



# FIVE AND NINE PLUS

THE OFFICIAL NEWSLETTER  
OF THE  
APPLEDORE AND DISTRICT  
AMATEUR RADIO CLUB

Club Callsigns: G2FKO and GX2FKO  
Web Site : [www.adarc.co.uk](http://www.adarc.co.uk)

## CLUB'S OFFICERS

President	Terry Adams	G4CHD
Chairman	John Lovell	G3JKL
Vice Chairman	Mike Wogden	G4KXQ
Secretary	Alan Fisher	2E0EUZ <a href="mailto:secretary@adarc.co.uk">secretary@adarc.co.uk</a>
Treasurer	Ray Hunter	M0TLO

Committee	Andrew Brook	2E0FQE
	Keith Luxton	G0AYM
	Steve Smith	G6SQX
QSL Manager	John Lovell	G3JKL
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July 2020

## EDITORIAL

Welcome to another Newsletter during these difficult times.

The Club held a most successful and enjoyable virtual AGM via Zoom and details of your new Committee can be found later in this Newsletter and summarised in the Newsletter header.

Although there has as yet not been any feedback with regards members' views on whether the Club's Zoom virtual presentations have been useful whilst actual Club Meetings are not possible, your Committee would like to offer further such presentations. Consequently the Committee are in the process of setting up a couple more and once the full details are known, members will be notified by e mail with times etc.

If you feel you would like to give a Zoom presentation please contact anyone on the Committee and every help will be given.

Keep safe and keep healthy

Terry (G4CHD)



Until such a time that the above Meetings are reinstated a programme of 'virtual meetings using Zoom' has been arranged :-

It is hoped to add further virtual Meetings so if anyone wants to give a Talk, please contact a Committee member.

## LOCAL NETS

**Zepp FM Net:** Mon/Tues/Thurs/Fri :  
145.450MHz - 4pm - 5pm  
Wed via GB3DN - 4pm - 5pm

**2m Elevenses FM Net:** Mon/Tues/Wed/Thurs/Fri :  
11 - 12.00 noon  
Mon/Tues/Thurs 145.475MHz  
Wed via GB3DN  
Fri start 145.475MHz & then  
qsy to another band

**Friday Night 2m Net:** Friday : 145.450 FM, 8 - 9pm

**2m SSB Nets:** Wed: 8 - 9pm 144.260MHz  
USB SSB

Sun: approx 10.30am (follows  
Top Band Net) 144.260MHz  
USB SSB (Vertical polarised)

**Top Band Net:** Sunday 1.860 Mhz  
9.30 - 10.15am  
(LSB - 32W pep max)

## CLUB MEETINGS

Due to the present Covid 19 pandemic, ALL meetings scheduled to be held at the Appledore Football Social Club have been CANCELLED until further notice

**CLUB COMMITTEE**

Your Committee as elected in the virtual AGM via Zoom is as follows :-



President  
Terry (G4CHD)



Chairman  
John (G3JKL)



Vice Chairman  
Mike (G4KXQ)



Treasurer  
Ray (M0TLO)



Secretary  
Alan (2E0EUZ)



Committee  
Andrew (2E0FQE)



Committee  
Keith (G0AYM)



Committee  
Steve (G6SQX)

On behalf of the Committee and all Club members I would like thank Steve (G6SQX) for all his hard work as Vice Chairman, and Dave (G4XWQ) and Graham (G1ZTJ) for all their invaluable contributions to the running of the Club during their time in office. Finally a big welcome to Andrew (2E0FQE) as a new member of our Committee.

**CROSSWORD**

Many thanks to Stuart (M1FWD) for this month's Crossword. The answers are in next month's Newsletter. Good luck !

**CLUES ACROSS**

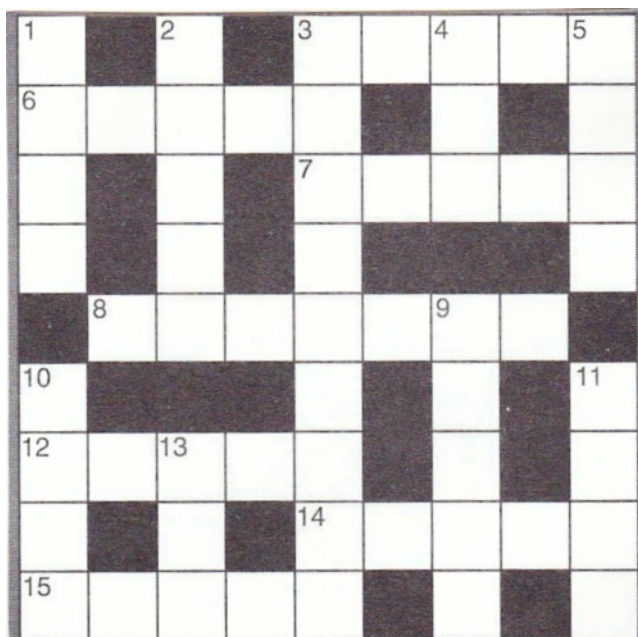


- 3) Public open space in ancient Sierra Victor (SV) land (5)
- 6) Capital city of Hubei province in Bravo Yankee (BY) land (5)
- 7) Nine Golf (9G) land (5)
- 8) PSK31/PSK68 computer software application (7)
- 12) Ring-shaped coral reef (5)
- 14) The horse brought down by suffragette Emily Davison at the 1913 Derby (5)
- 15) Compartment in an aircraft or ship (5)

