



Commission for
Communications Regulation

Guidance Notes

Radio Licensing for Programme Making and Special Events Use in Ireland

Guidelines concerning the licence requirements for the operation of radio equipment on a temporary basis, in particular at special events

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Additional Information

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Content

Section	Page
1 Introduction.....	5
2 Types of Licences	7
2.1 Temporary Business Radio Licences.....	7
2.2 Temporary Business Radio Licence Application Process	7
2.3 Temporary Point-to-Point Radio Link Licences	8
2.4 Temporary Broadcasting Licences.....	8
2.5 Satellite Earth Station Licences.....	8
3 Types of Events.....	9
4 Radio Equipment Regulations and the Radio Equipment Directive (RED) ...	11
5 Spectrum Availability	12
5.1 Channels Available for Temporary Licensing.....	12
5.2 Tone Control	13
6 Licence Exempt.....	14

Annex

Section	Page
Annex: 1 Private Mobile Radio (Two-way Radio) Channels	16
VHF High Band 169 MHz.....	16
UHF 441 MHz	17
UHF 444 MHz	17
UHF 445 MHz	17
UHF 446MHz	18
UHF 465MHz	18
VHF High Band	19
UHF 442/447 MHz	20
UHF 443/448 MHz	20
UHF 456/461MHz	21
UHF 455/469MHz	22
Annex: 2 Wireless Microphone / In-ear Monitor Channels.....	23
VHF Channels.....	23
UHF Channels	23
1785 - 1805 MHz Channels	24
Annex: 3 Wireless Camera Channels	25
1980 – 2010 MHz.....	25
2010 – 2025 MHz.....	25
2025 – 2110 MHz.....	26
2170 – 2200 MHz.....	27
2200 – 2300 MHz.....	28
10.3 – 10.5 GHz.....	29
U6 (6.425 – 7.125 GHz).....	29
L7 (7.125 – 7.425 GHz).....	30
Annex: 4 Wireless CCTV (Closed Circuit Television) Link Channels	31
Licensed Channels	31
Annex: 5 Data / Telemetry Channels	32
VHF Channels.....	32

UHF 12.5 kHz Channels	33
UHF 25 kHz Channels	34
Annex: 6 Useful Contacts.....	35
Annex: 7 Relevant ETSI European Standards.....	37

1 Introduction

1. The Commission for Communications Regulation (“ComReg”) is the statutory body responsible for the management of the radio frequency spectrum in Ireland. ComReg recognises the importance of special events in the economic, social and cultural life of Ireland, and is aware of the important role which large high-profile events continue to play in the promotion of Ireland’s image internationally. Consequently, ComReg regards it as critical that stakeholders have access to the latest and most up-to-date information concerning the availability of radio spectrum for Programme Making and Special Event (“PMSE”) use.
2. Radio spectrum is used by many devices employed at modern major events. Examples of wireless devices employed include wireless microphones (for concert performers and sports commentators), hand portables or “walkie-talkies” (for stewarding, event coordination etc.), wireless cameras (typically for sports coverage) including wireless closed-circuit television (CCTV) cameras (for safety and security), many of which are integral to state-of-the-art coverage of major special events.
3. All PMSE licences are issued on a non-interference, non-protected basis.
4. These guidelines provide information to the applicant on ComReg’s PMSE licensing regime such as, but not limited to:
 - a. licensing regimes appropriate to the temporary operation of radio equipment;
 - b. equipment technical standards;
 - c. current spectrum availability; and
 - d. the application process.
5. When planning events, organisers are advised to apply for a licence at the earliest possible stage as:
 - a. spectrum available for PMSE licensing is limited and, as such, it may not be possible to find appropriate spectrum at short notice;
 - b. it may take time to determine if adequate spectrum is available, particularly for large events and if co-ordination is required with the UK which is generally the case for events close to the border with Northern Ireland;
 - c. there may be strong demand for spectrum from the various parties involved in the event and, as such, it is necessary to try and meet everybody’s requirements as far as is practicable; and
 - e. technical and regulatory constraints may mean that a particular type of equipment which is suitable for operation in another country may not be suitable

for use in Ireland¹.

