jack sockets which provide for connection to an external video monitor and to a computer - more on that later. All the sockets are protected from dust and moisture ingress by rubber plugs,

which push into the holes to seal them. With the camera removed, the 3.5mm jack socket it plugged into becomes available to use as an external camera input. Unfortunately for most European users, the video in and out conforms to NTSC standard and not the more useful PAL standard.

Controls

On the left side of the body is a conventional PTT switch that puts the rig into TX mode, as one would expect. It doesn't, however, cause SSTV to be transmitted, pressing the front button labelled "TX" does this and provides the PTT function as well. Using two switches in this way is necessary so that the unit can be used as a conventional speaker microphone as well as a picture source. Above the PTT switch is a button labelled "S" which is analogous to the shutter release on a film camera. One press

activates the camera and shows a live picture on the screen, the next press freezes the picture and memorises it ready for sending. The "RX" button is a manual starter in case an incoming SSTV start tone is missed. Normally the VC-H1 will assume SSTV reception automatically as soon as a signal is recognised. The "MR" button controls the memory functions. After reception it transfers the picture to one of the ten internal picture stores. After storing, which takes about one second, the button assumes a memory recall function with each press recalling the next memory in sequence. The last control is labelled "Hold"; pressing it provides write protection for the memory segment holding the current picture so it cannot be overwritten by a new image. Normally the memory number is displayed in blue in the top right corner of the picture but it turns red if the memory is protected. A slide switch on the lower left side turns the power on or off but also has a dual function. As the power is turned on, all the other buttons are checked to see if any are held down. Each button has at least one other hidden use that activates in conjunction with the power switch. For example, holding "MR" and "Hold" down together while switching on allows entry of a callsign. Position and selection of letters are then entered using the "TX" and "RX" buttons much in the same way as modern TV and satellite on-screen idents are entered. Switching on with the "hold" key alone held down allows the callsign superimpose to be turned on or off. Most other combinations of keys perform similar functions. There are two rectangular LEDs on the unit, one is bi-colour and functions as power, RX and TX indicator, the other only illuminates when "Fast FM" mode is selected. This mode is not common and requires specialised receive equipment or another VC-H1 at the other end of the QSO.

Computers

I guess they had to creep in somewhere! The VC-H1 has a socket to link the unit to a PC, giving it remote control and picture upload and download facilities. Although the unit functions perfectly well on its own, by linking it to the serial port of a

computer and running the software provided, pictures from any source can be placed in the memories ready for transmission. Pictures currently in the memories can be downloaded to the computer for storage and display. This useful feature allows testcards or pictures with station identification to be prepared off-line using conventional graphics programs, then uploaded for transmission at a later time. As many of you know, I write copious amounts of

These criticisms aside, the program did work well enough to complete this review and most people would find work-around ways of overcoming its deficiencies. It only runs under Windows '95 or '98; older operating systems and Windows NT are not catered for. I am assured that the VC-H1 will work with other software packages but I haven't confirmed this.



Original from VC-H1 memory

software both for CQ-TV articles and to earn a living. It came as somewhat of a shock to see the software provided with the VC-H1. The software, called VC-IS, is an AOR product, not written by Kenwood but it is specifically written for controlling the VC-H1. Although it most definitely works, it has numerous bugs and doesn't follow the Windows OLE and clipboard specifications at all well. The program window cannot be scaled and the help file I found very confusing and full of spelling mistakes. For example, with the "incoming" and "outgoing" windows side by side, I found that marking an area by dragging the mouse with the left button down in one window caused a seemingly random selection to appear in the other window. Maybe the copy I received (version 1.0) was not the latest or still under development, it certainly wasn't proof-read or fully debugged prior to release.

In use

This is a portable unit and it seemed only fair to evaluate it under portable conditions. Armed with the excellent Kenwood TH-D7 handheld rig, the VC-H1 and a raincoat (well, this was mid June in Wales after all) I headed out into the wilds of Risca. My journey was initially very short as I met and chatted to a neighbour. This seemed like the ideal opportunity to demonstrate the unit and trial it at the same time. I captured a picture and stored it into one of the memories, then sent it over a 55km path to Basil, G7FEQ using the "rubber duck" antenna on the TH-D7. The signal was only received at S2 so I didn't expect very good results. Later Basil sent the picture back to me, again using the same equipment and antenna. His signal was stronger when received at my end due to his higher TX power but the picture came back far better than anticipated. The "before and after" pictures are reproduced here to show the effect that sending and receiving had on the quality. Despite heavy rain, several other trials were carried out and each time the results were extremely



After 110Km round trip. The blemishes are caused by interference at the remote end of the link

good. The only operational problem I encountered in the field was holding down buttons and switching on to set it up, while holding the rig in my other hand. The LCD screen is sufficiently bright to use under average lighting conditions, but difficult to see in bright sunlight. To be fair, under bright light conditions, very few LCD screens work well. In several hours of use I didn't manage to flatten the batteries or even make the low voltage warning operate (TX/RX LED flashes). Unless actually transmitting, receiving or viewing a stored picture, the unit blanks its screen after 30 seconds to conserve power. Even with the four AA cells fitted, the VC-H1 is remarkably lightweight and can be held aloft to take pictures with ease. Users with small hands may find it difficult to grip after long periods, especially as the PTT switch has to be pushed fairly hard. The PTT button is quite large but seems to pivot at its lower edge with the "pressure point" at the top, requiring the PTT finger to be stretched beyond comfortable limits. To people with big maulers like mine this would not pose a problem. A minor anomaly exists with the size of the pictures sent and received. The extreme top and bottom of pictures seems to be

cropped off. At first I thought this was due to the aspect ratio of the LCD not exactly matching that of an SSTV frame but even when downloaded to a computer the extremities were missing. In fact the computer image fell somewhere between the original and LCD sizes. The effect is not severe and in most cases wouldn't be noticed at all. There was slight interference in the background of the picture while transmitting, this may be due to fluctuating current demand from the internal processor or just "busyness" in the display electronics. Again this wasn't a problem and the image cleared as soon as transmission finished.

SSTV modes

The VC-H1 will receive pictures in most of the common SSTV modes and automatically adapt to the signal it hears. Used "stand-alone" it can only initiate a transmission in Robot 36 or its own "Fast-FM" mode. Although Robot 36 isn't the most commonly used SSTV mode, it is compatible with most other systems and should be usable with all the common software packages. None of the stations contacted during the trials had any

problems with this. When hooked to a computer running the AOR software package all the common transmission modes can be selected. The VC-H1 will also switch transmission type to match the last received SSTV signal mode automatically.

Conclusion

Overall, it is a very desirable piece of equipment. It does have its faults but these are minor and in no way prevent the unit from being used. At the time of writing the VC-H1 is priced at £299.95 which is rather expensive but when you consider that you are buying a digital still camera as part of the deal it puts the amount in perspective. If I had need of SSTV equipment (and had the time to use it!) I would definitely consider buying one for myself.

Acknowledgements

I am indebted to Kenwood UK Ltd who loaned the VC-H1 and TH-D7 for this review. Basil Shipton G7FEQ who patiently acted as the remote end of the SSTV contacts and Pat my neighbour for smiling while her picture was taken.

1/1999

Repeater

Zelfbouw Nicam-encoder

- Multiplier voor 3 cm
- 13 cm converter
- ATV via de satelliet!
- Rotorbesturing en nog veel meer...

Het tijdschrift voor ATV en microgolfsystemen

'Repeater' is the premier ATV magazine in Holland.

Repeater is a new ATV magazine published in the Netherlands in Dutch. The 13/24cms TX in this issue is reprinted from Repeater with the kind permission of the Editor Rob Ulrich PE1LBP. I hope we can from time to time bring you other extracts as we do with all the ATV magazines.

Information about 'Repeater' magazine can be found on their web site at <http://www.euronet.nl/users/rulrich>, email: repeater-nl@rocketmail.com

Snail mail:- Gibbon 14, 1704 WH Heerhugowaard, Netherlands.

Photo Gallery



Eclipse fever! Dicky Howett trains his EMI 203 1960s vintage image orthicon camera at the sun to capture the recent total eclipse in glorious black and white. Dicky adds "Cloud cover prevented me from televising totality. Mind you the good old image orthicon was still recording an image even though it was quite dark everywhere".



The 1956 BATC convention with our president, F. H. Townsend addressing the meeting. I think this was the occasion on which we increased the sub. to 2s 6d per annum. If my memory is right this was held in the Conway Hall, Red Lion Square. The person on his left hand side is Mike Barlow and then myself. I can't identify anyone else. Grant Dixon



Another convention, which was held in the IBA rooms, I think in Kensington. You may recognise some faces, from right to left, John Lawrence, John Tanner, Ian Waters, myself, Malcolm Sparrow and I think the last was our president, get someone else to confirm his name I have a very bad memory for names and faces. Grant Dixon



This was taken after I gave a talk to the Royal Television Society in London on the 24th October 1958. Grant Dixon



Andy Emmerson at Shuttleworth 99 demonstrates his Cambridge Station, restored for the Nation. DH



This photo shows the antenna installation crew for the forthcoming new ATV repeater (GB3GW located near Criccieth) which will cover the West coast of Wales & Cardigan Bay.

The crew from left to right are:-Derek GW3FDZ, Endaf MW1BQO, Max our Rigger & Brian GW4KAZ (Chairman of the Arfon Repeater Group). Reg GW1TPS took the photo.



This was seen on the satellite via PI6ALK on Saturday 24th July '99. On the left is Hans Bruin, on the right is a representative from the PI6ATV repeater.

From Paul Pitts.



Never mind the quality, feel the narrow bandwidth. Brian Summers, Grant Dixon & Paul Reid enliven proceedings at Shuttleworth 99 with handy antique television equipment. DH



Bob Platts holding a mug should not be interpreted wrongly. He had just received this as a gift from the Dutch team and the mug carries a picture of the Dutch Team with their equipment. - Grant Dixon.



The one of three RSGB council members sitting at a table at a BATC convention has obvious news value.



Left - our chairman wonders where everybody has gone.

Right - Brian Kelly prepares for his lecture in the time-honored manor.



