STARLITE

The Award Winning Newsletter for Members and Friends of

G6OI
1938

Stourbridge and District Amateur Radio Society

G6SRS
1938

incorporating

Old Swinford Hospital School Radio Club

G4CVK
1969

ISSUE 06/2014

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STARLITE

MEETINGS

Visitors always welcome
The Society holds its full meetings on the
1st and 3rd Monday of each month at

Old Swinford Hospital School
Heath Lane
Stourbridge
(8.00pm – 10.00pm)

Additionally the shack is open during the same times on the intermediate Mondays

Telephone Enquiries to :-
Hon Secretary
John Clarke M1EJG
(01562) 700513

Or by e-mail to :-
honsec@g6oi.org.uk

All correspondence/enquiries should be addressed to the Hon. Secretary :-
STARS
c/o The Mill House
21 Mill Lane
Blakedown
Kidderminster
DY10 3ND

STARS Web Site URL :-
www.g6oi.org.uk

MESSAGE FROM THE PRESIDENT

Following on from Committee meeting:-

Foundation Course to Start Monday 22ndSeptember - any names of people interested to Hon Sec John.

Clearing Out the store cupboard, not only helped clear the cupboard out but also raised £40 towards club funds.

Field Day will take place on first full weekend of September, Keith will be producing a rota so please support this event and put your name down.

We are still after speakers - any suggestions / contacts to Malcolm.

As always articles required, virtual any subject considered, please forward to Adrian.

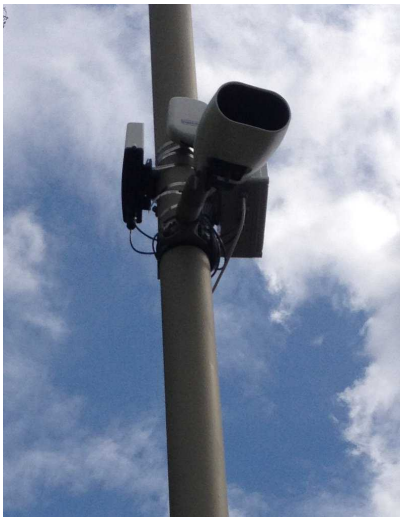
With regard to the traffic light article in last months Starlite, Wayne pointed out the aerials and repeater stations with some co-linear aerials which have been on the traffic lights that run between the Cat Pub at Wordsley through Kingswinford to the junction at the bottom of Starlings Lane. I also found this http://telent.com/traffic/project-delivery/traffic-signals-control/ which basically mentions the company who have the contract to install the new Mesh 40 system. But there is no information about the system itself. There is also a picture of a wireless mesh repeater, this is located on a lamp post on the road into Stourbridge, by the Corbett Hospital long brick wall. Within the last week I have also noticed going into Dudley, adjacent to Asda (used to be Netto) another mesh linked device, not sure if this is a camera or a traffic counter?

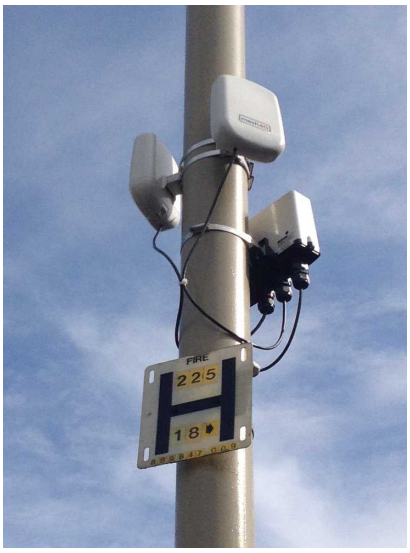
finally:-

I thought that one of the evening we could Watch Hancock Half Hour Radio Ham - does anyone have it on DVD?

