

STARLITE

The Award Winning Newsletter for Members and Friends of

Stourbridge and District Amateur Radio Society

Incorporating

**Old Swinford Hospital
School Radio Club**



Old Swinford
Hospital



G6OI
G6SRS

G4CVK

Issue Number 06/2016

Stourbridge and District Amateur Radio Society

Meetings Held at

Old Swinford Hospital School

Heath Lane

Stourbridge

(8:00pm to 10:00pm)

Visitors always welcome

*The Society holds its full meetings
on the 1st and 3rd Monday each month*

RSGB Affiliated Society

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A Word from the President



Another interesting month. On the 16th May, we had one of the best talks that I've heard during my time at StARS. It was a talk on Medical Imaging Technology by Steve Turner and was very entertaining. He explained lots of technical things and fascinating facts about the technology and we also had lots of very funny stories and anecdotes to go along with it all. I think it will be a long time before we stop remembering 'the talk about the doughnut of death' !!

After a lot of badgering, Steve promised to come back some time and do another talk, also with lots about death apparently.

We also had an 'On the Air Night' which was quite successful, though not necessarily in the way expected. Apparently I confused a few people by calling it an 'On the Air Night' rather than the usual 'Open Shack Night' – however, it was quite a good mistake as not only did we open the shack but we did also actually manage to get on the air.

A big thanks to John M1EJG and Bob G4XOM for adding a few entries to the log book on VHF and getting G6OI and G6SRS on air.

There were also valiant attempts to get going with HF, though it quickly became apparent that something wasn't quite right, and an impromptu investigation in to leads, connectors, and aerials took place. The result of which, now requires us to go on to the roof and check the status of the equipment. Hopefully by the time you read this some progress will have been made to get it all working again.

(Q. How many members does it take to check an antenna lead?)



Finally, don't forget that the BBQ is coming up soon, and you don't want to miss that.

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Editors Comments

Welcome to the edition that almost never came into existence. (A small tale of woe), most of the work for this month edition was carried out early in the month due to my trip to Italy. A few days later my plan was to complete the work and publish. What is the saying about best laid plans? A software fault completely wiped out my laptop with all the articles, templates, images; all gone. So this month's edition has, to say the least, been a phoenix from the ashes. We have lost 'ECO Shed', so I will need time to re-write so it will be in next month's edition. Unfortunately Baofeng v Baofeng will not, for the foreseeable future, be in any of the upcoming editions (nothing to do with the loss of data) I broke one of the handheld (Ops!).

Brush up your theory

Answers to last month's questions:

Question 1 B. Question 2 C. Question 3 D. Question 4 A.

This month's questions: (answers next month)

Question 1

A small ferrite bead is put on a transistor lead. Its purpose is to:-

- (A) Screen the lead
- (B) Space the transistor above the printed circuit board
- (C) Prevent parasitic oscillations
- (D) Give matching to 50 Ohms

Question 2

To check for harmonics in a radiated signal, which of the following could be used:-

- (A) An SWR meter
- (B) An absorption wavemeter
- (C) A digital frequency meter
- (D) A dip meter

Question 3

Two resistors are connected in series across a dc supply. The voltage across one resistor is 12 V and the other is 24V. The voltage of the supply is:-

- (A) 6 V
- (B) 12 V
- (C) 24 V
- (D) 36 V

Question 4

The effective combination of three 33 pF in series is:-

- (A) 11 pF
- (B) 22 pF
- (C) 33 pF
- (D) 99 pF

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Question 5

A resistor having a value of 100 Ohms has 10 Volts across it. Its minimum power rating must be:-

- (A) 0.125 W
- (B) 0.25 W
- (C) 1 W
- (D) 10 W

FT-891

With the demise of Yaesu's classic transceivers FT-817 & FT-857 comes Yaesu's latest offering the FT-891. Not yet available in the UK, but companies like Martin Lynch have already taken orders for the unit (price unknown). Some of the features the new FT-891 has to offer are as follows.



