



Association of Professional Wireless
Production Technologies e. V.
Pappelallee 78/79
10437 Berlin, Germany

Frequencies for wireless microphones

*This is how it works in Australia, Austria,
Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada,
Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Japan,
Latvia, Luxembourg, Malta, Monaco, The Netherlands, New Zealand, Norway, Portugal,
Romania, Serbia, Slovenia, Spain, South Africa, South Korea, Sweden, Switzerland, USA,
UAE, Ukraine and UK.*

This document is a collection of information created by APWPT.

The information is updated whenever updates become available.

We try to always mention explicitly the reference documents from which the information is taken.

- Revision September 2024, 2 -

Useful Links:

(1)

THE EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND APPLICATIONS IN THE FREQUENCY RANGE 8.3 kHz to 3000 GHz (ECA TABLE)

Approved October 2021, Editorial update 10 March 2023

<https://docdb.cept.org/download/4316>

(2)

FreqCoord – the online frequency coordination tool

<https://www.freqcoord.com/>

FreqCoord makes frequency planning for events easy and cost-effective which leads to smooth operation of wireless devices (e.g. wireless microphones, in-ear monitors, wireless cameras) for all users. In addition, FreqCoord shows the DVB-T interference situation in Switzerland and Germany.

FreqCoord is a public platform provided by SRF
SRF, FreqCoord, Fernsehstrasse 1-4, CH-8052 Zürich
support@freqcoord.com

(3)

CEPT/ECO provides a frequency database, called "EFIS": <https://efis.cept.org/>

(4)

Frequency Scans: <https://fmscan.org>

* not complete e.g. for Germany, hint: use google maps and search for "Fernmeldeturm" there

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Australia

Australia radiofrequency spectrum

<https://www.acma.gov.au/sites/default/files/2019-10/Australian%20radiofrequency%20spectrum%20allocations%20chart.pdf>

Radiocommunications licences

<https://www.acma.gov.au/radiocommunications-licences>

Wireless microphones

If you use a wireless microphone you need to use the right frequency.

Do not use the wrong frequency

If your wireless microphone is able to operate in the 520 to 694 MHz frequency band, you need to check for an available channel in your area by using the [Channel Finder](#)

<https://channelfinder.acma.gov.au/>

This frequency band is used for TV broadcasting services across Australia and if you don't use the right frequency for your area you may interfere with TV reception.

Use the right frequency

You should use your wireless microphone only at the right frequency for your area if operating in the frequency ranges of 520 to 694 MHz.

You can no longer use wireless microphones in the frequency range of 694 to 820 MHz.

There is a group of frequency ranges for wireless audio applications such as wireless intercoms, headsets in fast food outlets, hearing aids and toy microphones. Details can be found in items 24-31 in Schedule 1 of the [Low Interference Potential Devices \(LIPD\) class licence](#). (<https://www.acma.gov.au/node/1873>)

Wireless microphones can also operate in the frequency ranges listed in the items 1 to 23A of the Schedule 1 of the [Low Interference Potential Devices \(LIPD\) class licence](#) (<https://www.acma.gov.au/licences/low-interference-potential-devices-lipd-class-licence>)

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The LIPD class licence authorises the use of wireless microphones within certain frequency bands but the lower limit is always excluded. You can operate wireless microphones from 915 to 928 MHz band, but not at 915 MHz.

Frequency range (MHz)	Devices and services
520 to 694	Television broadcasting services are the main users of this range. Wireless audio transmitters should only use the unused frequencies in this range. Use Channel Finder (https://channelfinder.acma.gov.au/) to find available frequencies in your area. Wireless microphones can use frequencies 520 to 526 MHz in all areas.
1785 to 1800	This frequency range is only for wireless microphone and other audio transmitter use. This frequency range is available in all areas.

We do not give any guarantee for the correctness or completeness of the information. We assume no responsibility for external links.