**CLUES DOWN**

- 1) ? Glendower, leader of Golf Whiskey (GW) land independence struggle, 1404-1415 (4)
- 2) Brownish-yellow fabric used especially in military clothing (5)
- 3) Native of Victor Papa Two Echo (VP2E) island (9)
- 4) Oxalis tuberosa, edible root vegetable common in Zulu Lima (ZL) land (3) \*
- 5) Said to be the seventh king of Four X-Ray (4X) land (4)
- 9) Surname of the sixth president of the USA (5)
- 10) Hydrated magnesium silicate (4)
- 11) ? Knox, military base in Kentucky where the US government keeps its gold (4)
- 13) Spherical object or shape (3)

\* Clue 4) Down is also growing remarkably well in M1FWD's vegetable garden :-



**Last month's answers :-**

**ANSWERS ACROSS:** 1) bass 4) Zoom 7) gibberish  
8) Dent 10) cell 12) hyperbole 13) rule 14) Ekco

**ANSWERS DOWN:** 2) alive 3) sabot 5) oxide  
6) Mahal 8) Dohar 9) Nepal 10) cable 11) lilac

**SUDOKU PUZZLE**

The aim is to enter a number into each cell so that **any column, or any row, or any block of cells contains all numbers from 1 to 9**

6	1		7	9			2	
		8						
			5				1	3
							6	
		3			2	1		
9	5							
	6	1						
			1	3		4		9
		7		5				1

Terry (G4CHD)

**LOCAL REPEATERS**

**2m Stibb Cross Repeater (GB3DN)**

<http://www.g0rql.co.uk/gb3dn.htm>

User: Listen 145.6375 MHz - Transmit 145.0375 MHz.

Access 1750 Hz Tone or 77 Hz CTCSS

Repeater keeper is Tony (G1BHM)

**70cm Twitchen (nr South Molton) Analogue Repeater (GB3SF)**

User: Listen 430.9375 MHz - Transmit 438.5375 MHz

Access 77Hz CTCSS

Repeater keeper is Steve (G6SQX)

**APRS Digipeater (MB7VE)**

Frequency 144.800 MHz

Repeater keeper is Steve (G6SQX)

**CHOOSING AN UNOBTRUSIVE HF MULTIBAND VERTICAL ANTENNA**

Finally I have included a short article documenting my trials and tribulations in selecting a suitable neighbour friendly HF antenna.

So that's it for this month

Stay safe and stay healthy

Terry (G4CHD)

## CHOOSING AN UNOBTRUSIVE HF MULTIBAND VERTICAL ANTENNA

by Terry (G4CHD)

My QTH does not lend itself to large HF antennas - in fact each move of QTH has resulted in smaller antennas!! So initially at this QTH I started with an MFJ Magloop (40m - 15m) in a wooden garden shed! Despite its location I did manage to work New Zealand using PSK, Eventually I added an 20m end fed wire antenna at 3m above ground which was tuned by a remote auto ATU and gave me 80m - 10m but with near vertical incidence take off ! Recently I have been considering adding an HF multiband vertical to get a lower take off in the hope of working further afield.



I-Pro Traveller

I have for a number of years used an I-Pro Traveller antenna for /P working which covers 40m - 10m using an interchangeable central element and various jumper lead connections. The antenna is a centre fed with capacity hat loading at its ends and inductive loading at the feed point and is just 3m (10 feet) high. It works extremely well and have worked the Falkland Islands on SSB with 100W from a /P location despite there being a pile up. I did try using it at the home QTH left on a 20m setting and despite being surrounded by bushes etc it worked well. However, it is not designed to be left out in all weathers permanently and jumper settings need to be changed to swap bands. Hence the search for a suitable alternative.

I must admit that I like centre fed 'balanced' antennas and therefore initially considered the Gap Eagle 40m - 10m antenna which is just 6.4m (21 feet) tall. However the reviews were quite mixed and with a nearly £500 price tag I decided to look elsewhere! (being a Yorkshireman!)

Having been very satisfied with the I-Pro Traveller I decided to look at their I-Pro Home antenna (£260) which covers 20m - 6m and to some extent 40m with a good ATU. The antenna is just 5m (16.5 feet) tall and can be mounted near to the ground but does need guying. However the upper and lower horizontal capacity tuning elements are each 2.5m long and could well be a little obtrusive and hence the search for a suitable antenna continued.



I-Pro Home

In a recent 2m QSO on the 11's Net, another Club member Fred (G0EOB) mentioned that he was using the Sigma 360 antenna which is a 6m - 80m multiband vertical. This antenna costs approx £140 and is just 5.5m (18 feet) tall and consists of 3 fibre glass elements with a final steel whip. It appears to be a vertical conductor (no loading) fed at its base via an SO239 connector via a 6:1 Unun. I therefore decided that its unobtrusive outline and less than 20 feet mounted height with multiband performance merited giving it a try and one was duly ordered whilst limited stocks were still available.

