

CQ-DATV



dotMOBI

Issue 23 -
May 2015

<http://cq-datv.mobi>

In this issue

DATV News.....	2
2015 ARRL/TAPR DCC.....	5
Editorial.....	6
I2C Device Bus Scanner to Video Output Project	8
ATV in Spain.....	11
ATV video switching matrix.....	12
DATV-Express Project - March update report...	16
Write for the CQ-DATV Magazine.....	18
Skills test - puzzle.....	19
Rally report.....	20
What is Happening With Amateur Satellites?...	24
CQ-DATV Rescue.....	28
ATV greetings by DH7AEQ from Paraguay.....	32
Moving on with film making Part 5.....	34
Information.....	37
Coming up in CQ-DATV.....	38

Production Team

Ian Pawson - G8IQU Trevor Brown - G8CJS
Terry Mowles - VK5TM

Contributing Authors

Ted Bottomley	Trevor Brown - G8CJS
Ken Konechy - W6HHC	Klaus Kramer - DL4KCK
Mike Stevens - G7GTN	Detlef - DH7AEQ
Wouter Weggelaar - PA3WEG	

ISS Ham TV update

During this past week, signed copies of the Ham TV Technical Agreements were received by the European Space Agency (ESA), ARISS US, ARISS International and ARISS Europe giving ARISS custodianship over the Ham TV system on board the ISS.

David Jordan, AA4KN, ARISS PR, aa4kn [at] amsat.org

Stanford's aluminium battery fully charges in just one minute

Lithium-ion batteries have been a boon for the modern world -- they've replaced the heavier, single-use alkaline type in everything from wristwatches to jumbo jets. Unfortunately, these rechargeable cells are already struggling to keep up with our ever-increasing energy needs. But a new type of aluminum-ion battery developed at Stanford University is not only less explode-y than lithium, but also can be built at a fraction of the price and recharges completely in just over a minute. Best of all, "Our new battery won't catch fire, even if you drill through it," Stanford chemistry professor Dai Hongjie boasted in a recent release.

Unlike earlier aluminium batteries, which generally failed after only about 100 recharge cycles, Stanford's prototype can cycle more than 7,500 times without any capacity loss -- 7.5 times longer than your average li-ion. The aluminium-ion cell isn't perfect (yet) as it can only produce about 2 volts, far less than the 3.6V that lithium-ion can muster. Plus aluminium cells only carry 40 watts of electricity per kilogramme compared to lithium's 100 to 206 W/kg power density.

"Improving the cathode material could eventually increase the voltage and energy density," said Dai. "Otherwise, our battery has everything else you'd dream that a battery should have: inexpensive electrodes, good safety, high-speed

charging, flexibility and long cycle life. I see this as a new battery in its early days. It's quite exciting."

Video at <https://youtu.be/RWZE2Bh48fM>

SOURCE: Stanford University

DVB-T live from edge of space

In October 2014 HB9AW (Switzerland) succeeded in receiving the first ever DVB-T live video in HD quality on 70 cm from edge of space. The high altitude balloon video camera shot the whole flight up to 36500 m peak high and back transmitting live in 2 MHz rf bandwidth with only 500 mW power. On the ground at Kanton school Sursee brilliant HD video was recorded, even at 100 km distance a steady signal was received thanks to circular antennas and OFDM modulation from a HiDes TX. (info: DH6MAV)
Klaus, DL4KCK - www.agaf.de

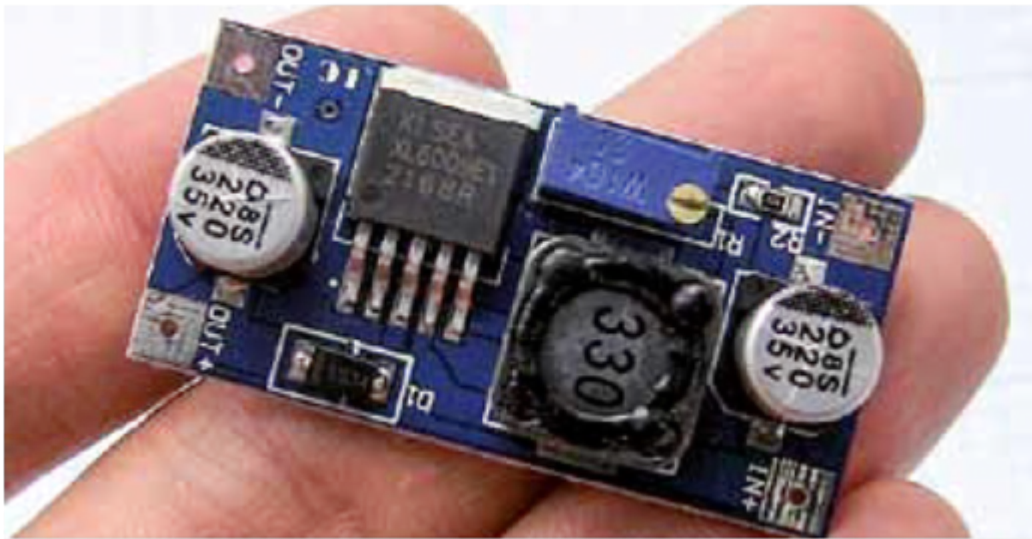
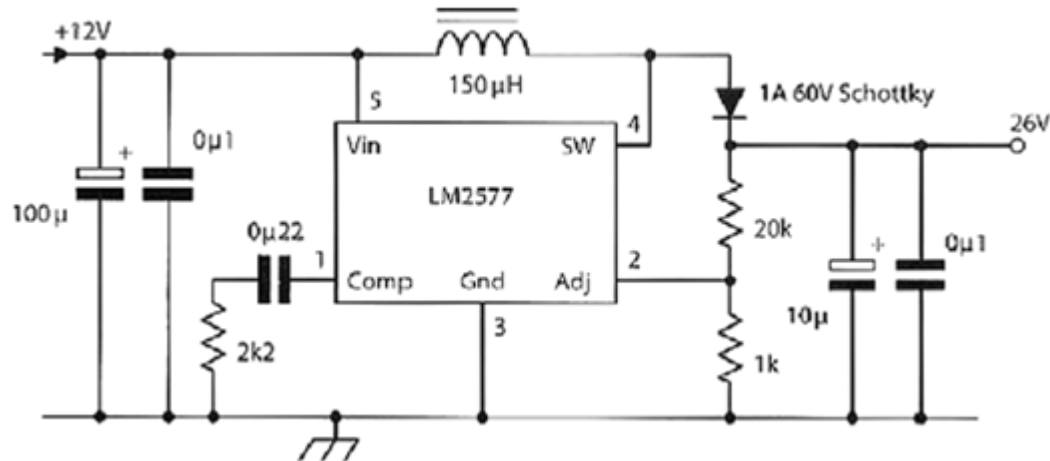
Lecture on Digital Television

Koert PA1KW held on VHF day, on April 25th in Apeldoorn, Koert PA1KW delivered a lecture on DATV. This was be an overview of the operation, along with practical guidance. In addition, there was a discussion on the developments of DATV including narrow-band DATV on the two meter band.



Circuit Gem

Ever had a problem with Coax relays that just want more than 12V, something that can bite when you are out portable. Chris PA3CRX came up with this in his Veron ATV column, 12v in 26 volts out.



Amateur Radio Roundtable

It's time for Amateur Radio Roundtable, a live weekly ham radio webcast and shortwave program which can be seen at W5KUB.com every Tuesday night at 8 PM CDT (0100 UTC Wednesday).

We have expanded our show and are simulcasting on shortwave radio station, WTWW on 5085 KHz on Tuesday at 8:00 CDT (0100 - 0200 UTC Wednesday). We have been getting listener reports from around the world. The show covers a wide range of topics for ham radio operators, electronic hobbyists, and shortwave listeners; such as, balloon launches, Satellite, go-kits, emergency communications, SDR, digital modes, DXing, home brewing, and more. We are adding another segment for our shortwave listeners. Ted Randall, WB8PUM, from QSO Radio Show will be joining us each week as a co-host. This week's guests are Louis Calestini, KG7POU, discussing a new ham radio group, Amateurradioclub.net which helps people get their license. Joe Eisenburg, K0NEB, will also discuss hamfests and kit building.

To watch Amateur Radio Roundtable go to W5KUB.com, click on Live Events. To join the chat room, sign in with your existing User Name and Password. If you don't have a user name and password, just enter your call or name, leave the password blank and click sign in. If you are listening on 5085 KHz, provide your location and signal report through our chat room.

We need your help with topics. If you have a specific subject that you would like to present in a future show, send an email to tom@W5KUB.com. Join us for fun and interesting discussions. We'll see you on the webcast!

Tom Medlin, W5KUB

Mobile-Friendly Test 8+1

<http://www.cq-datv.mobi/>

Awesome! This page is mobile-friendly.

How Googlebot sees this page



Didn't we do well

Google has now launched its "is your website mobile friendly campaign" along with an online test <https://www.google.co.uk/webmasters/tools/mobile-friendly/> We looked at some of the UK's ATV sites and well congratulations Ian, CQ-DATV site is mobile friendly.

The site was built using the Zurb Foundation framework that ensures that the site displays correctly on all screen sizes.

Sad to say that not all ATV sites are able to pass this test.

Mobile-Friendly Test 8+1

<http://www.> **censored by Trevor**

Not mobile-friendly

Page appears not mobile-friendly

- ✗ Text too small to read
- ✗ Links too close together
- ✗ Mobile viewport not set

This page may appear not mobile-friendly because the robots.txt file may block Googlebot from loading some of the page's resources. [Learn how to unblock resources for Googlebot.](#)

If you've made sure Googlebot is not blocked, you can see [Pagespeed Insights](#) for more details on detected issues. [Learn more about the differences between the two tests.](#)

How Googlebot sees this page

This page uses 2 resources which are blocked by robots.txt.

Does this screenshot look incorrect? [Learn how to let Googlebot view the page correctly.](#)

[Show resources](#)



2015 ARRL/TAPR DCC (Digital Communications Conference)

The 2015 DCC will be in Chicago on October 9 - 11 in the northwest suburb of Arlington Heights not far from O'Hare airport.

The DCC has two full days of Technical presentations on Friday & Saturday and on Sunday morning a deep dive into a technical subject.

On Saturday there is a full day of concurrent Introductory sessions. Be sure to register for the DCC and reserve your hotel room early. DCC information is available at: <http://www.tapr.org/dcc>

Look forward to your participation in the DCC.

TAPR at Dayton Hamvention

TAPR will have booths, forums and a joint banquet with AMSAT at the Dayton Hamvention.

Details about TAPR activities at the Hamvention are available at: <http://www.tapr.org/dayton>

The poster features a large, bold title '2015 ARRL/TAPR Digital Communications Conference' at the top. Below the title is the date 'October 9-11 in Chicago, Illinois'. To the left of the date is a yellow diamond-shaped logo with 'ARRL' and a stylized 'Y' shape. Below the date is a photograph of the DoubleTree by Hilton Chicago - Arlington Heights hotel. To the right of the photograph is a text box with information about reservations and contact details. At the bottom of the poster is a large image of the Chicago skyline at night, with the TAPR logo overlaid on the left side.

2015 ARRL/TAPR

Digital Communications Conference

October 9-11 in Chicago, Illinois

Make your reservations now for three days of learning and enjoyment at the DoubleTree by Hilton Chicago - Arlington Heights hotel. The Digital Communications Conference schedule includes technical and introductory forums, demonstrations, a Saturday evening banquet and an in-depth Sunday seminar. This conference is for everyone with an interest in digital communications—beginner to expert.

Call Tucson Amateur Packet Radio at: **972-671-8277**, or go online to www.tapr.org/dcc



Welcome to CQ-DATV 23 a lot has happened since our last issue, first off our download counter is moving at around 1000 issues a week, a large part of that count is downloads of our back issues. Interpreting that data is difficult, but it looks like we are reaching new readers who like the magazine and are downloading the back issues they missed by joining late.

April 12 saw us visiting our first mobile Rally and talking to the public. This was a pleasant surprise, the expectation was to hand out flyers and explain ATV and CQ-DATV's role in the hobby, what actually happened was a great number of our readers turned up already pleased with our offering and wanting to shake hands and congratulate us. All-round a very pleasant day, the full story is further on in this magazine.

In the last issue we also communicated the changes to the Region 1 ATV contest, which has had a date change and the duration extended, we expressed doubts as to why the duration changed.

What we did not expect was the emails this created. Seems CQ-DATV is read in IARU circles, my thanks for all the feedback and the bottom line is there were no mistakes, the extended time and date changes we deliberate, to this end we have published an extract below from PA3CRX's email:

Dear Sir,

Reading your April CQ-DATV magazine about the IARU ATV contest, I confirm it was really intended to have the extended time periods.

Originally it was requested by the RSGB and discussed during the IARU meeting in Vienna. As a result, the VERON

(Netherlands) did more investigation and discussed the issue in the IARU Wiki.

ATV operators do not really like contests. Therefore in the Netherlands we call it 'activity weekend'. No need to join the contest for the total duration as some of us have social obligations.

Switching to June was originally not intended to increase activity, it was a request by the RSGB to drop the September date. Conditions are better in June and we look forward to more activity. Chris van den Berg, PA3CRX.

Let's hope the new initiative brings some life back into the Region one ATV contest, but we take Chris's point. ATV is an active hobby and often sees more construction and development at circuit level than the contest operation side and as such should not be judged by contest activity alone.

Yes we have our share of appliance purchasers and operators, but they are a small part. In the digital field DATV Express and DigiLite have shown this, where both outstanding products have been developed by amateur for amateurs.