6. ComReg advises all prospective event organisers to make their technical staff and radio suppliers aware of the information contained in this document so that they may select the appropriate radio equipment for operation at special events in Ireland and comply with the relevant licensing requirements. Queries regarding these guidelines or on the licensing process can be directed to ComReg's Licensing Operations Team by telephone on 01 804 9600, or by email to licensing@comreg.ie.
7. Applicants are advised to check for the latest edition of published documents in the publications section of <https://www.comreg.ie/publications/>.
8. ComReg may revise these guidelines as required.

¹ For example a wireless camera which transmits in the 3.5 GHz band for which a licence may be available in the UK or another European Country may not be licensable in Ireland. This is because wireless broadband systems are licensed in that particular band and therefore wireless cameras might cause detrimental interference to such systems and vice-versa. Early application allows the operator sufficient time to procure alternative equipment suitable for the Irish band plan

2 Types of Licences

2.1 Temporary Business Radio Licences

9. Licences are issued to allow the use of radio equipment on a temporary basis for a limited period. Devices typically licensed under a Temporary Business Radio Licence include:
 - a. Hand Portables (Walkie-talkies)
 - b. Two-way radio base stations and repeaters
 - c. Wireless cameras
 - d. Wireless microphones
 - e. Miscellaneous data & telemetry devices (e.g. for wireless camera control).

2.2 Temporary Business Radio Licence Application Process

10. A Temporary Business Radio licence allows for the use of radio equipment at a specified location and event for the duration specified on the licence, not exceeding a maximum period of six months.
11. Licences must be issued to a legal entity i.e. either an individual or a limited company.
12. An application will not be processed until ComReg has received a valid application. To apply for a licence, applicants must login to ComReg's online facility which is available at www.elicensing.comreg.ie.
13. Applications for large events must be submitted no later than 10 working days prior to the start of the event. ComReg may not be able to meet the frequency requirements for applications received after this cut off period.
14. The fees for Temporary Business Radio are based on quantity of equipment in use and consist of a fixed charge of €12 plus a €12 fee for each piece of equipment used.

2.3 Temporary Point-to-Point Radio Link Licences

15. A typical point-to-point radio link consists of two stations with a clear line of sight between them and separated by distances of up to about 40 kilometers. Each station employs a highly directive antenna for transmission and reception. At some events there may be a requirement to deploy point-to-point links to relay mobile phone traffic from temporarily deployed base stations or to relay broadcast coverage back to a studio.
16. The point-to-point radio link licensing scheme allows for the temporary operation of links, subject to spectrum availability. Point-to-point radio links can be applied for through our online licensing facility at www.elicensing.comreg.ie. Further information on point-to-point radio links can be found on the ComReg website <https://www.comreg.ie/industry/radio-spectrum/licensing/search-licence-type/radio-links/>.

2.4 Temporary Broadcasting Licences

17. Licences containing rights of use to spectrum in respect of analogue and digital radio services are issued to RTÉ and the Broadcasting Authority of Ireland (BAI); see the Broadcasting Act 2009 (No 18 of 2009). If you are an independent body and wish to broadcast radio services you should contact the BAI at info@bai.ie.

2.5 Satellite Earth Station Licences

18. This scheme licences satellite earth stations, commonly referred to as Satellite News Gathering (SNG) systems to transmit live or recently recorded footage, as in the case of outside broadcast and news media vehicles.
19. The relevant guidelines and application forms for Satellite Earth Station Licences can be found on the ComReg website <https://www.comreg.ie/industry/radio-spectrum/licensing/search-licence-type/satellite/>.

3 Types of Events

Large-scale Events

20. Large-scale events typically entail a strong demand for radio spectrum for uses such as broadcast coverage, surveillance, marshalling, security, team communications and sound relay.
21. Organisers of large-scale events are advised to contact ComReg at the earliest possible stage of the event, preferably no less than six months in advance of the event, and before engaging the services of radio suppliers and broadcasters. This is in order to determine the amount of spectrum which may be required at the event location on the specified date.

Nationwide / Regional Events

22. Generally, there is less spectrum available for geographically wide-ranging events such as car rallies and cycle races, than is the case for events centred at a specific location (e.g. a concert or football match). This is because not all channels are available at all locations. Prospective users are advised to contact ComReg as early as possible. It should be noted that ComReg cannot issue a licence for nationwide coverage.

