Hints and Tips  Colin Guy G4DDI

This month, three solutions aimed at improving reception at the author's QTH.

Domestic Appliance QRM

One recent Sunday morning I found Topband to be plagued with a buzzing noise of the type that you used to get on the lower end of the medium-wave band from the older type of switch-start fluorescent lamps. This was continuous for around 40 – 50 seconds then stopped for about 5 seconds before repeating this cycle. Initial efforts to locate the source failed, so I did what I usually do and set up a battery operated receiver (PRC320) and switched off the mains to the house. This eliminated the QRM, which then returned when the supply was switched back on. The penny then dropped, we have had a new gas cooker installed and Sunday lunch was in preparation. This cooker, a Stoves 900RPi is one of those all singing affairs, which like most modern appliances is controlled by a microprocessor. Observation showed that the oven temperature control is achieved by switching the gas on and off rather than by reducing the intensity of the flame, as in conventional ovens (switched mode?). Ah you say, “the QRM should be enclosed in an earthed metal box, and wiring to and from it kept short. (Incidentally I wouldn’t recommend this cooker to anyone – it has several other design flaws that show it to have been designed by someone who has never actually used the thing they are designing before – bit like many “black boxes”)

Tuning “inductive” aerials.

Last month Richard Hankins mentioned that only certain lengths of longwire aerials can be tuned by the standard military inductive ATU. Here is a simple solution if you find yourself trying to tune such an aerial. Mount a standard broadcast receiver type two-gang variable capacitor onto an insulated board (a piece of wood will do as long as it is dry) and fit it with a large insulating knob. Connect the two stator terminals together and to the output of the ATU, and connect the frame of the gang to the longwire lead-in. By trial and error with the setting of the variable capacitor you should be able to arrive at a point where the aerial will tune. Aim to have as much capacitance in circuit as possible consistent with being able to tune, and mind your fingers while adjusting it with the tx keyed! This arrangement is suitable for up to 25 watts – for higher powers you will need a widespaced capacitor, and a proper enclosure for it.

Locating a noisy contact in an aerial.

My (commercial) multiband trap vertical aerial recently developed an annoying intermittent loss of gain, which would right itself on keying the transmitter. A corroded connection you think – yes, so did I, and I cleaned and tightened every physical connection on the whole system, but still the problem recurred – intermittently, and keying up momentarily always cured it. The fault could sometimes be instigated by shaking the mast, indicating that it was in the aerial and not the feeder (a single run of UR67 co-ax). With the aerial again lowered, and with a multimeter connected between the centre of the feeder coax in the shack and the tip of the aerial, no amount of tapping would cause any noticeable change of resistance. I figured that the current passed by the meter was breaking an electrical connection on the whole system, but still the problem persisted. It was consistent with being a fault with the setting of the variable capacitor you should be able to arrive at a point where the aerial will tune. Aim to have as much capacitance in circuit as possible consistent with being able to tune, and mind your fingers while adjusting it with the tx keyed! This arrangement is suitable for up to 25 watts – for higher powers you will need a widespaced capacitor, and a proper enclosure for it.