Home Counties ATV Group and SCART News 'Flash'

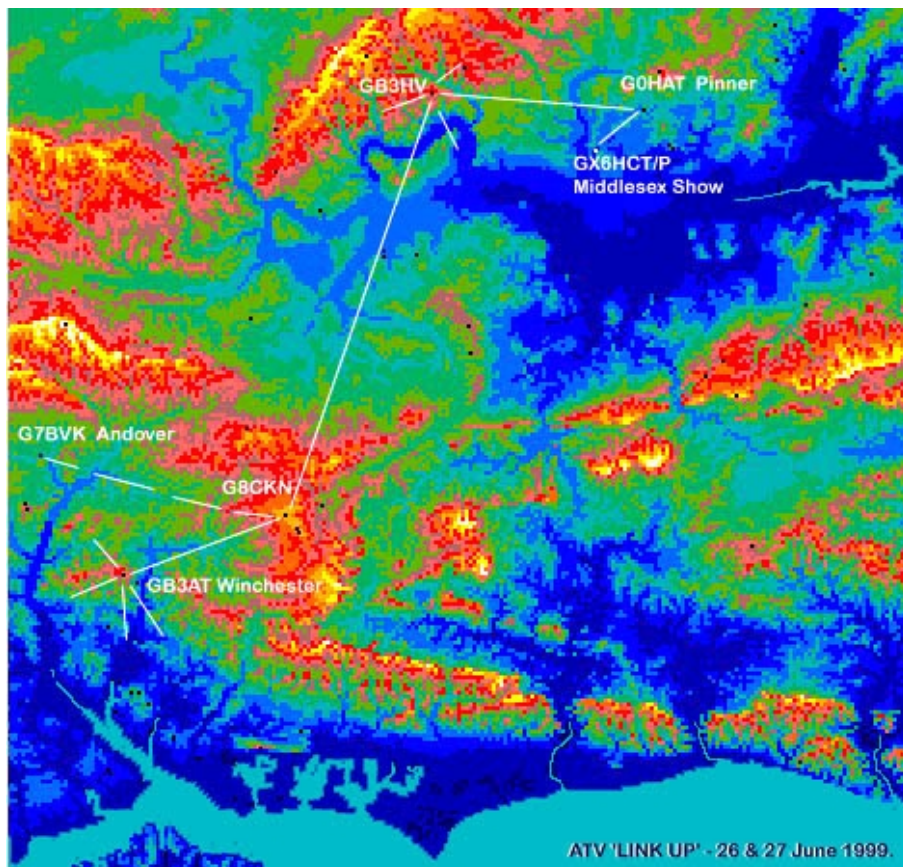
By Roy Powers, G8CKN

Amateur Television Special Event

On Saturday and Sunday, June 26 and 27 1999, the Home Counties ATV Group again represented the Amateur Radio/Television fraternity at the Middlesex Show. In addition to the usual items of ATV equipment demonstration, 'Walkabout' live pictures and 'Reading the weather' an experimental link-up was carried out on the Saturday Evening.

This initially consisted of live and inserted recorded sound and (P4-) pictures from the show being relayed by John, G0HAT at Pinner, to the GB3HV ATV repeater at High Wycombe. The pictures (P4.5) were then received by Roy, G8CKN at Medstead (Hampshire) who then relayed them to the GB3AT ATV repeater at Winchester.

Steve, G7BVK in Andover (Hampshire) reported receiving Middlesex Show pictures via GB3AT, but said he was also receiving better (P3+) pictures direct from the side of Roy's 'beam'. The total path length, Middlesex Show to G7BVK was 126.2km. Next the system was reversed and pictures sent by Roy to GB3HV



and onward via John to the Middlesex Show as a prelude to the suggestion that the GB2RS News could be linked to the Show the following day.

At 0930 Sunday morning Roy's GB2RS News transmission through

GB3HV (also through GB3AT) was successfully relayed to the Middlesex Show.

Confidential Communications Ltd

Video Surveillance

Design Your Own Professional Video Surveillance. Smallest pinhole camera in the world 15mm x 15mm (B&W) £29.00

32mm x 32mm Board camera, pinhole, high resolution (B&W) £29.00

32mm x 32mm Board camera (colour) £65.00

B & W Quad £79.00

Colour Quad £350.00

Picture in Picture with alarm input £299.00

1.394GHz video transmitter module, 100mW £85.00

2.4GHz video transmitter module, 10mW £85.00

1.294 - 1.3 GHz Linear PA 2W output £250.00

Four channel video receiver module with auto switcher £120.00

Time & Date Generator Module £42.00

Time, Date & Character Generator Module £65.00

5W infra-red light source £25.00

Audio amplifier module £7.00

Convert your VCR to automatic video recorder £45.00

4" LCD monitor £190.00

6.8" LCD monitor £290.00

We also stock RF parts such as Power Modules, MMIC's, RF transistors, etc...

Above prices are subject to VAT and are for one unit order, 10% discount for 5 or more.

Confidential Communications Ltd., 344 Kilburn Lane, Maida Vale, London, W9 3EF, England.

Tel: 0181 968 0227

Fax: 0181 968 0194.

e-mail: 106075.276@compuserver.com

Flying Spot Scanner

By J. Francalanza, 9H1GT

Readers may be interested in a description of my flying spot scanner - a TV ANALYST MODEL 1077 PAL.



The first time I saw one was when I was at our local broadcasting station. There they had a small factory, were

they built B&W televisions; this was about 20 years ago.

The small factory was closed at the time I was as a student there, in 1989. 3 years later I was working as a qualified technician on colour TV's.

Earlier this year - about 3 months ago - a friend of mine who has a scrap yard brought me a box. As soon as I saw it, I recognised it as the flying spot scanner that was at the broadcast station many years ago. I was surprised to see it, although it was not in a good shape.

I began to work on it to get it going. Water had caused some rust, but this was given an anti-rust treatment. I replaced all the electrolytic capacitors



and cleaned all the PCB's with some switch cleaner. I then began to test it, feeding mains through a variac, to start with about 50 volts for an hour or so I gradually increased the supply, I saw the raster on the scanner - and a picture on the monitor connected on the video output.

Visit our Web site at www.batc.org.uk to view or download electronic versions of recent issues of CQ-TV



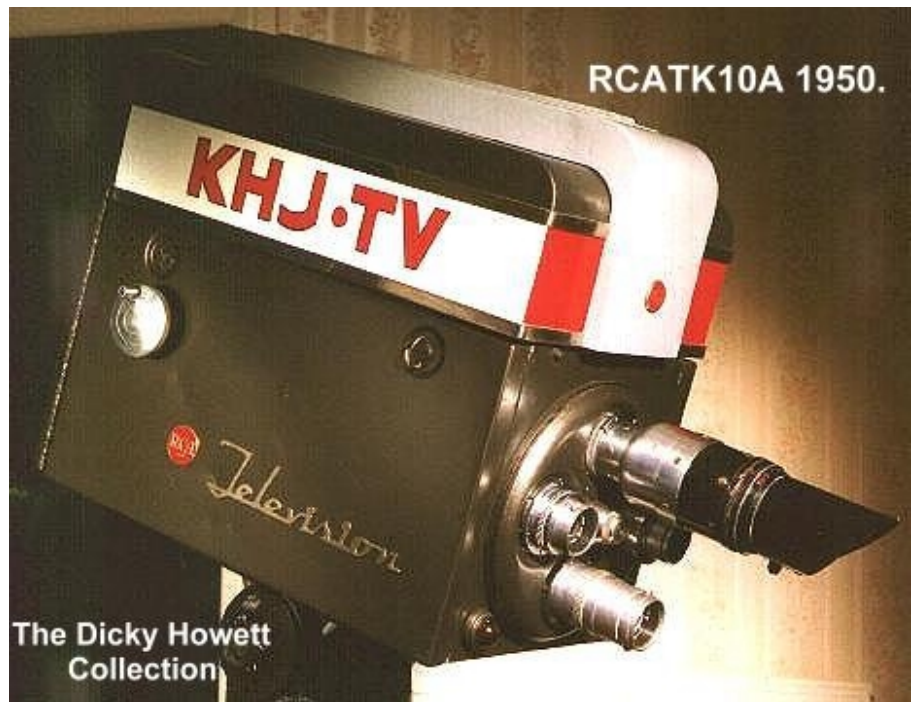
Hollywood TV Times

Dicky Howett reports on his trip to the USA and finds an American television cornucopia. On a recent holiday to Los Angeles, I decided that, just to add interest, I ought to drag my family around a few Hollywood TV studios. And why not? After all, I had to endure innumerable 'factory outlet stores', shopping Malls and The Grand Canyon! (Just a big hole in the ground after all!)

Art Deco Telly

First telly-stop was to a TV station called KCAL-TV. This may, ostensibly not mean much to the average CQ-TV reader, but for me it was like a daydream come true. The location of TV station KCAL is in North Hollywood on the fabulous Art Deco Paramount lot. This is situated near the corner of Melrose Avenue and Gower Street, which, to the cognoscenti, is the former RKO/Desilu studio site. The big 'RKO' concrete globe is still there but the radio mast and monochrome flashing bolts of light are long gone. The reason for my pilgrimage was (any old excuse) that I own a restored RCA TK 10A TV camera that was (allegedly), used during the 1950s in Hollywood at station KHJ-TV, forerunner of today's KCAL-TV. All this station call sign switching can be confusing. Tracking the history of US TV is quite fraught. US VHF commercial TV licences are traded regularly and exchanged without much regard to such intangibles as 'quality' or 'the public good'. Likewise, station owners change call signs to suit the market. For example, a call sign 'KFI' meant K-Farm Information). Unfortunately, KCAL's Director of Engineering Neil Mazur had no available company history to offer me. I explained that my RCA TK10A camera had migrated from the US to England in the 1960s and then finished up at a local scrap yard. Also, as a writer I was interested in charting the type of equipment used by US TV during the monochrome era, possibly for an article in the next century.

Further research has revealed that the roots of station KHJ (KCAL) go back to the early days of US broadcasting. Indeed, as far back as mechanical TV in 1931, with West Coast broadcasting



pioneer Don Lee tinkering with spinning discs on the medium wave. Later, in 1948, Lee's experimental TV station W6XAO upgraded its output (in order to gain a commercial licence) by pumping out local collegiate track and field meets, basketball and surfing at Santa Monica, some programmes of which won Emmy Sports Awards for the station.

Re-named KHJ-TV, General Teleradio Inc. who subsequently bought also RKO with its large film library bought the station in 1950. Movies thus featured heavily in the KHJ-TV schedules, with 'sports' broadcasts curtailed in favour of the movie fans. In 1988 the station again changed hands when the Walt Disney Company bought the licence and changed the station ident to the present 'KCAL'. Today, because Disney now own the US network ABC, they had to divest, and KCAL was sold to an organisation called Youngs Inc. who have re-badged the station 'KCAL9'.

The studio management at KCAL-TV (9) were very helpful to this nut from the UK allowing me to inspect the actual studio from whence my TK10A (allegedly) emanated. The original 1948 studio space (approx 50x70ft-two studios knocked into one) is now unused. KCAL9 production has transferred to the sprawling Paramount Lot and is located in a purpose-built

automated broom cupboard labelled 'Live News' (complete with indentikit android 'anchors' with unlikely haircuts). My thanks to KCAL9 and whatever incarnation in the 21st Century. I, at least continue to hold, here in Chelmsford, a piece of their history. If the origins of my RCA camera might be due to informed guesswork, at least the RCA TK10A handbook I own is inscribed with the station call letters 'KHJ-TV' and even the exact address, '5515 Melrose Avenue Hollywood CA.' Magic!