- Rugged construction in an ultra-compact body 6.1" x 2.0" x 8.6" (152 x 52 x 218mm)
- Stable 100W power output with efficient dual internal fans
- Legendary Yaesu receiver design
- Triple conversion with a 1st IF frequency of 69.450MHz
- 3KHz roofing filter equipped as standard
- Detachable front panel for convenient mounting and operation
- Large dot matrix LCD display with quick spectrum scope
- Specifically designed external antenna tuner FC-50 (optional)
- Ease of operation

TX: 1.8 – 54 MHz (Armature Bands Only)

RX: 30KHZ – 54 MHz

Output: 100w (SSB,CW,FM) 25w (AM)

Channel Steps: 2/5/10 HZ (SSB, CW) 10/100 HZ (AM, FM)

Case Size: 155 x 52 x 218 mm (w/o knobs)

Weight: 1.9 Kg

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Advanced Distance Learning Course

For most people, distance learning is not as good as face-to-face training but these courses are ideal for anyone who cannot make it to traditional classroom events

The Bath-based distance learning team will be running an advanced amateur radio course from early July to December.

Weekly work packages are sent out to students who complete the studying at home and submit answers to revision questions and exercises via the internet.

Some video tutorials and demonstrations are included in the course material and links to other useful resources are also provided.

To enrol contact **Steve Hartley, G0FUW**, via e-mail
g0fuw@tiscali.co.uk

The History of Coaxial Cable

My thanks to Bob (G4XOM) for spotting Dandy Chadwick article.



The type of **coaxial cable** we are most aware of is the wire that connects our televisions to our cable boxes. It then, in turn, connects our cable boxes to the wall outlet to receive TV signals. Coax has been around a lot longer than most people think; in this article, we explore coaxial early history.

1880 – English mathematician Oliver Heaviside studied the so-called skin effect in telegraph transmission lines. He concluded that wrapping an insular casing around a transmission line both increases the clarity of the signal and improves the durability of the cable. He patented the first coaxial cable in England later that year.

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1884 – A scant four years later, electrical engineering company Siemens & Halske register a similar patent to Heaviside's in Germany. This company was widely known in Europe at the time for developing one of the earliest known electrical generators almost two decades before.

The Royal Institution in London exhibits waveguide transmissions as demonstrated by Oliver Lodge. This technology not only comprises the principal of transmitting information over coaxial wires, but it also lays the groundwork for other types of communications, including radio, radar and satellites.

1894 – The U.S. Patent office awards renowned inventor Nikola Tesla with the first electrical conductor patent. These three technologies combined were the key components necessary to construct the coaxial cables we use today.

1931 – Lloyd Espenschied and Herman Affel patent the first recognizable coaxial cable on behalf of AT&T's Bell Telephone Laboratories. This version of coax was the first to feature two transmission wires sharing the same axis, allowing for wider frequency range.

1936 – The Games of the XI Olympiad in Berlin became the first major event to transmit images via coaxial cable. The closed-circuit transmission ran from the games in Berlin to Leipzig 150 miles away. This event marks the first time large-scale television images were successfully transmitted over an appreciable distance.

Australia lays the world's premier submarine coaxial cable. The 186-mile wire connected the island of Tasmania to the Australian mainland.

The United Kingdom General Post Office installs a coaxial telephone wire connecting the cities of London and Birmingham. This 130-mile telephone system was the first of its kind in the United Kingdom and provided 40 separate telephone channels.

1941 – A 220-mile long coaxial cable connects the American cities of Minneapolis, Minnesota and Stevens Point, Wisconsin. This marks the first commercial use of coaxial cable in the United States. The cable was capable of providing a single television channel or 480 telephone lines.

1956 – Transatlantic No. 1 (TAT-1), the first underwater transatlantic telephone cable system, connects the American and European continents. The joint venture between the UK General Post Office and AT&T had, at its core, a coaxial cable that was more than 1,500 nautical miles long. TAT-1 linked the cities of Oban, Scotland and Clarenville, Newfoundland. The system internally carried 36 phone calls and was in service until 1978.

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Large-scale coaxial cables tests were an unmitigated success, both scientifically and commercially. The technology had proved itself both dependable and durable over long distances. As patents expired and other companies ventured into the coaxial market, the cables became refined and miniaturized.

Eventually, the most common coax cable became what we now use to connect our televisions and cable modems. These wires are the great-great-grandchildren of the technology developed in the 1880s. However, they still occupy an integral part in our technology and our lives.

SARK 100



We all have test equipment of one kind or another. Most of us have a SWR meter or a Multi meter knocking around, but not everyone has an Antenna Analyser. I personally have always been put off because by price. Recently however, I have dipped my toe into the Analyser market due to the SARK 100. Coming in at a little over £60 it becomes an attractive proposition.

