

G3WSC  
G6RC  
GX3WSC

# CARC News Bulletin

June 2016

Crawley Amateur Radio Club

Editor: John G4PEO

## Other Clubs & Events

### Horsham ARC (HARC)

<http://www.harc.org.uk>

**2nd June:** BBC's 1st Satellite Link,  
Malcolm, G3NZP

**7th July:** EMC, John Pink, G8MM

### Crystal Palace REC

<http://www.g3oou.co.uk/cprec.html>

**3rd June:** Basic Electronics - The  
Operational Amplifier

**1st July:** The Tracking of Balloons

### Sutton & Cheam

<http://scrs.org.uk>

**16th June:** TBC - See Website

**21st July:** Fault Finding, Leslie  
Butterfields, G0CIB

### Mid Sussex ARC

[www.msars.org.uk](http://www.msars.org.uk)

**10th June:** Open Evening for  
Burgess Hill Town Festival

**8th July:** Radio Night

**15th July:** Radio Night & Table  
Top Sale

### CATS (Coulsdon)

[www.catsradio.org](http://www.catsradio.org)

**13th June:** 2m DF Hunt

**11th July:** TBC - See Website

### Dorking & District Radio Club

<http://www.ddrs.org.uk>

**28th June:** Do You Know How  
Your Antenna Really Works?

Walter Blanchard G3JKV

**28th July:** South Downs Evening

### Sussex Electronics & Radio

**Fair, Eastbourne 4th - 5th June**

<http://serf.org.uk/about-us/>

### Newbury Radio Rally 19th June

<http://www.nadars.org.uk/rally.asp>

## CARC DATES

**June 22<sup>nd</sup> (Wednesday)**

**Off Air Frequency Standards**

**Bob Burns G300U**

**July 27<sup>th</sup> (Wednesday)**

**Hamvention Special - Dayton & Friedrichshafen**

**Stewart Bryant G3YSX**

**CARC meetings are held in our clubroom at  
Tilgate Park, Crawley, West Sussex.**

**Every Wednesday: 8pm**

**Every Sunday: 11am - 1pm**

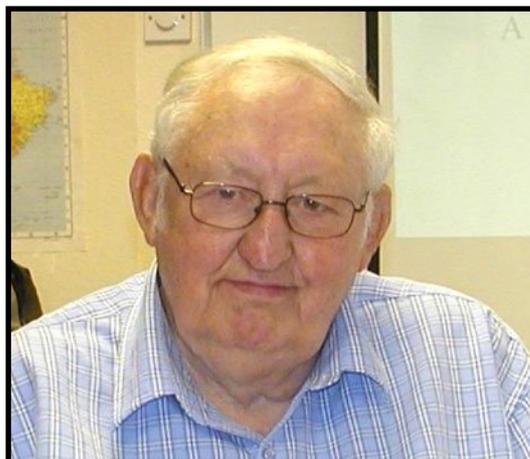
Formal events are normally held on the last  
Wednesday of the month, 7-30pm for 8pm.

*For further information about CARC, please  
Contact the Hon Secretary:*

**Phil, M0TZZ, [secretary@carc.org.uk](mailto:secretary@carc.org.uk)**



It is with great regret that we have to announce the sudden death on  
Friday 27th May, of CARC Hon President, Derek Atter, G3GRO.



Obituary by G4FYY - Page 8

## Updates to the CARC programme:

[www.carconline.blogspot.co.uk](http://www.carconline.blogspot.co.uk)

or contact John , G3VLH:

[john.longhurst@hfcom.net](mailto:john.longhurst@hfcom.net)

News Bulletin items contact G4PEO:

[john@g4peo.net](mailto:john@g4peo.net)