A Lotta Paramount

Later, we toured the famous Paramount Pictures Studio on a conducted back lot trapeze, guided by an energetic and noisy young chap who was auditioning continuously. It was something of a relief to bump into - as one does- Captain Jean Luc Picard, along with his crew mates, Worf the moody Klingon and Data the anatomically correct artificial life-form (who has a much greener face than I expected) The cast were shooting pick-ups (closed set- the present writer was admonished for merely waving a camera in the general direction of the studio walls) for the recent movie, Star Trek - Insurrection. Current productions at Paramount include Star Trek: Voyager with the delectable Seven of Nine (What do you mean who's Seven of Nine?!) Continuing



NBC Burbank Studios

around L.A., I made a quick visit to North Sycamore Avenue, home of Mole-Richardson, the lighting company (oh, didn't I mention I also own three 2K Mole Solar spots and a 17ft mic boom?). The Mole-Richardson company, founded in 1927 by Peter Mole and Elmer C. Richardson have also a retail outlet situated nearby on North La Brea Avenue called Moletown from whence the faithful can purchase Mole t-shirts, caps, bags and the occasional luminaire. At Moletown, lighting seminars are held, including a tour round the small but fascinating Mole lighting museum. Again, my thanks to Mole employee John C. Clisham who was roped in at a moments notice to guide me through the portals.

Another stopover was to The Museum of Television & Radio, situated out at plush Beverly Hills Drive at the junction of South Santa Monica Blvd. A slight misnomer, the MTR has no tasty displays of ancient broadcasting artefacts, apart from some apposite pictures tacked tastefully to the white and pristine walls. The Museum's raison d'être is an accessible collection of broadcast 'historical' audio and videotapes, plus regular seminars, and educational presentations. A worthy enough institution which, housed in a sleek award-winning building, belies the unfashionable couch-potato cause it contains. The Museum of Television & Radio, continues the laudable hunt for 'lost' US television and radio recordings, including the CBS 1954

Studio One production of 'Twelve Angry Men', President Harry S. Truman's address from the White House in 1947 and the CBS Evening News Nov. 30th 1956. Why that one? It appears that this broadcast was the first network news programme to be recorded on new fangled videotape for re-broadcast to the West Coast.

Easy As ABC

Next, on the magical TV history tour was ABC TV with their studios at 4151 Prospect Avenue, originally the old Vitagraph lot, near the location where David Wark Griffith filmed his 1916 silent epic 'Intolerance'. Conducting us around the ABC TV lot was senior engineer and fellow-collector of TV detritus, Chuck Pharis. ABC TV has seven cavernous studios- the 1925 Lon Chaney movie 'The Phantom of the Opera' was filmed in one of them. Chuck then introduced us to modern 'operas' of the soapy sort such as 'Port Charles' and 'General Hospital'. We witnessed impeccable video images on flicker-free monitors upon which the picture of a suntanned man in a tan-coloured suit stood against a tan-coloured wall. The lighting temperature was tan. The invisible tan-man. Adjustments were made to correct this technical difficulty. All the soap sets were laid in situ covering the vast floor areas of Studios 54 and 57. Chuck explained that ABC TV didn't actually have that many studios, but that the numbering- which used to be A, B, C, etc- now indicated some arcane signal

routing system plus the bonus of making ABC TV appear bigger than the Jolly Green Giant. Specifically, studios that are still there include no. 52 which is empty due to damage in the recent Northridge earthquake, 55 which is a rental stage, 61 which is for ABC Network News and 62 which houses 'Good Morning America' (West Coast). ABC TV has also many redundant technical installations on the Lot such as analogue 1in VT, duplicate Master Controls and post-production facilities. The local channel, KABC 7 has a news facility on the lot (studio 59), but that is moving to a more cost-effective cubbyhole out at cheery Glendale.

Tour NBC

Moving on, it's more TV studios. NBC TV has an interesting 'studio tour', situated at their studio centre in 'beautiful downtown Burbank'- so named by Bob Hope who had the 'beautiful' luck to sell to NBC some land he owned, thus enabling NBC to build their fabulous studio centre and create an enduring catchphrase. Even today, (according to legend) Bob Hope can totter in and commandeer Studio One for what ever reason and at however short a notice and stay there for as long as he likes, whistling at the walls. If a prime-time show is waiting to air, tough luck. Some Hope! Such is the incredible history of American television and the rules by which they operate. Phew!

NBC, as part of their studio tour- which includes a brief peak at the sets of various unfamiliar game, comedy, and chat-shows- screen an introductory video which scurrilously implies that RCA and General David Sarnoff invented, single-handed, back in the 1930s, both radio and television. The present writer objected to this, citing the contributions of Philo Farnsworth and Edwin Armstrong and was pleased when several Americans in the audience concurred. Doubtless, the NBC 'video presentation' will continue to misinform generations of TV fans yet unborn. Unfortunately, television 'history' worldwide is beset by much partiality and chauvinism. However, General Electric, who currently own NBC, ought to know better, but probably won't.

Tourists of NBC have also the opportunity to acquire free tickets for



Paramount Studios

such popular fare as the daily Tonight show, hosted by frenetic moon-faced comedian Jay Leno. The Tonight show is actually recorded 'live' at 4pm in the afternoon and transmitted 'pretend live' the same day, usually at bedtime. The show itself has some wickedly funny satire from Leno (it seemed very libellous to this viewer. Jay Leno, "How does O. J. Simpson carve his Thanksgiving Day turkey?" Leno then mimes frantic stabbing movements; collapse of audience) plus some 'big name stars' (usually but not exclusively, Arnie, Mel, Jack, Hugh, Liam, Jamie Lee etc) plus the occasional all-singing, all-farting dog or tap-dancing 'cute' child. The show itself is very entertaining but does drag somewhat, due mainly to the frequency and appalling suddenness of the commercials, a factor that, during my stay in the USA, I never really came to terms with. For example, during news programmes it's disconcerting when, without pause, awful scenes of Balkan blood-letting give way directly to jolly views showing sun-lit families scoffing sugar-coated corn flakes or munching lengths of beef jerky.

Rubber Dub Dub

Movies are completely ruined on network TV. As a consequence, in order that that (say) a 90-minute movie sticks within its endlessly interrupted slot, great chunks of footage are excised without regard to little things like plot or intelligibility. Dialogue- especially the risqué kind- is ruthlessly overdubbed, in case it depraves, corrupts or even wakes the viewer. For

example, a slightly depraved curse "Goddamit!" becomes a lily-livered "Goshdarnit!" As for the replacement "You MotherFathers!", well, I can't imagine what that started life as.

All this mucking about with the dialogue would go mostly unnoticed if the dubbing voices matched, which they never seemed to. The sum total tended to emphasize that certain naughty words had been cut. If this is free television, give me old-fashioned licensed and regulated TV any day.

TV Toy Shop

Later, (after the commercial break, naturally!) Chuck Pharis suggested I pay a visit to the renowned BCS Broadcast Store. For the uninitiated, the BCS Broadcast Store is a toyshop for telly and radio professionals with lots

of dollars to burn. The Store's located in the sun-kissed Los Angeles suburb of Glendale, not far from Burbank. On the day in question (after a phone call to him one hour earlier), BCS Broadcast Store salesman Barry Seybert dropped everything and guided me around the premises. (The Americans are very accommodating like that) Barry Seybert expounded, "We buy all sorts of video stuff. Our latest catalogue lists hundreds of new and used video and audio items. However, we filter out the good stuff. Some of it's not resalable to professional customers. For example we've some RCATK47C cameras, a Fearless 'Panoram' dolly, lots of monitors and miles of cables. The market for tube cameras is almost nil, however some people like them for scanning images into PC's. Also, remember that here in the US we've thousands of small TV stations, not all are top of the range digital set ups. In fact, I was very impressed with London, you're very advanced there."

Full Service Lou

The BCS Broadcast Store owner is a laconic and bashful Frenchman named Lou Claude. "Here at my Store I work for a long term customer relationship. I offer guarantees on all my sales of 90 days parts and 1-year labour. It's all too easy to make a quick buck, and then walk away from the deal. It's a lot harder the way I do it. We're a full service dealer".

Equipment for sale includes top of the range Sony Digital Betacam 4:2:2 NTSC or PAL. Recently the Store acquired several brand new



Port Charles Studio 57

Ampex/Nagra VPR5 1in portable VTR's complete with spares and accessories. The price tag is \$2,500 each. Lou Claude, " We move an enormous amount to second-hand equipment, most of which we throw away. We don't want to sell junk to our customers; they've got to make money. Sometimes we get 'antique items like RCA TK41 three-tube colour cameras. These I save for myself. In fact they are my toys. My RCA TK41 camera came from L.A. TV station KTLA. I don't want to disappoint you, but the camera's only an empty box. I had a modest collection of RCA cameras most of which I've sold now. I keep nothing at home. I sometimes put these cameras and VT machines on display in my foyer or take them to the NAB and other exhibitions as eye-catching promotions.

Unfortunately, bits keep going missing from my cameras. I've had lenses stolen. Also, because we're so near Hollywood, movie producers sometimes come to us and ask for old cameras or boxes with flashing lights for science fiction productions. We're not a prop house but we help out by assembling a few racks that light up in a ' scientific' way. Also, we supplied video cameras for 'Godzilla' and the movie about the '70s porn business, 'Boogie Nights'. We rented them a three-tube JVC KY1900 which was used to shoot the soft-core footage seen in the movie." Lou Claude established his Broadcast Store twenty years ago. "I was a TV repairman and then worked for Sony. As a sideline I started selling kit from my garage. The title of my company was originally 'Buy-Consign-Sell'. Today we buy and sell all over the world. We go to auctions

and we can act as a broker if required. We also offer a liquidation service. We have offices too in New York and recently Korea. Today, all our details can be found on the Web. There's a lot of people in this business, buying and selling. I believe there's nobody doing things like we do, that's for sure."

To contact the BCS Broadcast Store: 1840 Flower Street, Glendale. CA 91201 L.A. (code) 818 5858 www.broadcaststore.com

Mole-Richardson Co. and Moletownw.w.w.mole.com Chuck Pharis has a fun 'old TV equipment' site. Worth a visit. www.pharis-video.com The Museum of Television & Radio 465 North Beverly Drive, Beverly Hills, CA 90210 The MTR shop email ctanner@mtr.org

Camera separates out background



An Israeli company has developed a TV camera that can sense the depth of objects in real-time and so does away with the traditional blue screen background used for special effects.

The technology also opens up the possibility of a real-time camera for MPEG4 coding.

The ZCAM Z buffer camera has been developed by 3DV Systems, a team of 20 engineers set up in 1996 and backed

technology captures both colour (RGB) and depth (Z) for each pixel simultaneously rather than having to read one pixel or one line at a time. It uses electro optical components designed by 3DV, a CCD sensor and a pulsed light source.

As the light hits the surface of objects in the scene, some of the light is scattered back to a detector, where the intensity shows the reflectivity, i.e. the

by Rafael Development and Vision-Sciences in the US.

The company also has a strategic partnership with Asahi Optical, owner of the Pentax brand, for joint product development.

The proprietary parallel range sensing

colour, of the currently illuminated spot on the target object.