So what are you getting for your money? I could be pedantic here and say just over 2LBs of metal, but that's being a little unkind, what you do get for your buck is a very good analyser who's features well out strip units three times its price. Yes it is built like a tank in a heavy gauge metal box (which is a problem as I shall point out later).

Specifications:

Frequency Control: 1 – 60 Mhz

Source impedance: 50 Ohms

Stability: +/- 100 ppm

Spectral Purity: Harmonics down >- TBD dB beyond 60 MHz

Step Size: User configurable increments of 100 Hz, 1 kHz, 10 kHz, and 100 kHz

Usable Measurement Range: SWR: 1.0 to 9.99

Impedance: approx. 5 to 2000 ohms

RF Output: Adjustable: 2.0 Volts pp (typ)

Power supply: Powered by External: 12 to 15 Volts DC, 500mA

Connectors: RF Out: PL

USB: Mini-B receptacle

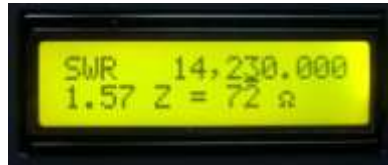
External power: 2.1mm Power Jack (centre pin positive)

The important thing to note from the specification is the "Powered by External: 12 to 15 Volts", the unit does have a battery compartment but no battery holder or connection. Two 4 cell AAA battery holder sort that problem out (I used PC mountable holders as they have a lower profile).

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The SARK 100 is capable of measuring more than just SWR (Impedance and Capacitance as well). Using the unit is straight forward. It is just a case of selecting the mode you require (via the mode button) then the band 160 – 6 (band button). The display shows frequency, which can be moved up or down via the arrow keys, the SWR and the impedance.



One feature I like about the SARK 100 is its ability to scan a band. Hitting the scan button will scan all frequencies across a band; during the operation you may hear two beeps, these are the points where the SWR first falls below 2:0 and when it again goes back above 2:0. At the end of the scan, which only takes seconds, the display returns the band width of frequencies under 2:0 SWR



'Press any key' returns a new display showing the frequency with the lowest SWR reading.

All this makes for easy adjustment of your antenna, no more up and down to the SWR meter.

Another nice feature is the ability to control the SARK100 from your computer (via USB link).



The USB (mini) socket is located on the base of the unit. Software is available for several sites and so far I have only tried out one version of the software. I have to say it worked rather well, the interface giving you the options to control the scanned frequencies and returns a list of all frequencies and the corresponding SWR results along with a

graphical display. You can even download the results into a excel spreadsheet.

I all most forgot, the problem with the metal case: while testing I have the SARK 100 on the work bench, no problem, having completed a scan I noted that SWR showed on the display dropped when I touched the case of the unit! Now that's a big problem in my book, if your hold the unit while working with it the results are going to be incorrect (unless you're wearing gloves!).

Over all for the price you cannot be over picky. Yes it has problems but I like it!

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UK Rallies

Rallies/Events over the next month around the UK

4 & 5 June Sussex Electronics and Radio Fair - SERF 2016
5 June MakingThings (SERF 2016)
5 June 2016 Central Scotland Amateur Radio Mini Convention
5 June 2016 Spalding & DARS Annual Rally
12 June 15th Junction 28 Rally
12 June East Suffolk Wireless Revival (Ipswich Radio Rally)
18 June South Lancs Summer Rally
19 June 29th Newbury Radio Rally
24-26 June Hamtronic Show, Friedrichshafen
26 June West of England Radio Rally

Just a bit of fun

So, how did you do on the word search?