## Local Repeaters

**GB3MH:** 145.625MHz/88.5 **GB7MH:** 439.6375MHz (D-Star)

**GB3WS:** 145.750MHz/88.5 **GB3NX:** 430.850MHz/88.5 (I/P 438.450MHz)

**GB3NS:** 439.675MHz/82.5 **GB7NS:** 439.1625MHz (DMR) **GB7ID:** 430.975MHz (DMR)

**GB3HY:** 430.900MHz/88.5 (I/P 438.500MHz)

**Past President:** Derek Atter (G3GRO)

**Hon Treasurer:** Howard Palmer (G4PFW)

**Hon Secretary:** Phil Moore (M0TZZ)

**Programme Secretary:** John Longhurst (G3VLH)

**Training Lead Instructor:** Malcolm Harman (G3NZP)

**Committee Member:** Richard Hadfield (G4ANN)

**Chairman:** Keith Evans (G3VKW)

**Vice Chairman:** John Pitty (G4PEO)

**Exam Secretary:** Phil Moore (M0TZZ)

**QSL Manager/News Editor:** John Pitty (G4PEO)

**Committee Member:** Alex Sheppard (M1YAP)

**Shack Managers:** Mike Davies (G0KAD), Rob Barter (M0ZAF)

## Calendar Items - June & July

### Off Air Frequency Standards - Bob Burns, G300U - Wednesday June 22nd.

We look forward to a very interesting talk from Bob, who is no stranger to electronic/RF design and radio restoration, a flavour of which can be seen on his web pages: <http://www.g300u.co.uk> and from this photo of his test bench. Whilst perusing Bob's web pages, have a look at the photos of his radio collection, possibly even more radios than Keith, G3VKW!



### Hamvention Special - Dayton & Friedrichshafen, Stewart Bryant, G3YSX - Wednesday July 27th.

Another presentation to look forward to, as Stewart will again be updating us by way of copious slides, on his visits to both Dayton and Friedrichshafen and telling us what's new (and now old) in the world of amateur radio.

### Sussex Electronics & Radio Fair (SERF) - Eastbourne Sports Park, 4th - 5th June.

CARC will have a small posse and table at SERF, raising funds for the club on Saturday 4th only, so please make every effort to go along and support your club! See the link on the first page for more information and directions can be found here: [Location](#)

## Previous Meetings & Events

### Surplus Equipment Sale

The annual ~~junk~~ surplus equipment sale was again held in April, and, despite plenty of publicity, didn't appear to be as well attended as in previous years. However, there were bargains to be had, (according to auctioneer **Keith G3VKW!**), even if he, or anyone else had no idea what an item was or did...



Photos - G4PEO

### Digital Mobile Radio (DMR) - Denis, G00LX

Attendance was high for the very interesting talk on DMR by Denis, G00LX, who unravelled the mysteries of DMR for us. Denis, (shown opposite setting up a temporary DMR repeater for the talk), described the history of analogue repeater GB3NS which started life 30 years ago at Banstead with 25w ERP on 70cm. Various changes and locations have taken place since then, including, initially as a dual mode analogue/DMR repeater which could be enabled on either mode depending on who got there first! Currently there are both analogue, (GB3NS), and digital, (DMR - GB7NS), repeaters located at Chaldon.

Denis demonstrated live DMR on a handie using some of the equipment shown opposite: L to R - DMR mobile radio; Hytera base stn; Motorola base stations - old/large, new/small & 4G router for internet connection. Currently there are four DMR networks to which a repeater can be associated in the UK, Pheonix - working/stable (GB7NS), Brandmeister - largely experimental, plus separate (currently) standalone networks in the South West and North West (Manchester area). Further information on UK DMR/Pheonix & slots, code plugs, talk groups etc: can be found here: <http://www.dmr-uk.net>



## Previous Meetings & Events - cont:

### BroadBand HamNet (BBHN)

Photo MOTZZ



On Sunday 22nd May, CARC hosted the first meeting of the Broadband HamNet Mesh Operators and those interested in this system of digital communications on the amateur microwave bands – 2.4 GHz and above. The event was arranged along similar lines to the Microwave Roundtable that we host in September, with **Dick, GORXZ** as usual providing excellent support with the catering.

*From the days events, led by Ted Jewell G4ELM and others, Club Secretary **Phil, MOTZZ** provides the following synopsis:*

Broadband HamNet is a wireless mesh of routers using a part of the 2.4GHz band which is shared by normal household wi-fi and Amateur allocations. Very cheap to get going, a Netgear router (£10-£15 on eBay) of a certain model is all you need to get started, then some modified firmware from BBHN

website. Not all routers can have the custom software flashed to them – website has a list of suitable models. Mesh extends around the world but disappointingly little or no contact between nodes is by RF – mainly IP traffic. Good demonstrations of IP camera and of cheap to buy IP phones forming a PBX system between suitably equipped nodes which can be managed on a Raspberry pi or similar. Since good amplifiers are not readily available, gain is mainly acquired from directional antennas which are easy to make (due to the size) but the range may still only be 2Km since the routers run only <100mW.

To find out more, go to: [www.broadband-hamnet.org](http://www.broadband-hamnet.org) and select the 'Just Starting' link on the home page.

### Dunstable Downs Radio Club Boot Sale

Sunday 22nd May also saw a CARC contingent visit the Dunstable Downs Radio Club boot sale at the very large Stockwell Park on the southern outskirts of Luton.