The delay between the transmitted and returned signal is used to calculate the range to the illuminated point, giving the depth.

The camera is able to provide a 2D image, as well as a distance or range measurement for each sub-picture or pixel in the video mode, and this is fed to standard 3D graphics packages.

The core technology can be adapted for markets such as TV studio cameras, 3D desktop scanning, geographic information systems, quality assurance, robotics vision, civil engineering and medical devices.

Having the depth information allows software to automatically separate out an image in the foreground from any background, allowing special effects to be introduced in post-processing. This separation also divides the objects and background for transmitting separately in the fledgling MPEG4 compression systems.

Reprinted from Electronics Times 20th September 1999.
www.dotelectronics.com

Circuit Notebook No. 68

By John Lawrence GW3JGA

Indicators, Meters and Monitoring.

This edition of Circuit Notebook looks at monitoring some of the signals present in the Amateur Television Station. At least five kinds of electrical signals or supplies are required in the operation of an ATV station. These may be classified under the following headings,

- Power supplies - AC & DC voltage
- Audio - The sound channel
- Video - The picture source including sync pulses
- RF - The transmitter output
- Control - TX/RX switching, video and audio switching etc.

Supplies

To monitor the status of various parts of the ATV station, it is usual to include LEDs and/or meters at critical points so that any failure can be quickly located. An LED can indicate that a supply rail voltage is present, the receiver is switched on or the transmitter is operating. In portable operation, a voltmeter for monitoring the battery voltage is essential. In

addition, an ammeter measuring the current drain from the battery confirms that all is well - or otherwise!

Audio

It is very desirable to monitor the audio signal entering the transmitter. How many times have you seen the operator of an ATV station chatting away, oblivious to the fact that his microphone is not plugged in? We have all done it!

A simple audio monitoring circuit is shown in Fig. 1. It is based on the one

used by Sony in one of their cameras. In the absence of any sound, the LED is lit at medium brightness and flickers reassuringly when audio is present. You only need to glance at it to know whether or not your microphone is 'live'. If your audio signal is greater than about 50mV and is from a low impedance source then it may be possible to dispense with the Op. Amp stage.

A circuit that will indicate the audio level more precisely is shown in Fig. 2. The circuit uses a moving coil meter; one of the cheap VU meters would be very suitable. The circuit is based on one given in Ref. 1, which has been developed from that used in Sony Umatic VCRs. The 'Set Zero' control should be adjusted so that, with no signal applied, the meter pointer is indicating very slightly; this will avoid a possible 'dead-band' effect.

LED 'Bargraph' Signal Level Indicator

An alternative to a moving coil meter would be to use an LED 'bargraph' display. There are several types available in the Maplin catalogue. One possibility is to use the Maplin (BY65V) 10 segment display driven by an LM3916 IC (YY97F). This would provide a 'VU' style characteristic. Details of using 'bargraph' displays are

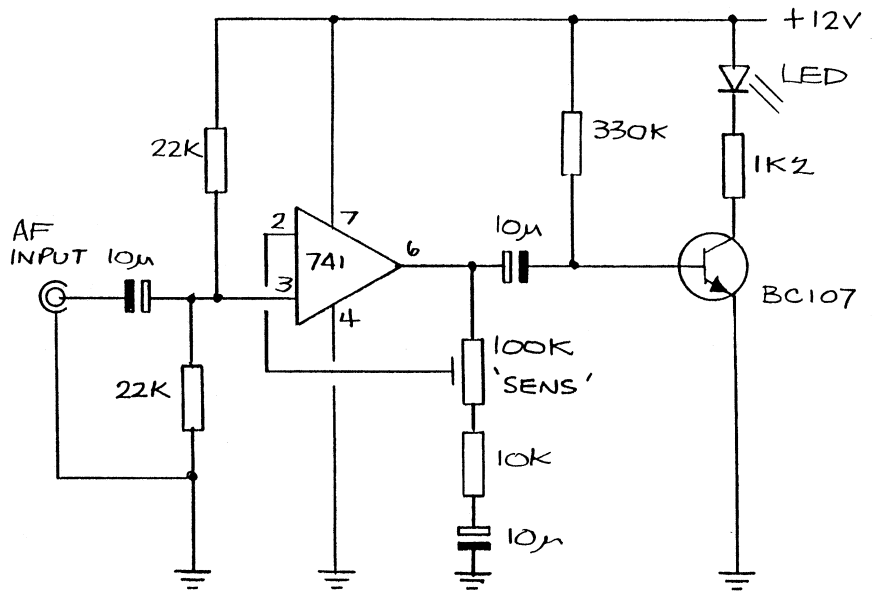


Figure 1

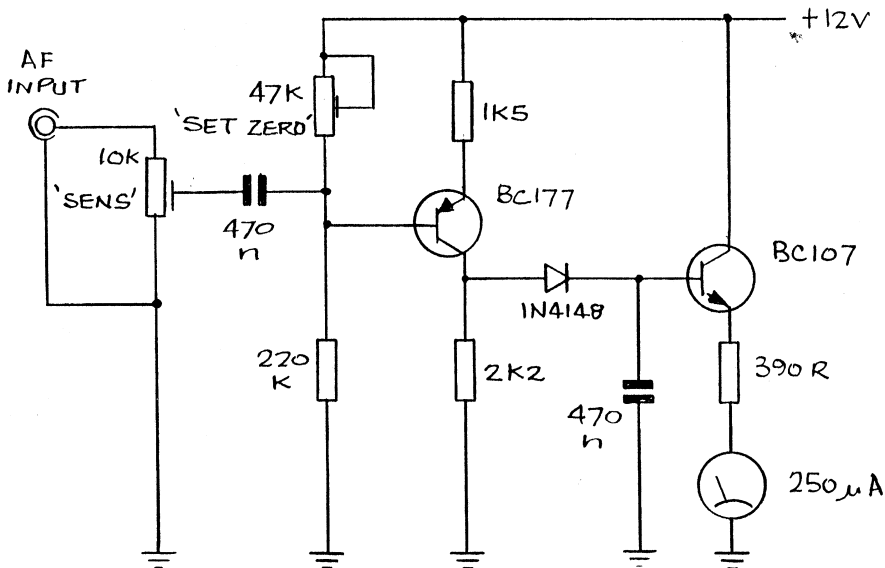


Figure 2

given in Ref. 2 the Maplin 'Best of Projects Book 6' (XC06G). The section describing a 'Display Driver Module' is very informative and gives numerous options including an audio input-rectifier circuit. A P.C. board is also available (YQ66W) which makes the use of a 'bargraph' even more attractive for use in the home shack. However, one would hesitate to use this type of display in portable equipment as, in some configurations, it can draw up to 200 mA.

close to - zero, as described previously. Peak white video will give full-scale deflection of the meter. The sensitivity can be set by adjustment of the input potentiometer. Alternatively the input potentiometer can be omitted, to allow connection across a 75R line and the sensitivity adjusted by selecting an alternative value for the meter series resistor.

the presence of RF, using a diode and moving coil meter, and to measure the output frequency directly using a frequency counter.

Control Lines

A control line may be single wire, e.g. a single LED can indicate 'TX on' and its status. In some instances there may be a number of control lines, possibly connected to a computer or controller unit, in which case an 8 input Darlington Array IC such as the ULN2801A (Maplin QY78K) may be more suitable. Each section of the array contains input resistors for connecting to a control line and each output will sink the current for either an LED with series resistor, or a filament lamp.

Conclusion

When building equipment it is always worth the effort of including plenty of test points and monitoring circuits. Murphy says that if a fault can occur, it will be at the most inconvenient time, in the most inaccessible place and produce the most misleading symptoms.

References

- 1.Video Handbook by Ru van Wezel, William Heinemann Ltd. ISBN 0 434 92189 0. Chapter 4. Transmission and Reception Systems; Monitors.
 - 2.Best of Projects Book 6, Maplin (XC06G) 89p at Maplin Stores
- Maplin Electronics Ltd., P.O. Box 777, Rayleigh, Essex SS6 8LU

<http://www.maplin.co.uk>

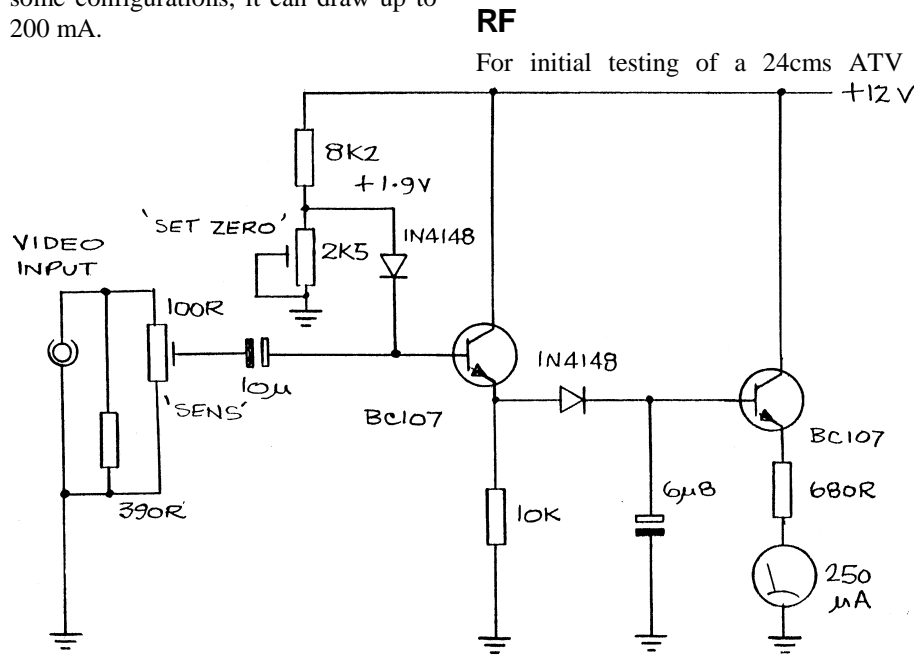


Figure 3

Video

Monitoring the presence of a video signal requires a somewhat different type of circuit. The circuit shown in Fig. 3 will indicate the presence of video from black level to peak white. The circuit is taken from Ref. 1 and is also based on Umatic circuitry. With no input signal applied, the 'Set Zero' control is adjusted so that the meter pointer is marginally above - but very

transmitter I prefer to use a commercial directional power meter, such as the Bird 43. This will measure forward and reflected power, in a 50ohm system, with reasonable accuracy ($\pm 7\%$). My experience of home built directional couplers has not been very encouraging; they usually present too great an insertion loss to be left in circuit permanently. I prefer to fit an RF pick-up probe into the PA compartment, this allows me to monitor



International Broadcast Convention 99

By Trevor Brown

IBC is perhaps the second largest exhibition of Broadcast TV and related hardware in the world. It is held in Amsterdam at the huge RAI exhibition and conference centre. This year's show days were from the 10th to the 14th of September. The attendance figures soared beyond 40,000 with attendees and exhibitors from around the world.

