Radio Society of Great Britain
Advancing amateur radio since 1913

EMC Advice Leaflet EMC 9:
Handling EMC Interference to Amateur Radio Reception

The purpose of this leaflet

Interference to amateur radio reception usually takes one of two forms. One is from other radio transmitters, which radiate legally or illegally in our bands. The other is from non-radio sources (such as xDSL broadband services, switched mode power supplies, LED lights, solar panels etc) which, inadvertently, radiate signals within the amateur radio bands. This latter is an electromagnetic compatibility (EMC) problem and this leaflet is about these EMC matters.

What is the position regarding "protection"?

It is often thought that amateurs are not entitled to protection against interference from any source. However, the term "protection" is often misunderstood and is used out of context. In the case of EMC, "protection" properly refers to an agreed ratio of wanted to unwanted signals, which provides a specified quality of wanted signal. The nature of the amateur service means that individual amateur stations could not have protection ratios in these terms and therefore the amateur service is not protected from harmful interference from other authorised services within its permitted bands.

However, as authorised users, amateurs are entitled to protection from harmful interference from unauthorised radio services and, in the context of this leaflet, from non-radio sources. Indeed, the various pieces of legislation which control interference – the Wireless Telegraphy Act, the EMC and RE (Radio Equipment) Regulations - do not differentiate between types of radio services. The current EU EMC Directive, 2014/30/EU, which is transposed into UK law by UK SI 2016/1092, recognises the position of amateur radio in its recitals:

> *"Members States are responsible for ensuring that radio communications, including.... the amateur radio service.... are protected against electromagnetic disturbance."*

The EU Withdrawal Bill continues current EU law which is transposed into UK law, but with the EU references taken out, and will subsequently be replaced by domestic law. The effect of the Withdrawal Bill is that while explicit reference to the protection of the amateur service are not directly valid in the UK, the regulations continue to apply to all radio services, including the amateur service.

So what can amateurs expect?

As the number of electronic domestic devices that can cause EMC problems increases and as wired telecommunications systems, like xDSL and power line transmission system, increasingly use radio frequencies for high speed access and greater throughput, the more under threat the spectrum will become. However, while amateurs may be entitled to action being taken when they get EMC problems, they must be realistic in their expectations. Ofcom has limited resources to tackle interference problems and its field operations services operate a priority system for dealing with interference. They give first priority to interference affecting safety of life services – including fire, police, ambulance, air traffic control, coastguard – and second priority to business users of radio such as taxis, courier services and security guards. Other users, including amateurs, fall into the third priority group. It is also unrealistic to expect Ofcom staff to come to your QTH and wait for hours to

hear intermittent and perhaps transient interference, such as interference from solar panels or LED lighting.

Self Help

To some extent the solution to EMC problems is in the hands of individual amateurs. Radiating LED lights or switched mode power supplies may be able to be traced relatively easily, and then, having proved that the interference is not coming from the amateur's own premises, the owner can be approached politely. In some cases, where significant interference is being radiated, this may indicate a safety issue, so you may be doing the owner a favour by telling them. An exchange of a faulty new unit by the supplier, or a visit by a service engineer may be the answer. Some TV receivers, digital set top boxes and plasma screens have also been found to cause interference on amateur bands and it may be possible to trace the source to a particular neighbour. In some cases, the device or equipment manufacturer will take a responsible attitude and provide a fix, in some instances free of charge.

However, if making an approach, do act diplomatically, as your neighbours may well not understand why you are concerned if their equipment appears to them to be working normally - you may even find the complaint turned back on you and your antenna system, however innocent or irrelevant that may be! Most of us want to live peacefully with our neighbours and this often means a degree of give and take.

RSGB assistance

If you can't find the source of interference, or you find you are getting nowhere with the owner of the offending equipment, report the case to the Society's EMC helpdesk at **helpdesk.emc@rsgb.org.uk**. The co-ordinator and the EMC Committee members have a wide range of experience of interference matters and can often help.

If they cannot immediately help, or if the problem has some complex or novel aspects, the EMC Committee may become involved and investigate further. They may ask if they can take measurements of the radiation or ask Ofcom to intervene.

Further information about EMC matters be found on the Society's web site www.rsgb.org.uk - Leaflet EMC04 in particular gives examples of types of interference and how to trace them.

Official intervention

In persistent cases, Ofcom field operations staff may be willing to investigate the interference. There is normally no charge for this. If necessary, they have enforcement powers against interference under the Wireless Telegraphy Acts, although these do not normally need to be employed. As an example, an amateur found he had a continuous very high noise level across several HF bands. It got worse when it rained. Investigating officers traced the source to a cracked insulator on an electricity pylon, which was subsequently replaced by the power company.

Ofcom also enforces the EMC and the Radio Equipment Regulations, which implement legislation about electromagnetic radiation from new electrical, radio and telecommunications equipment placed on the market. Local Trading Standards Officers also have powers under these regulations. However, interference in the amateur bands could have a wider effect on other radio services, so Ofcom should normally be approached on matters where interference affects the radio spectrum. Unfortunately, our experience to date suggests that Trading Standards typically neither has the resources nor the capability to examine EMC issues.

There is also a TV licence condition, which forbids a person to let their TV receiving equipment interfere with any other radio or TV reception. Ofcom has the powers to enforce this condition. There have been several examples where spurii from digital set-top boxes have triggered alerts on distress frequencies. Ofcom has acted very quickly in these instances.

If you wish to submit a complaint about interference to Ofcom then it is recommended that you follow the procedures explained in EMC Leaflet number 18 entitled "Guide for reporting harmful interference to Ofcom".

What can I do if Ofcom is unable or unwilling to help?

There have been many cases reported to the Society where Ofcom has declined to help in amateur radio cases. What should you do if that is the response you get? First, consider whether your case is serious enough to merit their intervention. If you believe it is, and you have fully documented and accurate records of the interference (including recordings where appropriate), here are some replies you can use to Ofcom.

- Ofcom sometimes suggest that they cannot deal with interference to amateur radio as it not protected. Not so. You should make the arguments set out in the earlier section of this leaflet.
- Ofcom agree there is interference but say that as you have other frequencies available it cannot be "harmful" (within the meaning of the legislation) and so are unwilling to act. You are entitled to use the frequency and are licensed by Ofcom to do so. You may not be able to make such contacts on another frequency or another band. Simply vacating a frequency because of interference means it will not be dealt with and eventually other sources of interference may arise on other frequencies making large parts of the spectrum unavailable.
- Ofcom say that action against an offending device would be disproportionate as no other complaints have been received. You are not asking for action to be taken against all such devices; that might be disproportionate (unless many similar devices were found to be causing interference). You are asking for action to be taken against one specific device or in one specific location.
- A new piece of apparatus has caused interference, but Ofcom say they cannot act because it its CE marked. Has Ofcom checked that the particular piece of apparatus meets its compliance declaration? Has it been installed and is being operated in accordance with the manufacturer's instructions?
- In a case where a device has gone faulty after several years use and the owner will do nothing, Ofcom say they cannot help because the device is CE marked. The CE mark only applies at the point of first supply or taking into service. It does not apply to apparatus that has become faulty after use. Ofcom has powers under the Wireless Telegraphy Act or the TV licence to deal with this.

Make sure you send all response to Ofcom promptly as they set deadlines for replies. Sometimes they quickly close cases. You should not be put off by arbitrary decisions on closure. Make your reply quickly and calmly. Keep the Society's helpdesk informed of progress since we cannot make representations to Ofcom if we do not know how extensive the problems are.

EMC Leaflet 09. Revised September 2025
RSGB EMC Committee
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