174 to 230 This frequency range is available in many regional and remote areas. Use [Channel Finder](#)

Any transmitter:

915 to 928	A wide variety of devices including use these frequency ranges. Wireless microphones and audio transmitters can also use these frequencies. The 88 to 108 MHz frequency range is
2400 to 2483.5	only for wireless audio transmitters and auditory assistance transmitters
5725 to 5875	
88 to 108	

There is also a group of frequency ranges from 10 to 400 MHz that wireless audio applications have used. This includes:

- wireless intercoms
- headsets in fast food outlets
- hearing aids
- toy microphones

Limited equipment is available on the market that could be suitable for such niche applications.

Information from an APWPT member (Summer 2024):

“The LIPD class licence authorises the use of wireless microphones within certain frequency bands but the lower limit is always excluded. You can operate wireless microphones from 915 to 928 MHz band, but not at 915 MHz.”

Your responsibilities

You should use your wireless microphone on the right frequency for your location. If your device is using an unauthorised frequency, you should try to retune it or get help to fix the problem.

Be careful when you buy wireless microphones from overseas sellers as other countries use different frequency ranges for these devices.

You can download the infographic about [how to spot a dodgy device](https://www.acma.gov.au/how-spot-dodgy-device). (https://www.acma.gov.au/how-spot-dodgy-device)

The rules for using wireless microphones

You don't need to pay or apply for a licence as your wireless microphone is authorised to operate under the [LIPD class licence](#). You must comply with the conditions of the LIPD class licence.

Note: information as of January 2024

Austria

Neu 2024 (english version below)

Leider haben sich die Modalitäten in Österreich geändert, es ist viel komplizierter geworden Funkanlagen anzumelden.

1. Wenn eine Firma in Österreich drahtlose Mikrofone oder Geräte die § 33 Telekommunikationsgesetz 2021 entsprechen verwenden will, ist es erforderlich, zuerst ein Online- Benutzerkonto bei der Behörde anzulegen, unabhängig davon, wie lange die Produktion dauert um dann die gewünschten Geräte eintragen zu können. Es wird in der Folge eine Bewilligung für 10 Jahre ausgestellt. Es erfolgt aber keine Frequenzkoordinierung, die Bewilligung alleine garantiert also nicht, eine störungsfreie Frequenz zu bekommen.

Der Link zur Anmeldung lautet:

https://anzeige.intellisolution.at/wppublic/?page_id=39

2. Ist eine Frequenzkoordinierung von drahtlosen Mikros und §33 Geräten gewünscht, ist eine (kostenlose) Anmeldung bei <https://frequenz.orf.at> notwendig. Der ORF übernimmt hier eine Aufgabe, die von amtlicher Seite nicht (mehr) übernommen wird und koordiniert im gesamten Bundesgebiet die PMSE Frequenzen.

3. Will eine Firma aber auch Handfunkgeräte, Mobilfunkgeräte, Telemetriesender, Funkkameras, Richtfunkstrecken oä. verwenden, ist ein eigenes pdf- Formular auszufüllen und per Mail an die Adresse office@fb.gv.at und bei Veranstaltungen auch in CC: an gerhard.keller@ors.at zu senden.

Das Formular findet man unter:

https://www.fb.gv.at/dam/jcr:936b9c46-5df6-4854-af76-e30c66a5bcbd/BMLRT_FB_Formular_Event.pdf

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www.shorturl.at/cohhf

English version

Unfortunately, the modalities in Austria have changed **in 2024**, it has become much more complicated to register wireless equipment.

1. if a company in Austria wants to use wireless microphones or devices that comply with § 33 Telecommunications Act 2021, it is necessary to first create an online user account with the authority, regardless of how long the production takes, in order to be able to register the desired devices. A permit is then issued for 10 years. However, there is no frequency coordination, so the license alone does not guarantee an interference-free frequency.

The link to the application is

https://anzeige.intellisolution.at/wppublic/?page_id=39

2. if frequency coordination of wireless microphones and § 33 devices is desired, a (free) registration at <https://frequenz.orf.at> is required. The ORF takes on a task here that is not (or no longer) performed by the official authorities and coordinates the PMSE frequencies throughout Austria.