As always at a boot sale there were quite a few bargains to be had on what turned out to be, despite the weather predictions, a very warm and pleasant day. Although the usual burger and ice-cream vans were present, the park also has a cafe and pleasant outdoor seating area making it all very civilised compared to some rallies/boot sales!



If the boot sale wasn't enough, there was also a small steam traction engine rally in the grounds of the cafe/museum area.

Thanks to **Richard, G4ANN**, and **Richard G3ZIY**, CARC chauffeurs for the day..

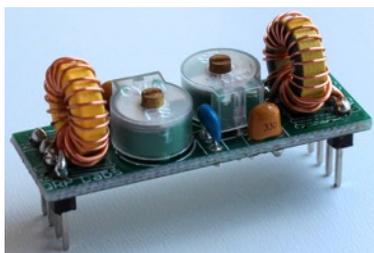
Photos G4PEO

## Club News

**International Museums Weekend** - CARC will not officially be involved with International Museums Weekend this year, (18<sup>th</sup>/19<sup>th</sup> & 25<sup>th</sup>/26<sup>th</sup> June). However Barrie, G4OKB, from the Wings Museum Radio Club, Balcombe, with whom we jointly participated in the Museums weekends last year, has again registered the GB1WGS call and invites CARC members to join them for the two Museum weekends. They particularly need additional operators on each of the Sundays. If interested, please contact Barrie: [bloomfieldbarrie@hotmail.com](mailto:bloomfieldbarrie@hotmail.com) Wings Museum web site, directions etc: [www.wingsmuseum.co.uk](http://www.wingsmuseum.co.uk)

**Reverse Beacon Network History** - For the CW aficionados, **Stewart, G3YSX**, has forwarded a link to a site that can be used to see a year's worth, or more, of RBN, (Reverse Beacon Network - CW), activity for any callsign, by band and continent, by adding the callsign to the end of the URL below, or just go to the web page via the URL and add the call of interest. Web page URL: [foc.dj1yfk.de/activity/](http://foc.dj1yfk.de/activity/)  
What is, and how does the RBN work you ask? More here: [www.reversebeacon.net](http://www.reversebeacon.net)

**QRP-Labs** - Of possible interest to members who were involved with the QRP-Labs WSPR kit club project is the news that Hans has a new receiver BPF kit available: <http://qrp-labs.com/bpfkit> (£3-40)



It is a small double-tuned-circuit filter for receiver input filtering. The PCB footprint is 1.5 x 0.5 inches, the same as the LPF kit, so it can be used in the relay-switched filter kit <http://qrp-labs.com/ultimatelpf>

Conceptually it's similar to the G-QRP club BPF receiver input filters at <http://ggrp.com/technical1.htm> but uses common toroids and trimmer capacitors, rather than the KANK-series tunable inductors.

In addition to the BPF, Hans has reported via the QRP-Labs Yahoo Group that he is working on an wideband HF PA kit, which will produce 5W across HF, plus, also an SDR receiver which is currently at the conceptual stage.

**Training - Advanced Distance Learning Course - Malcolm, G3NZP** - The RSGB have posted the following:  
*The Bath-based Advanced distance learning team are now enrolling for their next course that will run from early July to December. The course has weekly work packages to guide students through the RSGB textbook with regular revision questions to check on progress.*  
*There are no fees to pay, but students pay a deposit of £30 that is refunded to active students prior to taking their exam.*  
*The course has been running for nearly five years and has had almost 500 passes so far. Full details can be obtained from Steve, G0FUW, from [g0fuw@tiscali.co.uk](mailto:g0fuw@tiscali.co.uk)*  
*Furthermore the RSGB has now introduced the ability for your Club to arrange the Advance Licence examination on demand, in a similar way to Foundation and Intermediate, the only difference being that 30 days notice is required, not ten.*

I am also trying to put together a short form Foundation Course for those who wish to self-study by reading the Foundation Licence - Now! book, available from the RSGB:  
[http://www.rsgbshop.org/acatalog/Online\\_Catalogue\\_Training\\_19.html](http://www.rsgbshop.org/acatalog/Online_Catalogue_Training_19.html) non members £4.99, members £3.74.  
If you are interested or know of someone who is, please get in touch via [secretary@carc.org.uk](mailto:secretary@carc.org.uk) or catch me at the Club.

**Black Cat Books** - A 'plug' for Black Cat Books, who have helped us dispose of/re-cycle surplus books from the CARC library, and also as a possible source of historical information for CARC members.