Cross-border Events

23. Wireless equipment used at cross-border events which take place simultaneously in Ireland and in Northern Ireland will require separate licences and authorisation from the relevant authorities in both jurisdictions
24. Applicants intending to operate in counties adjacent to the border with Northern Ireland² should note that applications for the border region may take longer to process than applications for the rest of the country due to coordinate and that certain sets of frequency channels may not be available in both jurisdictions as different National Radio Frequency Plans apply. This is because ComReg may have to coordinate with its counterpart in Northern Ireland in order to verify that channels assigned would not cause interference in that jurisdiction.
25. Contact details for the relevant licensing authorities for Northern Ireland are set out in Annex 6 of this document.

² Co Cavan, Co Donegal, Co Leitrim, Co Louth and Co Monaghan

Airborne Operation

26. There are a limited number of channels available for airborne operation. Potential for interference to existing assignments is greater from airborne operation than from ground-based transmitters, consequently, temporary channels for airborne operation, which are shared with permanent services, or which are already assigned to another temporary licensee, will not be assigned for airborne use. Some of the frequencies for airborne operations need to be coordinated with the Irish Aviation Authority (IAA)³. For this reason applicants are advised to apply well in advance of the event. Channels on which airborne operation is not permitted under any circumstances are set out in Annexes 1 to 5 of this document.

³ <https://www.iaa.ie/>

4 Radio Equipment Regulations and the Radio Equipment Directive (RED)

27. The Radio Equipment Directive 2014/53/EU (“RED”)⁴ was transposed into Irish law by way of the European Union (Radio Equipment) Regulations 2017 (S.I. No. 248/2017) (“RE Regulations”)⁵, which establishes a regulatory framework for placing radio equipment on the market. All radio and telecommunications terminal equipment placed on the market in Ireland are required to comply with the essential requirements and other relevant provisions of the Radio Equipment Directive.
28. It is possible that equipment brought into Ireland from outside the EU or EEA may not be RED compliant as this equipment may have been manufactured to comply with standards which apply in other parts of the world.
29. The obligations for placing radio equipment on the market are set out in full in the RE Regulations. These include:
- All radio equipment must have a CE mark fixed on the equipment and a Declaration of Conformity in the packaging.
 - All radio equipment must be accompanied by instructions and safety information.
30. Licensees are advised to familiarise themselves with the Radio Equipment Regulations (“RE Regulations”), as it is the responsibility of the licensee to ensure that all equipment being used is RED compliant.
31. ETSI European Standards relevant to radio equipment used for PMSE are referenced in Annex 7.

⁴ https://ec.europa.eu/growth/sectors/electrical-engineering/red-directive_en

⁵ <http://www.irishstatutebook.ie/eli/2017/si/248/made/en/print>

5 Spectrum Availability

5.1 Channels Available for Temporary Licensing

32. Listed in the Annexes to this document are the specific channels available as part of a Temporary Business Radio Licence for the various types of equipment typically deployed at events. It should be noted that, while the channel plans in the Annexes are intended to show the current availability of channels for temporary use and are intended to serve as a guide to selecting suitable equipment for operation in Ireland, the bands available are subject to revision from time to time.
33. Applications are processed on a first come first served basis .
34. Geographical restrictions are imposed on some frequency channels and bands. These are noted in the relevant Annexes.
35. It should also be noted that channels will only be assigned for temporary use under a Temporary Business Radio Licence in accordance with the channel plans outlined in the Annexes to this document or as updated by ComReg from time to time. Channels which are not consistent with the channel plans will not be assigned.

Wireless Microphones / In-ear Monitoring (IEM) Systems

36. Wireless microphones and IEM systems share frequency bands with Television Broadcasting (VHF⁶ and UHF⁷) and Digital Audio Broadcasting (DAB), which are the primary services in those bands. Consequently, licensed wireless microphones and IEM systems, as secondary services, are only licensed at locations where they will not cause interference to reception of television and digital radio from local transmitters.
37. The current interleaved and unused spectrum between 470 MHz – 694 MHz can be viewed on the ComReg website. This document should be used as a guide to assist in selecting preferred frequencies for microphone and IEM use in Ireland.

Temporary Private Mobile Radio (Two-way Radio)

38. Private Mobile Radio (PMR) services operate in VHF & UHF frequency bands on a non-interference, non-protected basis. Frequency channels available for these are listed in Annex 1.