James G7HEZ

RADIO CONTROLLED TRAFFIC SIGNALS





Please refer to previous page for a description of the above photographs which are courtesy of James French (G7HEZ)

EARLY COMPUTING

On Monday May 19 we were given a fascinating talk on early computing equipment by John Tracey (G6GTB). Initially John cut his teeth on a project working for ATE to collect toll fares on the Forth Road Bridge. John later moved to IBM and his talk mainly covered the equipment he installed and maintained during his time with IBM as a Customer Engineer. The talk covered gaining experience on card punches and verifiers and also card handling machines such as card sorters, collaters and interpreters . At this time, the main method of submitting data to a computer was by eighty column punched cards. Data was prepared in batches and changes to computer files were made in bulk, often overnight, rather than on demand as is done today. Some of the very early computer equipment used valves, but transistors were more common.

John later trained on the newer IBM System/360 range of computers, which became very successful and widely adopted. The IBM System/360 range of computers were different to previous computers in that they were designed to cover a complete range of applications from commercial to scientific applications and small to large in data processing capability. This allowed customers to migrate to larger computers as their computing needs changed. Initially one could only lease computer equipment from IBM although this changed in later years. Unusual by today's standards IBM software was initially supplied free of charge.

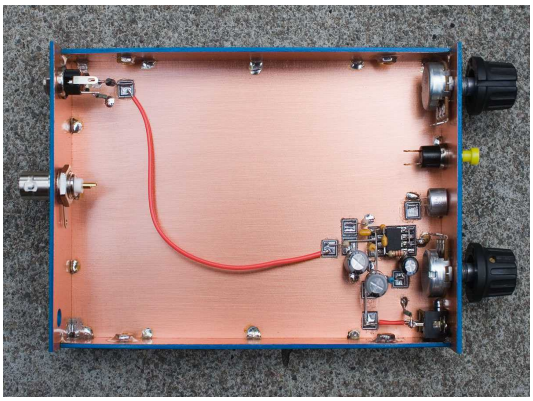
The talk was accompanied by anecdotes about John's time with IBM and some of the more amusing problems he encountered. The talk was concluded by examples of advances that we think are recent developments such as cache, memory error correction and checking, computers with multiple CPUs, RAID, water cooled CPUs and parallel computing but were available during the 1970's and '80s. The talk was well received by club members and I am sure another instalment would be equally well received.

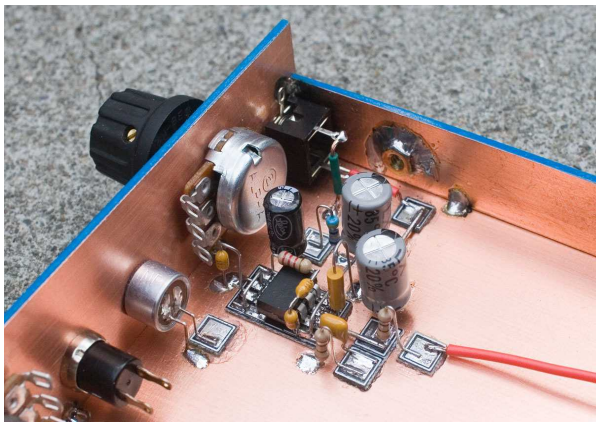
Adrian Bryan (G0NLA)

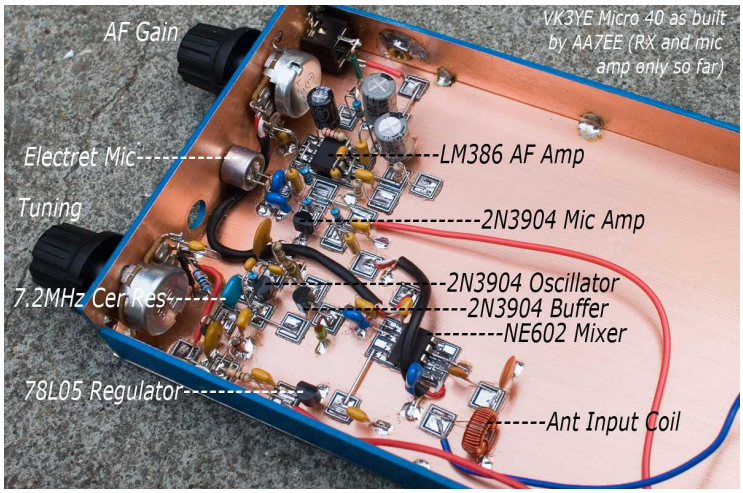
We are indebted to ArnoldReinhold and Wikipedia for allowing us to reproduce the above picture of an IBM/360 Model 30 computer at the Computer History Museum (Mountain View California). The CPU is in the red box and will have 'RAM' storage of between 16k to 64k bytes. The three disk drives in the foreground will each have a capacity of around 30M bytes.