Welcome to **BLACK CAT BOOKS**; a British source of old radio, wireless, television, electrical, electronic and other (technical) books and pamphlets with **FREE KNOWLEDGEABLE ADVICE** relating to them

Catalogue: <http://www.techtomes.co.uk/>

Contact: [david@dsweetman.fsnet.co.uk](mailto:david@dsweetman.fsnet.co.uk) for knowledgeable advice about the books, and for ordering. Please mention Crawley Amateur Radio Club when you contact David. He has helped out the club by re-cycling many of our old technical books for others to enjoy.

**Stop Press** - Courtesy Dom, M1KTA/G-QRP Yahoo List - the following has just been agreed re the Spectrum Forum and then the IARU region 1 meetings in Vienna. Region 1 / Effective June 1st

30M: Narrowband modes amended to start at 10,130 (was 10,140)  
80M: 200Hz Narrowband modes segment added at 3,570-3,580 - was Telegraphy only  
80M: Clarified 3,700-3,775 and 3,775-3,800 (UK editorial changes only)  
10M: Clarified 28,320-29,000 (UK editorial changes only)  
6M: Deleted 50.401 MHz WSPR beacons +/- 500Hz  
4M: Deleted 70.091 MHz WSPR beacons +/- 500Hz  
2M: Deleted 144.4920 MHz +/- 500Hz WSPR beacons  
146-147 MHz: Updated NoV expiry wording (editorial)

## Chairmans Report - G3VKW

Hi All,

I will start on a sad note.

I first met Derek G3GRO, many years ago on one of my first visits to CARC. What stood out was Derek's enthusiasm for both CARC and Amateur Radio in general. As Chairman, and latterly as President, CARC was always his first priority.

He will be sadly missed.

We have had several club members not renew this year. I have asked them by email to inform me of their reasons why, so hopefully I could sort out their issues and get them to change their minds. Unfortunately I have had no reply, so with no real useful feedback, I was unable to resolve the problem. This doesn't help the Club's effort to try to encourage new members, who we need to try to get to join CARC to put the club on a sounder footing financially. If you know of any ex club members, who haven't renewed over the past few years, perhaps you could quiz them so we can find out why we are losing members, and try to correct it.

A brighter note.

The hut construction team of Rob, Adrian, and Mike, are hard at it again, this time updating the club area test bench. You may have noticed, it certainly it looks like it will be much more practical for club members to use the clubs array of test gear. Do not forget it is your club, so if you are skilled at any DIY task, then why not offer to assist them?

Request note.

The club tower is going to be renewed in the near future, with about 2 days of effort predicted. **Mike GOKAD** has drawn up a plan, which is extensive. As we need to remove the club tower, replace it with the tower off the trailer, and collect a newer tower from Pound Hill. Mike will need about 6 able bodied Goliath's to help him. If you are addicted to Spinach, I am sure your help would be much appreciated. Please contact Mike directly.

Modernisation note.

You may have noted that the club has started using a new program for sending out email. This was discovered by **Phil MOTZZ** to try to keep our members better informed. Hopefully you should find it a great improvement, as when we have it fully "loaded " you will be able to change your personal data that we hold, ie callsign, email address etc. Also the facility will be in place to allow you to pay your annual membership via PayPay or Credit/Debit Cards.

6 metre note.

As I was writing the, the 6mtr band opened up ( 25<sup>th</sup> May ), I worked a few Scandinavian's OH / DM /LA /OZ But other UK Stations were working down to Malta / Greece / Israel 9H / SV / 4X.

**John G4PEO**, and **Phil MOTZZ**, are using small dual Band 4 & 6 m Yagi's (*goes like a rocket - technical term - see link\* below - ed*), which are very compact. So with 6m finally showing signs of life, why not get QRV on "The Magic Band " you do not need a massive antenna, to enjoy Dxing on 6m.

73 for now

Keith G3VKW.

\*Dual band antenna: [Innovantennas 6m/4m dual band](#)

## Does the Aerial Wire Matter? - Richard, G3ZIY

Whilst talking to some Members of CARC, about doublet aerial construction, doubt was expressed by some, that my choice of aluminium instead of copper wire was detrimental to its performance.

My doublet aerial and its feeder are both constructed from 1.6mm diameter aluminium electric fence wire, bought from an online auction site. This cost me £18 for 400 meters of wire, post paid to UK addresses! The Canadian manufacturer's data sheet states that the breaking strain is 180 pounds (just over 80kg).

Suitable copper wire for aerial construction is getting relatively expensive these days, due to increasingly depleted supplies from the known deposits. Aluminium is still plentiful, and is thus much cheaper. It is much lighter (about 0.3 times the weight of copper), and readily available in farm stores as electric fence wire, designed to keep cattle in fields, and is thus very strong.