3. however, if a company also wishes to use handheld radios, mobile radios, telemetry transmitters, radio cameras, radio relay links, etc., a separate pdf form must be completed and sent by e-mail to office@fb.gv.at and, for events, also in CC: to gerhard.keller@ors.at.

The form can be found at

https://www.fb.gv.at/dam/jcr:936b9c46-5df6-4854-af76-e30c66a5bcbd/BMLRT_FB_Formular_Event.pdf

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www.shorturl.at/cohhf

Individual assignment / License required

- 174 - 216 MHz, 50 mW ERP, FSB-LT015
- 230 - 250 MHz, 50 mW ERP, FSB-LT001
- 470 - 694 MHz, 50 mW ERP, FSB-LT009 (currently under revision)
- 694 - 703 MHz, 12 mW ERP, FSB-LT016 (currently under revision)
- 733 - 758 MHz, 12 mW ERP, FSB-LT016 (currently under revision)
- 788 - 790 MHz, 12 mW ERP, FSB-LT016 (currently under revision)
- 823 - 826 MHz, 20 mW e.i.r.p. or 100 mW e.i.r.p. for body-worn wireless microphones, FSB-LT017
- 826 - 832 MHz, 100 mW e.i.r.p., FSB-LT018
- 863 - 865 MHz, 10 mW ERP
- 1350 - 1400 MHz, 20 mW e.i.r.p. or 50 mW e.i.r.p. for body-worn wireless microphones, FSB-LT019 (currently in preparation)
- 1518 - 1525 MHz, 20 mW e.i.r.p. or 50 mW e.i.r.p. for body-worn wireless microphones. FSB-LT021 (currently in preparation)

For all frequency ranges above an application is mandatory with a maximum period of frequency assignment of 10 years.

No individual license required / License exempt frequencies (General license)

- 863 - 865 MHz, max. 10 mW ERP, SUB-Class 48
- 1785 - 1804.8 MHz, 20 mW e.i.r.p. or 50 mW e.i.r.p. for body-worn wireless, FSB-LT004
- 1880 - 1900 MHz, DECT equipment, 250 mW e.i.r.p.

Fees

Fees of € 53 per transmitter will be levied.

Information from EU study in Nov 2022

Source: <https://apwpt.org/wp-content/uploads/2022/10/study-on-the-use-of-the-sub-700-mhz-band-470-694-mhz-KK0722768ENN.pdf>

Within Austria, the following bands can be used for PMSE equipment under a light licensing regime:

- 470 – 694MHz;
- 694 – 703MHz;
- 733 – 758MHz;
- 788 – 790MHz;
- 823 – 826MHz;
- 826 – 832MHz;
- 1350 – 1400MHz;
- 1427 – 1518MHz; and
- 1518 – 1525MHz.

The following bands are made available under a general authorisation regime:

- 863 – 865MHz; and
- 1785 – 1804.8MHz.

Further information

- Contact addresses of the four responsible Local Telecommunication Offices:
- Fernmeldebüro
Fernmeldebehörde der Republik Österreich
office@fb.gv.at
+43 1 71100 654500
Radetzkystraße 2, 1030 Wien

https://www.bmf.gv.at/themen/telekommunikation-post_2/funk-mobilfunk/funk-frequenzen/nationale-frequenznutzung.html

Bundesrecht konsolidiert: Gesamte Rechtsvorschrift für Frequenznutzungsverordnung 2013, Fassung vom 01.01.2024

<https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20008807>

Eventbewilligung, Application form for a temporary licence

<https://www.fb.gv.at/formulare/event.html>

Note: preliminary information January 2023

Belgium

The IBPT (Institut belge des Services postaux et des Télécommunications) is entrusted with managing the way radiofrequencies are put to use. Related equipments to be used in Belgium shall fit the overall plan detailed here:

<https://www.ibpt.be/operateurs/plan-des-frequences>

English:

<https://www.bipt.be/operators/frequency-plan>

Deutsch:

<https://www.bipt.be/betreiber/frequenzplan>

Each sub-category displays the specifics of a variety of regimes, like this one, for instance, regarding wireless microphones in the 470-518 MHz band:

<https://www.ibpt.be/file/cc73d96153bbd5448a56f19d925d05b1379c7f21/0538291e230b1ca11492fe1483e010ec4da9b592/b-fr.pdf#page=273>

or that one for the same devices in the 518-526 MHz band:

<https://www.ibpt.be/file/cc73d96153bbd5448a56f19d925d05b1379c7f21/0538291e230b1ca11492fe1483e010ec4da9b592/b-fr.pdf#page=275>

No individual license required / License exempt frequencies

- 29.7 - 47 MHz,
- 202 - 209 MHz, Radio microphones, max 50 mW ERP
- 518 - 526 MHz, Radio microphones, max 50 mW ERP
- 534 - 542 MHz, Radio microphones, max 50 mW ERP
Forbidden in the Province of Hainaut and in the Entre-Sambre et Meuse region
- 823 - 826 MHz, max 20 mW (hand micro), max 50 mW (pocket/belt micro)
- 826 - 832 MHz, max 100 mW
- 863 - 865 MHz, Radio microphones, max 10 mW ERP
- 1795 - 1800 MHz, Radio microphones, max 20 mW (hand micro), max 50 mW (pocket/belt micro)
- 1880 - 1900 MHz, DECT Equipment

see for 2022 (in German):

<https://www.bipt.be/file/cc73d96153bbd5448a56f19d925d05b1379c7f21/848660f5f3f6ff5cc04e86efa55c04e807c0f04c/BEL-DE-22-2.pdf>

in English: <https://www.bipt.be/consumers/free-use-of-radio>

Information from EU study in Nov 2022

Source: <https://apwpt.org/wp-content/uploads/2022/10/study-on-the-use-of-the-sub-700-mhz-band-470-694-mhz-KK0722768ENN.pdf>

Within Belgium, the following bands can be used for PMSE equipment:

We do not give any guarantee for the correctness or completeness of the information. We assume no responsibility for external links.

- 29.7 – 47MHz;
- 174 – 216MHz;
- 470 – 789MHz;
- 823 – 832MHz;
- 863 – 865MHz;
- 1492 – 1518MHz; and
- 1785 – 1804.8MHz.

License required

All bands are permitted to be used on a licence exempt basis, with the exception of the 174 – 216MHz and 470 – 790MHz bands which both require individual licensing.

How to get a short- or long-term license for?

The form you can download from:

<https://www.bipt.be/consumers/publication/application-form-to-obtain-a-license-for-the-use-of-private-radio-communications-stations> (English)

Large events request form:

<https://www.bipt.be/consumers/publication/large-events-request-form>

Fees

no fees.

Information for 2022 (in German language)

<https://www.bipt.be/verbraucher/mikrofone>

Information for 2022 (in English language)

<https://www.bipt.be/consumers/microphones>

More information is at

Belgian Institute for Postal services and Communications, Service Radiolicences

Ellipse Building – building C

Koning Albert II-laan 35 (Boulevard du Roi Albert II 35 box 1)

1030 BRUSSELS



All Belgium
Valid from 01-01-2024 to 31-03-2024

The licence is only valid if accompanied by this document
<https://www.bipt.be/consumers/microphones>