For the third IBC running, BATC have been asked to put on a stand, at the organiser's expense. This year we decided to take along an RCA TR70B 2" quadruplex VTR and a four-tube Marconi MK7 colour camera. Both these pieces of television hardware were designed in the mid 60's and used by broadcasters well into the 70's, and in the case of the RCA VTR well into the 80's with some still in use today to retrieve quad footage for subsequent archive.

Grant Dixon was also present and he zestfully represented the Narrow Band Television section of BATC. He demonstrated his 32-line mechanical scan televisor. His source signals came from compact disk, which made an interesting mix of technology that spanned several decades. Throughout the show visitors of all nationalities queued, and bent, to peer at his amazingly good 'mechanical scan' pictures that replicate the results of the original Baird system.

There were always going to be logistical problems getting the equipment into a working state and transporting it to Amsterdam. My wife and I left England and headed for the Rotterdam ferry port with a light van creaking under the load of over a ton and a half of equipment. It is an overnight journey from Hull to Rotterdam and we arrived at Europort on the Wednesday morning at 8am. From there we drove the forty miles or so to Amsterdam and met the rest of the BATC team, Paul and Jill Marshall, Dave Hill, and Grant Dixon. He had flown in later in the day, and over a few lagers we planned the weighty unload and stand preparation that was to be Thursday's task.



The BATC stand was located adjacent to the IBC bar but, despite its proximity, I never actually made there for a drink! For five and a half hot days the whole team explained and demonstrated the functionality of the BATC exhibits. There was only one late night 'fix it' session, otherwise all the equipment performed exceptionally well, to all our surprise and relief.

Engineers from Vinten, (the renowned camera pedestal and pan and tilt head manufacturers) paid us a visit on the first day. They had spotted one of their vintage products supporting the mighty Marconi MK7 complete with OB zoom lens on our stand. To their credit, they then freely administered 'Tender Loving Care' to the entire camera mount. They even re-gassed it with the recommended gas, although it did appear to take rather more nitrogen than they were accustomed to using on the current lightweight Vinten range! Does any other company offer a free check up and full service under warranty after more than forty years?

Some of the comments received from those who were seeing a 2" quad perform for the first time or were just engaging in nostalgia: -

NBC Visitor. We lost a lot of head wheels for these machines. People used to steal them for the fancy boxes the

head wheel assembly came in to use for fishing tackle.

BBC Visitor. I think we had three of them in edit suite 2 (we know a song about that.)

Visitor from TRT, Turkey. Where can I buy one, we have 10,000 hours of archive material and only one machine. (See me after the show!)

Young Visitor from Cyprus. How did it perform on ENG?

Quantel Visitor. Did you hear about the Andy Williams show that was sold for millions of dollars, but the tapes were in poor condition and would not replay. (No, but I am available on a consultation basis, please see my agent.)

Numerous Anon. Is it still working? Yes, (demonstrations then followed.) But it didn't just 'happen', many long hours were spent making it work.)

The stand was liberally sprinkled with back copies of CQ-TV and the pile was gradually whittled down as the show days passed. Dave Hill had the brainwave of removing the middle subscription pages and these were used to sign up new members on the stand. He even got subs money out of Paul Pitts, who has hidden behind his Switch Card for far too long now.

IBC produces its very own newspaper, IBC NEWS, each day. On preparation day it carried a picture of our giant TR70B quadruplex VTR being manhandled down the corridor by Paul Marshall, Dave Hill and me.

IBC is the place to see the fruition of new innovation and technical development in the field of Broadcast Television. All the No 4 trams carried live Euro News every day, transmitted by NDS from the RAI centre. This form of digital UHF transmission could soon be the envy of all ATV'ers. Using a very effective digital error correction system, it exhibited absolutely no fading, ghosting or indeed any other imperfection you might reasonably associate with a television transmission

to a moving tram during a thirty-minute journey.

The show finished on Tuesday at 6pm. Wednesday we broke down the stand and loaded it into the van for transportation back to the UK. One interesting distraction was when we used the MK7 camera to record onto the Quad VTR a shot of the stand (I thought I might be able to dub it onto a suitable format for a transmission on PI6ALK.) The quietest time of the day was happy hour in the bar, but we soon became a sideshow - what else would you expect from a well oiled TV audience. Sorry if you do not get the pictures, Rens, but it was fun shooting them. The VTR recorded OK but the tape was soft and the camera only

sported an OB lens. This meant we had to almost pull it into the bar to get a shot of the whole VTR machine.

My thanks to all the people that made this years IBC stand so successful. Not just the BATC crew and the IBC organising committee, but everyone else who made this ambitious project possible - not forgetting our new member Phil Parker who bought this very machine new, (for an un-disclosed sum) and sent me on all the necessary courses to be able to fix these monsters.

Improving the image

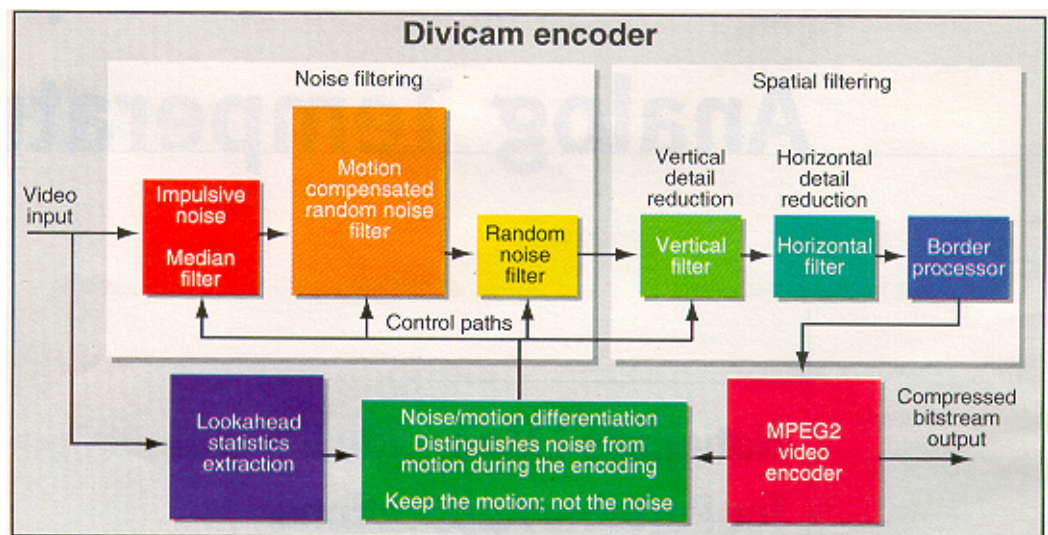
Digital TV encoder designer Divicom has developed a way of improving the quality of digital TV pictures by using the principles behind MPEG2 encoding to separate out noise in a video image from moving objects in the image.

In the ClearMotion algorithm, a time-based filter is used to distinguish between the motion of an object and the noise around it. The source data comes from the motion vectors and the edge detection data produced by the MPEG2 encoding process

In order to do this, the company uses three Dvexpert II encoders from its parent company CCube Microsystems. Normally, only one is necessary.

One acts as a look-ahead processor that analyses the complexity of the video and allocates the bit rates for the different parts of the screen before sending it to a second device that handles the MPEG2 encoding.

The third chip takes the data from the look-ahead processor and uses that for the ClearMotion filtering before



feeding the corrected, filtered, data back into the encoder.

It is only by having the filtering as an integral part of the encoding process, rather than filtering the data before it is encoded, that you can distinguish between motion and noise, claims the company.

To gain bandwidth savings of 10 to 15%, Divicom combines ClearMotion with two other techniques. One works because the eye is more sensitive to horizontal movement than vertical.

Filters can soften the image vertically without losing perceived quality, a trick that several companies use.

The last technique is not to include the edges of the picture, as they are generally not displayed on the TV.

The overall decrease in the bandwidth can be used to either increase the bit rate and quality of the image, or it can be used to squeeze even more channels through the same satellite transponder or terrestrial transmitter, which is likely to appeal even more to the broadcasters.

Reprinted from Electronics Times, 13th September 1999.
www.dotelectronics.com

Satellite Receiver Conversion for 23cms ATV

By Duncan Head, G7PNE

Receive Amateur TV with this low cost conversion.

The Pace PRD800 satellite receivers can be converted easily and cheaply to give admirable results on the 23cms ATV bands.

This article describes the conversion complete with circuit diagrams and procedures. No special tools or alignment equipment is necessary so anyone handy with a small soldering iron should manage this in an evening.

Do not be fooled by the low quality results often obtained by unsuitable ASTRA receivers, i.e. AMSTRAD; they are a waste of time and money. This is a proper design.

The Pace model, selected with the help of Martin Pickering of Satcure, offers excellent video and audio demodulation, has low noise and most importantly can be modified to provide voltage controlled tuning.

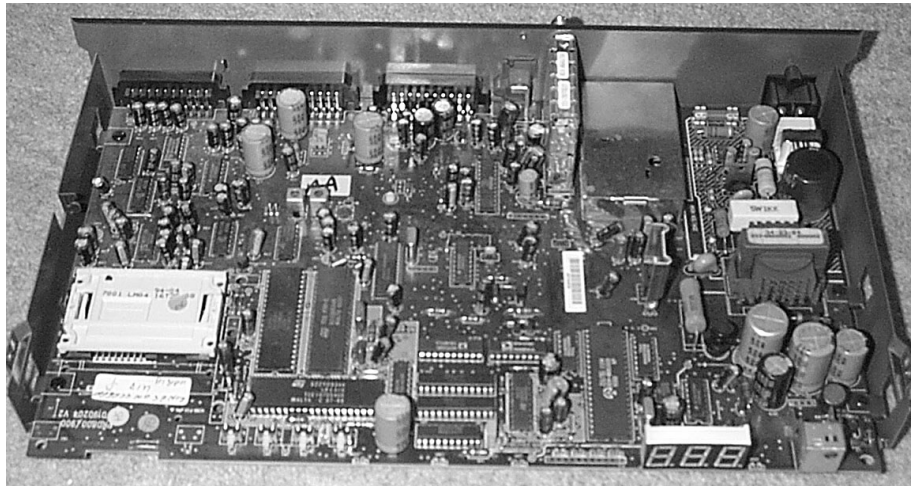
The unit should be tested prior to dismantling, ideally connected to a satellite dish. This model, similar to most other receivers has a standby mode – beware most components and power supplies will be fully operational. Always remove the mains plug prior to handling and soldering. You have been warned!

How to convert

Reset the memory to factory defaults prior to conversion, press quickly the keys on the control unit (menu, P-/-, STORE, (> right), (< left). Note that on later “Plus” models press (0) instead of (P). Switch off the blue screen (press F followed by STORE)

Now remove the mains plug, unscrew the cover fasteners and remove the main PCB. Note the small plastic retaining pins.

A small low power (18 W) soldering iron with round tip and de-soldering braid is recommended for removal of PCB components.



PACE PRD800

12V LNB supply.