Another possible source of aerial wire is steel welding wire, which is usually protected with a copper layer to prevent rusting etc., and this is relatively inexpensive and easily obtained at motor factors etc. As the RF (radio frequency) current only flows in the surface of the conductor, this welding wire should work just as well as solid copper wire. It is quite heavy though.

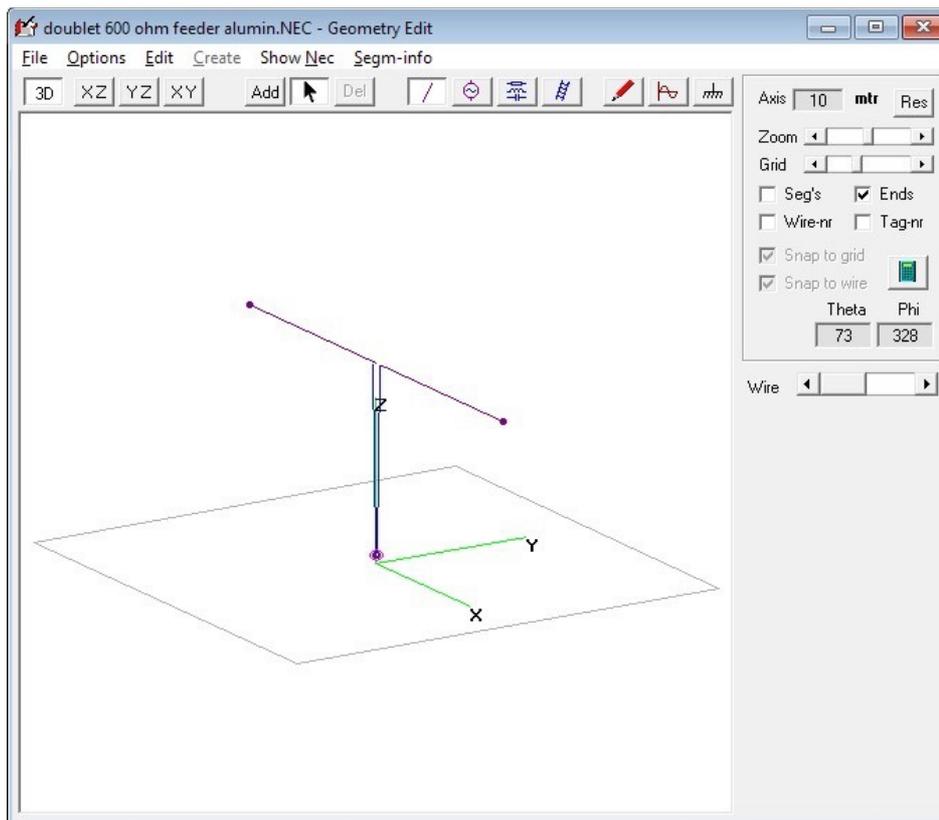


Figure 1 (above) shows the constructional details of my aerial. It is 27 meters long in total, and 12 meters above the ground. The home-made 600Ω feeder is two lengths of the same wire, spaced 120 mm apart by PTFE tubing bought at a plastics' factor in Fleming Way Crawley. This 5 mm diameter tubing was used because it is very light weight, has very low RF loss and is essentially immune to damage from sunlight and the environment.

My doublet happens to have a natural resonance just below the UK 60 meter band allocation, but it was cut to maximise the length for the available space, rather than to any particular frequency. It is fed into a balanced AMU (antenna matching unit, type MFJ-974) located in the shack, to match the 50Ω input to my transceiver.

I use it on the 80/60/40/30 meter bands, although the aerial will also tune on all the higher frequency hf bands, and six meters. My version of the AMU does not have enough inductance to tune down to the 160 meter band.

I then modelled my aerial's performance using the excellent 4NEC2 program by Arie Voors. Figures 2, 3 and 4 (next page) show the theoretically perfect version (no structural losses), the copper version and the aluminium version respectively.

The radiated power figures show that the difference between the copper and aluminium versions is only 0.5 watts using a 200 watt transmitter, which is about 1dB ( $10 \times \log(197.9/197.4)$ ). Worse case loss is only 2.6 watts compared to the (unattainable) ideal version with loss-free conductors.

Using aluminium has many benefits, and only one slight deficit - about one-sixth of an S point - so I plan to use this material in future hf aerial designs with no misgivings whatsoever.