⁶ Very High Frequency (VHF) range is from 30 MHz to 300 MHz

⁷ Ultra High Frequency (UHF) range is from 300 MHz to 3 GHz

5.2 Tone Control

39. Tone Control is a mechanism by which apparatus for wireless telegraphy transmits a specific signal for control purposes in addition to the speech signal⁸. This allows for more than one user group to operate on the same channel (co-channel users) without causing undue interference on that frequency. As the existence of co-channel users allow for more efficient use of the radio spectrum, Tone Control is encouraged to be implemented where possible on all licensed radio equipment. Tone Control is mandatory for repeater usage, remote base station usage and where talk through is in operation.

40. There are two common types of Tone Control protection, CTCSS and DCS.

Continuous Tone-Coded Squelch System

41. CTCSS is the most common protection available and is a widespread technology inbuilt into many radios. CTCSS filters out other users by sending a continuous tone with the transmission signal. If another user is using a different CTCSS tone (or no CTCSS) the transmitted signal will not be heard by that user. The set of standard CTCSS tones range from 67 Hz - 254 Hz.

Digitally Coded Squelch

42. DCS sends a continuous digital signal in conjunction with the transmitted signal which is then decoded by the receiving radio. These digital signals or "code-words" are made up of a 23-bit frame rate transmitted at 134.4 bits/s which can be represented as three octal digits such as "071". DCS provides a greater range of codes than CTCSS with 52 standard codes and a further 52 using the inverse of these codes (for example the inverse of '1011' would be '0100'). The logical inverts of allocated codes are omitted from the code groups to prevent interference between adjacent licensees who operate equipment with different shift carriers, positive or negative. In certain cases, logical inverts may be utilised on a site-by-site basis to double the codes available, provided all equipment used on a particular site employs exclusively either positive or negative carrier shift.

⁸ http://www.comreg.ie/_fileupload/publications/SI93of1998.pdf

6 Licence Exempt

Licence-exempt Operation

43. It is also worth noting that there are some radio systems which are exempt from licensing in Ireland. Licence-exempt equipment share radio spectrum with other radiodevices, they have a restricted output power and are intended for use over short distances. It is not permitted for licence-exempt equipment to cause interference to other devices. In addition, operators of such equipment are not entitled to claim protection from any interference received.
44. Examples of short-range radio systems used at special events, for which licence- exempt operation is available in specific frequency bands and under specific conditions include wireless microphones and audio systems, hand portables / walkie-talkies (PMR446) and wireless CCTV links.
45. Details concerning the types of licence-exempt equipment, relevant frequency bands, output power and other additional specific conditions are outlined below and also available on the ComReg website⁹.

PMR 446

46. PMR 446 (Personal Mobile Radio, 446 MHz) is a system using part of the UHF frequency range and is licence-exempt for personal use in many European Countries including Ireland. A PMR 446 two-way radio is essentially a small handset or walkie- talkie which may operate in the frequency range detailed below without the requirement of a licence. The range offered by PMR handsets can vary from a few hundred metres (in a city) to a few kilometres (open countryside). The PMR 446 bands are shown in the following table:

	Centre Frequency in Range (MHz)	Channel Spacing (kHz)	Max ERP (mW)
PMR 446 (Analogue)	446.0 - 446.1 MHz	12.5 kHz	500 mW
Digital PMR 446	446.1 - 446.2 MHz	6.25 or 12.5 kHz	500 mW

47. Please refer to ComReg document 02/71R¹⁰ (as revised) for further information concerning the interface requirements for PMR 446 equipment.

⁹ <https://www.comreg.ie/industry/radio-spectrum/licence-exemptions/>

¹⁰ <https://www.comreg.ie/industry/radio-spectrum/licence-exemptions/list-of-licence-exemptions/>

Wireless Microphones/ In-ear Monitor Channels

48. Low power (<10 mW ERP) wireless microphones, if fully compliant with the appropriate exemption order (SRD 02/71R, as revised) may operate on a licence-exempt basis in the bands listed in the following table:

Band	Centre Frequency in Range (MHz)	Channel Spacing (kHz)	Max ERP (mW)
VHF	173.965 – 174.015 MHz	50 kHz	2 mW
UHF	863.0 – 865.0 MHz	200 kHz	10 mW

49. Please refer to ComReg document 02/71R (as revised) for further information concerning the interface requirements for wireless microphones, In Ear Monitors(IEMs), Assistive Listening Devices (ALDs) and other wireless PMSE equipment.