While on the subject of engineering in this issue we have :-

- A very clever micro controlled video router designed by Wouter PA3WEG.
- Mike G7GTN has been working on the Arduino again.
- Mike Cox has rescued Richards electronic test card.
- Trevor G8CJS has reported back from the NARSA rally and written the final instalment of moving on with film making.
- We have an ATV report from Paraguay by Detlef DH7AEQ.
- Ken W6HHC has produced his DATV express report for March

We also have all the usual news and editorial comment.
So please Enjoy CQ-DATV 23

CQ-DATV Editorial Team



Used with permission of Management Pocketbooks

The CQ-DATV Production team

An advertisement for CQ-DATV. At the top, two hands are pointing down towards the center. In the center, the words 'YOUR AD HERE' are written in large, white, sans-serif capital letters inside a dashed white rectangular box. Below this box, the text 'CQ-DATV' is written in a bold, green, sans-serif font. To the right of 'CQ-DATV' is a small logo consisting of a square with a stylized 'E' inside, and the text 'dotMOBI' below it. At the bottom of the advertisement, the text 'Email editor@cq-datv.mobi to advertise here' is written in a yellow, sans-serif font.

Please note: articles in this magazine are provided with absolutely no warranty whatsoever; neither the contributors nor CQ-DATV accept any responsibility or liability for loss or damage resulting from readers choosing to apply this content to theirs or others computers and equipment.

I2C Device Bus Scanner to Video Output Project

Mike G7GTN

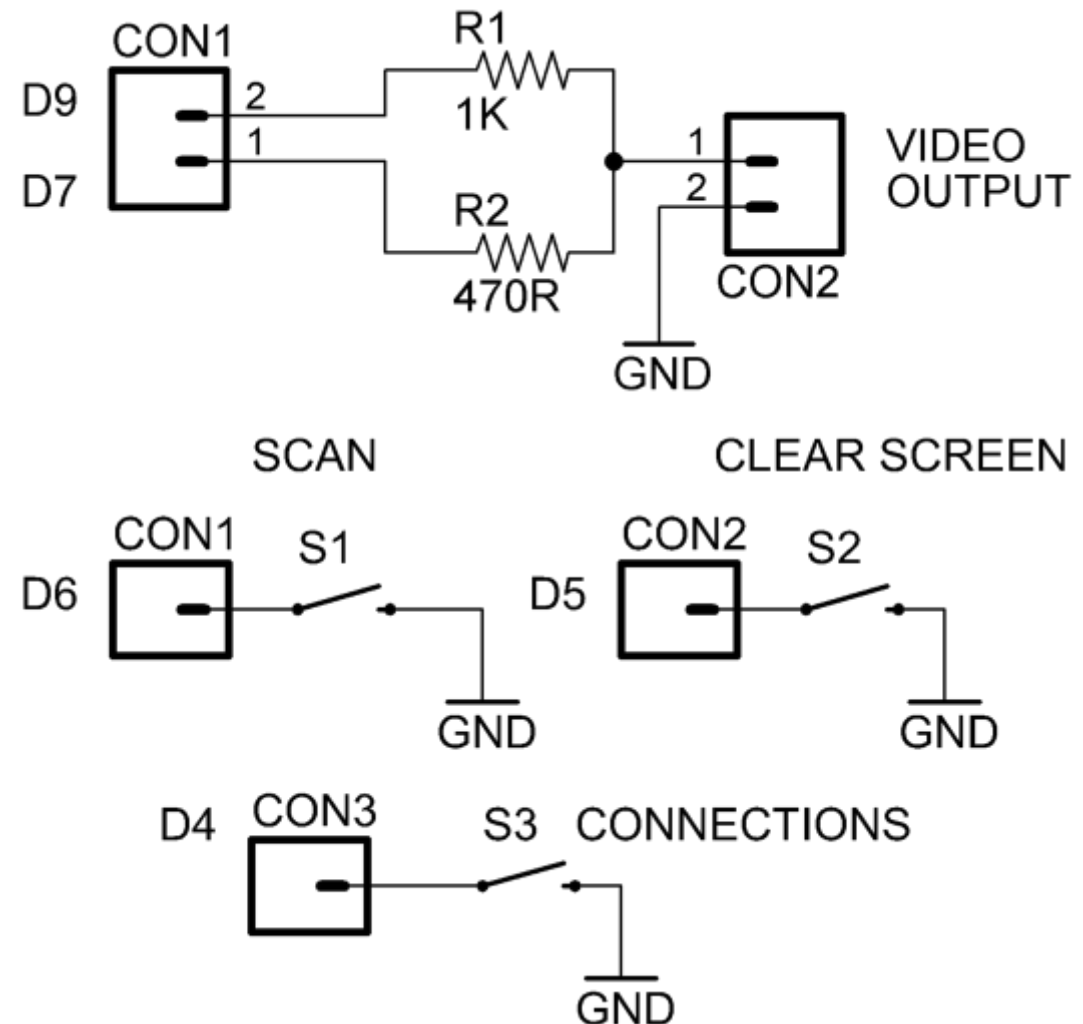


My Project Purpose

To scan the I2C bus of a television project under development and display the address details of all devices connected to the bus via a composite video output. The Black & White software generated video signal can be either PAL or NTSC by simply making a change to just one line of code.

Circuit Diagram

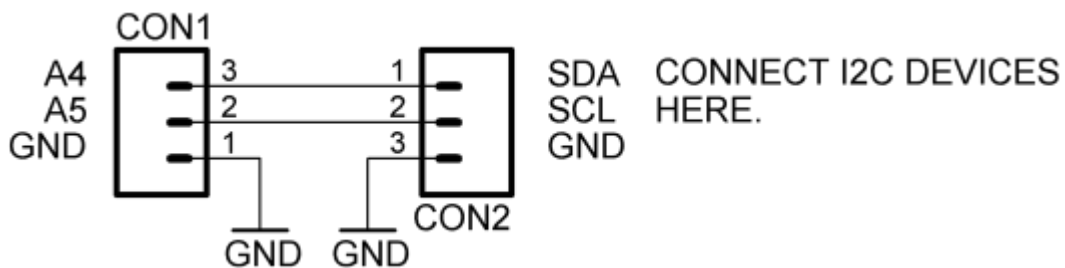
The circuit is very simple, the prototype being based on a readily available Arduino UNO board. The video output DAC is formed by two resistors 1K Ω & 470 Ω these being connected



D4 - D9 Are Digital I/O Pins on the Arduino Microcontroller Module

to Digital I/O pins 9 & 7 respectively.

The three pushbuttons do not require any pullup or pulldown resistors as this is handled within the code. The only required user controls are the start scan & clear screen button.



Analog A4 = SDA, Analog A5 = SCL
I2C Connections on the Arduinio Microcontroller

Firmware

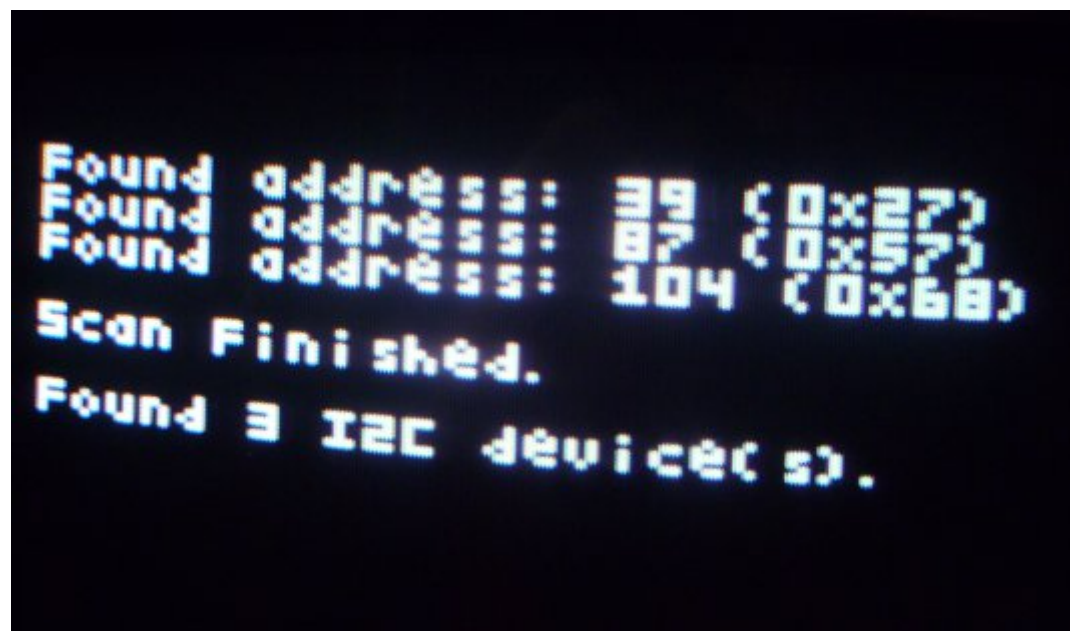
To compile the code within the Arduinio IDE you first have to install an additional library called TVOut which contains all the interrupt driven video generation routines and associated screen fonts. This file is attached in the project code archive. Once correctly installed load the I2CAddress.ino file and upload in the usual manner. The code will scan for up to 127 devices on the I2C bus.

Operation

Once you have connected both the SDA & SCL lines to your I2C Device along with a suitable composite video monitor pressing the Start button will initiate a device scan. Shown in the photograph is a scan that I did with two I2C devices connected (16X2 LCD with I2C backpack module, DS3231 RTC module - also contains an Eeprom) the result returned being the individual HEX addresses of all devices.

Conclusion

Whilst this might seem at first glance like a somewhat unusual project to feature In an Amateur Television Based Magazine, has uses as a quick bench test unit to verify that the I2C address you think is correct is actually so. Using one of the small eBay Arduinio Nano boards will be easily possible



to case this up as a bench test unit for under Â£5 as a simple but dedicated unit, to be pulled out and used when so required.

References

The file "I2CAddress.ZIP" containing the required code is available from the usual CQ-DATV file download location.

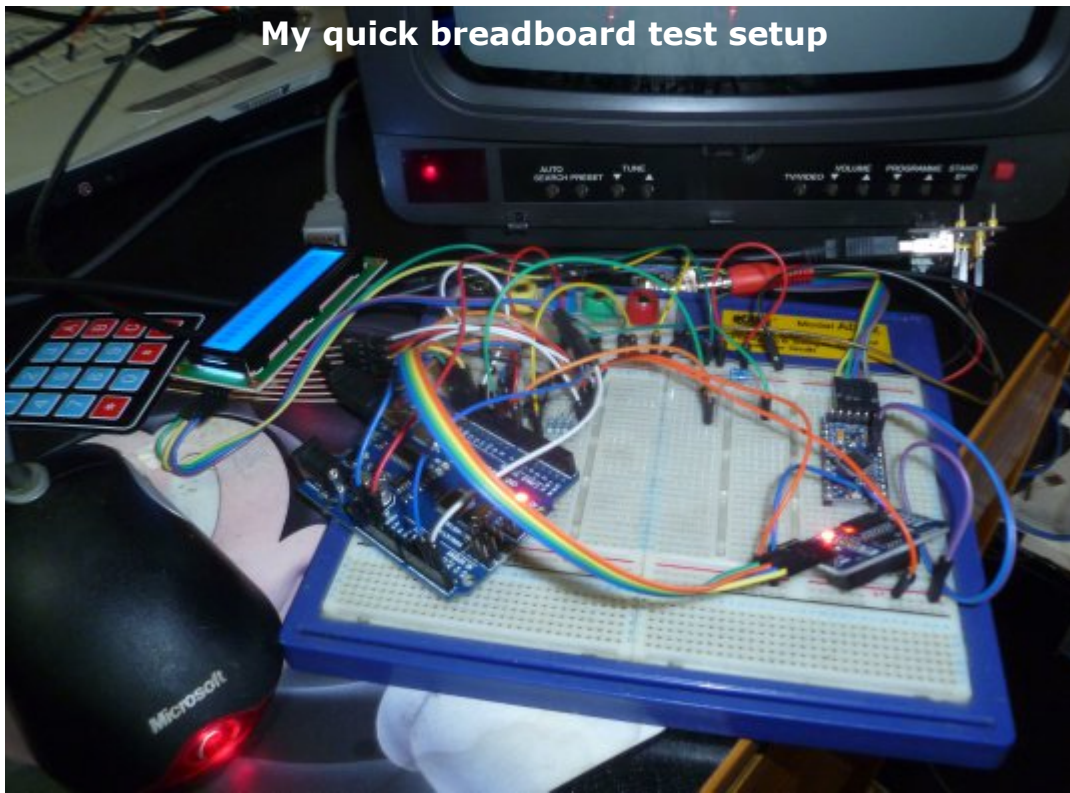
<http://www.cq-datv.mobi/downloads.php>

<http://code.google.com/p/arduino-tvout/>

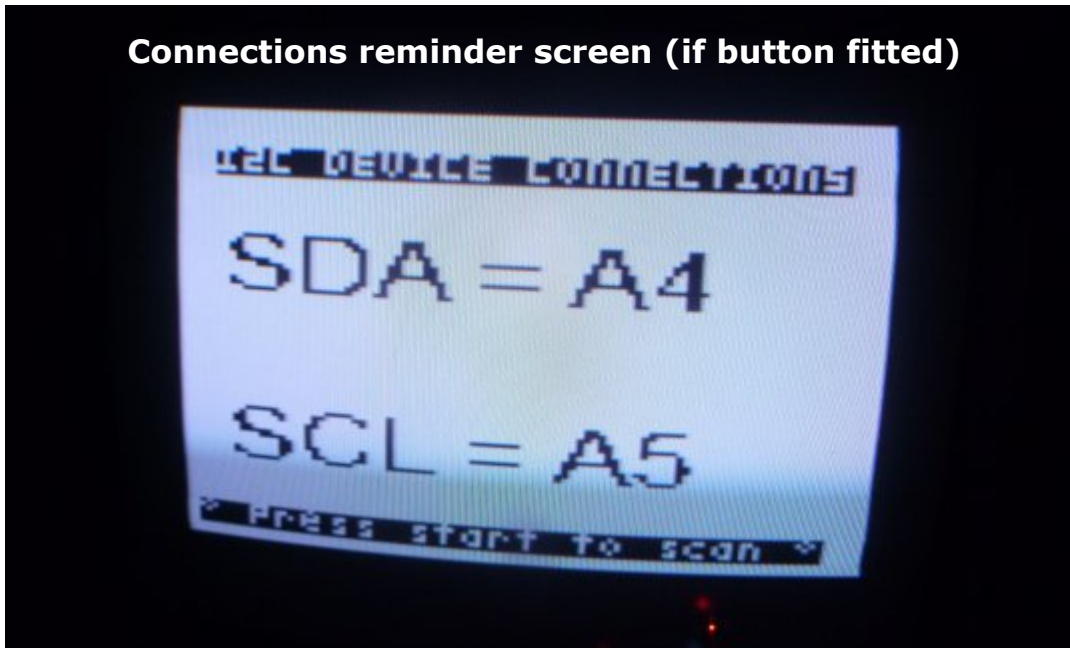
<http://en.wikipedia.org/wiki/I%C2%B2C>

More pictures on the next page

My quick breadboard test setup





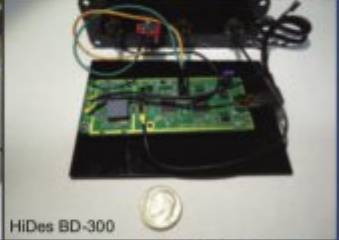

Connections reminder screen (if button fitted)



