



Commission for
Communications Regulation

Spectrum Intelligence & Investigations

Annual Report 2016 – 2017

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1 Introduction

1. As part of its remit the Commission for Communications Regulation (ComReg) is responsible for enforcing the Wireless Telegraphy Acts 1926 to 2009 and the Electromagnetic Compatibility (EMC) and Radio Equipment (RE) Directives within the State.
2. Within ComReg, the Spectrum Intelligence & Investigations unit is tasked with ensuring compliance with the above legislation.
3. This involves undertaking work in a number of areas, including but not limited to:
 - Market surveillance, including compliance checks on items being imported to the State through cooperation with Customs.
 - Random surveys of transmission sites for non-ionising radiation as part of licence conditions.
 - Investigation of radio interference to safety-of-life services such as emergency services and air traffic control.
 - Investigation of radio interference to licensed operators.
 - Enforcement action, up to and including the execution of search warrants, and subsequent prosecutions.

2 Notable Actions

4. Spectrum Intelligence & Investigations often maintains a presence at major events to ensure that no radio interference is experienced by licensed parties such as the Emergency Services, event organisers, and members of the public. Given its limited field resources ComReg is not in a position to maintain a presence at all events and as such must select events where the likelihood and impact of disruption is highest.
5. It is important to acknowledge that while a presence is maintained during an event, a significant amount of work in the form of spectrum monitoring and compliance actions, where required, takes place in advance of an event to ensure all licensed channels are free of interference.
6. During the 2016-17 period Spectrum Intelligence & Investigations field teams provided support in the run up to, and during the **St. Patrick's Day Parade** with the primary objective that both Emergency Services' communications and other licensed event frequencies remained interference free. During the event there were a number of outside broadcast crews supported.
7. ComReg maintained a presence at **Slane Castle** during a significant event at the request of the Emergency Services in order to protect radio communications and to be on hand to locate and remove any sources of interference.
8. ComReg also supported broadcasters at **live sporting events** to ensure unfettered wireless camera and microphone.
9. *ComReg's involvement helped ensure that no significant interference or disruption to spectrum users was experienced at any of these events.*
10. There have also been instances of interference involving Air Traffic Control. *Safety of life* type matters receive ComReg's highest priority. Interference to these services can often be difficult to locate and the operations are time consuming. To help make these investigations as efficient as possible ComReg has received and is grateful for the generous support and cooperation of other agencies, most notably the Irish Coast Guard and the Irish Air Corps, while investigating such matters.

3 Routine Operations

3.1 Market Surveillance

11. Under EU Regulation ComReg is required to conduct market surveillance for any Directives within its remit (namely the EMC and RE Directives). The primary objectives of these activities are to prevent non-compliant equipment from being placed on the market and removing from the market any devices that have been found to be non-compliant.
12. ComReg adopts a proactive approach to such matters so as to maintain the integrity of the radio spectrum. It is far more effective to intercept or detain devices that have the potential to cause interference and disruption to other users at source than to seek to locate them if and when a problem arises.
13. In addition to its own market surveillance activities, ComReg enjoys a very positive relationship with Customs. The work carried out with the cooperation of Customs helps ensure non-compliant electronic equipment does not enter the State. Equipment types that are typically seized due to non-compliance with the EMC and RE Directives include:
 - Radio jammers
 - Mobile phone boosters
 - GPS trackers
 - Green laser pens
 - Keyless entry systems
 - Radar detectors
 - Wireless bug detectors
 - Wireless speaker
 - Wireless headphones
 - Digital cameras
 - Battery chargers
14. Devices such as those above are known to cause interference and/or disruption to legitimate services, such as mobile phone networks or aeronautical services.
15. During the 2016-17 period 193 devices were detained and inspected by ComReg under EU Regulations, of which approximately 70% were found to be non-compliant. The remaining devices that were found to be compliant were returned to the appropriate parties.