SEEN ON THE INTERNET

The following item was sent in by Jim from Oz. Even if you have not branched out into radio construction yet you may be interested to view the article. It contains a circuit diagram, plus numerous step by step construction photographs for a 40 metre DSB transceiver. There is plenty of narrative and tips along the way. The construction uses pads which are used to connect components. Of particular note is that no printed circuit board is required. The chassis case is used as a common earth which is a considerable help to simplifying of component layout.
Take a look at the complete article at https://aa7ee.wordpress.com/category/ham-radio/
It would be difficult for a first project, but it will give you a good idea of what is involved in construction. See below for sample photographs, or better still at the full article.







A SELECTION OF Links from - Peter M6ZXH

We all spend time on the Internet looking around for this part or that bit.

Here are a few places you may have over looked on your travel through the World Wide Web.

Sota Beam
http://www.sotabeams.co.uk/
Lots of Great Stuff for the Hill Top QRP's

Sota Beam Flea Market
http://pub29.bravenet.com/classified/show.php?usernum=2477864602&cpv=2
Not that well known but well worth keeping a eye on.

Radio Reference
http://www.radioreference.com/
more useful to the SWL of the world but still a good source of information – If you access the database don't forget to choice the country of interest (box near the top on the right hand side)

Daft Logic (distance calculator)
http://www.daftlogic.com/projects-google-maps-distance-calculator.htm
if you have ever wondered how far away the last contact was, then this is the site for you

Daft Logic (altitude finder)
http://www.daftlogic.com/sandbox-google-maps-find-altitude.htm
for the same company that brought you distance how about altitude
Hunter Radio Group
http://vk2awx.net/?p=405
balun's toriod, Number of turns, power rating etc.... very handle little page, well worth book marking.

Ham universe
http://www.hamuniverse.com/antennas.html
antenna project by the score, you have to scroll down to the bottom of the page to find them, but it well worth it
VR2XMQ - Steve's Blog
http://vr2xmq-stevesblog.blogspot.co.uk/
staying on the antenna theme. Steve's Blog offers some interesting designs for 40m Moxon Yagi to 70cm Vertical's all fantastically illustrated
QSL.net
http://www.qsl.net/va3iul/Antenna/Wire%20Antennas%20for%20Ham%20Radio/Wire_antennas_for_ham_radio.htm
if that isn't enough for you try QSL's list of 216 antenna designs... should keep you busy for a day or two.

G3TXO
http://www.karinya.net/g3txq/chokes/
Chokes! A very useful page of information on Air & Ferrite cored chokes for the 1-30mhz range, well worth reading.

'73's from Peter M6ZHX

THE HORIZON

The horizon plays a large part in limiting radio signal propagation of VHF and UHF signals. The approximate range of a signal is often quoted as the distance to the horizon plus a third. At its simplest, the horizon is the point in our field of view where the land meets the sky. Before proceeding any further write down your best guess of the distance to the horizon if you are looking out to sea from the shoreline. Let us look at how to calculate the distance to the horizon, but first we need cast our minds back to secondary school and geometry lessons!!

Tangent Defined

A tangent is a straight line which touches a circle, but does not intersect it. If a line is drawn at right angles to a tangent at the point where it touches a circle, then one end of the line will pass through the centre of the circle. A line drawn from the eye of an observer to the horizon will be at a tangent to the earth's surface.