WINTER 2015
Volume 28-No 1
ISSN 1042-198X
USPS 003-353
SINGLE ISSUE
\$6.00 USA
\$7.00 CANADA
\$9.00 ELSEWHERE

Building an ATV Controller
How To Receive Amateur Digital TV
HiDes BD-300 Product Review
MKIII Receiver Project
Early Involvement with Television

Amateur Television Quarterly

Don't miss another issue! Subscribe Today

USA \$22.00 year, Canada/Mexico \$25.00 year DX
\$32.00 year (US \$) Cyber: \$15/yr. Visa, M/C, AMEX,
PayPal via Internet: www.atvquarterly.com
Cheques or Money Orders to P.O.Box 1594 Crestline
CA 92325

Published by ATV Quarterly tel (909) 338-6887 email:
wa6svt@atvquarterly.com

ATV in Spain

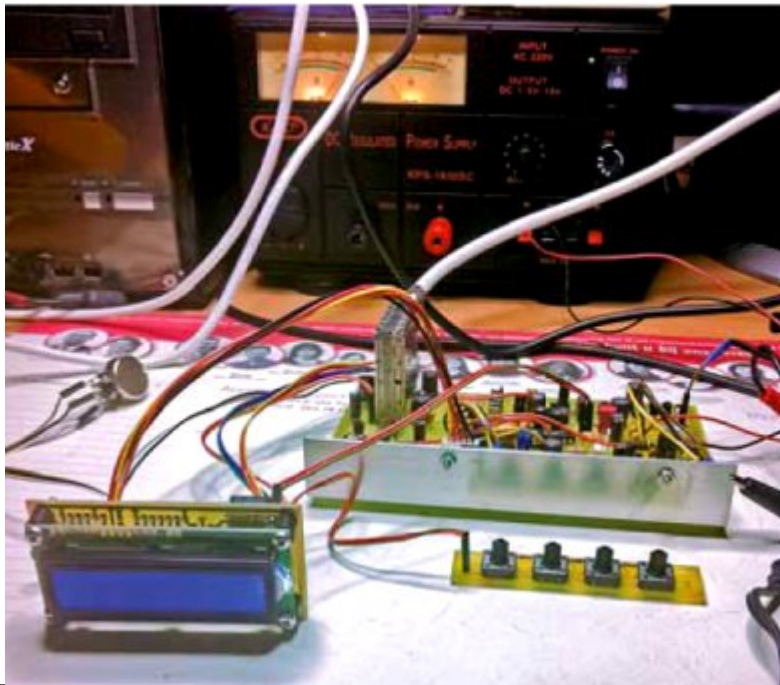
In Barcelona, ATV is growing in popularity. There is already a group of 35 enthusiasts on 3cm ATV.

Benjamin EA3XY explains that they have an ATV Beacon which is 512 meters ASL and located at JN11bk. The next stage is to add a 23cms FM input and at a later date switch from FM to DATV. The permit for an unmanned repeater was expected in March, meanwhile some local tests using 1w are taking place.

The Beacon uses a slot antenna, but instead of a rectangular waveguide design, the Beacon uses a round design in which seven columns of eight slots have been cut.

Next to each slot a hole is drilled, in which a 'Monopole' is inserted and soldered. In order to seal the assembly is encased in a polycarbonate tube.

This was designed by I4BER and constructed by I4TTZ.



Left: 23cm ATV receiver design by PE1EZU built by PE1ACB

Right: Slot antenna



By Wouter PA3WEG

For ATV, it is sometimes handy to be able to switch a video source on to multiple outputs, and to route video around the ATV shack. This can be done with a video switching matrix, or video matrix in short.

Around October 2013 I had some discussions about such a matrix with a group of ATV enthusiasts. Herman PB0AHX knew of a design to achieve this, but was talking about multiple obsolete ICS.

If there is one thing I hate, it is designing around obsolete stuff! It can not be this hard!

I was right...many ICs exist to achieve the matrix switching function, some of them are easy to obtain for me. So I decided to leave all existing designs behind and design around the Fairchild Semiconductor FMS6501AMTC28X IC. This is a 28TSSOP package SMD component. SMD is not a problem for me. In fact, I prefer it over through hole.

Design criteria

- *fast design, we need it now, not in a year*
- *correct design, no dirty hacks*
- *No cheap chinese sh*t, but quality components*
- *relatively compact*
- *composite video*
- *software controllable*

Herman PB0AHX is the "launching customer". He decides about features if things are unclear.

Design process

I set off finding affordable, simple ICs to do the job. The Fairchild FMS6501 ([datasheet](#)) is "farnellable". You can buy it from Farnell, order code [2301764](#). This IC has all the functionality we want, and the design is a breeze using such an integrated circuit. As always, the data sheets contain a few contradictions.

Early on in the project I brought on board Martijn, because I do not have the skill to make a nice I2C library to control the matrix. I will probably have succeeded to control the IC, but in a very messy way, and without user interface.

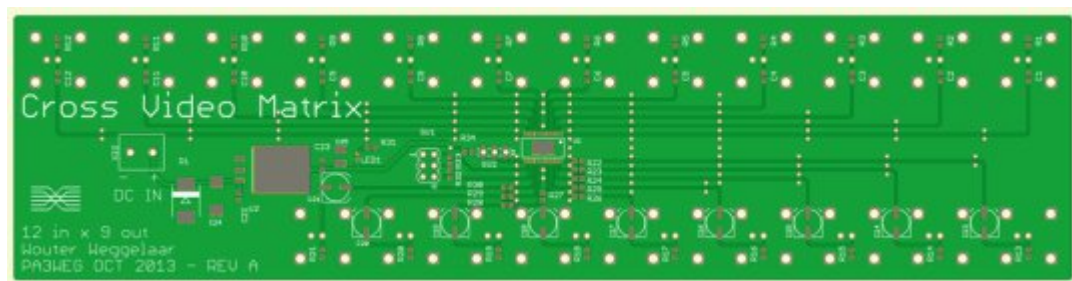
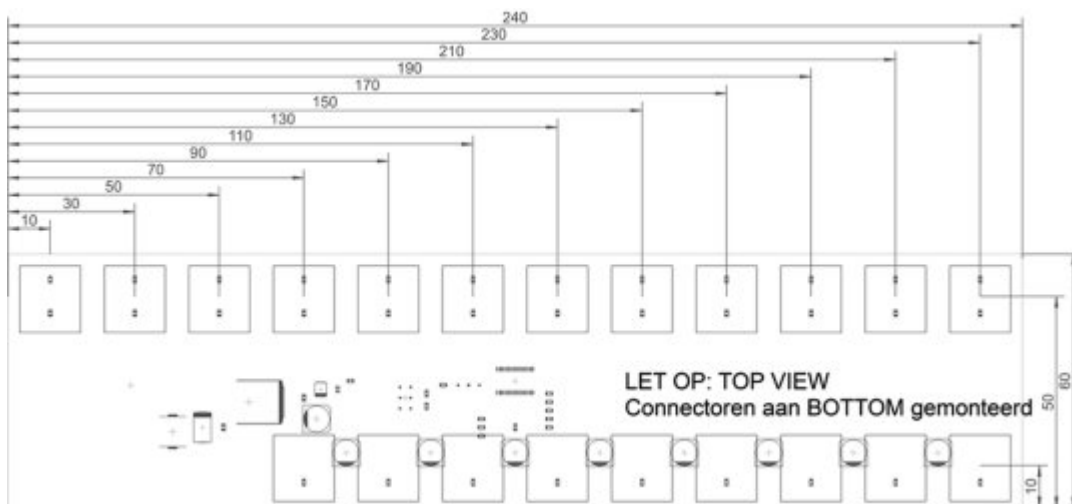
Since I already used the Raspberry Pi as test image generator, it was easy to include that in the matrix.

Originally, I had thought to use the Arduino Nano for the task, and this influenced the power supply design. The output of the Pi can also be routed into the video stream. If you attach a video grabber to the Pi, you can also route a video output towards the pi for recording video, creating overlays or taking snapshots.

Early on, a couple of ideas were bounced back and forth between the local ATV enthusiasts, generating many ideas. In the end, I had to limit the implementation of those, to end up with something relatively simple, but fast. Revision B may contain more nice-to-haves.

The schematics and PCB layout were done in cadsoft EAGLE, and some early screenshots were circulated for comments. Lots of ideas were discussed in video conferences.

It is work in progress, so things may still change as further improvements are made.



Design description

The heart of the system is the aforementioned FMS6501. This IC runs at a minimum voltage of 3.135V, but is typically specified at 5V. It was decided to run the IC at 5V.

A small 5V linear power supply is formed around U2, LM1086CS-5.0. This includes the protection diode, buffer capacitors and power LED. This supply was meant to be available on header SV1 but in revision A, I forgot to route that pin.

The I2C interface also goes to this header, and has optional pull-ups to VCC. The address of the chip is selected by SV2.

The power supply pins can be used to take 5V from the matrix, or to feed power into the matrix if the regulator is not

populated. Leaving the regulator in place will not damage it as long as the input is not shorted.

NOTE: The power supply is not designed to deliver substantial amounts of power. Although the chip can deliver 1.5A no problem, the heat sink area is not sufficient to dissipate the heat.

WARNING: the I2C lines are 5V, and the Raspberry Pi expects 3V3. The chip may be used at 3v3, but I did not check its performance yet!

Each video input and output consists of 75 Ohm BNC straight PCB mounted connectors, Amphenol type B6251G3-NPP3G-75T, to allow the board to be fitted in a case attached to the BNCs. These BNCs can also be reversed to the other side of the PCB, to allow internal connections for, for instance, the Raspberry Pi video input. Each in- or output is AC coupled, and terminated in 75 Ohm. On the outputs, the 75 ohm resistor is optional. Mount it in case the load is high impedance. This is not recommended unless no other option is present, for instance if a high-impedance device has an attached cable. I have seen some cheap chinese video monitors that have 10kOhm input impedance and no real coax inputs.



Software

The Raspberry Pi is used to control the matrix using software made by Martijn PBONER. The first test code he sent me worked straight away.

The Raspberry Pi is controlled through the user interface, made by BitWizard. This interface provides a 4x20 LCD and 6 buttons, to control the matrix. The code is written in python. A library is available from Martijn for the FMS6501. The library (atv.py) is part of a bigger project with several libraries in it, called "bw_library". These are support libraries for BitWizard products such as the used interface.

The example code is also work in progress, but at the moment the software enables you to:

- *Control the input to output routing*
- *Control the gain settings*
- *Work in progress: control the video clamping*
- *Generate test card images on the raspberry Pi output*

The atv.py library presents you with the fms6501a object, that handles the routing, gain, clamping and initial setup for you. Defaults can also be loaded from a file, so the matrix loads these at startup.

The build

After the PCB was done, some things needed to happen. Mainly putting the matrix in its case, add the power supply and control stuff, and software testing. I assembled the PCB, with all small parts first. After this the bigger parts like the coupling electrolytes. Finally, the BNCs were added. When I hooked up my Raspberry Pi and loaded one of Martijns first trial scripts, I could now route video! So it was first time right on both hard- and software. After this experiment, the board

was given to Martijn for further testing and integration.

In the mean time, Terry had started milling the front and back panels of the case. This case was already bought by Herman for the purpose. Terry milled the front and back panels to fit he matrix PCB and power entry in the back, and the Raspberry Pi and User Interface in the front. The final product can be seen below.