Channel	Fmin (MHz)	Fmax (MHz)	All Belgium	Comments
	29.7	47	OK	Power limited to 10 mW ERP
	174	202	NOK	
9	202	209	OK	Without licence for a power < = 50 mW ERP
10	209	216	NOK	
21	470	478	NOK	
22	478	486	NOK	
23	486	494	NOK	
24	494	502	NOK	
25	502	510	NOK	
26	510	518	NOK	
27	518	526	OK	Without licence for a power < = 50 mW ERP
28	526	534	NOK	
29	534	542	OK	Without licence for a power < = 50 mW ERP
30	542	550	NOK	
31	550	558	NOK	
32	558	566	NOK	
33	566	574	NOK	
34	574	582	NOK	
35	582	590	NOK	
36	590	598	NOK	
37	598	606	NOK	
38	606	614	NOK	
39	614	622	NOK	
40	622	630	NOK	
41	630	638	NOK	
42	638	646	NOK	
43	646	654	NOK	
44	654	662	NOK	
45	662	670	OK	Power in accordance with the licence
46	670	678	NOK	
47	678	686	NOK	
48	686	694	NOK	
49	694	702	NOK	
50	702	710	NOK	
51	710	718	NOK	
52	718	726	NOK	
53	726	734	NOK	
54	734	742	NOK	
55	742	750	NOK	
56	750	758	NOK	
57	758	766	NOK	
58	766	774	NOK	
59	774	782	NOK	
60a	782	786	NOK	
60b	786	789	NOK	
	789	822	NOK	
	823	826	OK	Without licence for a power < = 20 mW EIRP (hand microphones) or < = 100 mW EIRP (pocket microphones)
	826	832	OK	Without licence for a power < = 100 mW EIRP
	832	862	NOK	
	863	865	OK	Without licence for a power < = 10 mW EIRP
	1492	1525	OK	Power < = 50 mW EIRP, to use only inside the buildings
	1785	1800	OK	Without licence for a power < = 20 mW EIRP or < = 50 mW EIRP (pocket microphones)
	1800	1805	OK	Power < = 20 mW EIRP or < = 50 mW EIRP (pocket microphones)

Comments :

No guarantee of non-interference
 Except 506.2 - 506.7 - 507.1 - 507.45 MHz
 Except 595.2 - 595.7 - 596.1 - 596.45 MHz
 Except 602.2 - 602.7 - 603.1 - 603.45 MHz



Note: information as of January 2024

Bosnia and Herzegovina

Bosnia and Herzegovina does not license microphones in general, on a tuning range basis ([Rule 81/2017](#), Annex X, the transposed ERC-REC 70-03 of that date) mic's can be used without licensing in the following bands:

RADIO MICROPHONE APPLICATIONS INCLUDING ASSISTIVE LISTENING DEVICES (ALD), WIRELESS AUDIO AND MULTIMEDIA STREAMING SYSTEMS

This annex covers frequency bands and regulatory parameters recommended for the use of radio microphone applications, hearing aids and wireless audio and multimedia streaming systems. It includes both professional and consumer radio microphones, both hand-held and body-worn, in-ear monitoring devices and Assistive Listening Devices (ALD). It also includes wireless audio and multimedia streaming (real-time playback including signal transmission and synchronization) devices, including wireless speakers, wireless headphones, low-power FM receivers that within the 87.5 to 108 MHz band create an RF connection between the transmission device and sound reproduction including cell phones, home entertainment systems or similar car systems, etc.