Recall Pythagoras' Theorem

In any right angled triangle, the square of the length of the side opposite the right angle (hypotenuse) is equal to the sum of the squares on the remaining two sides. An often quoted example of this is a triangle, with sides of length 3, 4 and 5 units. ($5^2 = 4^2 + 3^2 = 25$). Conversely any triangle which has sides which obey the above rules will be right angled.

Applying our Knowledge

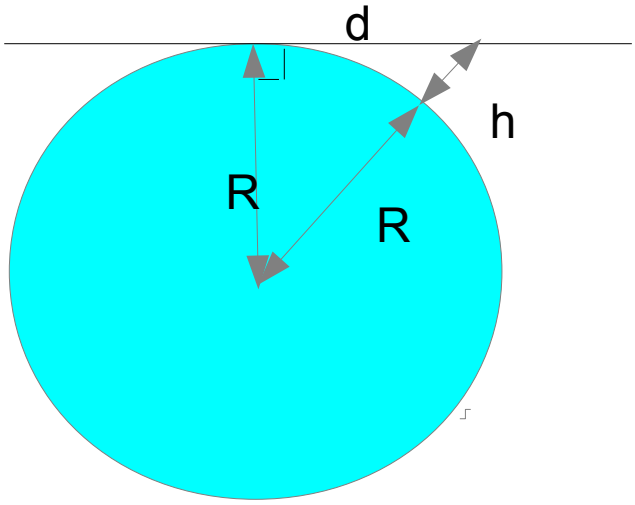


Figure 1

Assume that the line at the top of the above diagram is the line from an observer to the horizon at height 'h' above the earth's surface, which is represented by the turquoise disk.

Using the exaggerated diagram above:

d is the distance to the horizon
h is the height of the observer above ground level

R is the radius of the earth.

So applying Pythagoras

$$(R+h)^2=R^2+d^2$$

$$R^2+2\mathrm{Rh}+h^2=R^2+d^2$$

Our interest is how to determine 'd' the distance from the observer to the horizon. Subtracting R^2 from either side of the equation we get

$$d^2=2\mathrm{Rh}+h^2$$

$$d=\sqrt{(2\mathrm{Rh}+h)}$$

For practical purposes h will be in metres and D will be in kilometres and it is safe to simplify the formula to :-

$$d=\sqrt{(2\mathrm{Rh})}$$

Going back to our previous estimate of the distance to the horizon of the sea from the shore line. R the radius of the earth in kilometres is 6371 Km and the height of the observer is 2 metres.

$$HorizonDistance=\sqrt{(2*6371*1000*2)}$$

HorizonDistance = 5,048 Metres or 5 Kilometres

How does this compare with your estimate? I expected it would be further. In fact the 5 Km is an over-estimate as the eye of the observer would be more likely to be at 1.70 metres and not the 2 metres we used. In practice if we were looking for ships at sea, this would probably be 10 or 20 metres above sea level which would increase visibility.

Looking at another example, let us calculate what the distance is to the horizon out to sea for an aerial mounted at 20 metres above the shoreline.

$$HorizonDistance=\sqrt{(20*6371*1000)}$$

HorizonDistance = 11.28 Km.

Before moving on, in practice the diagram above would be an exaggeration as the way the diagram is drawn, the angles look to be around 45 degrees. In practice the angles would be closer to a fraction of a degree and a fraction of a degree below 90 degrees.

Shared Horizons

The following diagram is a good illustration of the additive effect where observer and observed share a common horizon. The diagram illustrates that the tip of the ship's mast is visible from the lighthouse. See Figure 2 on the next page.