Wireless CCTV

50. The operation of low power wireless video surveillance links is permitted on a licence-exempt basis in the bands listed in the following table, subject to the maximum output power specified:

Centre Frequency in range (MHz)	Max EIRP (mW) ¹¹
2400.0 - 2483.5 MHz	10 mW 25 mW ¹²
1349 MHz	500 mW ¹³

51. Please refer to ComReg document 02/71R (as revised) for further information concerning the interface requirements for video surveillance equipment and non-specific short-range devices.

¹¹ Equivalent Isotropic Radiated Power

¹² Video Surveillance only

¹³ Video senders only

Annex: 1 Private Mobile Radio (Two-way Radio) Channels

Simplex Channels

VHF High Band 169 MHz

16 Channels Available	
Max ERP:	5 W
Max Channel Bandwidth:	12.5 kHz
Airborne Use Permitted?	Yes

Centre Frequency (MHz)	
169.61875	169.63125
169.64375	169.65625
169.66875	169.68125
169.69375	169.70625
169.71875	169.73125
169.74375	169.75625
169.76875	169.78125
169.79375	169.80625

UHF 441 MHz

64 Channels Available	
Simplex channels in range:	441.2000 - 441.9875 MHz
Channel spacing:	every 12.5 kHz
Max ERP:	25 W
Max channel bandwidth:	12.5 kHz
Airborne operation permitted?	Yes

UHF 444 MHz

80 channels available	
Simplex channels in range:	444.0000 - 444.9875 MHz
Channel spacing:	every 12.5 kHz
Max ERP:	25 W
Max channel bandwidth:	12.5 kHz
Airborne operation permitted?	Yes

UHF 445 MHz

80 channels available	
Simplex channels in range:	445.0000 - 445.9875 MHz
Channel spacing:	every 12.5 kHz
Max ERP:	25 W
Max channel bandwidth:	12.5 kHz
Airborne operation permitted?	Yes

UHF 446MHz

62 channels available	
Simplex channels in range:	446.2250 - 446.9875 MHz
Channel spacing:	every 12.5 kHz
Max ERP:	25 W
Max channel bandwidth:	12.5 kHz
Airborne operation permitted?	Yes

UHF 465MHz

15 Channels Available	
Max ERP:	5 W
Max Channel Bandwidth:	12.5 kHz
Airborne Use Permitted?	Yes

Centre Frequency (MHz)	
465.8000	465.8125
465.8250	465.8375
465.8500	465.8625
465.8750	465.8875
465.9000	465.9125
465.9250	465.9375
465.9500	465.9625
465.9750	

Duplex Channels

VHF High Band

16 Channels Available		
Max ERP:	Base 25 W	Mobile/Portable 5 W
Max Channel Bandwidth:	12.5 kHz	
Airborne Use Permitted?	Yes	

Base (MHz)	Mobiles/Portables (MHz)
165.5250	170.3250
166.4250	171.2250
167.5000	172.3000
167.6375	172.4375
167.6500	172.4500
167.6625	172.4625
167.6750	172.4750
167.6875	172.4875
167.7000	172.5000
167.7250	172.5250
168.9500	173.7500
168.9625	173.7625
168.9750	173.7750
168.9875	173.7875
169.0000	173.8000
169.0125	173.8125

UHF 442/447 MHz

56 channels available	
Base frequency in range:	442.3000 - 442.9875 MHz
Mobile/Portable frequency in range:	447.3000 - 447.9875 MHz
Channel spacing:	every 12.5 kHz
Split between base and mobile/portable frequencies:	5 MHz
Base max ERP:	25 W
Mobile/Portable max ERP:	5 W
Max channel bandwidth:	12.5 kHz
Airborne operation permitted?	Yes

UHF 443/448 MHz

80 channels available	
Base frequency in range:	443.0000 - 443.9875 MHz
Mobile/Portable frequency in range:	448.0000 - 448.9875 MHz
Channel spacing:	every 12.5 kHz
Split between base and mobile/portable frequencies:	5 MHz
Base max ERP:	25 W
Mobile/Portable max ERP:	5 W
Max channel bandwidth:	12.5 kHz
Airborne operation permitted?	Yes