This is switched by Q2. Remove R467 (270R), or Q2, negating the H/V polarisation signal up the coax (12V to 18V switching). This will give 12V only, (13V nominal) up the coax powering the LNA (low noise amp), which normally is mounted as close to the 23cms aerial as possible. You could adjust the exact voltage by adding a 1N4001 diode in series with D16. You might want to put a fuse, 250mA, (rear panel mounted) and switch here as well.

Do not connect an aerial directly to the sat input. This presents a DC short and will take down the power supply. Use a 23cms LNA that will give much wanted gain.

Video response

Fit a 100pf capacitor across the tuner baseband output, pin 11 to ground (as counted on the PCB) pads. I grounded the RF modulator case with a thick wire braid from one of the end ground tuner support pins.

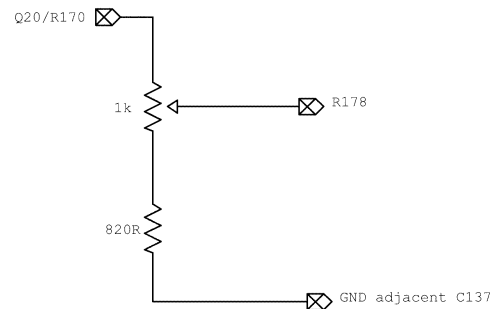
There may already be a 33pf capacitor on pin 11, (connected to 5V on my unit) remove this.

Video Gain control

The video circuit on this model has a clamp and sync separator circuitry.

This is not needed and as it caused excessive noise was bypassed.

Connect a screened cable from Q20/R170 (680R) junction to a 1K pot.



Connect other side of pot to ground via an 820R resistor.

Remove R177 (360R) and R178 (470R).

Connect the pot wiper to the PCB junction of R178 and R177, again using miniature screened cable. (RG174)

The signal is then fed via the graphics IC (U10) M50555 which adds the menu text etc.

This can be bypassed (or switched in/out) by removing R519 (0R link) and connecting the video signal direct to the test connection S10 the other side of this link. I left the menu system permanently in on my test unit.

For SCART users, utilise the middle TV out socket. If the signal is too great fit a 33R resistor between pins 19 and

20 as I did. RF output from the on-board modulator is unaffected by this SCART modification and was fine.

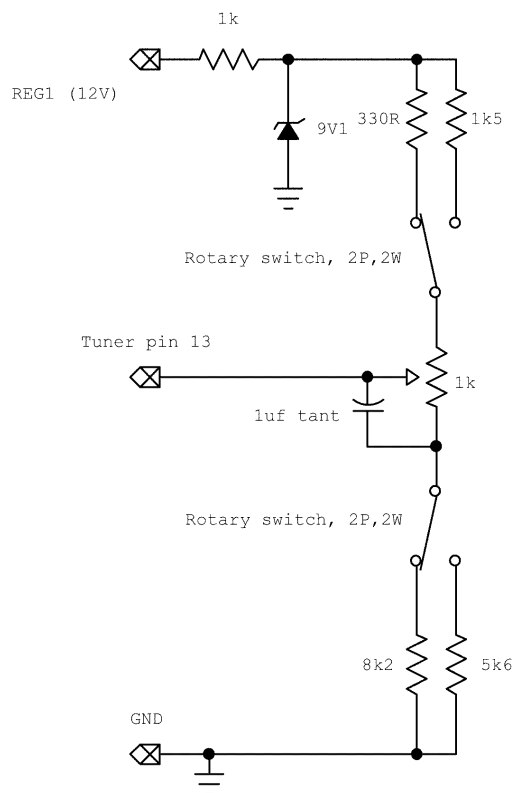


Figure 2. The tuning modifications.

Tuning

The original PLL menu driven tuning is deactivated in favour of manual voltage control.

Remove R128 (100K) adjacent to pin 13 of the tuner module.

The tuning range is band switched between repeater input, 1249 MHz and outputs 1316/18 MHz by a rotary 2 pole 2 position switch, (I used a 3 pole 4 way). The supply is zener stabilised to give optimum zero drift characteristics.

Fit the circuit as shown in Figure 2. The 9.1V zener diode and dividing resistors should be soldered to the back of the switch. With the standard tuner module: 1249 MHz = 6.4V, 1318 MHz = 8.4V

Fit both a 0.1µF (ceramic) and a 10µF (Tantalum) capacitor across the tuner voltage control input pin 13 (tuner) to ground. This removes any noise.

If, on initial testing (prior to modification with satellite reception) or after upgrading to the high quality tuner, the picture quality is streaky or noisy then the switched mode power supply capacitors & coils may be on their way out.

An upgrade kit (RELKIT1) available from Satcure will fix this.

The two following capacitors (which are included as part of the RELKIT1) can be fitted instead, however the upgrade kit will increase the long-term reliability of the whole unit and is thus highly recommended.

Fit a 1000µF (10V electrolytic) capacitor across the 5V supply, pin 10 (tuner) to ground. Fit below the PCB.

Fit a 2200µF (10V electrolytic) capacitor from L31, the 5V supply, to ground. Fit on top of the PCB using the tuner body as ground.

approx 1.7V is required.

Fit a 4k7 resistor across R241 and a 15k resistor across R212 (both 4k7), to increase the audio gain. Remove C169 and re-connect in its place a 4k7 resistor and a 10nF capacitor wired in series. Fit a 10k resistor and 10µF capacitor wired in series across R214 (10k).

Audio Amp (optional)

Remove C193 and re-connect the -ve lead back to Q26 junction, (the opposite way to before) on the PCB topside. Fit a 4R7 resistor across R262 (75R). Fit a 220R resistor across R568 (220R). Fit an 18K resistor across R258 (33k). Cut the track from C195 (1000µF), -ve side which went to pin 19, VCR SCART. Connect a loudspeaker, 8R (or 2.5mm optional socket) between C195 -ve and ground.

Fit control circuit is shown in Figure 4 on the next page:

Decoder

Holding a test point high to 5V defeats the decoder circuit. Link TST2 test point to C309 (+ve) with a 4k7 resistor on the underside of the PCB.

Audio

The audio circuit on the Pace series is very sensitive indeed. Only minor modifications are needed. The TDA6160 audio demodulation IC (U11) is however digitally controlled but mods allow manual voltage controlled tuning with a 1K pot.

Remove R192 (470R) adjacent to L16. Fit a 1K resistor to slightly narrow the bandwidth.

Remove R188 (10K)

Fit the control circuit as shown in Figure 3.

The original tuning voltage for the TDA6160 IC in this Pace model varies from 0.5V to 4.5V, which gives full coverage for all those different satellite audio frequencies, for ATV (UK specs), at 6MHz,

Auto power-up

The standard unit powers up in standby mode connect a 100µF capacitor (10V) +ve from R583 (82R) in the 5V circuit to the standby PCB switch connection to auto power up. This is good for repeater mode or where normal operation is required automatically after a power outage.

Mounting and installation

The pots and switch(s) can be mounted

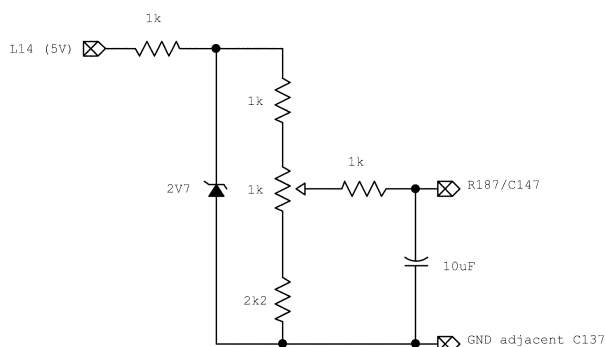


Figure 3. The control circuit.

on the standard plastic front panel of the PRD800. A more suitable new flat front panel rather than the curved one, suitable for this chassis is available from Satcure and certainly offers more scope for mounting controls etc.

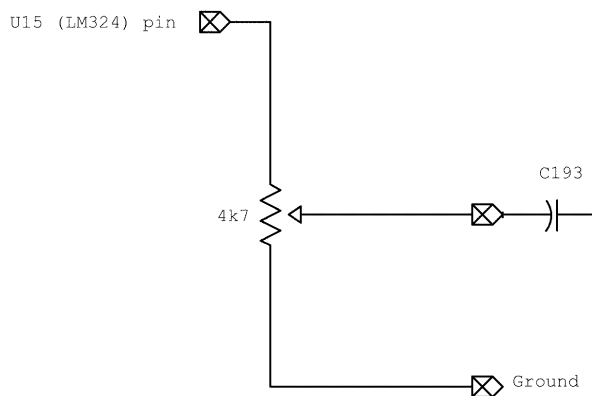


Figure 4. Optional audio amp.

Testing

Power up the fully completed conversion and either press Channel 1 on the control remote or the standby (on) button on the front panel. Adjust the tuning control pot and check that the voltage range as measured on the pot wiper is correct. On pressing "menu" the blue menu screen should appear. Adjust the contrast (video gain) value found in the install menu. I found '7' a good value. Switch off the AFC (offset) found in the LNB set-up.

Set the audio to mono, 50µs equalisation; the Panda setting sounded too dull.

After these changes the remote control is not needed for normal ATV operation - just press the standby button on power-up.

Rotate your 23cms aerial and tune into your local repeater, (1316.5 or 1318 MHz). Monitor 144.750 MHz for ATV activity.

Note that the noise figure of the LNA, the threshold value of the receiver together with the grade of coax/heliox and aerial gain are the secret for successful ATV operation. Like most things you get what you pay for.

Tweaks and refinements

Units with the standard tuner module:

With the unit unpowered carefully compress the 2-turn coil (by 1mm) that can be

just seen through the cutout in the cover. I expect that this changes the broadband response slightly and peaks it lower down the band (1.3GHz). You do not have to repeatedly adjust this spacing. Adjust it once only.

If you have a tuner with 2 pre-set trimmer pots (again seen just below cut-outs) then tune into a weak ATV signal with a few sparkles (P2-P3).

Adjustment of the pre-set closest to the 'F' satellite input can 'increase' the received signal quality by another P point. Exercise care not to short out any thing!

Final tests and results

The unit once converted was tested against an existing dedicated ATV

receiver kit. The results were extremely good, producing a reduction in noise and sparkles with a corresponding gain in 'P' points by 1 to 2!

GB3TV, Dunstable, is now a rock solid P5, even in the daytime, and GB3EN, Enfield up to a respectable P3.

Slight lift conditions on the evening of 18th July 1999 brought in GB3KT, the Kent repeater at P5 to this north Stevenage location.

Further development will be a drop-in replacement tuner module for this PACE unit that boasts 15MHz bandwidth and lower threshold of only 4db! The ultimate for ATV.

This has been tested and found to give a worthwhile improvement over the 221-2075001 that was fitted and a tremendous improvement over the 221-2077391 tuner that is often found in the PRD800.

Note that the export model PSR800 can also be used for this project. It has no internal decoder circuitry although the mods are the same.