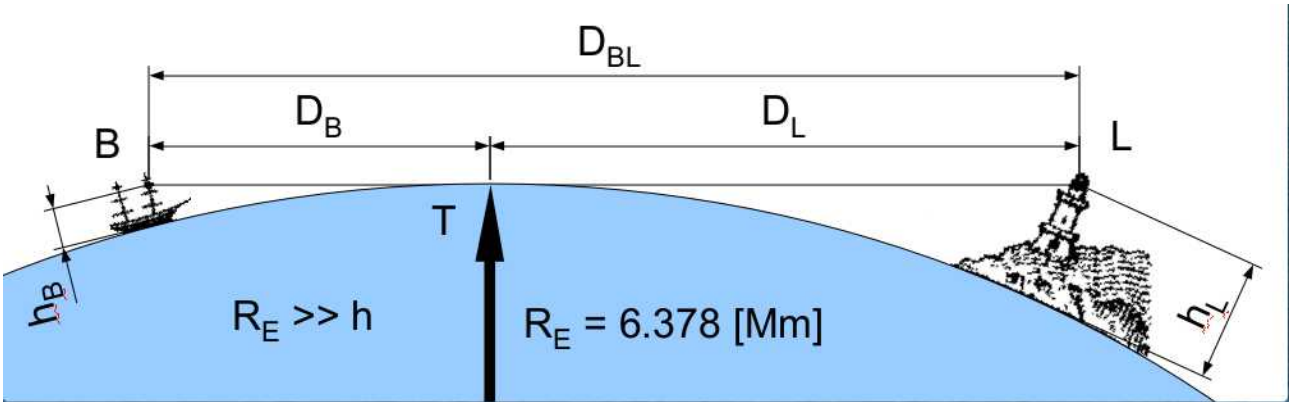


Figure 2

The above diagram has been truncated. The copyright for this diagram is held by (Udacha/Горизонт) EFA and is taken from Wikipedia.

The Radio Horizon

As radio amateurs we are probably more interested in what happens at VHF and UHF. In practice the horizon for a VHF signal would be greater than that for visible light. This is because there are pressure changes that take place at higher altitudes which have the effect of bending the radio waves back towards the earth.

So far we have been looking at a best case scenario for radio propagation. On land above roof top height and above the surrounding houses our chances of reception are greatly improved. Once we drop to ground level the buildings will form a series of 'canyons' and we will be reliant on signals passing through buildings and foliage. We are also reliant on reflected and diffracted signals. Signals will also be attenuated because of the distance they have travelled.

Reliable signal reception in densely populated urban areas is of commercial interest to mobile telephone companies, television companies and more. Complex modelling tools attempt to help with aerial sighting and frequency. As amateurs we are prepared to 'play' in the areas where signal reception is marginal and enjoy the days when exceptional conditions allow us to work distant VHF stations.

As usual any errors are mine.

Adrian Bryan (G0NLA)

Afterthought.

The above article has been prepared using Open Office . This free software has the capability to produce simple diagrams and simple mathematical formulae. There are spreadsheet facilities and the entire package has many of the features available in the industry standard Microsoft Office. There are facilities in Open Office to save the finished document in PDF format. This document has been prepared on OO using Windows 7 and the same files then worked on again using OO using on an Apple Mac OSX with no compatibility problems. OO maintains a similar user interface between releases and does not require one to re-learn a product with each new release. Files can be saved in various Microsoft Office formats, but this can be with varying degrees of success.

ROVING REPORTER

May 2014 Starlite 2014

What a most interesting subject at the May meeting entitled 'Early Computing' presented by John Tracey who was a member some years ago along with his XYL Eileen who is also a radio ham. Eileen was the first Lady President of the STARS in the 1980s. In fact, it was during that period that STARS celebrated its fiftieth anniversary in 1988. There was a special dinner to commemorate the event at The Page Arms in Market Street. I remember the event because a one day meeting of the George Formby Society was held the following Saturday at the Stourbridge Institute also in Market Street. So I had two interests in the same street in less than seven days. John has recently rejoined STARS. He is also like myself a member of The West Midlands Amateur Computer Club as one of the founder members along with Nick Moss and two other members. There used to be 60 plus when it first started . Computers of that era most certainly occupied a lot of space. Thank goodness they are much smaller today as I have 3 PCs running XP and one running Windows 7. I would need a mansion to house those that were featured in the presentation. Well done John.

