



Commission for  
**Communications Regulation**

# **Spectrum Intelligence & Investigations**

## **Annual Report 2017 – 2018**

**Reference:** ComReg 18/86

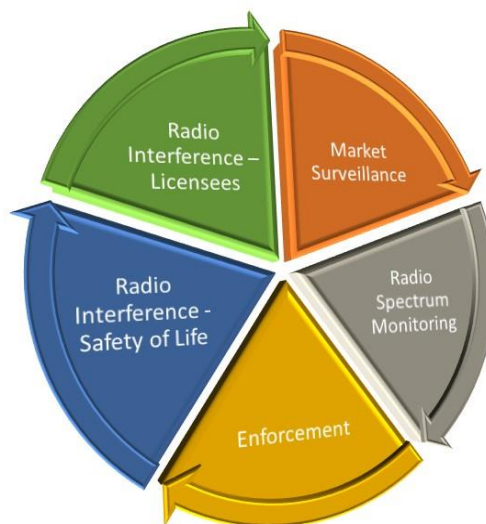
**Date:** 26/09/2018

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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 these matters.
3. This involves undertaking work across a range of areas, including but not limited to:
  - Market surveillance, including compliance checks on items being imported to the State through cooperation with Customs;
  - Radio spectrum monitoring;
  - Enforcement action, up to and including the execution of search warrants, and subsequent prosecutions;
  - Radio interference to safety-of-life services such as emergency services and air traffic control;
  - Radio interference to licensees.



## 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 unable 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 2017-18 period Spectrum Intelligence & Investigations field teams provided support in the run up to, and during, the St. Patrick's Day Parade and Electric Picnic with the primary objective that both Emergency Services' communications and other licensed event frequencies remained interference free. During both events a number of event crews were supported.
7. The recent Papal Visit in August 2018 presented a significant undertaking for ComReg and required the specific expertise of a number of ComReg units most notably Projects & Licensing, Network Operations, Wholesale Compliance and Spectrum Intelligence & Investigations.





8. The Spectrum Intelligence & Investigations Unit was responsible for making sure that event organisers, emergency services and on-site broadcast media were able to operate in the Phoenix Park without interference issues. The work involved liaising with the organisers for several months prior to the event, monitoring on-site the use of key spectrum bands, meeting with licensees and State agencies, as well as being onsite in the Phoenix Park before and during the visit.
9. The period in review has seen a number of instances of interference involving Air Traffic Control. Such safety-of-life types of interference complaint receive ComReg's highest priority. Interference to these services can often prove difficult to locate and so operations can prove 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.

# 3 Routine Operations

## 3.1 Market Surveillance

10. As required by EU Regulation 765/2008<sup>1</sup> ComReg conducts market surveillance for Directives within its remit (namely the EMC<sup>2</sup> and Radio Equipment<sup>3</sup> Directives). The primary purpose of this activity is to aid in the prevention of non-compliant equipment being placed on the market and removing from the market any devices that have been found to be non-compliant.

11. 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. Some of the unit's activities include:

- Attending and assisting in all relevant EU meeting groups e.g. ADCO EMC & RED, EMC Working Party, RED Working Party;
- Preparing, submitting and monitoring ComReg's market surveillance work plan in line with EU decisions;
- Desktop Market Surveillance to monitor any online sales and distribution of non-compliant radio equipment under EMC & RE Directives;
- Establishing relationships with all relevant external stakeholders and orchestrating relevant information campaigns;
- Attending the National Market Surveillance Forum;
- Keeping ComReg's website information up to date with any changes that occur in the area of Market Surveillance.

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<sup>1</sup> Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93.

<sup>2</sup> Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility. Transposed in Irish law as *S.I. No. 145/2016 - European Communities (Electromagnetic Compatibility) Regulations 2016* and *S.I. No. 69/2017 - European Communities (Electromagnetic Compatibility) Regulations 2017*.

<sup>3</sup> Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC. Transposed into Irish law as *S.I. No. 248/2017 - European Union (Radio Equipment) Regulations 2017*.

12. 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 speakers;
- Wireless headphones;
- Digital cameras;
- Battery chargers;

13. Devices such as those listed above are known to cause interference and/or disruption to legitimate services, such as mobile phone networks or aeronautical services. Specifically 50 mobile phone boosters were seized via Customs in the 2017-2018 period. These devices have the potential to cause serious harmful interference to mobile phone networks.