Does the Aerial Wire Matter? - cont:

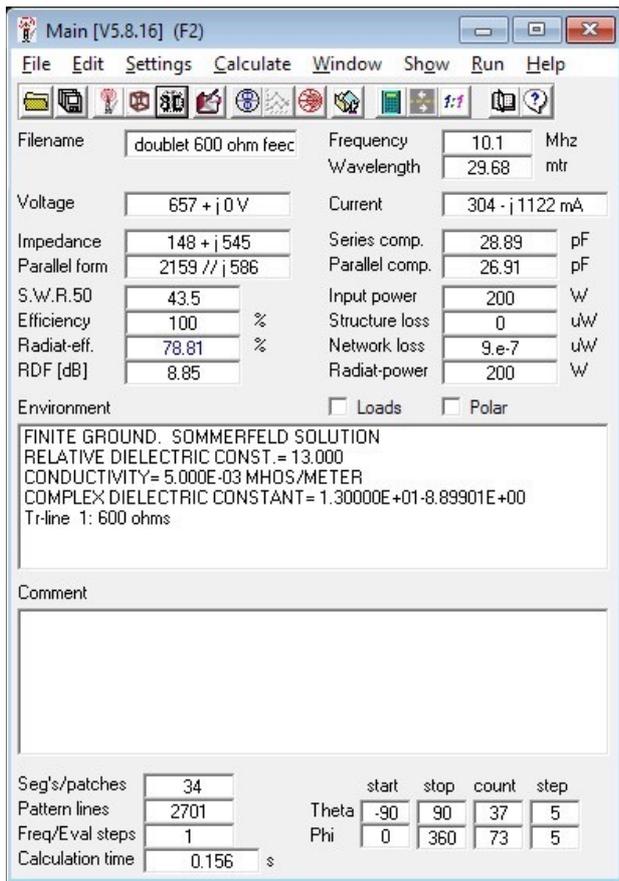


Figure 2

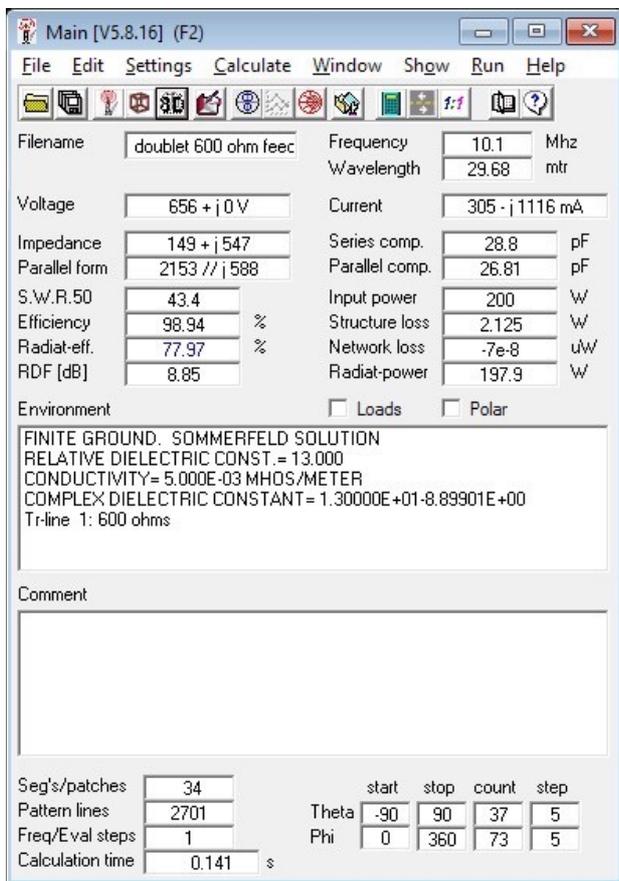


Figure 3

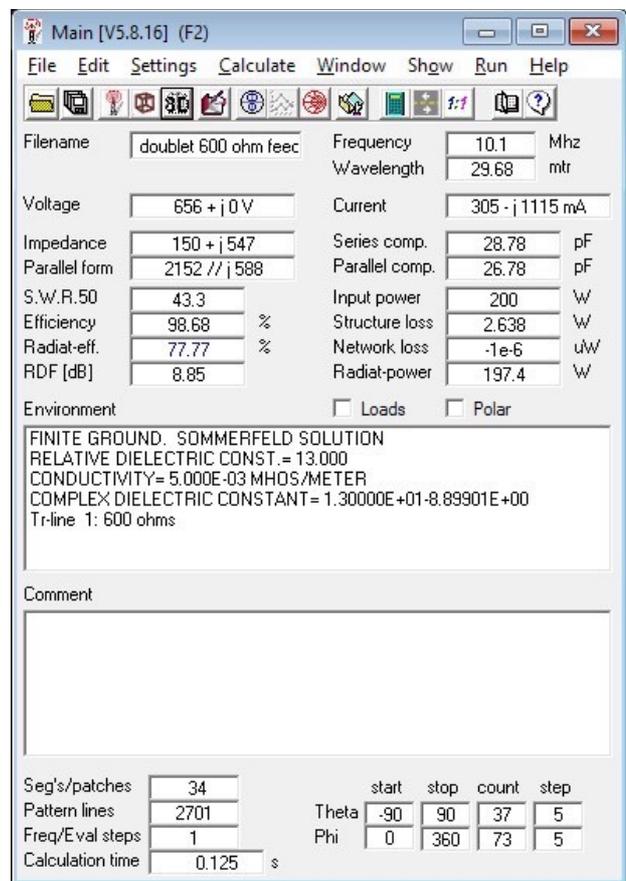


Figure 4

**Derek Atter, G3GRO "Great Radio Operator". CARC Life President.**  
**1930 - 2016**

It is with heavy heart that I have to announce that my friend Derek suffered a fatal heart attack on May 27.

Many will be aware that in his later years, Derek had been confined to a wheel chair since his leg amputation after complications following a knee replacement but maybe not all will be aware of Derek's brilliant career in microwave engineering during the Cold War years and the contribution he made in the fields of Radar, radio communications and electronic aircraft landing systems.

I first met Derek briefly in 1976 at MEL in Crawley when I sat before a panel of interviewers for an internal job. Derek was on that panel. His role at that time was as Chief Engineer of the Microwave lab which operated in a secure area behind frosted glass panels known as the goldfish bowl. Derek had been recruited by MEL in 1968 as Project Manager for the development of a new microwave assisted landing system, later to be known as MADGE, or "Microwave Aircraft Digital Guidance Equipment". The MADGE system was immensely successful, winning the NATO international competitive play-off in circa 1972 and was subsequently deployed on the BAE Sea-Harrier STOL aircraft & Invincible class Aircraft Carriers post Falklands conflict until 1992.

**In 1982, Derek was personally awarded the Royal Aeronautical Gold Medal in 1982 for services in defence of Europe.**

Prior to 1968 at the height of the Cold War years, Derek was at AEI-Metropolitan Vickers as part of design team for the super power multi-megawatt frequency-agile "S"band air defence radar Type 85 and previously the 'Blue Joker' pre-AWACS-type balloon-borne radar. Derek has given several fascinating talks on these and other major radar system developments at the Crawley Amateur Radio Club.