Frequency Band	Power/Magnetic Field	Reference documents CEPT or EC	Reference standard	Notes
1	29,7-47 MHz	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones. On a tuning range basis. Frequency bands 30.3-30.5 MHz, 32.15-32.45 MHz and 41.015-47.00 MHz are harmonized military bands.
2	87,5-108 MHz	ERC/REC 70-03 Annex 10 (EU) 2017/1483	EN 301 357	Low power FM transmitters
3	169,4-174 MHz	ERC/REC 70-03 Annex 10	EN 300 422	ALD—Assistive Listening Device On a tuning range basis
4	169,4-169,475 MHz	ECC/DEC/(05)02 ERC/REC 70-03 Annex 10 (EU) 2017/1483	EN 300 422	ALD—Assistive Listening Device
5	169,4875-169,5875 MHz	ECC/DEC/(05)02 ERC/REC 70-03 Annex 10 (EU) 2017/1483	EN 300 422	ALD—Assistive Listening Device
6	179,965-216 MHz	ECC Report 230 (EU) 2017/1483	EN 300 422	Hearing aids ALD—Assistive Listening Device. On a tuning range basis. A threshold of 25 dB microvolts/m is required to ensure the protection of the DAB receiver set at 1.5 m from the hearing aid, depending on the measurement of the DAB signal strength near the field of hearing aids. Hearing aids should, in all conditions, operate at frequencies at least 300 kHz off the frequency of the used DAB channel.
7	174-216 MHz	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones On a tuning range basis.
8	470-786 MHz	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones On a tuning range basis.
9	786-789 MHz	ERC/REC 70-03 Annex 10 Detailed in technical conditions for the operation of PMSE equipment in Annex 3 to ECC/DEC/(09)03 Part 3.1	EN 300 422	Radio microphones On a tuning range basis.
10	823-826 MHz	ERC/REC 70-03 Annex 10 Detailed in technical conditions for the operation of PMSE equipment in Annex 3 to ECC/DEC/(09)03 Part 3.1	EN 300 422	Radio microphones The 100 mW limit applies to equipment that is body-worn.
11	826-832 MHz	ERC/REC 70-03 Annex 10 Detailed in technical conditions for the operation of PMSE equipment in Annex 3 to ECC/DEC/(09)03 Part 3.1	EN 300 422	Radio microphones

11	826-832 MHz	100 mW e.i.r.p.	ERC/REC 70-03 Annex 10 Detailed in technical conditions for the operation of PMSE equipment in Annex 3 to ECC/DEC/(09)03 Part 3.1	EN 300 422	Radio microphones
12	863-865 MHz	10 mW e.i.r.p.	ERC/REC 70-03 Annex 10 (EU) 2017/1483	EN 300 422 EN 301 357	Radio microphones, wireless audio and multimedia streaming devices
13	1350-1400 MHz	20 mW e.i.r.p./50 mW e.i.r.p.	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1350-1400 MHz band
14	1492-1518 MHz	50 mW e.i.r.p.	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones On a tuning range basis Indoor use
15	1518-1525 MHz	50 mW e.i.r.p.	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones On a tuning range basis Indoor use
16	1785-1795 MHz	20 mW e.i.r.p./50 mW e.i.r.p.	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785-1804.8 MHz band
17	1795-1800 MHz	20 mW e.i.r.p./50 mW e.i.r.p.	ERC/REC 70-03 Annex 10	EN 300 422 EN 301 357	Radio microphones, wireless audio and multimedia streaming devices. 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785-1804.8 MHz band
18	1800-1804,8 MHz	20 mW e.i.r.p./50 mW e.i.r.p.	ERC/REC 70-03 Annex 10	EN 300 422	Radio microphones 50 mW restricted to body worn equipment or equipment with Spectrum Scanning Procedure (SSP) implemented for the 1785-1804.8 MHz band

Additionally, PMSE equipment is licensed (mostly with temporary licenses) in 2 GHz and 10 GHz bands according to the [Rule 91/2019](#), Article 4 - referencing to the CEPT documents ERC/REC 25-10, ECC REP 204, ECC REP 002, ERC REP 038, ERC REP 042. The Rule 91/2019 also stipulates that:

“In individual cases for the purpose of service in radio and TV broadcasting and programme making (PMSE applications) other bands outside the ranges listed in Table 1 of the Annex can be allocated to temporary and portable audio-video links in line with the Plan of Allocation and Utilization and CEPT documents ERC/REC 25-10, ECC REP 204, ECC REP 002, ERC REP 038, ERC REP 042.”

Brazil

Any equipment used in Brasil has to be tested and labeled by Anatel. Therefore, no further authorization is needed.