UHF 456/461MHz

13 Channels Available		
Max ERP:	Base 25 W	Mobile/Portable 5 W
Max Channel Bandwidth:	12.5 kHz	

Base (MHz)	Mobiles/Portables (MHz)	Geographic Limitations (Regions where the channel is not available)	Airborne Use Permitted?
456.0000	461.5000		Yes
456.0125	461.5125		Yes
456.0250	461.5250	Co. Meath	No
456.0375	461.5375		Yes
456.0500	461.5500		Yes
456.0625	461.5625		Yes
456.0750	461.5750		Yes
456.0875	461.5875		Yes
456.1000	461.6000		Yes
456.1125	461.6125		Yes
456.1250	461.6250		Yes
456.1375	461.6375		Yes
456.1500	461.6500		Yes

UHF 455/469MHz

36 Channels Available		
Max ERP:	Base 25 W	Mobile/Portable 5 W
Max Channel Bandwidth:	12.5 kHz	
Airborne Use Permitted?	Yes	

Base (MHz)	Mobiles/ Portables (MHz)
455.0000	469.0000
455.0125	469.0125
455.0250	469.0250
455.0375	469.0375
455.0500	469.0500
455.0625	469.0625
455.0750	469.0750
455.0875	469.0875
455.1000	469.1000
455.1125	469.1125
455.1250	469.1250
455.1375	469.1375
455.1500	469.1500
455.1625	469.1625
455.1750	469.1750
455.1875	469.1875
455.2000	469.2000
455.2125	469.2125
455.2250	469.2250
455.2375	469.2375
455.2500	469.2500
455.2625	469.2625
455.2750	469.2750
455.2875	469.2875
455.3000	469.3000
455.3125	469.3125
455.3250	469.3250
455.3375	469.3375
455.3500	469.3500
455.3625	469.3625
455.3750	469.3750
455.3875	469.3875
455.4000	469.4000
455.4125	469.4125
455.4250	469.4250
455.4375	469.4375

Annex: 2 Wireless Microphone / In-ear Monitor Channels

Licensed Channels

VHF Channels

Centre Frequency in Range (MHz)	Max Bandwidth (kHz)	Channel	Typical ERP (mW)	Max ERP (W)	Channel Spacing
174 – 230 MHz	200 kHz		50 mW	1 W	12.5 kHz

UHF Channels

Centre Frequency in Range (MHz)	Max Bandwidth (kHz)	Channel	Typical ERP (mW)	Max ERP (W)	Channel Spacing
470 – 703 MHz	200 kHz		50 mW	50 mW	12.5 kHz
733 – 753 MHz	200 kHz		50 mW	50 mW	12.5 kHz

Centre Frequency in Range (MHz)	Max Bandwidth (kHz)	Channel	Max ERP (W)	Channel Spacing
823-826 MHz	200 kHz		20 mW (for handheld) 100 mW (for body worn)	12.5 kHz
826 - 832 MHz	200 kHz		100 mW	12.5 kHz

1785 - 1805 MHz Channels

Centre Frequency in Range (MHz)	Channel Bandwidth (kHz)	Max ERP (W)	Channel Spacing
1785 - 1785.2 MHz	200 kHz	2.5 mW (for handheld) 50 mW (for body worn)	12.5 kHz
1785.2 - 1803.6 MHz	200 kHz	20 mW (for handheld) ¹⁴ 50 mW (for body worn) ^{15 14}	12.5 kHz
1803.6 - 1804.8 MHz	200 kHz	10 mW (for handheld) ¹⁶ 50 mW (for body worn) ¹⁷	12.5 kHz
1804.8 - 1805 MHz	200 kHz	0.04 mW (for handheld) 1 mW (for body worn)	12.5 kHz

The current interleaved and unused spectrum between 470 MHz and 790 MHz can be viewed on the ComReg website¹⁸

The current interleaved and unused spectrum document is subject to change and may be updated as required by ComReg. The latest version will be available on the ComReg website.

¹⁴ For channels greater than 200 kHz, the max ERP is restricted to 20 mW per channel for handheld equipment and 50 mW per channel for body worn equipment.

¹⁵ For channels greater than 200 kHz, the max ERP is restricted to 20 mW per channel for handheld equipment and 50 mW per channel for body worn equipment.