Check the SATCURE web site for updates:

<http://www.netcentral.co.uk/satcure/atv>

Duncan Head G7PNE, B.Sc. (Hons), MCSE

Many thanks to Martin Pickering at SATCURE for supplying units and tech info. Martin, in the trade, can supply 2nd user PACE units, this kit and many other electronics, RF and Sat kits. He even repairs them as his profession!

Members only!

In an effort to improve members facilities, we have decided to set up a 'members only' section on our web site. (www.batc.org.uk) You will require a username and password to access this area. These will change 4 times a year as each issue of CQ-TV is published.

This will enable current members to access these pages, but not people who only buy back issues of CQ-TV. The first thing available to members will be an electronic copy of the current issue of CQ-TV (in Acrobat pdf format. Please note that version 4 of the reader is required. A copy can be downloaded from www.adobe.com).

By the time that you read this, we should be up and running.

This quarters access codes are: -

Username: amember

Password: tryout

Please note that these are case sensitive.

SM/G4CRJ. First 2 way ATV contact in Sweden via the SK7CY ATV repeater 4th June 1999

By Gary Shipton G4CRJ

Here's news of contacts I had recently on the SK7CY ATV repeater in Sweden. I don't remember ever seeing any information on ATV in Sweden. I'm here for a 6-month secondment, so I decided to bring over most of the ATV equipment in case there was anything happening.



My ground floor apartment in Lund, which is about 17km from Malmo in southern Sweden, is surrounded by tall buildings, so I decided to go /P on a hill just north of Malmo. I had no idea if there was a TV repeater in the area so just scanned around, but only picked up radar from Copenhagen airport. I then made contact with the company radio club and found out to my surprise that there was an ATV repeater at Stenestad some 20km east of Helsingborg - that is on the west coast about 50km from Malmo. The repeater does not transmit all the time but has to be activated by DTMF on 70cm. So on the next visit I took the FT790 and immediately received a P5. I could then see my receiver was in need of widening, since the ATV standard here is based on satellite TV equipment.

Here are the essential technical details of the repeater: -

- TX 1258MHz FM +ve



modulation, 6.4MHz
intercarrier sound

- Ant. horizontal polarisation omni directional
- PA 15 watts giving 50W e.r.p.
- RX 10.4GHz FM +ve modulation
- Ant. steerable 60cm dish horizontal polarisation
- DTMF control and talkback channel 432.575MHz
- 1 = blank carrier, 3 = VIC20, 5 = repeat, * = dish to west, # = dish to east
- Timeout about 20 minutes re-access by DTMF



The picture above shows the movable dish on the repeater mast. Not being exactly sure where the repeater was, I drove around mast hunting until I found one with a dish on it, which moved with DTMF! SK7CY has been operational for about 2 years; there is another ATV repeater in Stockholm that is in-band. The 23cm band in Sweden (and I think most of Europe) stops at 1300MHz so it would be very difficult to make an in-band repeater with such wide deviation. The 13cm band is about to be taken away here so it was decided to go for 10GHz. ATVer's seem to be using modified door openers (Doppler radars) for transmit, since these are readily available.

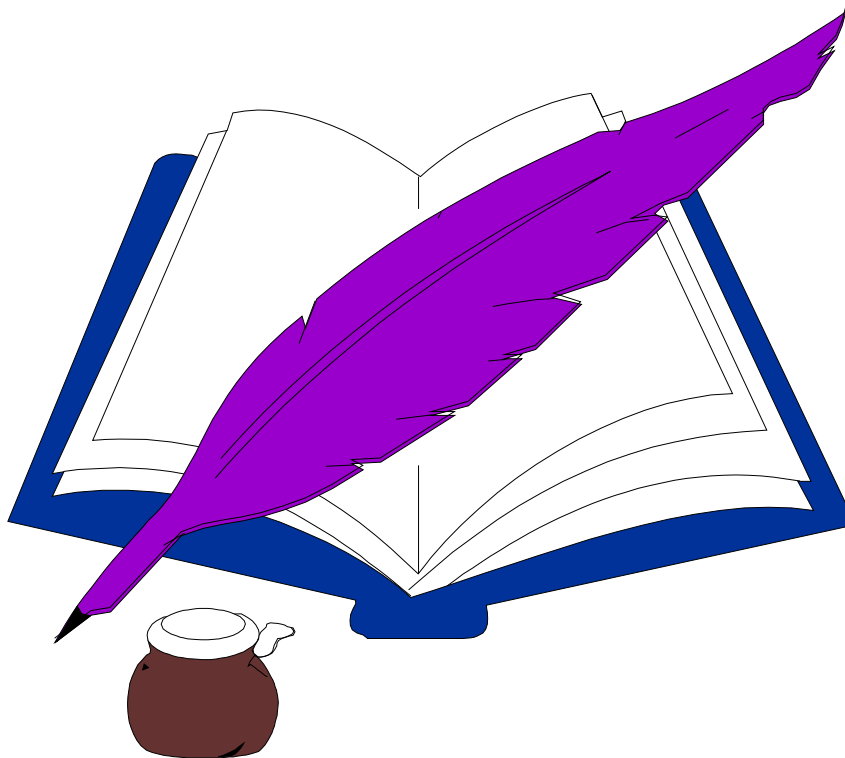
Having retuned my 10GHz TX, built a video inverter to get +ve mod and



wound up the deviation as far as it would go, I went back to the /P site and tried it out. When I switched on the repeater, I found 2 other stations were making test transmissions, so I wasn't sure if I'd be able to get in. I didn't know at that time which polarisation to use either on 10GHz, so I tried vertical first and got nothing. Then, changing to horizontal and turning the dish at the repeater I was getting in P5, sound as well - which is not bad on 20mW and a 24cm dish. This comes back at whatever frequency you transmit it, as long as it's within the transponder bandwidth and not on 6.4MHz; 6.0MHz is often used.

Too bad there seemed to be no one else watching. So I left a test card up for about half an hour and then decided to try phoning the 2 contacts I had. Just then SM7FYW came on and was seeing my testcard. He phoned several others and soon we were joined by SM7FMX, SM7DEZ and SM7VLL. They all gave good reports, the equipment seemed to be working well and I switched on the camera and showed them myself and the /P station. They were impressed that someone from another country could come here and transmit and receive ATV; I guess that doesn't happen very often!





Please send all correspondence for **Post and News** to the CQ-TV Editor. Ian Pawson, 14 Lilac Avenue, Leicester, LE5 1FN, England.

Tel: 0116 276 9425.

E-mail editor@batc.org.uk

Members' sales and Trade adverts should be sent to the advertising manager, Trevor Brown, 14 Stairfoot Close, Adel, Leeds, LS16 8JR.

Tel: 01132 670115.

Email: adman@batc.org.uk

Dear editor,

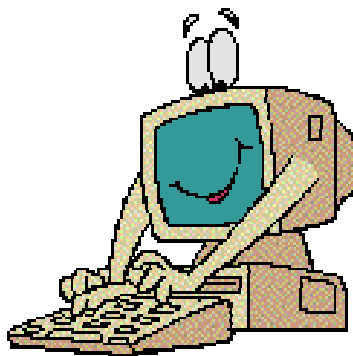
The rattling noises that keep coming out of the woodwork about 70cms are most worrying. It appears to be assumed that it is being sacrificed to packet and evil eyes from outside amateur radio. So I have decided to reactivate the 70cms ATV gear and with appreciate QSO's.

I am certain that before long digital techniques will enable the bandwidth to come down, but is the meantime

625/50 negative on 436MHz, sound 144.75MHz.

David J. Long, G3PTU

From the Internet



Hi All,

For those following Amateur Radio activities aboard Mir, MSNBC has just started to run an article today by Alan Boyle, which can be found at: <http://www.msnbc.com/news/144861.asp>

Note that this article covers SSTV to and from students at Pearl City High School in Hawaii. This event was organized by Miles Mann, WF1F and Dr. Dave Larsen, N6CO working with Ted Brattstrom, NH6YK in Hawaii.

The event was 100 per cent successful with many very excited students in participation. Through the ingenuity of Amateur Radio the contact with Hawaii was extended by Dave, N6CO and Miles, WF1F by a 3 way telephone link to Hawaii. Dave arranged a continuing Q & A with the students and passed the Mir Radio contact to Miles when Mir became out of range for Dave. Miles then terminated the contact and congratulated the Mir Crew for the extra special and extremely successful Educational session.

As Mir continued to send SSTV pictures over the USA, one of these was recorded by W8ZCF and is shown with the MSNBC story. The picture includes Cosmonaut Viktor Afanasyev (center). This is the first time we've seen Viktor on Amateur Radio SSTV.

73, Farrell Winder, W8ZCF Cincinnati, Ohio.


By the way, ATVQ & OSCAR Satellite Report have their own domain name now: <http://www.hampubs.com>

Therefore our new email addresses are: ATVQ@hampubs.com for Gene Harlan - WB9MMM and OSR@hampubs.com for Shari Harlan - KB9SH

The English version of the description of the new 10 GHz ATV world record (with photos) is on:

<http://www.cmo.ch/swissatv/news081.htm>

73 michel hb9afo



New ATV 10 GHz record: 1034 km
Between EA5/F1AAM and
I5/HB9AFO Details on
www.cmo.ch/swissatv

73 michel hb9afo



ATV WORLD RECORD NOTIFICATION

Three new ATV world records are
registered this summer by the SWISS
ATV:

5.7 GHz:

216 km, the 15 june 1999 One-way qso
between TK2SHF et F/ HB9RXV /P
B5 TK2SHF: JN42HF, 15 W, 90 cm
offset parabola F/HB9RXV/P: JN33KQ

10 GHz:

1031 km the 17 june 1999 at 07h30
EA/ F1AAM /P (IM98XU, Monte
Pego, Spain, 220m) and I5/ HB9AFO
/P (JN54BC, Rifugio Carrara, Italia,
1320m) Bi-directional B3-B5 QSO
F1AAM: DRO + 12 W TOP, 1 meter
offset parabola HB9AFO: DRO + 12 W
TOP, 1 meter offset parabola, modified
LNB + narrow band receiver + home
made wide band receiver with
automatic research of stations

47 GHz:

188 km the 30 july 1999 at 06h30
HB9DLH-F1JSR, one-way B5 qso
HB9DLH: at Mont Chasseral BE
(JN37MD), at 1550 m 90 cm modified
offset parabola. TX 10 mW on 47088
F1JSR: at Mont du Chat (dpt 73,
JN25VQ) 90 cm modified offset
parabola. Phonie transverter NF 9 db +
sat converter, sat pointer, TV sat rx
(narrow band)

You can find all details and pictures on
the SWISS ATV web site: (in French
and in English)
<http://www.cmo.ch/swissatv>

You can also have the historic of all
registered records and the details of the
methodology used to register.

73 Michel Vonlanthen HB9AFO
SWISS ATV president.



Hi ATVer,

A new email list for ZL ATVer has
begun. It will carry the periodic "ATV
Notes de Auckland" and other items of
interest to local ATVer using 70cm,
50cm, 23cm, 13cm, 3cm with 625 line
50Hz PAL standards. The address for
The list is: akatv@onelist.com To
subscribe surf over to:
<http://www.onelist.com/subscribe/akatv>
and sign up.