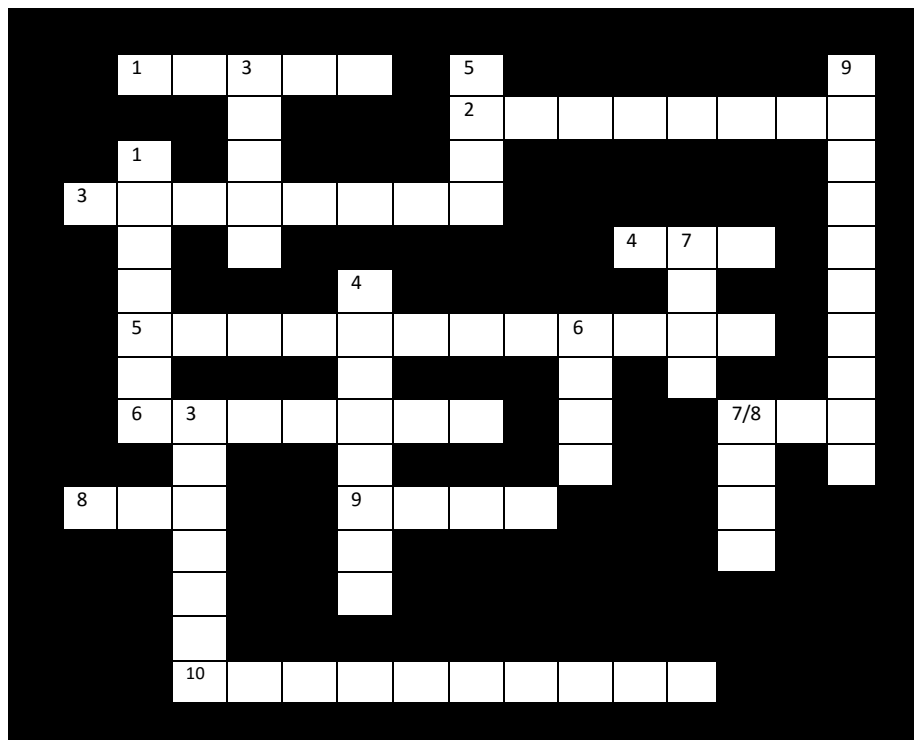
C L R E P E A T E R T F T U X
K O L A T I P S O H R G I R Q
Q O M L P S A T F E A I U A J
B H O R X H I M Q Y N A C L R
U C D W U C A U P T S N R L M
U S U I A T E S E L M N I L O
T J L P F N E R E V I E C E R
G N A V C Y F R Z M T T S S S
H C T Y R E T T A B T N U O E
K M I C R O P H O N E A A D X
M S O E I E J S T A R L I T E
B A N D P A S S W I N F O R D
I C A L L S I G N O O W M O N
E R C Q R N B T Q D R M T E T
D N C M O O D D Q T S F F Q H

AMPLITUDE
BANDPASS
CALLSIGN
CIRCUIT
FREQUENCY
HOSPITAL
MICROPHONE
MORSE
RADIO
RECEIVER
RIG
STARLITE
TRANSMITTER

ANTENNA
BATTERY
CAPACITOR
COMPUTER
HAM
INTERFERENCE
MODULATION
PHASE
RALLIES
REPEATER
SCHOOL
SWINFORD

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Try your hand at this month's crossword



Across

- 1) Amateurs (5)
- 2) The transmitted signal from an amateur station (8)
- 3) Small portable unit (8)
- 4) A contact (3)
- 5) The middle license (12)
- 6) A radio receiver often used for short wave (7)
- 7) What is your true bearing (3)
- 8) Not PNP (3)
- 9) Varies form of transmissions (4)
- 10) The region in Earth's atmosphere just above the Earth's surface (10)

Down

- 1) Gathering of ham's (7)
- 2) when you speak to another ham (7)
- 3) One way and not the other (5)
- 4) Press the PTT to (8)
- 5) A piece of cable or wire not for the dog (4)
- 6) Japanese Radio manufacture (4)
- 7) Talk on top of a hill (4)
- 8) Four sided? (4)
- 9) A measure of the ability of a coil to store energy in a magnetic field.

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Dairy of Events

Monday 20th June – Sheep Walk and BBQ, our thanks to Dr Alan (G7AXW) who has graciously offered to pay for the food again this year.

There will be £2 admission charge to non-members for attending main meeting talks / events. This is refundable against membership to the society.

Your Committee



President	Tim Childe	G7TAC
Vice President	Nick Moss	G6DQN
Secretary	John Clark	M1EJG
Treasure	John Scott	G8UAE
<i>Committee Members</i>		
	Wayne Mocroft	M5LLT
	Geoff Cooper	G0KVK
	Mark Cadman	M0TCG
	Keith Dixon	M0HPY
	Ross Lewis	M6RLZ

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And Finally

Again my thanks to Tim (G7TAC), Adrian (G0NLA), Bob(G4XOM) and Karen Clatworthy for the help in compiling this month Starlite and for proof reading the copy.

Next month (fingers crossed) Eco Shed part 2 plus Mini Mobile transceiver.

Don't forget I'm always looking for news items, reviews, stories or just your rants and raves.

Peter Baker (2E0MVM) – Starlite Editor (editor@g6oi.org.uk)