¹⁶ For channels greater than 200 kHz, the max ERP is restricted to 20 mW per channel for handheld equipment and 50 mW per channel for body worn equipment.

¹⁷ For channels greater than 200 kHz, the max ERP is restricted to 20 mW per channel for handheld equipment and 50 mW per channel for body worn equipment.

¹⁸ http://www.comreg.ie/radio_spectrum/temporary_business_radio_licensing_information.541.821.html

Annex: 3 Wireless Camera Channels

1980 – 2010 MHz

2 Channels Available	
Max ERP:	5 W
Max Channel Bandwidth:	10 MHz
Airborne Use Permitted?	Yes

Centre Frequency (MHz)
1990
2000

2010 – 2025 MHz

2 Channels Available	
Max Channel Bandwidth:	10 MHz
Airborne Use Permitted?	Yes

Centre Frequency (MHz)
2010
2020

Type of Link	E.R.P.
Wireless camera	0.122 W
Portable video link	24.3 W
Mobile video link	6.1 W

2025 – 2110 MHz

8 Channels Available	
Max ERP:	1 W
Max Channel Bandwidth:	10 MHz
Airborne Use Permitted	No

Centre Frequency (MHz)	Geographic Limitations
2035	Limited availability outside Co Dublin, Co Kildare, Co Louth & Co Meath
2045	Limited availability outside Co Dublin, Co Kildare, Co Louth & Co Meath
2055	Not available in Co Dublin for bandwidth >8 MHz
	Limited availability outside Co Kildare, Co Louth & Co Meath
2065	Not available in Co Dublin
	Limited availability outside Co Kildare, Co Louth & Co Meath
2075	Not available in Co Dublin
	Limited availability outside Co Kildare, Co Louth & Co Meath
2085	Limited availability outside Co Dublin, Co Kildare, Co Louth & Co Meath
2095	Limited availability outside Co Dublin, Co Kildare, Co Louth & Co Meath
2105	Limited availability outside Co Dublin, Co Kildare, Co Louth & Co Meath

2170 – 2200 MHz

3 Channels Available	
Max ERP:	5 W
Max Channel Bandwidth:	10 MHz
Airborne Use Permitted?	Yes

Centre Frequency(MHz)
2175
2185
2195

2200 – 2300 MHz**10 Channels Available**

Max Channel Bandwidth: 10 MHz

Centre Frequency (MHz)	Maximum Radiated Power (ERP)	Effective Power	Geographic Limitations	Airborne Use Permitted?
2205	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2215	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2225	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2235	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2245	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2255	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2265	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2275	1 W		Limited availability outside Co Dublin, Co Kildare, Co Louth, Co Wexford, Co Carlow & Co Meath	No
2285	5 W			Yes
2295	5 W			Yes

10.3 – 10.5 GHz

16 Channels Available	
Max ERP:	5 W
Max Channel Bandwidth:	10 MHz
Airborne Use Permitted?	Yes

Centre Frequencies (GHz)	
10.3050	10.3150
10.3250	10.3350
10.3450	10.3550
10.3650	10.3750
10.3850	10.4350
10.4450	10.4550
10.4650	10.4750
10.4850	10.4950

U6 (6.425 – 7.125 GHz)

Interleaved access to U6 and L7 bands are available for wireless cameras for indoor events and at locations where the event is sufficiently far away enough from any existing licensed fixed links using these bands. Therefore, the availability of spectrum in these bands for outdoor events will depend heavily on the geographic location of the event.

Wireless Camera centre frequencies in range:	6.430 – 7.120 GHz
Channel spacing:	10 MHz
Max ERP:	5 W
Max Channel Bandwidth:	10 MHz

Wireless Camera centre frequencies in range:	6.435 – 7.115 GHz
Channel spacing:	20 MHz
Max ERP:	5 W
Max Channel Bandwidth:	20 MHz

L7 (7.125 – 7.425 GHz)

Wireless Camera centre frequencies in range:	7.130 – 7.420 GHz
Channel spacing:	10 MHz
Max ERP:	5 W
Max Channel Bandwidth:	10 MHz

Wireless Camera centre frequencies in range:	7.135 – 7.415 GHz
Channel spacing:	20 MHz
Max ERP:	5 W
Max Channel Bandwidth:	20 MHz

Annex: 4 Wireless CCTV (Closed Circuit Television) Link Channels

Licensed Channels

The channels available for licensed temporary wireless CCTV links are the same as for Wireless Cameras. Please refer to Annex 3 for a full channel list.