Upon retiring from MEL in December 1990 after more than 22 years service, Derek became a Technical Consultant when he undertook several design studies for NPL into phase measurement receivers for 60kHz and 198kHz. The 198kHz receiver decoded special phase modulation to extract unspecified (sensitive) data. The designs were professionally manufactured by our own Adrian Wood, G3VJM of Adrian Wood Associates. Another innovative project was the development of a novel Non-Conducting system for the automated measurement of resistivity of sea-bed core samples. The equipment is now used extensively in seabed exploration and Adrian continues to evolve and supply the equipment to this day.

Derek was a founding member of the Crawley Amateur Radio Club in the Autumn of 1959 along with Ron Vaughan, Ken Franklin, John Parsons and Jim Swift and others, and was elected Life President of CARC in circa 1990. Derek represented CARC in the Microwave Round Table meetings and hosted many annual conventions at Hut 18.

Until arthritis set in so badly he was an excellent and very keen CW contester and participated in AFS and other contests. He was a driving force for the club in VHF NFD, although he tended to specialise in bands that required home brew. 23cm was his favourite band for many years although there was a time when he caught the bug for 13 cms. His enthusiasm for the microwave bands was sufficiently infectious to persuade the Club to build an enormous rectangular dish that I remember having to be assembled at more than one NFD.

At one time, Derek ran a complete homebrew system on all bands from 4m (at the time the lowest VHF band) through to 10 GHz and the Club used his homebrew system on 4m.

The Club owes Derek an immense debt of gratitude for his enthusiasm, support and professionalism that has become to be associated with CARC. Derek's enthusiasm for amateur radio, and leading edge technology and his welcoming nature made him such a leader in amateur radio.

'Great Radio Operator' is indeed a most appropriate epitaph. RIP Derek.

Peter / G4FYY

*(Compiled with additional material from G3VJM, G3VLH & G3YSX)*

## Derek Atter, G3GRO Notes on CARC Early Days by Ken Franklin G3JKF

The Crawley Amateur Radio Club was formed in November 1959 by a group of amateurs led by Ron Vaughan G3FRV (now SK). He became the secretary of the club under the Chairman Vic Bryant G3NVB. The initial meeting of the club was held at the Brewery Shades Pub in London Road, Crawley and other founder members included G3LBH, G8BLT, G3JKF, G3CTP, and G3LHZ.