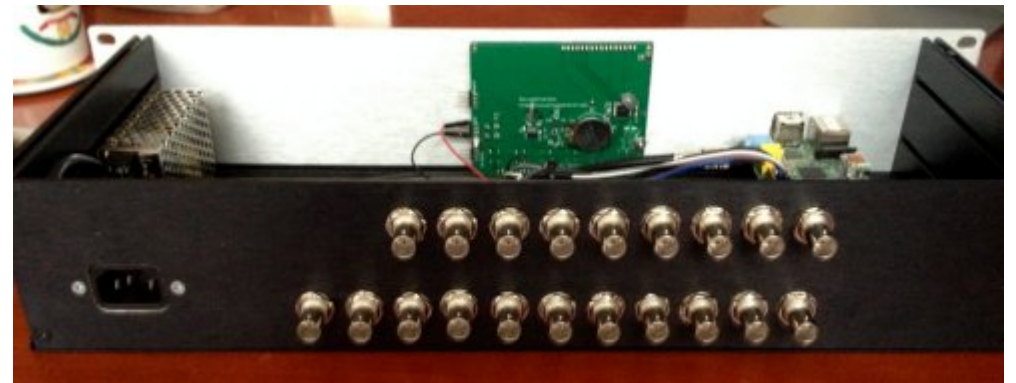
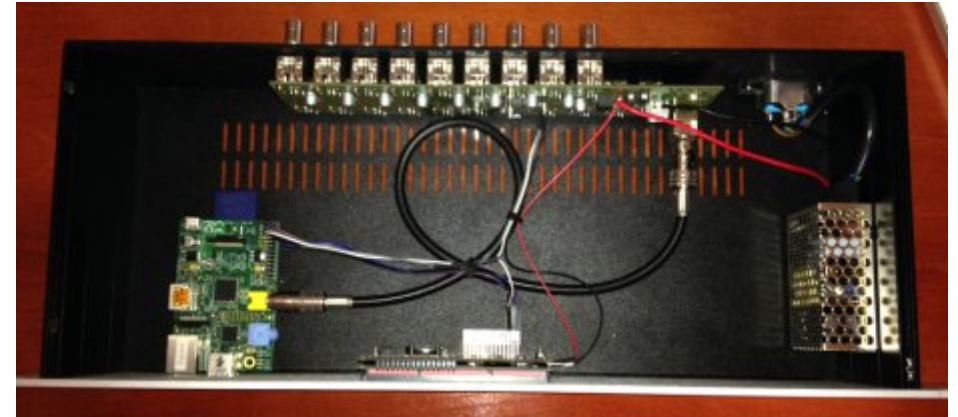
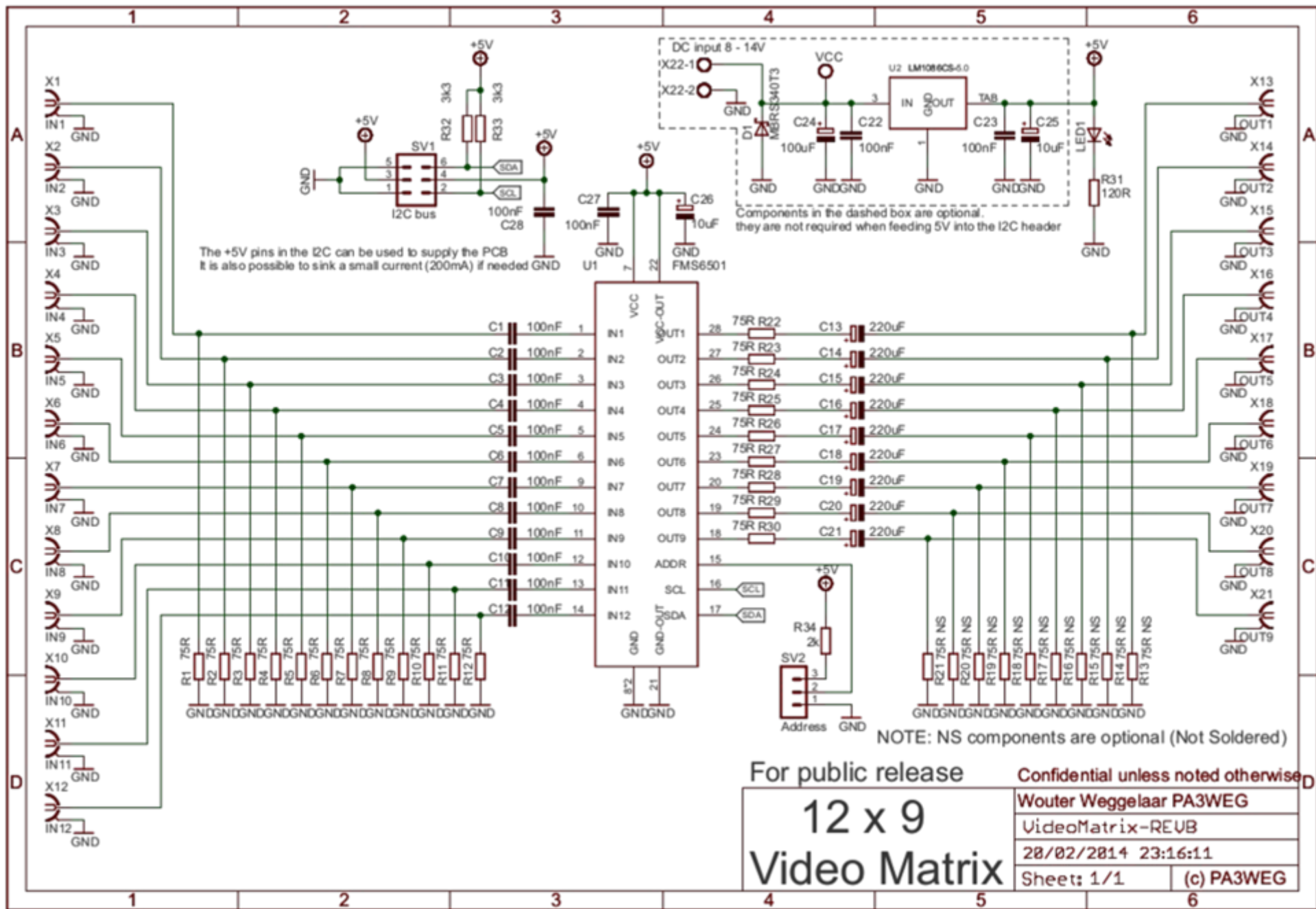


Image Credit: Martijn Moeling, PBONER



20/02/2014 23:17:08 f=1.04 W:\EAGLE\Projects\ATV\VideoMatrix-REVB\VideoMatrix-REVB.sch (Sheet: 1/1)

Revision B schematic

DATV-Express Project - March update report

By Ken W6HHC

DATV-Express efforts remained quiet in March.

Art WA8RMC has several HiDes UT-100B users on the ATCO DVB-T repeater WR8ATV that have difficulty changing the factory-default PID values on UT-100B transmitters. Three of the UT-100B PIDs are different that the PID values usually being used by hams for DATV and are values greater than 4095.

UT-100B default

- *PCR* = 4097
- *Video* = 4113
- *Audio* = 4352

DATV-Express default

- *PCR* = 256
- *Video* = 256
- *Audio* = 257

In order to accommodate these UT-100B users, Art has allowed the DVB-T at WR8ATV to use those default HiDes PID values instead of the normal DATV PID values (almost "standard" values that are defaulted by DATV-Express). But it turns out that The DATV-Express has a simple bug (the MSB of PID values is masked) and will not currently allow users to configure values that are using the MSB. So Art can NOT transmit DVB-T to WR8ATV using his DATV-Express station. HiDes technical support explains that the software program

they supply called PC2TV will allow reconfiguring PID values on the UT-100B. But so far, nobody has tried to reconfigure their UT-100B transmitter using PC2TV...so Art is locked out of his club's DVB-T repeater using DATV-Express.

Charles G4GUO has prepared a draft of v2.04 software (currently 64-bit) for the fixing the PID MSB bug on the DATV-Express board. The current plan is that Art will test the 64-bit v2.04 draft deb file build. The v2.04 is intended to include four fixes/features:

- (1) extend the range of PID values (correct PID MSB masking bug)*
- (2) add $\sin(x)/x$ compensation to improve the OFDM waveform (suggested by Ron Economos W6RZ)*
- (3) a few minor fixes involving UDP support*
- (4) support for Hauppauge HD-PVR encoder*

Currently, Charles does not have a 32-bit development PC available to build a draft deb file of v2.04 32-bit. So Ken W6HHC will start the 32-bit build of v2.04 and test when USA tax reports are finished towards the end of April.

Ken W6HHC has not made much progress on the Logitech C920 HD web camera project for DATV-Express. Ken has learned how to compile code from source on Ubuntu and Lubuntu in an attempt to duplicate the efforts accomplished by Alex OZ9AEC. Alex has provided lots of support and guidance, but Ken seems to end up with two competing installations of gstreamer software on the PC. One installation is from Ken's build and one installation seems to occur from installing VLC. No progress for two months now with C920.

Charles G4GUO found some worthwhile DATV articles by Chris MW0LLK and announced them on the BATC Forum. The good news is that Chris MW0LLK has been experimenting with using FFMPEG software on Windows to create valid

transport stream (TS) for DATV-Express without one of the listed Hauppauge PVR type of encoder cards. The MPEG2 TS is generated on a Windows machine using ffmpeg/avcom and sent by UDP protocol via Ethernet to the DATV-Express board controlled by a Ubuntu PC or ODROID, etc.

Chris has a companion article about using vMix software and FFMPEG on a Window machine to generate the Transport Stream for the FATV-Express board. You can find Chris' articles at:

<http://www.tannet.org.uk/using-ffmpeg-t ... -overlays/>

Ken hopes to start back up on DATV...working soon on Chris MW0LLK's efforts and also Alex OZ9AEC's efforts.

As a final note - the DATV-Express project team has dropped further support for the older Ubuntu Version 12.04.4 LTS operating system and is now focused on only the newer Ubuntu Version 14.04.1 LTS OS. All new DATV-Express users are requested to install only Ubuntu 14.04.1 LTS.

"project is set to slow speed"....de Ken W6HHC





Digital Amateur TeleVision Exciter/Transmitter

now available from

DATV-Express




- A more affordable DATV exciter can now be ordered
- Fully-assembled and tested PCBA
- DVB-S protocol for DATV (using QPSK modulation)
- Can operate all ham bands from 70 MHz-to-2450 MHz
- RF output level up to 10 dBm (min) all bands (DVB-S)
- Software Defined Radio (SDR) architecture allows many variations of IQ modulations
- "Software-Defined" allows new features to be added over the next few years, without changing the hardware board
- As extra bonus, the team has been able to get the board to transmit DVB-T 2K mode, however we cannot guarantee the performance of that protocol. Caveat Emptor!
- Requires PC running Ubuntu linux (see User Guide)
- Price is US\$300 + shipping – order using PayPal



For more details and ordering

www.DATV-Express.com

register on the web site
to be able to see
the PURCHASE page



CQ-DATV NEEDS YOU!

Without reader input CQ-DATV would be an empty PDF file (which I don't think many people would find particularly interesting). We are always looking for articles, reports, anything! Even small things like letters and desktop screens help fill the magazine.

Guidelines

The single rule for an article is that it must somehow be linked to ATV or one of its many derivatives, CCTV, repeaters, aerials/dishes etc. Write your article in whichever software you choose. I would recommend LibreOffice (this is cross platform). But please spell and grammar-check it!

Language

If your first language is not English, don't worry. We will translate your copy using online translation software and then one of the proofreaders will smooth it into English and correct any grammatical or spelling errors that these translation services sometimes create.

Writing

There is no word limit for articles, but be advised that long articles may be split across several issues. In your article, please indicate where you would like a particular image to be placed. We will try to adhere to this, but page layout may require us to move them around a bit. Please do not use any formatting.



Images

Images should be the best resolution possible, not cropped or reduced in size and in PNG format (preferred), or JPG with low compression. Images can be embedded in the document to show their position, but must also be included as separate image files. (PNG or JPG)



Intellectual property

Please attribute anyone else involved in the article and seek their permission for us to publish it. Copyright remains with you and if anyone else wishes to reprint any of our copy they should seek your permission to do so. Sorry, we do not pay. CQ-DATV is a free magazine and distributed around the world. The library of back issues is open to all as a free ATV resource.

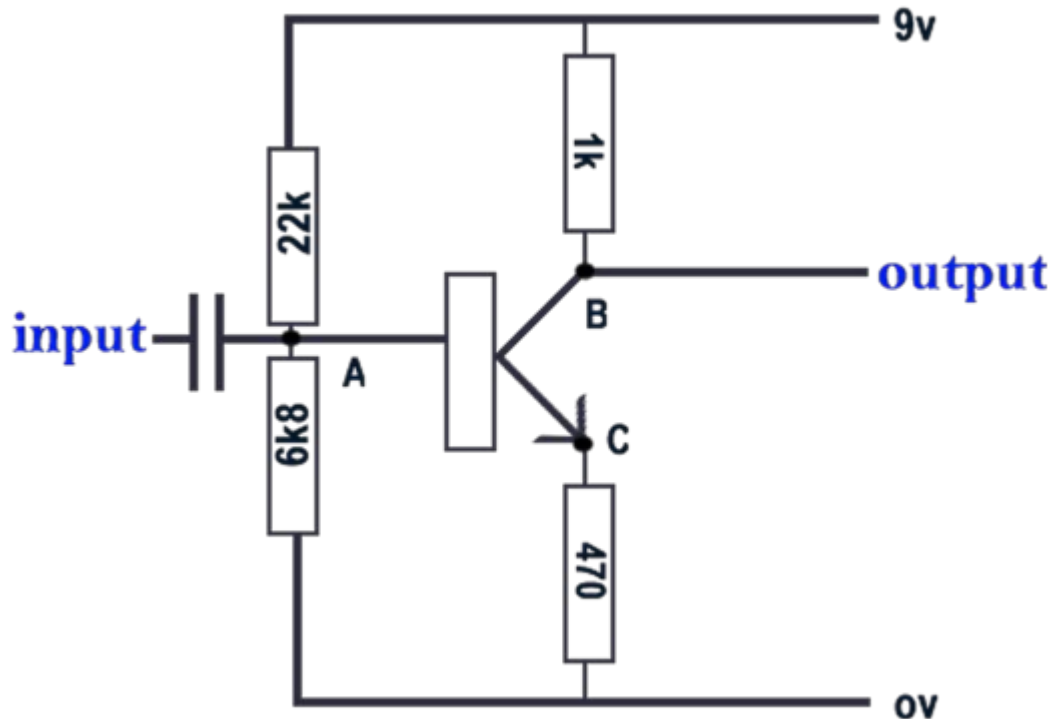


Please also check the Information page at the end of the magazine.

When you are ready to submit your article, please email it to:-
editor@cq-datv.mobi

Skills test - puzzle

This is a new regular feature designed to help us all keep our engineering skills sharp.



The transistor in this circuit is silicone and you are not sure if it is working correctly.

So what voltages would you expect at A, B, and C and what sort of a stage gain would you expect (one decimal place is enough) It is permitted to ignore base current, which would be very small, when doing your calculations.

Your answers to the [editor](#) and we will reveal the correct answer in CQ-DATV 24.