Well, the weather most certainly stopped the maintenance work on the STARs aerials. I was hoping to do some filming so I could send it to my very good friend in Blackpool so she can see what is involved with Amateur Radio. Having been a member of the George Formby Society since the late 1970s I receive the quarterly publication for which I also write reports from time-to-time. I noticed in the latest edition two weeks ago, the XYL of one of the members passed away in January 2014 after 50 yrs of married life. It was Derrick Pearce from Leicester G6WMU. Derrick owns the robe used in the film 'South American George'. I have been in contact with Derrick to offer my condolences. I enjoyed seeing both of them at the GFS meetings and have many memories of their act. I featured Derrick's photo along with John G8NPK & myself in Starlite this year.

If anyone had been listening to The Bridge Radio 102.5 on Friday 23rd at 3pm on The Mark Williams programme they would have heard a familiar voice being interviewed all in connection with a Bridge Radio Fun day on 21st June. Mark should be getting in contact with me about me having a once a month spot on his programme presenting what is going on in the region and the many connections which I have, including STARS. I always wanted to do something like that on BBC Radio Birmingham [now Radio WM] when I was very much involved with that station in the early 1970s.

Very Best 73s for now,

Your Roving Reporter Malcolm G8BOP

See next page for photographs

Illustration 1: Taken at St. John's Church Stourbridge - 'Bridge Radio

Illustration 2: 'Bridge Radio – Left Malcolm , Right Mark Williams - Program Presenter 'bridge Radio

I forgot to include our next organ concert at The Buttermarket Shrewsbury – it is on Sunday 15th June at 3pm and the organist is a very good friend of mine John Barnett. Admission £6.

Another date for your diary - Next Jazz concert at The Bonded Warehouse on Friday 13th at 7.30 pm

STARLITE

YOUR COMMITTEE

Hon. President	JAMES	G7HEZ	
Vice President	NICK	G6DQN	
Hon. Secretary	JOHN	M1EJG	(01562) 700513
Hon. Treasurer	JOHN	G8UAE	
Committee Members	MARK	G7EDZ	
	KEITH	M0HPY	
	SEAN	M3XMJ	
	PETER	M6ZXH	
	MALCOLM(Co-opted)	G8BOP	
	ADRIAN	G0NLA	

CALENDAR OF EVENTS

It should be noted that the Shack will be open every Monday evening unless shown otherwise in the Calendar

June	Mon 2nd	Open Shack Night - Or on air natter
	Mon 9th	Soldering Master Class – Dr. Alan
	Mon 16th	BBQ at Sheepwalks
	Mon 23rd	Paula to discuss getting OS Repeater back on air
	Mon 30th	Open Shack Night - Or on air natter
July	Mon 7th	Open Shack Night - Or on air natter
	Mon 14th	Committee Meeting
	Mon 21st	High Voltage Sub Stations (Sean Spicer M3XMJ)
	Mon 28th	Open Shack Night - Or on air natter
August	Mon 4th	Open Shack Night - Or on air natter
	Mon 11th	Open Shack Night - Or on air natter
	Mon 18th	No Main Meeting (Shack Open as Usual)
	Mon 25th	No Meeting – Bank Holiday
September	6th - 7th	SSB Field Day (Sat Sun)
	Mon 15th	Band I and Band III TV Aerials (Geoff)
	Mon 22nd	Start of Foundation Course
October	Mon 27th	Main Meeting TBC
November	Mon 3rd	Foundation Course Exam
	Mon 17th	Surplus Sale
December	Mon 4th	Christmas Gathering
January	Mon 19th	Main Meetinmg TBC
February	Mon 16th	Constructors Competition and Quiz
March	Mon 16th	2015 AGM
April 2015	Mon 20th	Vintage Radios (Phil G4SPZ)