Annex: 5 Data / Telemetry Channels

VHF Channels

It should be noted that temporary VHF data channels share frequency bands with some broadcasting services which are the primary services in the relevant band .

Consequently, temporary data transmitters, as secondary services, are only licensed at locations where they will not cause interference to reception of television and digital radio from local transmitters.

The channels available for temporary VHF data systems are as shown in the following table:

Centre Frequency in range (MHz)	Max Channel Bandwidth (kHz)	Max ERP (W)	Airborne Use Permitted?
174 - 230 MHz	25 kHz	1 W	No

UHF 12.5 kHz Channels

16 Channels Available

Max Channel Bandwidth:	12.5 KHz
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Centre Frequency (MHz)	Max Effective Radiated Power (ERP)	Airborne Use Permitted?
456.0375	5 W	Yes
456.1000	5 W	Yes
456.1250	5 W	Yes
455.4125	5 W	Yes
455.4250	5 W	Yes
455.4375	5 W	Yes
455.4500	5 W	Yes
455.4625	5 W	Yes
455.4750	5 W	Yes
455.4875	5 W	Yes
455.5000	5 W	Yes
455.5125	5 W	Yes
455.5250	5 W	Yes
461.5375	5 W	Yes
461.6000	5 W	Yes
461.6250	5 W	Yes

UHF 25 kHz Channels

3 Channels Available	
Max Channel Bandwidth:	25 KHz
Airborne Use Permitted?	Yes

Centre Frequency (MHz)	Max Effective Radiated Power (ERP)
455.4375	5 W
455.4625	5 W
455.4875	5 W

Annex: 6 Useful Contacts

Commission for Communications Regulation (ComReg)

Licensing Operations Unit Tel: +353 1 804 9600
Market Framework Division

Commission for Communications Regulation, Email: licensing@comreg.ie
One Dockland Central, Web: www.comreg.ie
Guild Street
Dublin 1
D01 E4X0

Interference Investigation / Unlicensed Equipment

Spectrum Compliance Team Tel: +353 1 804 9600
Market Framework Division

Commission for Communications Regulation, Email: licensing@comreg.ie
One Dockland Central, Web: www.comreg.ie
Guild Street
Dublin 1
D01 E4X0

The Broadcasting Authority Of Ireland (BAI)

The Broadcasting Authority of Ireland, Tel: +353 1 644 1200
2 - 5 Warrington Place, Email: info@bai.ie
Dublin 2 Web: www.bai.ie

Arqiva PMSE - UK

Arqiva PMSE
4th Floor, UK House
2 Great Titchfield Street London
W1W 8BB
United Kingdom

Tel: +44 (0) 20 7299 8660
Emergency Out of hours: +44 (0) 7866 423619
E-mail: PMSE@arqiva.com
Web: www.pmse.co.uk

Office of Communications (Ofcom) – UK

Ofcom Licensing Centre Riverside House
2a Southwark Bridge Road London
SE1 9HA
United Kingdom

Tel: +44 (0) 20 7981 3131
or +44 (0) 300 123 1000
Web: www.ofcom.org.uk/licensing

Annex: 7 Relevant ETSI European Standards

- EN 300 422 - Electromagnetic compatibility and Radio Spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range;
 - Part 1: Technical characteristics and test methods.
- EN 300 086 - Electromagnetic compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment with an internal or external RF connector intended primarily for analogue speech;
 - Part 1: Technical characteristics and methods of measurement.
- EN 300 113 - Electromagnetic compatibility and Radio Spectrum Matters (ERM); Land mobile service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector;
 - Part 1: Technical characteristics and methods of measurement.
- EN 300 454 - Electromagnetic compatibility and Radio Spectrum Matters (ERM); Wide band audio links;
 - Part 1: Technical characteristics and test methods.
- EN 301 489 - Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services;
 - Part 1: Common technical requirements
 - Part 9: Specific conditions for wireless microphones, similar Radio Frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices.
- EN 302 064 - Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless Video Links (WVL) operating in the 1.3 GHz to 50 GHz frequency band;
 - Part 1: Technical characteristics and methods of measurement