

Cordless Phone Monitoring in the UK

I owned my first scanning receiver in February 1993. Those were the days. But in fact I first discovered the CT0 cordless phone frequencies by accident. Already introduced to amateur radio by Mike (G0MEC) who let me see a QSO on 40 metres, I was hooked on monitoring the HF bands. And I later got my own call-sign in 1995 (G7VDI).

The 160 metre amateur band lies from 1800 MHz to 2000 KHz. But, right between the top of the MW broadcast band, ending at 1602 KHz. in Europe, I soon found what appeared to be two people talking on the phone. I had stumbled across the then cordless phone allocation in the UK! And recently the staff had fitted cordless phones in the offices at the much hated boarding school I was at in my teens. Revenge always was a dish best served cold!

A prequel to my shock announcement in October 1995 that I had been accepted to university, I had developed an interest in electronics and all things radio. And I had an idea – if I re-tuned the MW dial on a cheap Walkman which had MW reception – I could listen to all the calls! Now as the MW radio used AM; and the cordless phones NFM (narrow-band frequency modulation as opposed to amplitude modulation) it was not perfect – but I found that tuning ± 2 KHz off the centre frequency -I had usable reception of the 8 channels from 1642 – 1782 kHz at spacing of 20KHz! (This is known to radio amateurs as slope detection). And as it was a personal stereo, listening was private. If approached, I would simply retune to Radio 1! I never was caught listening in to all the staff's calls after lights out! Cool! Of course, my scanner was later to render obsolete this improvised means of tuning. And in 1998, the 31MHz allocation allowed monitoring at greater range – up to miles across open country. A centre loaded whip was great for portable scanners, or an adjusted CB aerial was perfect for home listening. And I also by then was also a listener to the analogue mobile phones of the day (base 917.0125 to 949.9875 MHz, handset 872.0125 to 905.9875 MHz). The base side gave greater monitoring range and carried both sides of the call as the base was connected to the line!

During the holidays (and after I left the school in July 1991), I often listened while walking the dog – to find new phones out of receiving range of home. And most of the early phones operated on just one of the 8 channels, so I know who I was listening to in a location where I often listened. Cool! It certainly bettered soap operas; these were real world people having real conversations. And at the school, never did a day pass by without me learning fascinating new facts about staff members and their personal lives; likewise true of local people in the village where I grew up! And it was far more interesting than my parents chose of television!

It was very surprising how far these short range devices could carry. Not just around the house but way beyond! Indeed, I was also develop all kinds of modifications to electronic devices to 'teach old

equipment new tricks'!

It is a well known fact that many radio systems are moving over to secure digital communications – in mot countries with virtually no known way of being able to decode the transmissions (unless the key is known). The same would have been true of cordless telephone technology even back in 2010, with the release of DECT digital phones in the past few years prior to this and with the benefits of using this technology you would have expected analogue usage to be on the decline by 2005 Not so! In fact, more than ever the analogue cordless phone band was crammed full of users! Why would this have been happening? Let's take a look at a few possibilities.

CT1 - 31 Mhz System

Chan	Base	Mobile
Ch 1	31.0375 MHz	39.9375 MHz
Ch 2	31.0625 MHz	39.9625 MHz
Ch 3	31.0875 MHz	39.9875 MHz
Ch 4	31.1125 MHz	40.0125 MHz
Ch 5	31.1375 MHz	40.0375 MHz
Ch 6	31.1625 MHz	40.0625 MHz
Ch 7	31.1875 MHz	40.0875 MHz
Ch 8	31.2125 MHz	40.1125 MHz

The first reason is cost. DECT telephones are quite a lot more expensive than older analogue equivalents and as such many people, unaware of the differences, for example security, went in for a cheaper model as it 'did just the same job'. I saw some cordless phones in a shop during a January sale, they were priced at £19.99 which is an absolute give-away price. Is it any wonder they sold? The other reason for the popularity of analogue was the release of a whole batch of relatively new frequencies in the 31 MHz region (introduced 1998) – these devices promise a greater range than the standard 47 MHz analogue band (the original 8 channel specification here in the UK known as CT1). The analogue phone system works by operating on two frequencies known as full-duplex operation. This means that the device is capable of transmitting and receiving at the same time, as you would expect! The base uses one frequency for TX and the other for RX and vice-versa at the handheld end of things.