The antenna was mounted on a 4 foot Al pole half of which was driven into the ground and the antenna was guyed as shown using nylon/propylene cord as can be seen in the following photographs. Its position is very close to a fence on one side and bushes on the other sides - not ideal but considering the antenna is very much a compromise then an ideal open location perhaps would be a luxury! The antenna was initially fed via 7m of coax directly to a LDG Z-11 Pro Auto ATU located



Gap Eagle

in a nearby wooden shed (which still houses the MFJ Magloop) and thence via 50m of RG58 coax back to the bungalow which I guess results in quite a bit of power loss in the cable. Consequently the coax from the antenna base to the shed and the coax from the ATU back along the fence to the bungalow are roughly parallel and about 3m apart.



When this setup was first tested, the SWR via the Auto ATU was horrendous on all but the 21m band and my initial thoughts were that I had perhaps made a terrible mistake with my choice of antenna!! However, undaunted I remembered the problems I had had with the 20m end fed wire antenna involving RF leaking onto the coax outer which necessitated using a 1:1 feedline isolator (obtained from M0CVO - cost approx £40) which solved the problem.

I therefore inserted a 1:1 isolator in the feed approx 0.5m from the antenna as shown in the photograph. This made a dramatic improvement allowing me to now get a less than 2:1 SWR on all bands. The problem I believe was RF leaking onto the coax outer from the 6:1 Unun at the base of the antenna causing the coax to radiate and be picked up by coax along the fence and thus fed back to the shack.



I decided it would be interesting to try to understand what was happening and as a result of some Googling, came across a most interesting article by Frank (N4SPP) which can be found at :-

[https://www.nonstopsystems.com/radio/frank\\_radio\\_antenna\\_multiband\\_end-fed.htm](https://www.nonstopsystems.com/radio/frank_radio_antenna_multiband_end-fed.htm)

which helped me better understand what might be happening.

As described earlier, the antenna itself is simply an end fed vertical wire (enclosed in fibre glass tubing ending in a steel whip) fed via a 6:1 Unun which is DC grounded (according to the provided Data Sheet). Without opening up the Unun it's difficult to be certain but this may mean that there is an inductive link to ground (hence no good at RF) but giving a DC connection to perhaps reduce static.

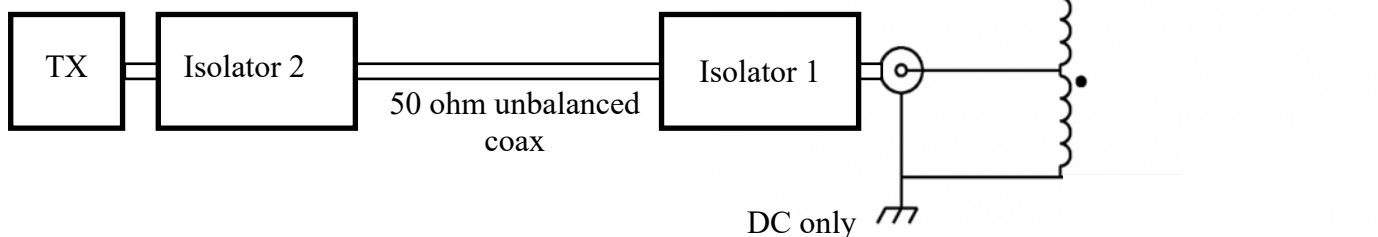
Interestingly the Sigma 360 Data Sheet recommends any earthing to be at the ATU rather than at the antenna.

I have produced a schematic diagram (9:1 Unun shown instead of a 6:1 Unun but this doesn't affect the reasoning) as shown opposite:-

The coax outer forms the 'other half' of the antenna system - ie like a counterpoise and will have common-mode current on it leading to radiation from the coax outer and possibly some noise pickup.

Inserting the 1:1 Line Isolator (1) in the coax feed reduces this radiation but its position so close to the antenna feedpoint (which is a relatively high impedance point rather than high current) means that the Isolator is not at its most optimum position (should be at a high current point) and therefore not as effective as it could be. Relocating the Isolator further away from the antenna would help but at the expense of higher feeder radiation and was therefore not considered.

Consequently another Isolator (2) was inserted just before the Auto ATU to choke off any remaining current that Isolator (1) didn't stop.



A further possibility would be to add a counterpoise somehow to reduce the current being blocked by the Isolators but not sure how it could be connected to the coax screen. This should be a minimum of  $1/20^{\text{th}}$  of the longest wavelength used eg  $80/20 = 4\text{m}$ . This should result in less outer coax current giving the Isolators less work to do.

Once the modifications described above were introduced the antenna was used extensively - mainly using FT8 - on the 17m and 21m bands and stations worked included Mauritania, Kuwait, Saint Helena, Asiatic Russia and Brazil which suggests that RF is being radiated!

My final conclusion is that the antenna is a good compromise between being multiband and only 5.5m high but suffering from common-mode current problems as with most end fed designs and I will stick with it until 'something better' comes along.