14. During the same period circa 170 devices in total were detained and inspected by ComReg under the relevant EU Regulations and Directives, of which approximately 80% were found to be non-compliant. The remaining devices that were found to be compliant were returned to the appropriate parties.

15. In order to further improve its effectiveness, the Spectrum Intelligence & Investigations Unit has furthered its cooperation arrangements with Customs at the Athlone and Portlaoise Mail Centres and more recently Dublin Port.

## **3.2 Radio Spectrum Monitoring**

16. As part of its proactive approach to managing the integrity of the radio spectrum the Spectrum Intelligence & Investigations Unit utilises a network of remote spectrum monitoring nodes strategically located in key urban areas throughout the State.
17. This allows the Spectrum Intelligence & Investigations Unit to make measurements of radio spectrum remotely, which can provide meaningful data about spectrum usage, in particular through spectrum occupancy measurements that describe the utilisation rate of various spectrum bands of interest.
18. This is particularly useful to ComReg as it can provide valuable information about the efficiency of current spectrum allocations.
19. The network is also utilised to gather intelligence in relation to unlawful spectrum usage, allowing ComReg to identify instances of non-compliance that could potentially cause interference to future spectrum assignments that might have been undetected prior to licensing.

## **3.3 Compliance & Enforcement**

20. ComReg has a statutory obligation to maintain the integrity of the radio spectrum and to this end Spectrum Intelligence & Investigations is tasked with ensuring radio spectrum remains interference free and that users comply with the conditions of their licences.
21. Compliance and enforcement actions are taken as appropriate, particularly in instances where cooperation from an offending party is not forthcoming.
22. 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 Information Requirement Notices;



- Authorised Officer visits;
- Search warrant executions;
- Prosecution.

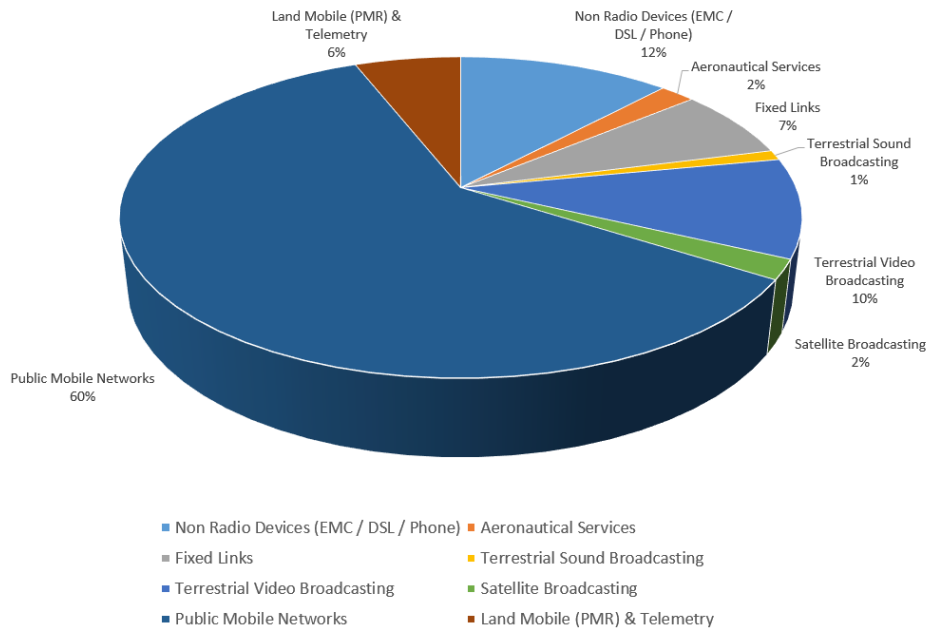
23. It should be noted that most investigations do not result in prosecution. Where cooperation is forthcoming, many cases are often resolved without need for further legal action.

24. Earlier this year, ComReg undertook a search and seizure operation against an unlicensed broadcaster. Such operations can be resource heavy and require considerable planning prior to execution. ComReg is considering its options in relation to this case and cannot comment any further. Planning is advancing in respect of a number of similar operations.

### 3.4 Radio Interference Investigations

25. ComReg received 120 complaints of radio interference in the 2017/2018 operational year. This is a 9.23% decrease from the previous year.