Ranges quoted in the specifications of cordless phones usually stated something like 500 metres from the base for the 47 MHz variety and anything up to 300 metres in open air from a 31 MHz base station. In total there were 16 standard analogue channels within the UK cordless phone system. The main difference between the two systems is that the original 47 MHz variety of base stations transmitted to the handheld on a very low frequency just above the medium wave broadcast band. Take a look at the table below: All channels operated on NFM.

CT1 - 47 MHz System

Chan	Base	Mobile
Ch 1	1642.00 kHz	47.45625 MHz
Ch 2	1662.00 kHz	47.46875 MHz
Ch 3	1682.00 kHz	47.48125 MHz
Ch 4	1702.00 kHz	47.49375 MHz
Ch 5	1722.00 kHz	47.50625 MHz
Ch 6	1742.00 kHz	47.51875 MHz
Ch 7	1762.00 kHz	47.53125 MHz or 47.44375 MHz
Ch 8	1782.00 kHz	47.54375 MHz

There was also another less heard of system in the UK which is a variant of the above CT1 system but designed for long range communications up to 2 Km with extra power primarily designed for use in rural areas.

Monitoring these frequencies with a scanner provided surprising results. Not only were you able to hear phones around your immediate area – Eg your own analogue cordless phone but also many others in your neighborhood because the signals carried much further than the average phone owner would have imagined. The actual handsets and bases supplied with most phones were quite insensitive to low signals, most likely this is the manufacturers intention to keep the range down to avoid possible interference problems with neighboring telephones. However, with a sensitive scanning receiver and antenna system some of these phones could be picked up over distances of 2.5 Km and above! Of course, this depended on a number of factors, these being the site the base station is installed in. If a user installs a base station on high ground (e.g. upstairs in a house) the the signal will be carried further. I recommended monitoring the base station frequencies because you could hear these much clearer than the held held, they appeared to be louder usually and from experience I know that some users don't extend the telescopic antenna when they answer the call, therefore the signals from these are weak. Normally there is sufficient 'cross talk' to hear both sides of a conversation when monitoring the base.

If you had access to a HF receiver, you would try tuning just above the medium wave broadcast band to monitor telephones around the 1.7 MHz region. These base stations carry a long way on medium wave and sometimes can even be received on a domestic MW radio if it will tune up high enough. I always thought this was a bad choice of frequency for a telephone service since it was accessible to quite a number of people! Be aware when monitoring this range, it is highly likely that you would pick up several base stations in use on the same frequency and as a result you will hear much interference as one base station swamps the other with a strong signal. I have monitored times when you hear one conversation only to be wiped out by another stronger signal straight over the top!

CT1 - Extended Range

Chan	Base	Mobile
Ch 1	47.43125 MHz	77.5125 MHz
Ch 2	47.41875 MHz	77.5500 MHz

Another surprising finding is to go mobile with a scanner tuned to these frequencies. You will hear many frequencies in use and you will marvel at the range of these telephones. That's about everything you needed to know to get started monitoring cordless phones but please note that it is actually illegal to monitor these frequencies in the UK. The information provided in my original article was for information purposes only so I would warn: don't get yourself into trouble!

In retrospect, all the cordless phones sold now are DECT digital units. And these are MUCH harder to monitor – although it is not impossible. But in any case, the range of these at 1.9GHz is very much shorter. However, for many years, analogue 31 MHz units remained in use until the end of the life of the equipment. So the last of these devices I logged was way back in 2019.

I wrote the article originally one day back in those nostalgic times. But I would not dare bring a scanner to China, and it would not be of use as I do not speak Chinese anyway. My equipment will be collected from London later after my time in China is completed.