3.2 Compliance & Enforcement

16. ComReg has a statutory obligation to manage the radio spectrum and to this end Spectrum Intelligence & Investigations is tasked with ensuring radio spectrum remains interference free and that users adhere to the conditions of their licences.
17. Compliance and enforcement actions are taken as appropriate, particularly in instances where cooperation from an offending party is not forthcoming.
18. ComReg has a number of compliance tools available to help meet this objective, including but not limited to:
 - Forfeiture of non-compliant equipment;
 - Verbal warnings;
 - Written warnings;
 - Communications Acts 2002-2011, Section 13d Notices;
 - Authorised Officer visits;
 - Search warrant executions; and,
 - Prosecution.
19. It should be noted that most investigations do not result in prosecution. Where cooperation is forthcoming from parties alleged to have committed offences, cases are often resolved without need for further legal action.
20. Two search and seize operations were undertaken in the 2016/2017 operational year, both against **unlicensed broadcasters**. In both cases files are being prepared for consideration. ComReg is not in a position to discuss the details of the cases at this juncture.

3.3 Radio Interference Investigations

21. ComReg received 132 complaint of radio interference in the 2016/2017 operational year. This is a c.5% increase from the previous year.
22. The proportion of complaints received is shown in the graph below:

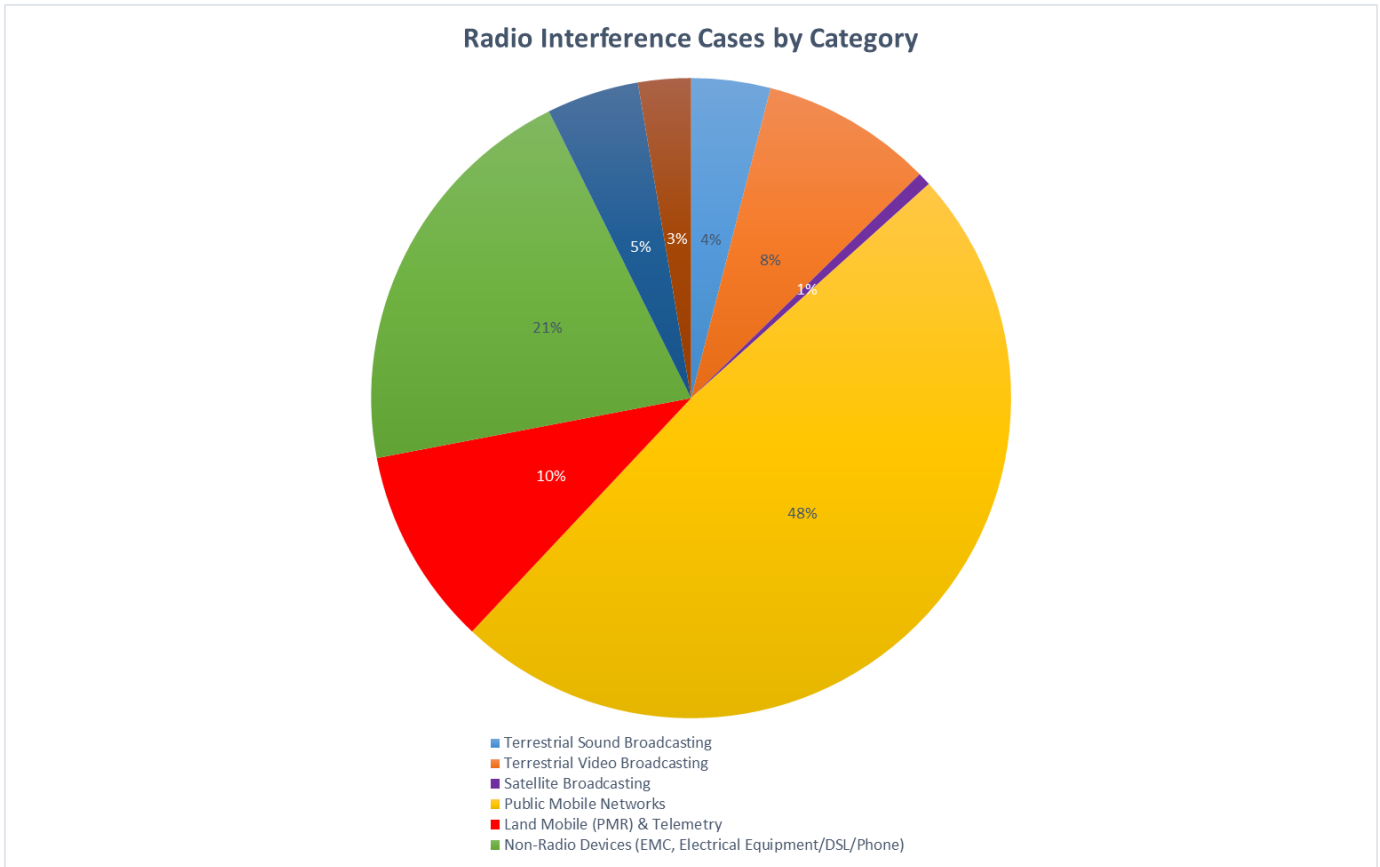


Figure 1 Total number of Interference Cases Received by Category

23. Almost half of all complaints received are reports of interference to mobile network operators. Interference involving fixed line services and non-radio devices also represents a significant proportion of the work in this area. Such cases are often interlinked with the market surveillance activities under the EMC Directive.
24. Common sources of radio interference to mobile network operators include:
 - American DECT 6.0 cordless phones.
 - Faulty television aerial masthead amplifiers.
 - Mobile phone boosters.

25. Due to the limited resources at its disposal to investigate instances of interference, ComReg prioritises reports received based on severity and impact. The criteria used are as follows:

Class 1 - Interference that is an imminent threat to safety-of-life and serious interference caused to emergency services, air traffic control and maritime traffic control which seriously hampers radiocommunications. Response time - as soon as possible within 24 hours

Class 2 - Interference that renders a licensed channel unusable or has a detrimental effect on the economic interests of a licensee. Response time - within 3 working days.

Class 3 - Interference that is a nuisance to a licensed user but does not render the licensed channel unusable or severely impact the economic interests of the licensee, or severe interference to domestic reception and amateurs. Response time - within 7 working days.

Class 4 - Occasional or minor interference to a licensed user that has no detrimental effect on the licensee's operations, or nuisance interference to domestic reception and amateurs. Response time - within 15 working days.

