



# Q5



Affiliated 1977

## North Bristol Amateur Radio Club.

S.H.E.7, Braemar Crescent, Northville, Bristol.

### APRIL

**Q5.** The club has not produced a Q5 for a while. I hope we can start again in print and on the club web site.

**AGM.** A New Committee was elected.

Chairman.	Paul Stevenson G8YMM
Vice-Chairman.	Allen Tink G7DRU
Secretary.	Carolyn Fear M6FUA
Treasurer.	Dick Elford G0XAY.
Committee	Chris Johnston-Stuart M0GBH
Committee	Ian Fear G1FUA
Committee.	Mathew Bell G0ECM

**Silent Key:-** Clive M0VCF.

**Presentation of Trophies.** Tom Abrahams     Ian and Carolyn Fear G1FUE & M6FUE  
Selwyn Parfitt     Mathew Bell G0ECM.

**RAE Courses. Examination Secretary.** A Zerafa M0BUV ( Tony G8CKK)

**Instructors.** Tony G8CKK  
Chris M0GBH

**RAE Courses.** Foundation. Intermediate. Final. We have some members in each Section.

**Rallies. 4<sup>th</sup> May Dartmoor Radio Rally-**Tavaistock College Crowndale Rd  
Tavistock Devon PL19 8DD. OT 10.30. Peter M1AYI. 01822 860277.

### A ROUGH GUIDE TO NVIS.

Whether we realise it or not we almost all use **NVIS** ( Near Vertical Incidence Skywave ) in our normal HF operating

Most inter -G nets on 3.5 some on 7 and nearly all on 5 MHz are made using this mode of propagation.

The Benefits of NVIS is that covers the area between ground wave links and the "first hop"

There are circumstances were it is difficult to get line of sight communications. A similar situation exists in disaster and emergency situations were ad hoc communications have to be established in a hurry.

HF radio is capable of voice or data and may be the only means of catering for a quickly moving scenario. In these circumstances operators and equipment must be capable of NVIS operating.

The essence of NVIS is that the signal, at an appropriate frequency, ( just below the Critical frequency of the F-layer, ie, about 2MHz at night to about 8MHz during the day ) has to be launched from the antenna at a high angle relative to the horizon. The resulting energy being refracted back to the surface arrives in an omnidirectional pattern without dead spots or a skip zone. The frequency is relevant because such radio waves, if radiated on too high a frequency, penetrate the ionosphere and continue out into space.

The method of ensuring the proper radiation path is to choose the best type of antenna for the job. Verticals are out, a 16.5 ft vertical whip in an open area has a relative gain towards the zenith of minus 41.5dB!! By contrast a Shirley Folded Dipole (a pair of twin folded dipoles fed from a common balun at a height of 20 ft ) exhibits plus 3dB towards the zenith.

In military use, for mobile and portable use, it is common to use a standard 16.5 ft whip mounted horizontally at a height of about 4 ft above the ground, or mounted vertically at the rear of a vehicle and pulled back towards the horizontal. These antenna are less than optimum, but they do work.

More common in amateur, circles is the dipole or inverted V cut to a frequency and suspended at between 0.01 to 0.03 wavelengths above the ground. There gain towards the zenith (in open ground) is between 0.5 and 1dB.

Original article Roy G0TAK

Further reading.

Tech Topics in Radcom Feb 2002.

Near Vertical Incidence Skywave Communication. By Lt Col David m Fiedler (NJARNG) (Ret'd) and Maj Edward J Farmer P.E (CASMR) published by Worldradio Books PO Box 189490 Sacramento, CA 95818

**ANYTHING FOR Q5 SEE TONY G8CKK**