TV-AMATEUR

www.agaf.de

Nr. 176

47. Jahrgang
1. Quartal 2015

EUR 6,- DFR 10,- USD 6,-

Zeitschrift für Bild- und Schrift-Übertragungsverfahren



Aus dem Inhalt:



- NWT 4000 – ein skalarer Netzwerk-Analysator
- ATV-Größe von DH7AEQ/p aus Paraguay
- Ein vergessener Erfinder: TV-Pionier Max Dieckmann
- Norddeutsches ATV-Treffen 16.5.2015 in Glövizin
- HAMNET beim Amateurfunkmarkt in Dortmund

TV Amateur is a German Language ATV Magazine It is published 4 times a year and if you would like to subscribe go to <http://www.agaf.de/>

Rally report

By Trevor G8CJS

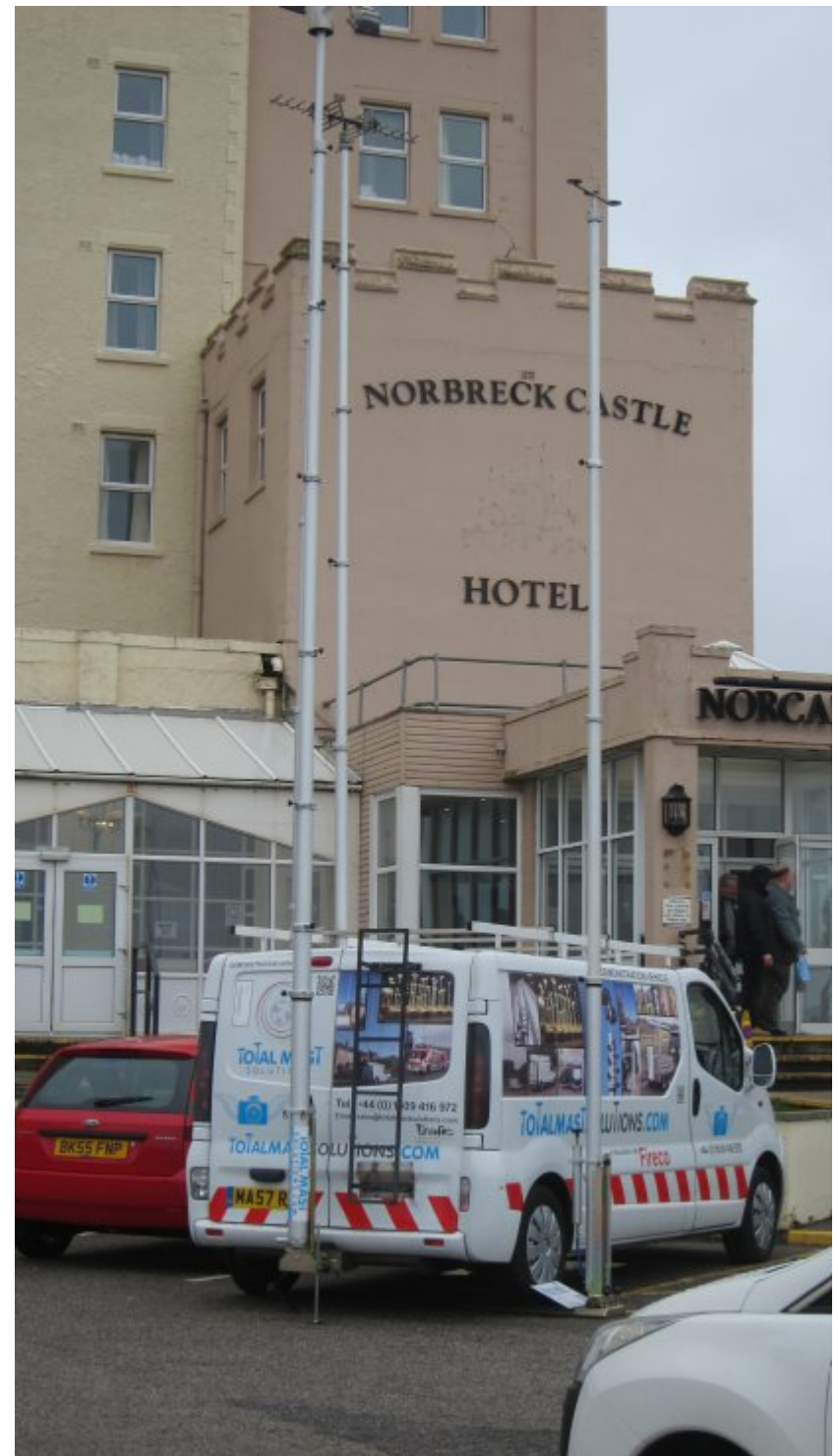
April 12 was the 53rd NARSA Radio Rally, this is one of, if not the most popular radio event in the North of England, located on the Blackpool sea front in the Norbreck Castle Hotel.



CQ-DATV and GB3FY got together to put on a combined stand, so we could show some of the constructional projects that have taken shape between the pages of our magazine, show off GB3FY that was linked in live to several large screens around the venue, and distribute flyers to invite visitors to download and read CQ-DATV.

The hotel was easy to locate, the Satnav took us straight to the front door and if there was ever any doubt that we were are the right venue I think the Total Masts truck soon dispelled that.

What was apparent was how well this rally was run, it opened in four stages, 7.30 was full access for Ballroom Traders and exhibitors, the second room had trader access the previous evening. disabled access from 10am and full public access from 10.30am.





The event was well attended if that's the right word, by 11am anyone that had ambitions to swing a cat around was soon going to be disappointed.

The Team John Hudson G3RFL, Dave Woodhall G3ZGZ, Ted Bottomley G4MXR, Mark G1HSO and yours truly were kept



busy answering question about the projects and live pictures around the room. Also a chance to meet and greet CQ-DATV readers of which there were plenty. The Rig was a 10Ghz receiver on the Castle ramparts, and a Locked off camera from the same location, just to show the



view these were intercut automatically and RF linked to the ballroom control, yes it was an ambitious rig, but it ran faultlessly all day and attracted a lot of attention.





The star of the show was undoubtedly Johns YIG Transmitter, 100mw of FM ATV power on 10GHz from such a small unit, no PLL necessary the YIG is stable.

It is easy to see why it has been the stable diet of spectrum analysers for so long.

If you recognise the visitor, it is one of our readers, GW7BZY who produced a copy of our magazine and his own test card from the tablet he carried around in his pocket.

If you are wondering yes that is Howard G8GUN sat in the background, but he was not the only old friend to turn up.

Dave M0OBW spent a long time on the stand asking questions and chewing over old times, when I streamed the RSGB AGM, CQ-DATV never gets coverage in RADCOM so who better to put the point across to than a President and by now a CQ-DATV reader (he left with a flyer, let's see if we get a mention in Radcom). I also got to shake hands with the new Practical Wireless Editor, PW has always been one of my

favourite magazines, and good to know it is in safe Hands in a post Rob Manion era, even better to know he is also a CQ-DATV reader, not only a brilliant editor, but a man with a discerning taste in magazines.

Can I thank Dave Wilson G0OBW for his help and support, Bob G1EPL, who donated his stand space and everyone else at NARSA for making this such an enjoyable event, a personal thanks to Pauline my XYL who helped with the driving navigation and dressing up the stand...It not an easy task getting me out of bed at 5.30 in the morning. Looking forward to next year.



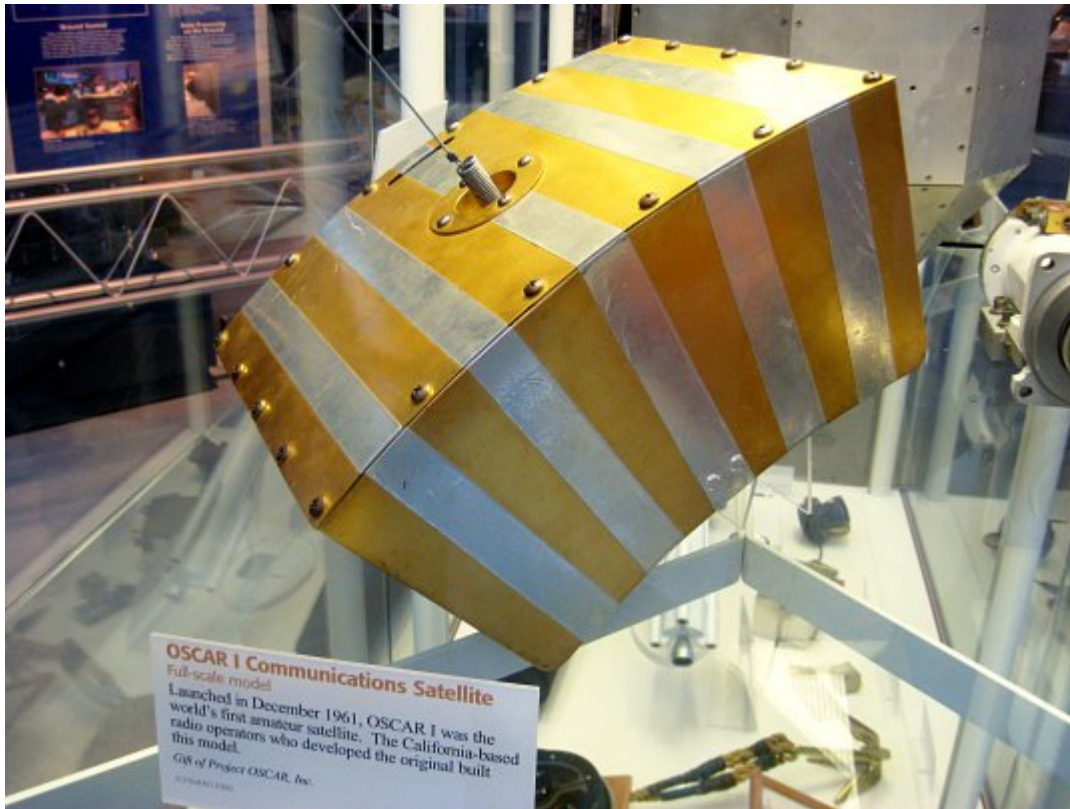


What is Happening With Amateur Satellites?

By Ted Bottomley

The OSCAR Story...

The first Amateur Satellites were little more than "Beacons Flying in Space"; an unbelievable achievement in their day and the first was launched only 4 years after Sputnik 1 which was no small task in 1961!



OSCAR 1 (Orbiting Satellite Carrying Amateur Radio Number 1) flew around the earth with its tiny 140mW beacon continuously transmitting HI HI HI HI (the CW "laugh") at a speed relative to its internal temperature.

Driven purely by batteries, this little marvel lasted just over 3 weeks (22 days to be precise) before re-entry. Not bad for a handful of amateurs working in their shacks, garages and basements!

Incidentally, there is an OSCAR 0 – the moon! However, moonbounce (Earth-Moon-Earth or EME for short) is a whole different subject!

Although the AMSAT Phase "description" system which describes an amateur satellite based upon its capabilities or mode of operation had not been developed at that time, OSCAR 1 was classed as a "Phase 1" satellite. See below for a fuller description of the Phase system which also roughly parallels the development of amateur satellites (Wikipedia definitions):

- * *Phase 1: No solar cells (battery-powered only), short-lived, technology test-bed. Must be able to orbit to be classified as a satellite.*
- * *Phase 2: Long life using solar cells, communications capabilities, Low Earth Orbit (LEO).*
- * *Phase 3: Long life, more powerful communications, telemetry and command systems. Highly elliptical orbit, usually a Molniya orbit; usually the initial orbit is a geostationary transfer orbit, onboard propulsion systems boosting it to its final orbit. Because of the highly elliptical orbit, the satellite remains over an area for long periods of time, allowing amateurs longer contacts through the satellite.*
- * *Phase 4: Amateur satellite in geostationary orbit. Phase 4 amateur satellites have been designed, but not built, though they have received favourable attention.*
- * *Phase 5: Spacecraft capable of lunar or planetary missions.*

The story of Amateur Radio satellites begins very near the beginning of America's other satellite programmes. Barely four months after the successful launch of Russia's Sputnik I, the United States launched Explorer 1 on 31 January 1958.

At about the same time, a US West Coast group of Hams began toying with the idea of launching an Amateur Radio satellite into orbit. Far from being simply a "pipe dream", this group later organised a group called "Project OSCAR", with the expressed aim of building and launching amateur satellites.

After a series of high level exchanges between Project OSCAR members, the American Radio Relay League (the largest Amateur Radio fraternal organisation in North America) and the United States Air Force, a launch opportunity on Discoverer 36 from Vandenberg AFB California was secured for the very first Amateur Radio satellite called OSCAR 1. It was successfully launched into a Low Earth Orbit on the morning of December 12 1961, barely four years after the launch of Sputnik 1.

OSCAR 1 weighed in at 10 pounds. It was built, literally, in the basements and garages of the Project OSCAR team. Transmitting on 144.983MHz, it allowed ground stations to measure radio propagation through the ionosphere, as well as the internal temperature of the satellite. It also was the very first satellite to be ejected as a secondary payload from a primary launch vehicle and then enter a separate orbit.

This was accomplished using a very high technology and thermally balanced ejection system - a \$1.15 spring from Sears Roebuck! The release mechanism was no more than a piece of wire wrapped around fishing line; the latter keeping the spring under tension. Once a voltage was applied to the holding wire at the appropriate time, the fishing line melted and the satellite was ejected under the pressure of the spring!

OSCAR 1 was an overwhelming success; more than 570 amateurs in 28 countries forwarded observations to the Project OSCAR data reduction centre. Unfortunately, OSCAR 1 lasted only 22 days in orbit before burning up as it re-entered the atmosphere. However, Amateur Radio's "low tech" entry into the "high tech" world of space had been firmly secured.

When scientific and other groups asked the Air Force for advice on secondary payloads, the Air Force suggested they study the OSCAR design. What's more, OSCAR 1's "bargain basement" procurement approach and management philosophy would become the hallmark of all the OSCAR satellite projects that followed, even to this day. OSCAR 2 was built by the same team (Fig 2), and although it was similar, both structurally and electrically, to OSCAR 1, there were a number of improvements to OSCAR 2.

One such upgrade modified the internal temperature sensing mechanism for improved accuracy. Another improvement modified the external coating of the satellite to achieve a cooler internal environment.

Yet another modification lowered the beacon transmitter output to extend the battery life of the satellite. Thus, the "continuous improvement" strategy that has also become a central part of the amateur satellite approach was set into place very early in the OSCAR programme.

OSCAR 2 was quickly followed by OSCAR 3 which would later become the first Amateur Radio satellite to carry a transponder. It was designed to receive a 50 KHz wide band of uplink signals near 146MHz and then retransmit them (with a power of 1 watt!) near 144MHz. This would allow amateurs with relatively modest Earth stations to communicate over much longer distances at these frequencies.