Ian,

Last night (28/7/99) at 2048hrs GMT
PI6ALK shifted it's frequency on W2
from 12,684GHz to 12,682GHz. Here
it will remain. Following the QSY I
could report a stronger signal into
Yorkshire back to Rens.

Regards, Paul Pitts.



FM TV DX WEB LIST

For those of you interested in digital
television and DXing, you might be
interested in this. WTFDA member Jeff
Kadet is probably the only TV DXer in

the United States able to DX digital TV
stations. Jeff has been beta-testing a
DTV Card in his computer that
converts DTV signals. Jeff has seen
digital UHF tropo out to 700km. I have
9 of Jeff's DX photos on my web site.
Two of them show what digital
interference looks like. The URL is
<http://pages.ctime.net/fmdx>. You will
find it next to Jeff's other link of analog
tropo dx. Mike Bugaj - Enfield, CT
USA WTFDA Circulation
<http://pages.ctime.net/fmdx>. Material
from this list may be reproduced
provided that full credit is given to
original source and FMTV DX
WEList.

From: Ed Ellers, ed_ellers@msn.com

I just found out about that page myself
(in the sci.engr.television.advanced
newsgroup). From the looks of it the
shots from WKOW and WFLD seem to
be in 4:3 mode while the ones from
WNDU and WDIV are 16:9 images
from an aspect ratio converter, and are
squeezed into a 4:3 frame. The picture
from WTHR appears to be from a high-
definition demo tape; since digital
receivers are very rare in the U.S. many
stations are running HD demos for the
benefit of retailers (which explains the
large, ugly DOG in that frame). It so
happens that Thomson's U.S.
headquarters is a mile or so up the
street(!) from the WTHR studio, and
Thomson has been using the WTHR
transmissions (and others) to field test
its digital TVs.

Unfortunately this guy hasn't posted his
email address; if he had I'd ask him to
send me a full-resolution 1920x1080)
shot from an HD broadcast.



Contributions

If you have any snippets of news or
information, then please send them in
to my the editor either by snail mail or
email

Members adverts

Non trade advertisements are placed in this column free of charge to paid up members only. Please quote your membership number. Copy should be sent to:-

CQ-TV Editor, 14 Lilac Avenue, Leicester, LE5 1FN, England.

E-mail: editor@batc.org.uk

For Sale

SONY 330P with VF, 2 X CCU adaptors + CA30 adaptor, wedge plate and original wet weather cover £100.
Contact KEN HORN, Tel: 0976 964820, email ken.horn@bbc.co.uk

FOR SALE: Marconi source ident generator, adds diode-programmable ident to one-volt video signal. Programmed for G3LEE/T. Compact PCB about 6" square plus manual, £16 post-paid. **Ring Andy Emmerson on 01604-844130** to check unsold.

Sony DXC-1820P Trinitron lightweight broadcast colour camera c/w Cannon Zoom lens VCL-101257- working but needs alignment. £100.

JVC VHSc Portable Video Recorder, c/w charger and high capacity battery. Full Working Order. £95.

PYE 4CX250B 70cms 100W+ Linear Amplifier. (10W input) originally built for ATV use but will work fine for FM or SSB use - buyer collects. £100.

Contact Paul Andrews G6MNJ tel 07771 747700 anytime, 01923 265734 after 7pm Weekdays and Weekends. QTHR.

Sony BVP330 ENG camera without lens. Working but a bit well used. Cheap please Phone.

Vistec 14" mono monitors 4 available ...Offers.

Panasonic wide carriage dot matrix printer KX-P1540 with serial and parallel ports £15.00.

Acer 386 laptop 80 meg disk. Quite nice, unfortunately missing PSU hence £50.

Zenith laptop, early version with 8088 I think Good solid MS dos based computer £15.00.

Set of COX extender boards Audio Jackfield 2 rows PO316 jacks Video Musa Jackfield 2 rows with BNC's on the back.

Books for Sale

Tektronix handbook for 528 waveform monitor, Tektronix handbook for 529 waveform monitor.

Tektronix handbook for 1421 PAL vectorscope.

Pye handbook for LDM 1911 picture monitor Ikegami handbook for TM10-16 colour picture monitor.

Ikegami handbook for TM10-19 colour picture monitor.

Barco handbook for CM33 colour monitor. **Contact Brian Summers G8GQS QTHR Phone 01276 677879, mobile 0797 0147875**

Sony DXC-1800p camera c/w lens £40. 3 off JVC BR7000ERA VHS duplicator VTRs inc manual. Need working on. 3 for £40.

Kingshill rackmount PSU 0 - 50V at 5amps, twice, nice but bigish £30. Teletquipment D83 scope £65.

Bolex 8221 16mm projector - offers. Nagra IV-S portable R - R tape recorder in good order - offers.

4.5ft high 19in rack cabinet £20. **Contact Ray Hill on 01989 762839 (day time only).**

Complete Marconi mark 4 camera channel, from SPG to CCU. Lenses also included. It needs a good home. PYE SPG also available. **Please contact Bruce VK3YYD by Email - bcutler@melbpc.org.au. Telephone Australia 03 9531 2962.** Any good offer seriously considered!

Ferguson 3C01, 3C02, FC05, 3V48, 3V50 provisional service manuals.

Hitachi VM-C30E, VM-200E, VM-500E, VMM-600E.

Panasonic NV-180. Philips VK4003, VK4101, VKR6800, VKR6870, VKR9010, VKR9550. Sanyo VM-D3P. Sharp XC-54. Sony CCD-V30E, CCD-TR55E, CCD-TR105E, CCD-F150/F250E, CCD-F500E, CCD-FX500E.

All for sale at £2.00 each plus postage. **Contact Chris Kentch. G0FJY. 01903-265754.**

Wanted

A copy (or two) of B.A.T.C. Amateur Television Handbook vol2 (Handbook 2 the "Original non-revised" edition) by Trevor Brown. Any condition is ok; need not be mint, a few coffee stains or soldering iron burns, no problem. **Contact (with your price): Michael Sheffield ZLIABS, 176 Albany Highway, Albany, Auckland, New Zealand 1331, email: z1abs@xtra.co.nz, Packet: ZLIABS@ZLIAB.#11.AKL.NZL.OC**

If the thought of corresponding with New Zealand is too daunting, contact Andrew Emmerson, G8PTH/Midshires Mediatech/405 Alive 71 Falcutt Way, Northampton NN2 8PH, and he will relay the info to the antipodes for you. tel: 07000-405625, international +44 1604-844130, fax: 01604-821647, international +44 1604-821647

z1abs@xtra.co.nz **Packet:**
ZLIABS@ZLIAB.#11.AKL.NZL.OC

If the thought of corresponding with New Zealand is too daunting, contact Andrew Emmerson G8PTH/Midshires Mediatech/405 Alive 71 Falcutt Way Northampton NN2 8PH, and he will relay the info to the antipodes for you. tel: 07000-405625, international +44 1604-844130 fax: 01604-821647, international +44 1604-821647.

Service Manual for an Ampex Model VR 5003 1" helical scan VTR. Buy, borrow or photocopy. Dave, G8TVW (QTHR - all issues of callbook). **Phone (after 8pm or weekends) 01707 325347.**

Marconi TM9694 sweep gen and TM9695 attenuator. Copies of "Marconi Instrumentation" booklets. RCA TKP45 or TKP47 portable camera for my collection. Spare parts and fittings for Philips LDK14 camera. 2" recording tape for Quadruplex machine. A PYE MK6 Image Orthicon camera, Ho Ho Ho. Anything old and interesting. Old television books or pamphlets.. **Contact Brian Summers G8GQS QTHR Phone 01276 677879, mobile 0797 0147875**

Information Wanted

Did you build the colour pattern generator from "Television" magazine May 1984 by Tony Jenkins G8TBF? Have you any information on the contents of the EPROM's that are the heart of the design? Can you make me a copy of these EPROMs? Do you want to sell a pcb (blank board, partly assembled, complete but not working or fully operational conditions considered) for this generator?

Does anyone have an address or telephone number or email for Tony Jenkins G8TBF? If so, I would like to know what it is. **Contact (with your price): Michael Sheffield ZLIABS, 176 Albany Highway, Albany, Auckland, New Zealand 1331, email:**

A copy (or two) of B.A.T.C. Amateur Television Handbook (Handbook 1 the "Blue cover" edition) by John Wood & Trevor Brown. Any condition is ok; need not be mint, a few coffee stains or soldering iron burns, no problem. **Contact (with your price): Michael Sheffield ZLIABS, 176 Albany Highway, Albany, Auckland, New Zealand 1331, email: z1abs@xtra.co.nz, Packet: ZLIABS@ZLIAB.#11.AKL.NZL.OC**

If the thought of corresponding with New Zealand is too daunting, contact Andrew Emmerson G8PTH/Midshires Mediatech/405 Alive 71 Falcutt Way Northampton NN2 8PH, and he will relay the info to the antipodes for you. tel: 07000-405625, international +44 1604-844130 fax: 01604-821647, international +44 1604-821647

View finder monitor for Hitachi FP-231 colour camera - 2 off required, Lens for Hitachi FP-231 colour camera, camera cables to connect to CCU for Hitachi FP-231, Looking for 3 CCD cameras - why! For portable work or maybe small studio camera. **Contact Ray Hill on 01989 762839 (day time only).**

Wanted BBC Yearbooks for the years 1935, 36, 37, 38, 39, 41, 53, 54, 55, 56, 57. Also for disposal or swop many duplicate copies of the Yearbook ranging from 1932 - 1961. **Contact John Burgess - Tel: 01225 782146 e-mail jdb@tesco.net**

GH Engineering



GH Engineering specialises in the sale of semiconductors for Microwave and ATV use.

Mitsubishi Power Modules

M57762 18W 1.24-1.3GHz £44
M67715 1.2W 1.24-1.3GHz £42

Mitsubishi GaAsFETs

MGF1302 £3.50
MGF1402 £16.00

All other Mitsubishi PA modules and GaAsFETs available.

Other RF Semiconductors :-

BFQ34 £10.50
BFR96S £2.50

GH Engineering is able to supply many semiconductors that have become obsolete or difficult to find.

All prices include P&P and VAT.

GH Engineering East Cottage Chineham Lane Sherborne St. John Hants RG24 9LR
Tel 01256 869603 email sales@ghengineering.co.uk www.ghengineering.co.uk

Index of Advertisers

9GHz DRO pucks.....	18	Members Services	12
BATC advertising rates	4	'Repeater' magazine.....	22
BATC Publications.....	12	S. Marshall	10
Confidential Communications Ltd	30	Sevenside Television Group	8
GB3XT Kits and Bits	6	VHF Communications	8
HS Publications	10	Worthing & District Video Repeater Group	19

**OPEN
OTHER
END**