26. The proportion of complaints received is shown in the graph below:



**Figure 1 Total number of Interference Cases Received by Category**

27. While 60% of all complaints received are reports of interference to mobile network operators (an increase from 48% in the previous year), the total number of complaints from mobile network operators remains practically unchanged, dropping from 73 to 72 when compared to the previous period.

28. Interference cases involving fixed line services and non-radio devices represents 12% of the case work in this area. Such cases are often interlinked with the market surveillance activities under the EMC & RE Directives.

29. Common sources of radio interference to mobile network operators include:

- Mobile phone boosters;
- Faulty television aerial masthead amplifiers.

30. Due to the limited resources at its disposal to investigate instances of interference, ComReg prioritises interference 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 radio communications. 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

31. Approximately 80% of all cases received fall into the lower priorities (Classes 3 and 4), with the sources of interference being relatively straightforward to locate. Given ComReg has limited field resources and that such investigations are often time-consuming, in 2017 it was decided to outsource these lower priority interference cases, via competitive tender, to Butler Technologies.

32. This arrangement continues to allow ComReg to concentrate its limited resources on matters of highest priority, being those with significant levels of interference and impact, and on proactive tasks such as market surveillance and radio spectrum monitoring<sup>4</sup>.

33. Outsourcing of these cases has proven to have had a significant positive impact on ComReg's ability to react to interference complaints, with the average number of open cases having reduced from 65 to 30 in this period.

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<sup>4</sup> Note that the procedure for making an interference complaint has not changed. Instances of radio interference should be reported directly to ComReg.

## 4 Looking Forward

34. The 2017-18 period saw notable growth in the number and range of matters requiring the attention of ComReg's Spectrum Intelligence & Investigations Unit. It is expected that this trend will be maintained in the 2018-19 and beyond as the deployment of wireless devices and use of the radio spectrum continues to proliferate.
35. ComReg's Spectrum Intelligence & Investigations Unit has identified a number of activities that it intends to focus on in the coming year in the areas of:
- Market Surveillance;
  - Radio Interference Investigation;
  - Radio Spectrum Monitoring;
  - Enforcement.

### 4.1 Market Surveillance

36. At both its onsite and offsite laboratory facilities ComReg's Spectrum Intelligence & investigations units will conduct both administrative and technical checks on products being placed on the market to ensure compliance with the relevant EU harmonised standards.
37. This will be supported by testing conducted by Notified Bodies as required.

### 4.2 Radio Interference Investigations

38. ComReg's outsourcing of lower order interference cases has allowed the Spectrum Intelligence & Investigations Unit to extend its reach into areas where previously this was not possible. For example heretofore it had not been possible to afford priority to issues involving services sharing the 5GHz licence exempt band. This area in particular is the focus of ongoing development and the unit is actively exploring possibilities to enable effective investigation of these issues in the coming year.
39. ComReg's Spectrum Intelligence & Investigations Unit will also place a greater emphasis on contributing to compatibility and coexistence research, and developing

new techniques and methodologies to ensure its readiness to assess and investigate future spectrum issues.

40. After a recent response to consultation and final decision it is now permitted to use *certain* mobile phone repeaters in Ireland<sup>5</sup>. ComReg expects to see an early adoption of legal mobile phone repeater systems at the expense of unlawful alternatives such as mobile phone boosters. Spectrum Intelligence & Investigations will continue to monitor this area going forward.



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<sup>5</sup> For further information please see <https://www.comreg.ie/publication/mobile-phone-repeaters-response-to-consultation-and-final-decision/>

## 4.3 Radio Spectrum Monitoring

41. The Spectrum Intelligence & Investigations Unit plans to:

- upgrade some older near end-of-life (EOL) nodes on the network;
- install additional nodes in Dublin city to enable the network to utilise advanced automated direction finding techniques that can rapidly detect the location of unlawful or non-compliant transmissions within the area.

This will further enhance the unit's ability to take measurements on spectrum usage, allowing the unit to identify the current effectiveness of allocations and to ensure that spectrum is being used lawfully.

## 4.4 Enforcement

42. The Spectrum Intelligence & Investigations Unit plans to increase the number of enforcement operations carried out in the coming year.

43. In particular, it is likely that such operations will focus on

- unlawful use of the radio spectrum by unlicensed broadcasters;
- the placing of non-compliant products on the market with regard to the EMC and Radio Equipment Directives.