Class 5 - Spurious complaints that do not warrant the direct intervention of ComReg. Response time - N/A

26. Approximately 80% of all cases received fall into the lower priorities, with the sources of interference being relatively straightforward to locate. Given ComReg has limited field resources and that such investigation are often time-consuming it was decided to outsource the investigation of such cases.
27. Butler Technologies won the tender to provide these services and has commenced investigating cases on ComReg's behalf. This has allowed ComReg to concentrate its limited resources on matters of highest priority, being those with significant levels of interference and impact and in proactive tasks such as market surveillance and radio monitoring¹.

¹ Note that the procedure for making an interference complaint has not changed. Instances of interference should be reported directly to ComReg.

4 Looking Forward

28. The 2016-17 period saw notable growth in the number and range of matters requiring the attention of ComReg's Spectrum Intelligence and Investigations Unit. It is expected that this trend will be maintained in the 2017-18 and beyond as the deployment of wireless devices and use of the radio spectrum continues to proliferate.
29. To meet this need, ComReg has increased the quantum of spectrum available for fixed, mobile, and nomadic use, most significantly the completion of the 3.6 GHz award, which will likely result in the development of new networks over the coming 12-24 months. There has also been a steady increase in the number of microwave links being utilised to provide data backhaul. This growth in equipment deployed increases the likelihood of interference occurring, particularly as new equipment and networks are rolled out.
30. In the coming period there is likely to be further developments in terms of radio spectrum assignments, for example the 400 MHz band is already under consultation and the 26 GHz Block Licence band is flagged for consultation in the near future. This will necessitate an increased focus on spectrum monitoring in these, and other key bands to ensure that services can operate free from interference.
31. ComReg adopts, wherever practical, a proactive approach to managing the integrity of the radio spectrum. With that in mind Spectrum Intelligence and Investigations will focus on market surveillance, proactive spectrum monitoring, and regular surveys of installed equipment.
32. Additionally, ComReg's outsourcing of lower order interference cases should permit us to extend our reach into areas where previously this was not possible, for example there have been issues involving services sharing the 5GHz licence exempt band that heretofore it has not been possible to afford priority. As this new contract develops, ComReg anticipates greater activity in such areas.
33. ComReg's Spectrum Intelligence and Investigations Unit will also place a greater emphasis on contributing to compatibility and coexistence research and developing new techniques and methodologies to ensure our readiness to assess and investigate future spectrum issues.