In fact, it could be argued that the lure of talking over larger and larger distances at these frequencies remains the single most important reason members of the Radio Amateur community have continued to support the construction, launch and use of these satellites over the years.

Put another way, the lure of a "repeater in space" that virtually anyone with an entry level Amateur Radio license can use is a very powerful motivator for a group of people who like to communicate with each other as a hobby!

However, the thought of a "repeater in space" developed and launched by a group of "know-nothing Hams" working in their basements and garages wasn't always looked upon with favour. While details of the incident are sketchy, it's reported that the builders of TELSTAR 1, the first commercial telecommunications satellite, were quite upset to learn that a "rag-tag" group of Hams were also working on a telecommunications satellite called OSCAR 3 as TELSTAR was nearing completion.

For a while, it appeared that OSCAR 3 might possibly upstage their multi-million dollar TELSTAR effort by beating them to orbit! In fact, it's also reported that TELSTAR's builders did eventually change their public relations approach to include the word "commercial" in subsequent references to TELSTAR 1 as the "world's first telecommunications satellite".

OSCAR 3's transponder operated for 18 days and about 1000 amateurs in 22 countries were heard operating through it. The satellite was the first to clearly demonstrate multiple stations could successfully use a satellite simultaneously, a technology that is largely taken for granted in satellite telecommunications today.

The fourth Amateur Radio satellite, OSCAR 4, was targeted for a geostationary circular orbit 21,000 miles above the Earth. OSCAR 4 would ride to space aboard a Titan III-C

rocket. Unfortunately, despite a valiant effort on the part of the Hams and others involved, (most of whom were members of the TRW Radio Club of Redondo Beach, California), the top stage of the launch vehicle failed, and OSCAR 4 never reached its intended orbit.

However, despite this apparently "fatal" blow, OSCAR 4 operated long enough for amateurs to successfully develop innovative workaround procedures to salvage as much use out of the satellite as possible.

Events moved at quite a rate following OSCAR 1, slowly but surely and through many developments (not all successful) ending up with Oscar 40 (a Phase 3D satellite) which only lasted a very short time "on station"; OSCAR 40 went QRT following what is presumed to have been a catastrophic propulsion system failure.

And now we arrive at today; stuck in Phase 2 in my opinion! Loads and loads of Cubesats flying round; some are simply single channel "Spacebound FM repeaters" whilst many others are no more than flying Packet Radio "call forward" and "carry forward" message boxes.

Some time ago (I think it was for AO-40), someone came up with the acronym "YACE" for on-board satellite camera projects (YACE stood for "Yet Another Camera Experiment").

I would like to propose "YAC" standing for "Yet Another Cubesat" because that appears to be all "we" are launching! Don't get me wrong, these Cubesats are all fantastic advances in science and technology and kudos to the guys that design/develop/build/launch them but what happened to Phase 3? Never mind P4 and P5!

I remember my excitement at receiving OSCAR 10 (the first Molniya orbit and therefore Phase 3 amateur satellite) after weeks and weeks of building and experimenting with varying

degrees of success; I also remember the thrill of receiving Mode S from AO-40 during its short operational life but what now?

The International Space Station (ISS) has been transmitting SSTV and Fast Scan TV pictures for some time now but nothing from any other LEO (ISS is essentially a LEO)? And still nothing geostationary! Like many others, I still have loads of Mode S gear waiting for a job to do (again); helical antennas, pre-amps, down-converters etc etc. When are we going to get to use them?

Perhaps help is at last at hand! The latest ANS (AMSAT News Service) Special Bulletin (116.01) has announced that there is a launch opportunity for a geo-stationary secondary payload (they are calling it "Rideshare" now!) in 2017 with the piggy-back opportunity for an Amateur Satellite with a US Government geo-stationary satellite which is based on their "Aquila M8 Series Satellite Structure". Don't ask me what it will do – I have no idea and t'internet tends to block you from looking at these things!

To cut a long story short, after many meetings with the Launch Agency (most of which happened to be licensed amateurs!) and several members of AMSAT (all of which are licensed amateurs!), a launch opportunity has arisen which has been described as "...an opportunity to go forward with "AMSAT-Eagle" which, in the 2006-2008 timeframe, evolved into a microwave payload to be flown to geostationary orbit as a hosted payload. It would have provided digital communications to small terminals on the ground and a linear bent pipe transponder had it flown. This failed to go forward in part due to lack of an affordable flight opportunity..."

Dr. Bob McGwier, N4HY, Director of Research at the Hume Center for National Security and Technology of Virginia Tech, and former director and former VP Engineering of AMSAT has

stated that "The launch is currently scheduled for 2017 and the payload must be delivered for testing and integration by Spring of 2016. It is an ambitious schedule and all involved will have to gain and maintain a serious level of commitment to that which they agree to undertake." AMSAT President, Barry Baines, WD4ASW, said, "The AMSAT leadership is excited to fly a Phase-IV geostationary amateur satellite payload. This is an evolving development as we collaborate with the VT Hume Center with a project that provides technical challenges to create a new amateur radio capability in space that will provide a variety of benefits not only for amateurs but also for emergency communications and STEM educational outreach."

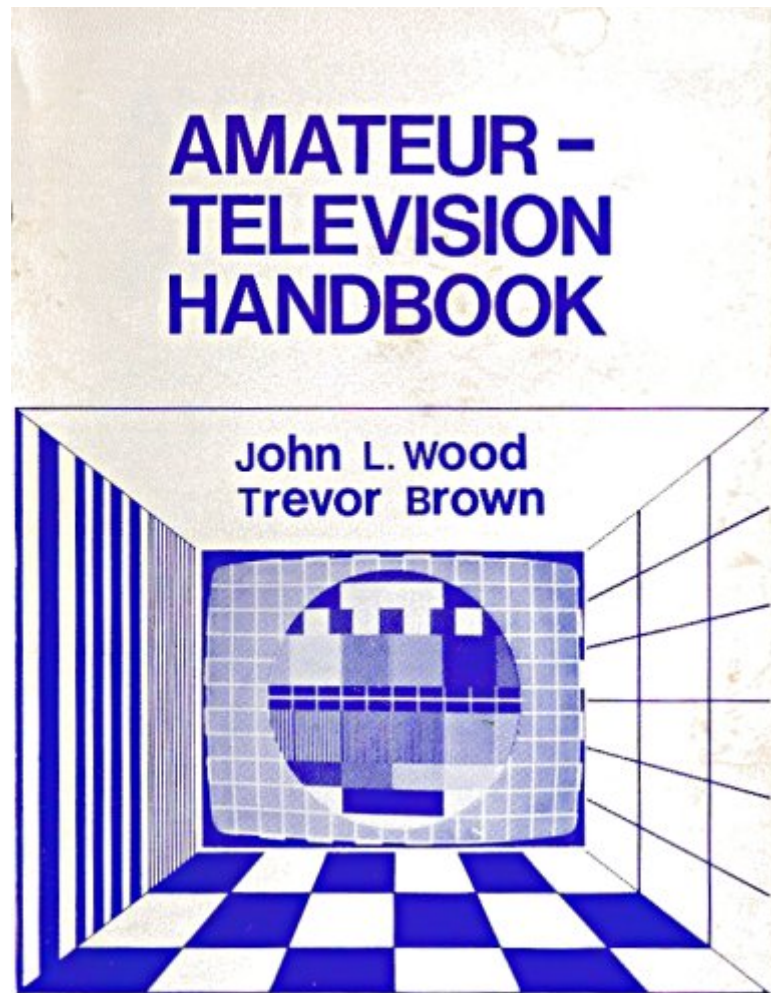
Now, here's the exciting bit for us "picture and video" people: "The transponder is expected to support a wide range of voice, digital, and experimental advanced communications technologies. A decision is expected soon specifying the microwave uplink and downlink bands".

I have e-mailed my "contact" in AMSAT and asked what the opportunities would be for TV bandwidth communications and (yet again) offered my help and assistance as an Aerospace Reliability Engineer who has worked on several (classified) Military Satellite projects and programmes. However, ITAR regulations (which severely restrict the passing of information that could be termed as classified under the International Arms Trade agreements) will always get in the way of UK Amateurs assisting with US led programmes; my ITAR clearance is still valid but the chances of involvement are extremely slim!

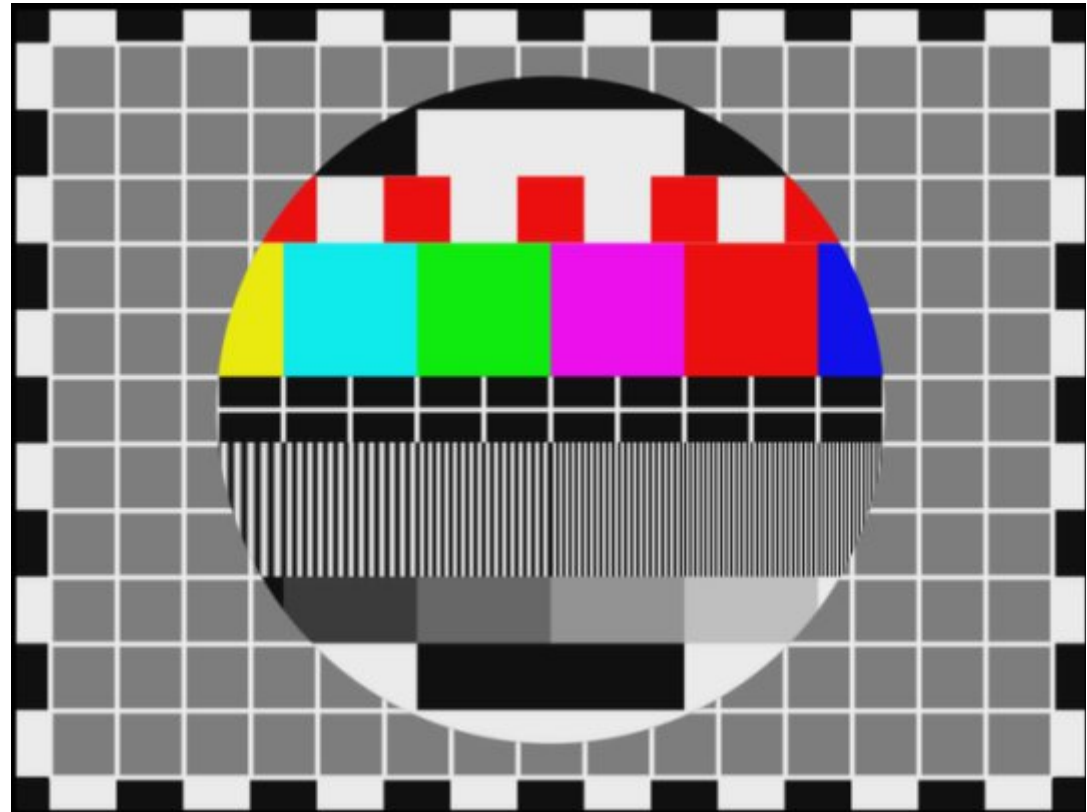
Just imagine, a geo-stationary TV repeater that would enable global (well – half the globe at any rate) coverage! That would be quite an achievement! Once the frequencies are announced, time for the slide rules to come out calculating the link budgets; I would suspect anything from 23cms to 3cms to be a fair bet... Phase IV at last!

By Trevor G8CJS

Back in the 80's John Wood and myself put together the ATV Handbook, it is often referred to as the Blue Handbook because of the colour of its cover. It replaced a buff coloured handbook that was a little lacking in constructional projects and never really sold. The new Blue Handbook was designed to be the complete opposite of its predecessor and was full of constructional projects, that were supported by a range of PCB's



The success was phenomenal and it ran to several print runs and even today I still get correspondence about this publication. The jewel in the crown was the Electronic Test Card, designed by Richard Russell G4BAU that took up three PCB's and produced a very pleasant free standing Test Card that could be locked to station syncs.



Richard Carden VK4XRL still has a working unit (they are quite rare) , but with a failed PROM that is part of the circle generator, Richard asked if they were still around or if anyone has a fix.

This device is a fusible link PROM and once programmed it cannot be reprogrammed, unlike the modern EPROMS, so why chose it when EPROMS were around at the time, well it was a question of speed, EPROMS in the 80's were not fast enough and Link PROMS were.

Mike Cox came to the rescue and pointed out that there has been a substantial increase in the speed of EPROMS and to prove his point he put the original hex data into a modern Eprom and then hard wired a converter, (well you did not expect pin compatibility did you).