Within a year other local amateurs to join the club included G3TR, G3PHG, G3SYD, G3KAU, G3GBI and G3GRO.

Many of the early members were professional radio and electronics engineers employed in Crawley by Redifon Flight Simulators, Redifon Communications, MEL, and TEE at Gatwick.

At this time Derek Atter was working in the Avionics Division of MEL with Tony Elliot G3GBI (now SK) on the early development stages of the MADGE Microwave Automatic Digital Guidance Equipment. Derek was responsible for all the RF aspects of the system which was based on novel microwave interferometry principles. This system was originally developed to aid aircraft navigation and landing, a later application being helicopters operating to oil rigs in the North Sea.

Derek progressed into MEL Technical Management and was responsible for development of the MEL Supersearcher X Band Radar System being fitted to Westland Sea King and Sikorsky Helicopters alongside the MADGE system now being installed in the RN Harrier aircraft.

Derek was awarded the Royal Aeronautical Society's Wakefield Gold Medal for his MADGE development in 1980.

Derek Atter retired from MEL in about 1990 before MEL was taken over by Thorn EMI.

Throughout his professional radio career G3GRO was also a keen radio amateur specialising in designing, building and operating VHF, UHF and Microwave equipment at his home in central Crawley. He was a powerhouse of activity in the Crawley Club for over fifty years being the prime mover in all HF and VHF Field Day preparations over that period besides operating in all the contests. He also attended many Amateur Radio Conventions in Europe and USA until his physical capability was impaired by health problems over the last few years. He inaugurated the CARC Microwave Round Table to provide SE UK amateurs with a forum devoted to Microwave development and operation.

Derek served Crawley Amateur Radio Club in many capacities, being Chairman for many years till his elevation to President. He was a very sociable and approachable Northerner who was always available and keen to help other amateurs with their technical and operating problems. He could draw on a vast technical knowledge acquired during a lifetime of service to the electronics industry and amateur radio.

Ken Franklin G3JKF

*Flight International article ref G3GRO  
recipient of the Wakefield Gold Medal  
in 1980 (Courtesy G3JKF)*

*FLIGHT International, 3 January 1981*

## Well done!

### 1980 Royal Aeronautical Society awards

THREE gold medals are awarded and three honorary fellows and a companion elected at the Royal Aeronautical Society. Honorary fellowships go to engineer and combat aircraft designer Ed Heinemann, British Caledonian Airways deputy chairman Sir Peter Masefield and British Aerospace aircraft group chairman Sir Frederick Page. Marshall of Cambridge (Engineering) chairman Sir Arthur Marshall becomes a Companion.

The RAeS Gold Medal goes to William Charnley for his leadership in research and development organisation and management. He is R&D establishments and research controller at the Ministry of Defence (Procurement Executive).

Awarded the British Gold Medal is Alec Atkin for his leadership in international aerospace organisation and management as managing director (military) of British Aerospace aircraft group.

For his work on microwave all-weather landing and guidance equipment for V/Stol aircraft Derek Atter, manager of MEL's Madge Sea Harrier project, receives the Wakefield Gold Medal.

a Get Away Special in which it is hoped the winning entry can be flown; the project is subject to adequate sponsorship being obtained. Closing date for the competition is February 2.

Sikorsky has received the Army Aviation Association of America (Lindbergh Chapter) Industry Award. The company is cited for its contribution to Army Aviation material readiness with the Black Hawk helicopter which "has established a remarkable record."

### Who's where

Elected senior vice-president, finance, of Comsat is Carl Reber. New positions at the company's World Systems division include: Lawrence DeVore (v-p and general counsel), Lewis Meyer (v-p; contracts and procurement) and George Lawler (v-p, marketing).

### Flying colours for

REPRINTS of aircraft portraits from 10p each, minimum order 6 prints (60) Flight International Library, Room 1 Sutton, Surrey, England SM2 5AS. Pay by Press. Please state alternatives.

19 D.H.80A Puss Moth	81 Avro Anson
20 Avro Anson	83 Junkers Ju
21 D.H. 87 Hornet Moth	84 DHC-1 Chipmunk
22 S.E.5a	85 Morane Ty

Aug '98 G3GRO with G3YSX and Derek's 73kHz TX (top shelf)



Celebrating 80th Birthday - with G3YSX, G4FYF & Others



All Photos Courtesy G3VJM & G4FYF