0000	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0010	F0	EA	E6	E2	DF	DB	D9	D6	D4	D1	CF	CD	CB	C9	C6
0020	C4	C2	C1	BF	BE	BC	BB	B9	B8	B7	B5	B4	B3	B2	B0
0030	AE	AD	AC	AB	AA	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
0040	9E	9D	9C	9C	9B	9A	99	98	97	97	96	95	94	94	93
0050	92	91	90	8F	8F	8E	8D	8D	8C	8B	8B	8A	8A	89	88
0060	87	87	86	85	85	84	84	83	83	82	82	81	81	80	7F
0070	7F	7E	7E	7D	7D	7C	7C	7B	7B	7A	7A	79	79	79	78
0080	77	77	76	76	76	75	75	74	74	74	73	73	73	72	71
0090	71	71	70	70	70	6F	6F	6F	6E	6E	6E	6E	6D	6D	6C
00A0	6C	6C	6C	6B	6B	6B	6A	6A	6A	6A	69	69	69	69	68
00B0	68	68	67	67	67	67	66	66	66	66	66	65	65	65	65
00C0	65	64	64	64	64	64	64	63	63	63	63	63	63	62	62
00D0	62	62	62	62	62	61	61	61	61	61	61	61	61	61	60
00E0	60	60	60	60	60	60	60	60	60	60	60	60	60	5F	5F
00F0	5F	5F	5F	5F	5F	5F	5F	5F	5F	5F	5F	5F	5F	5F	5F

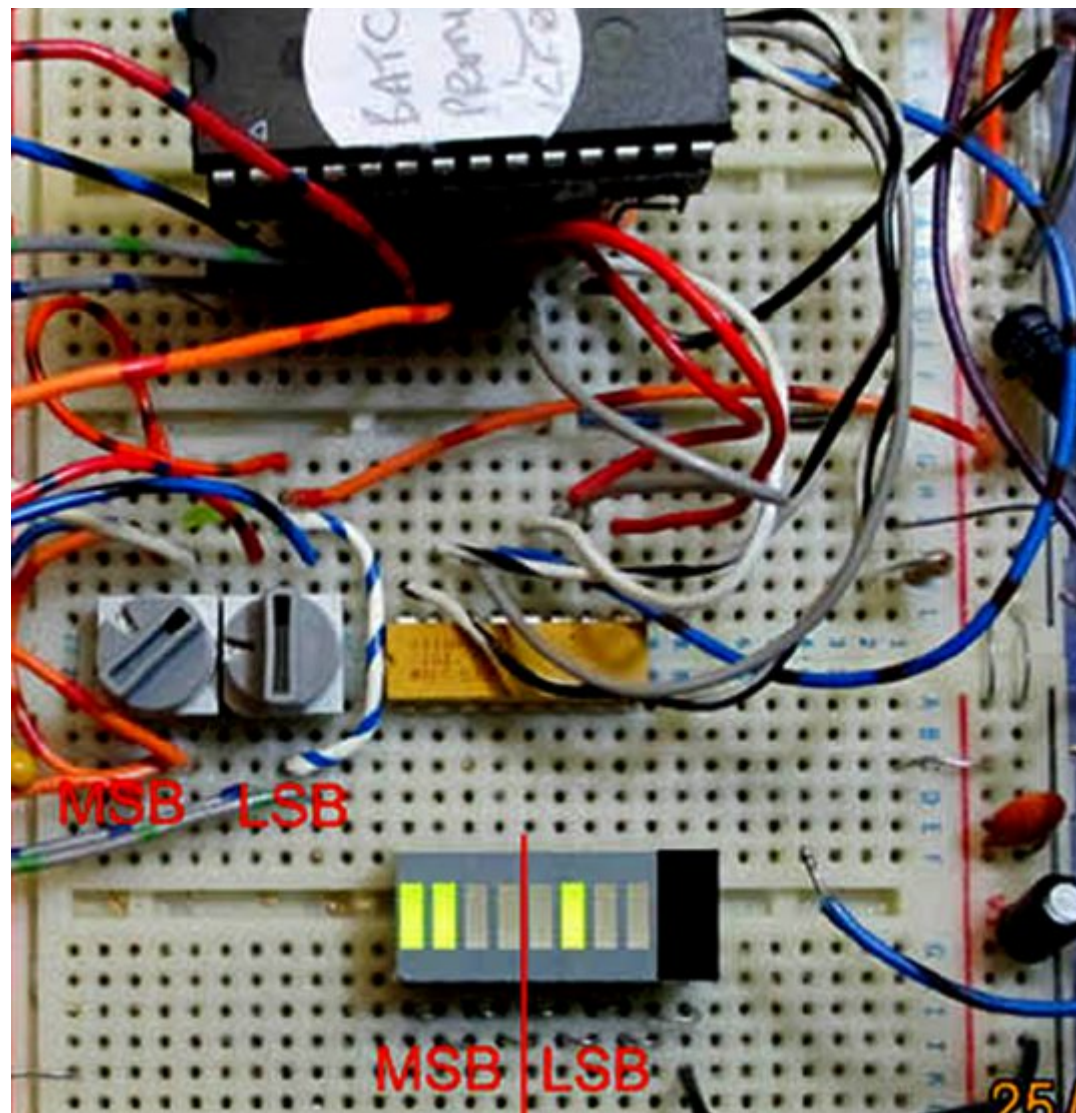
Hex table

The prototype construction was just that a prototype and was despatched to Richard In Australia for testing.

With no original PCB's available it was a matter of size as the EPROM is much larger.

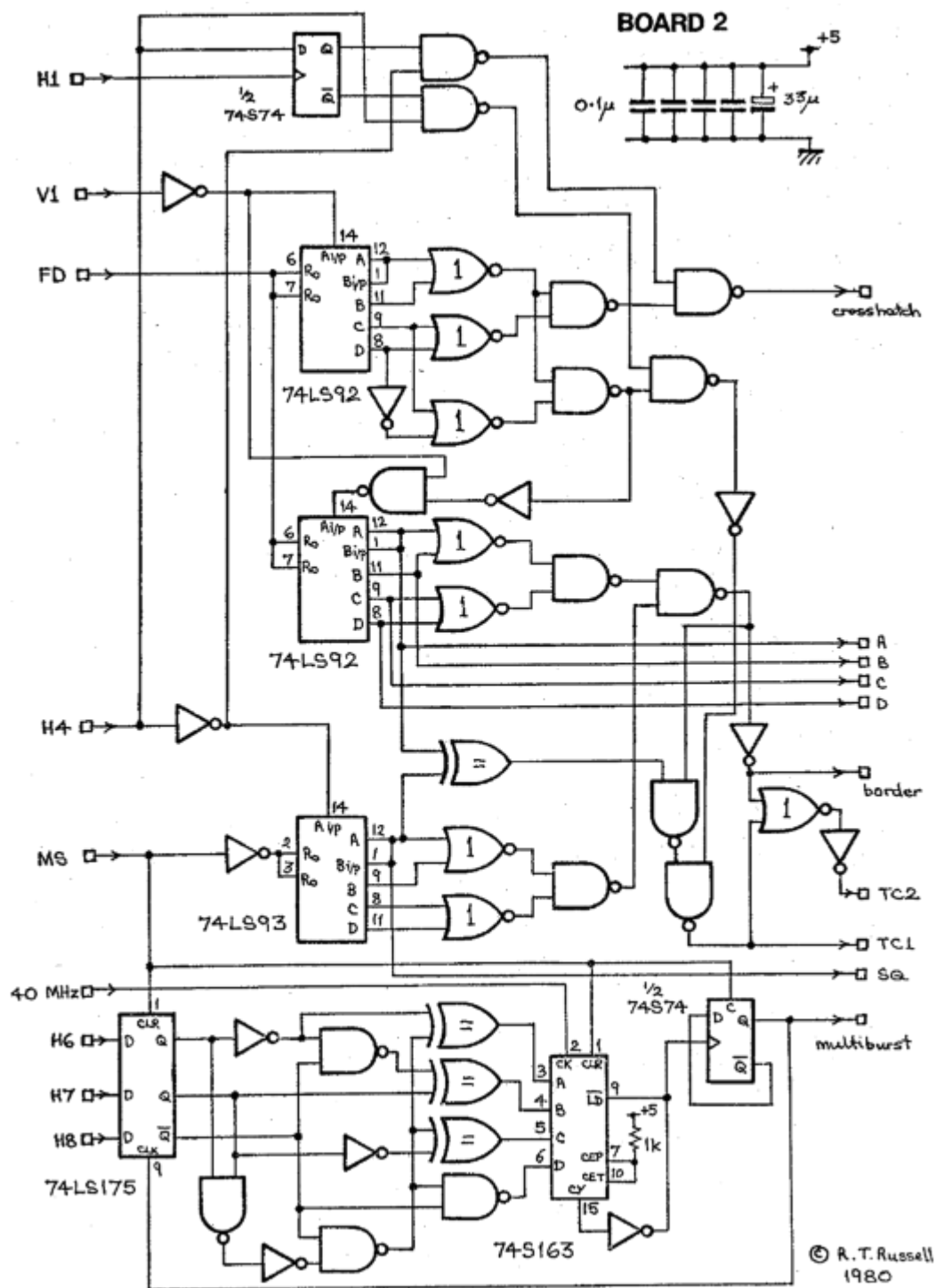
Richard is happy to report it fits and works and he is now the happy owner of a working Blue Handbook Test Card, with a little Help from Mike Cox.

I have produced the original circuit diagrams of the Test Card here so you can see the full design along with the original text. No, before you ask, PCB's are no longer available. Should you want to design your own PCB, I suggest you use an EPROM although they are getting long in the tooth now.



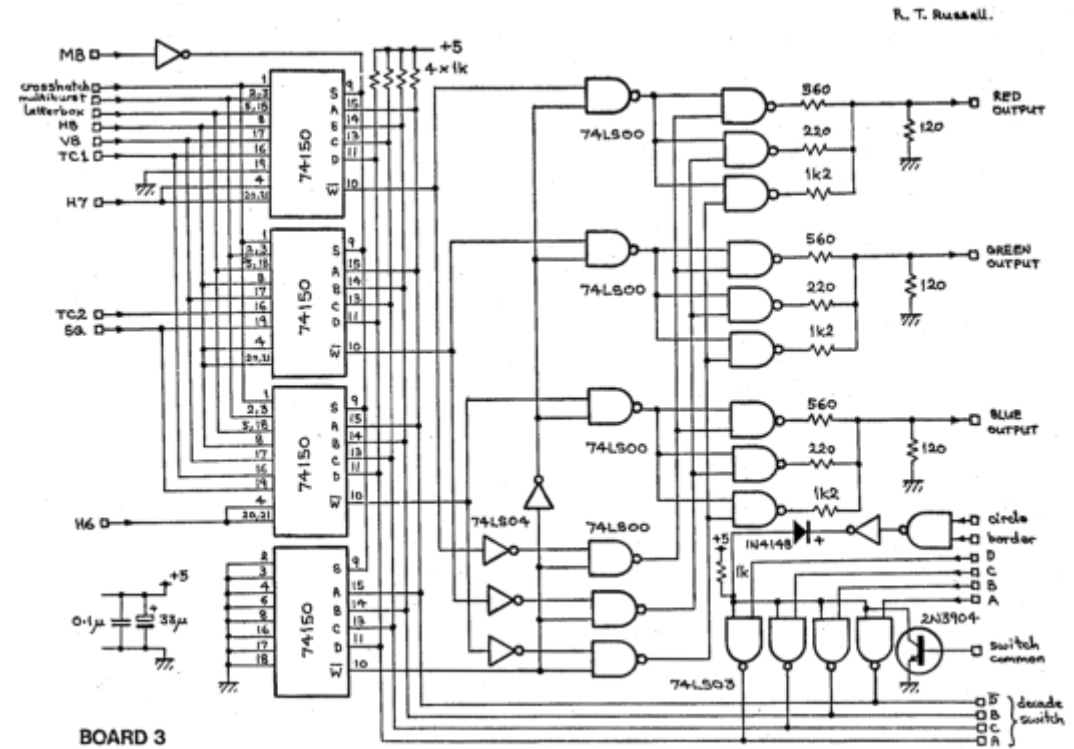
Prototype EPROM

The Complete Book is now on the CQ-DATV website along with updates and improvements that were sent in by readers at the time. Yes its dated, but I think it deserves a place in our growing resource centre, My thanks to Ian Pawson for the conversion from A5 to an A4 PDF and for adding all the updates and improvements.



Left: Test card board 2

Below: Test card board 3



ATV greetings by DH7AEQ from Paraguay

AGAF member Detlef, DH7AEQ, showed up on Sunday, 21. December 2014, at 11.20 h CET via Skype video from his new QTH in Paraguay (ZP), South America, on ATV repeater DB0TGM (Germany). There he talked to ATV friends in Tangermuende (Elbe river) in their club station, who also showed up via ATV. I found that live video in my Cologne home on the Internet stream of DB0TGM that is active 24/7 under <http://atvstream.moou.com:8180/db0tgm.ogv.m3u>



Patio table in Caacupe, Paraguay, RX: TM732E, laptop computer with MMSSTV V1.13A for SSTV reception from ISS on 145,800 MHz FM

The streaming server with more than 50 ATV streams via Internet and HAMNET is overseen by DB0TGM sys-op Joerg, DG0CCO, links web page http://www.atv-stream.de/index.php?option=com_frontpage&Itemid=171

Detlef had just migrated to Paraguay and found a shortwave aerial at another flat near-by, but not a radio amateur - it is home of a local FM radio station. He needed to transcribe his german amateur licence and to learn spanish language still, some pictures of his new home are shown on his homepage <http://dh7aeq.de/>

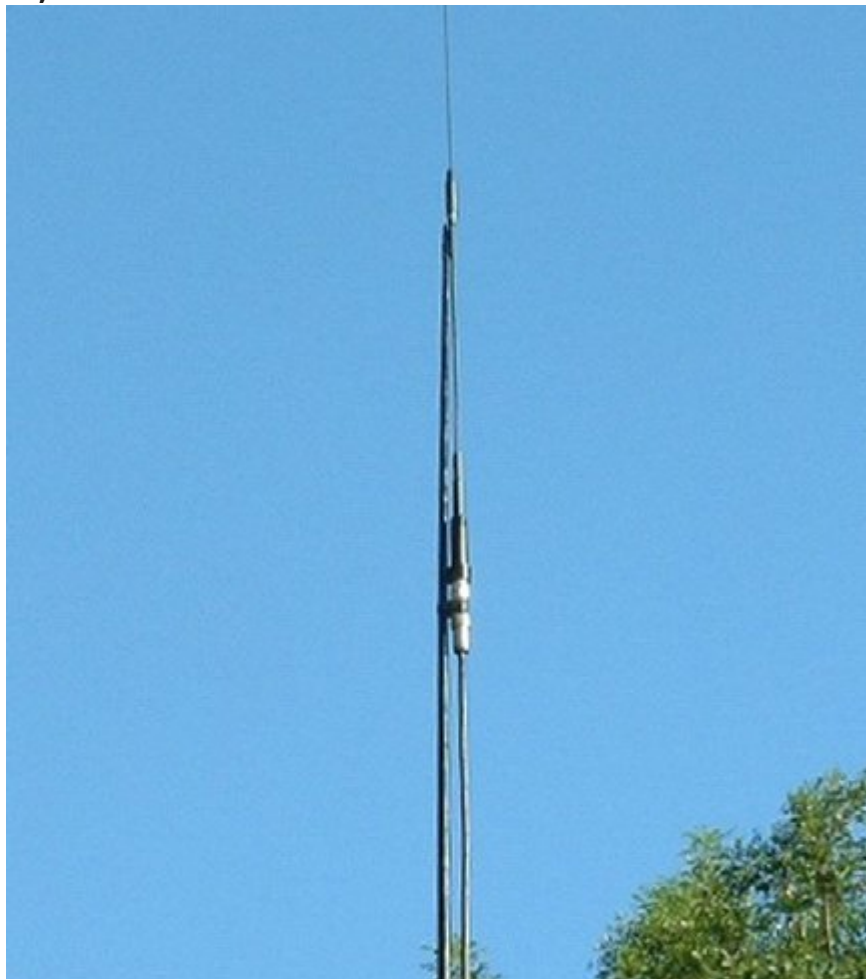


One of 12 images of first Cosmonaut Yuri Gagarin, transmitted from ISS in SSTV mode PD180 on 31.1.2015, see also <http://ariss-sstv.blogspot.de/> for schedule updates.

DH7AEQ is also to be seen regularly via Skype video in the early bird ATV net at 8 hours am (while his own local time is 4 hours!) on work days under DB0EUF repeater stream address <http://atvstream.mo00.com:8100/db0euf.ogv.m3u>

A daily replay is shown on the DB0TGM stream at 11 and 22h local time, web link see above. The link address is put into VLC player under menu item "open network stream", and then click "playback".

Klaus, DL4KCK



Mobile antenna on the fiberglass pole with about 8.5m above the ground

DKARS MAGAZINE



Verslag van het Amateur Overleg BES (op pagina 5)



Het betere loodgieterwerk

De 'herintreder' gaat van 10 naar 50 watt!



Een paddle voor de 817



Een 70 MHz GP of dipool



Verslag Tromelin FT4TA



Vonkenboer zoekt vrouw!

In deze editie onder meer:

- VEILIG THT (Through Hole Technology) SOLDEREN.
- Standaardisatie volgens DARES
- De PA2V eindtrap beveiliging
- De Worked all Britain awards
- EZHE een bijzondere club
- Een radiomuseum in Zweden
- En nog heel veel meer
- 68 pagina's voor de radio amateur!

DKARS

Dutch Kingdom Amateur Radio Society



Prijs / Price € 0,00 / \$ 0,00

April 2015 editie 10

Visit DKARS at <http://www.dkars.nl/>

Moving on with film making - Part 5

By Trevor G8CJS

I started this series of articles by introducing you to the Wondershare video editing package, because it had a free demo, so you could try before you buy and if happy the full working version was relatively inexpensive. The problem was it is also very restrictive, if you want to do more than cut up a picture track, cut sound at the same place and then lay down some music or a commentary, but not both, then you are within the limits of the package. But to do both you need software with multiple time lines there are a lots to choose from but they are not cheap and try before you buy is not always an option.



The more professional applications can mimic keyboard layouts of other professional packages to allow ease of migration when working across other applications and platforms. They will often import and export EDL's from other editors, have more comprehensive controls and often have external control surfaces available to interface in place of the PC keyboard

Lightworks

Is low cost £40 (2013) but there is a free downloadable fully functional version available that will run for 30 days

Wondershare

Is again a similar cost and there is a free demo that can be downloaded, lasts indefinitely but water marks the renders

Sony Vegas

Is available in several versions but the top end one will cost several hundred pounds

Speed edit

Is produced by Newtek, its very versatile and user friendly, has multiple sound and vision time lines, but cost several hundred pounds

Avid

Was the first LNE, it is used in professional circles and the full version is expensive, but there are various cut down packages

Final Cut

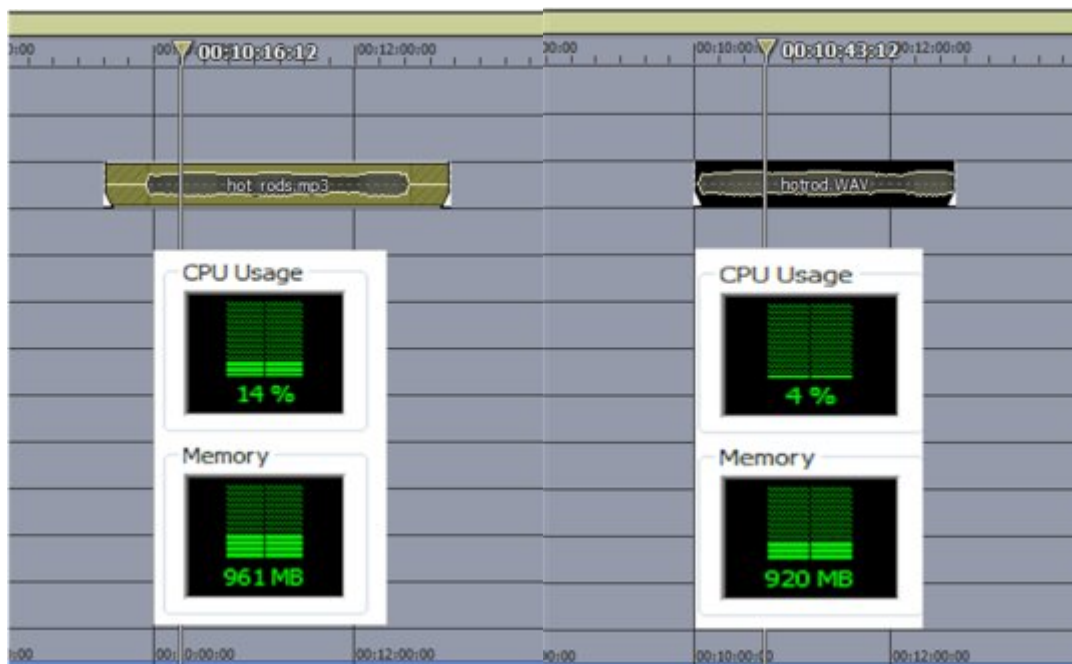
Professional but affordable this software will only run on MAC

Premier Pro

First appeared as Premier and was a bit slow with tools that needed constantly changing to cut or move, the newer Pro series is much better

It's not all about cost although that is involved. Will it run on your PC or Mac?, some software is very demanding on computer resources. Will it handle the files your camera generates?. Is it easy to use?, will it deliver the results you require?. How future proof is it?. New codecs appear often far too frequently and you need to be able to import the format. Last of all does it have the creative access you require?.

A good instance was a panic phone call some time back from a gentleman who was putting a film together for a local history museum, part of the content was some old silent film that had been transferred to a computer memory stick, but had been laced up into the projector for the transfer reversed. The content was solders marching but as they passed a bill board all the writing was reversed and his edit package could not flip the film, fortunately mine could.



Multiple time lines start to put more demand on the computer resources. If it is a compressed file such as an MP3, the demand will be on the CPU so rendering the file into a WAV will reduce the demand.



Adding a second screen is often a good idea so the preview screen can be kept separate from the time line, but this can sometimes make the mouse a little difficult to use as it will scan both screens.

This might sound a little over the top but a busy time line can really be demanding on your screen

and a second screen just showing the preview can really be a help.

It's all about planning, hardware is expensive and having to buy something find out it is not what you need and then buy a replacement is something you will need to avoid.

Video cards can really slow down the system so look for a top end card and if it has a second output well so much the better, even if at this point you do not have a second screen.

Think about how you are going to archive material, and if you are going to keep just the final cut or all the rushes (camera footage). If you go for the latter and copy them to a storage disc, they will need to be copied back to the original scratch disc or the EDL (Edit Decision List) will not find them.

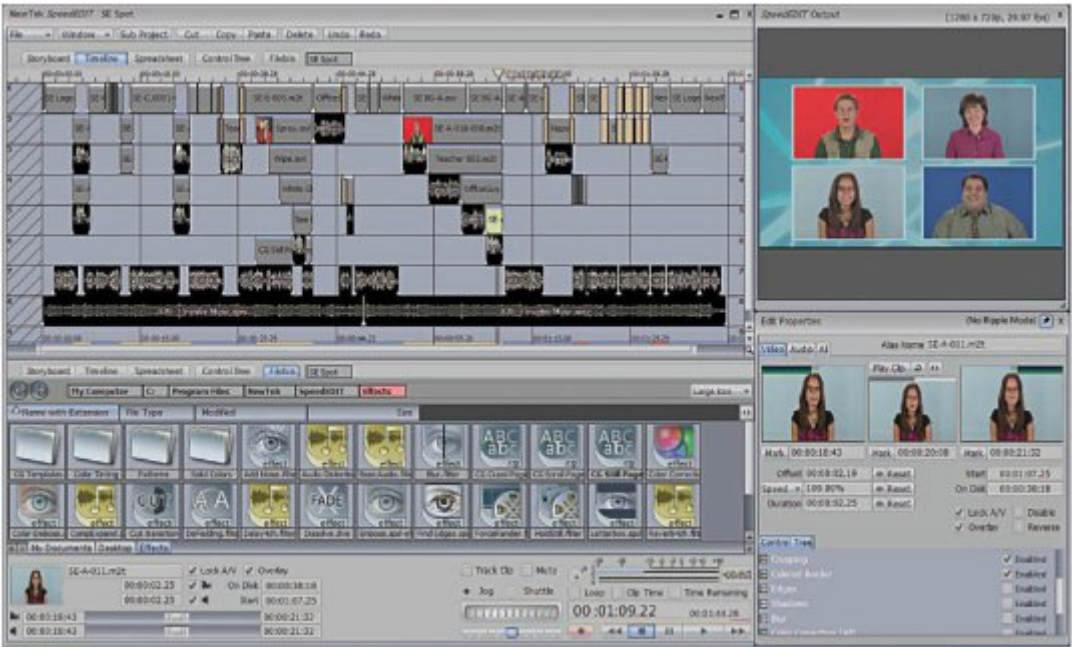
Hard discs do fail, often more so when video is involved some sort of backup like a Raid could be a life saver, particularly if it is material that cannot be filmed again such as a Wedding

The list goes on but, learning the hard way is not an option so think it through.

This series of articles has been aimed at the semi professional, where some of the cost of kit can be recovered through paid work.

Everybody who goes down this route will chose different equipment, and work differently. I hope these 5 short articles has been of some use to you and has provided some guidance in along the thorny path of film making.

There is a lot of help available on the internet, particularly on You Tube, but please tread carefully and good luck..



External links

If you have an eBook reader that does not have WiFi then you will not be able to use the hyper-links in this publication. If you have an eBook reader that has WiFi then you will be able too providing you are in a WiFi zone.

But if you have a Kindle 3G then yes, but only to Amazon, and there is not a lot of ATV material on their site.

Smart phone reading apps are ok providing that you have a 3G data connection.

Note: These links will fire up your devices browser and if you are using 3G/4G then you will incur data usages charges.

Legal Niceties *(the small print)*

E&OE. Whilst every care is taken in the production of this publication, dotMOBI accepts no legal responsibility for the advice, data and opinions expressed. dotMOBI 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. dotMOBI 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 publication.

As the regulations for the operation of radio frequency equipment vary in different countries, readers are advised to check that building or operating any piece of equipment described in dotMOBI will not contravene the rules that apply in their own country.

All copyrights and trademarks mentioned in this publication are acknowledged and no infringement of the intellectual copyright of others is intended.

Copyright

The articles contained in this publication remain the copyright of their respective authors and NOT dotMOBI. Any reproduction of such articles must be approved by the author of that article.

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 dotMOBI should not infringe the copyright of other writers or bodies.

Contributions are accepted for publication on this basis alone. dotMOBI publications - <http://cq-datv.mobi>

Author Guidelines

CQ-DATV welcomes contributions from our readers. It does not necessarily have to be on ATV, as long as it is of interest to our readers.

Although a formatted article showing the layout can be sent, we prefer an unformatted text file of the script, along with annotations of where important images should be placed. All images should be identified as Fig 1 etc and sent seperately.

Images should be in PNG format if possible and the best quality available. Do not resize or compress images, we will do all the rework necessary to publish them.

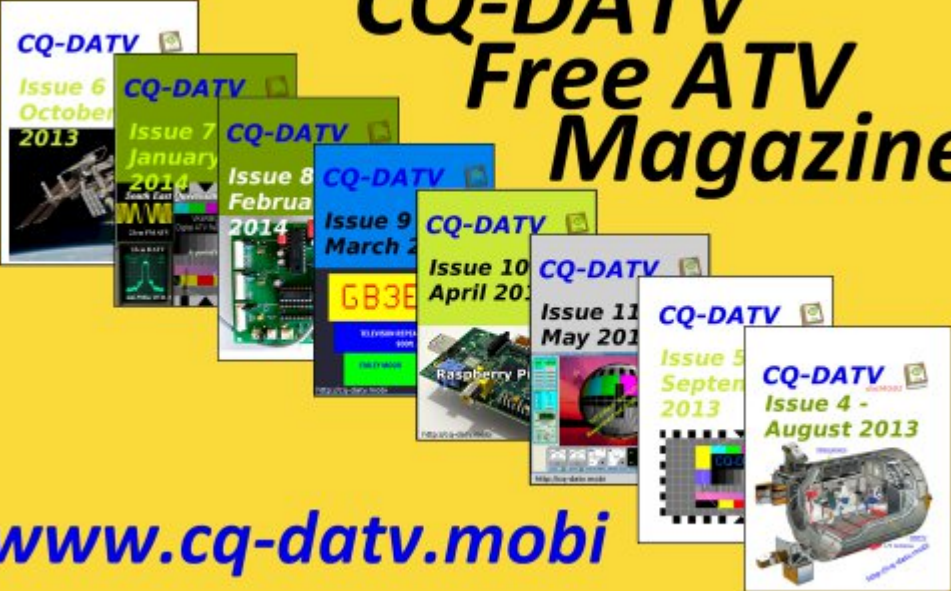
If you are sending a construction project, please include the dimensions of any pcb's and make the pcb image black and white, not greyscale.

CQ-DATV reserves the right to redraw any schematics and pcb layouts to meet our standards.

I'm off to download CQ-DATV

Always a very good read

**CQ-DATV
Free ATV
Magazine**



www.cq-datv.mobi

Coming up in CQ-DATV

Is this the latest issue of CQ-DATV? [Click here](http://www.cq-datv.mobi) to go to our web site to check to see if there is a later edition available.

CQ-DATV 
dotMOBI

**Issue 24-
June 2015**



<http://cq-datv.mobi>