No individual license required / License exempt frequencies

- 54 - 72 MHz, 50 mW *1
- 76 - 88 MHz, 50 mW *1
- 174 - 216 MHz, 50 mW *2
- 470 - 608 MHz, 250 mW *3
- 614 - 698 MHz *3
- 902 - 907,5 MHz *3
- 915 - 927,75 MHz *3
- 1910 - 1920 MHz, DECT *4
- 2400 - 2495 MHz *4
- 5150 – 5350 MHz *4
- 5470 – 5725 MHz *4
- 5725 – 5850 MHz *4

Notes:

*1 Emission-Limit: 100 microvolt/metre, 3m distance of measurement

*2 Emission-Limit: 150 microvolt/metre, 3m distance of measurement

*3 Emission-Limit: 200 microvolt/metre, 3m distance of measurement

*4 Emission-Limit: 500 microvolt/metre, 3m distance of measurement

Further information

- Contact addresses of the responsible Local Telecommunication Offices:
[Anatel — Agência Nacional de Telecomunicações \(www.gov.br\)](http://www.gov.br)
- <https://www.gov.br/anatel/pt-br>

Note: information as of February 2020

Bulgaria

License exempt frequencies / no license required

NATIONAL PLAN FOR RADIO FREQUENCY SPECTRUM ALLOCATION

https://crc.bg/files/URChS/RChS/FrequencyPlan2023_EN.pdf

Rules

<https://www.crc.bg/en/rubrics/709/rules>

Audio PMSE

29.7-47.0 MHz,

Radio microphones, max. 10 mW ERP, channel spacing up to 50 kHz, on a tuning range basis

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; ERC/REC 70-03, national documents – [Rules](#)¹, [Annex 2.9](#)

174-216 MHz,

Radio microphones, max. 50 mW ERP, on a tuning range basis

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; ERC/REC 70-03, national documents – [Rules](#), [Annex 2.9](#)

470-694 MHz; 723-753 MHz; 778-786 MHz,

Radio microphones, max. 50 mW ERP

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#)

786-789 MHz,

Radio microphones, max. 12 mW ERP, on a tuning range basis

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#)

823-832 MHz,

Radio microphones

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; 2014/641/EC; ERC/REC 25-10; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#):

Power limit/density limit		Other usage restrictions
Block edge mask		Wireless audio PMSE equipment
Frequencies below 821 MHz	Out-of-block equivalent isotropically radiated power (e.i.r.p.) is: -43 dBm/(5 MHz) e.i.r.p.	
821-823 MHz	Guard band (for protection against interference from PMSE into terrestrial systems capable of providing electronic communications services (downlink))	
823-826 MHz	in-block e.i.r.p. of 13 dBm (20 mW) for hand-held audio PMSE equipment; in-block e.i.r.p. of 20 dBm (100 mW) for body-worn audio PMSE equipment	
826-832 MHz	in-block e.i.r.p. of 20 dBm (100 mW)	
Frequencies above 832 MHz	Out-of-block e.i.r.p. is -25 dBm/(5 MHz)	

¹ [Rules for operation of electronic communications through radio equipment using frequency spectrum, which does](#)

863-865 MHz,

Wireless audio and multimedia streaming devices, max 10 mW ERP

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 357; EN 301 357-1; EN 301 357-2; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; 2006/771/EO, as amended, band 46b; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#)

1350-1400 MHz,

Radio microphones, max 20 mW e.i.r.p./50 mW e.i.r.p. restricted to body worn equipment or equipment with Spectrum Scanning Procedure

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; ERC/REC 70-03, national documents – [Rules](#); [Annex 2.9](#)

1492-1518 MHz,

Radio microphones, max 50 mW e.i.r.p., on a tuning range basis, restricted to indoor use

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#)

1518-1525 MHz,

Radio microphones, max 50 mW e.i.r.p., on a tuning range basis, restricted to indoor use

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; ERC/REC 25-10; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#)

1785-1805 MHz,

Radio microphones

Reference: EN 300 422; EN 300 422-1; EN 300 422-2; EN 300 422-3; EN 301 489-1; EN 301 489-9; 2014/641/EC; ERC/REC 25-10; ERC/REC 70-03, national documents - [Rules](#); [Annex 2.9](#):

Power limit/density limit		Other usage restrictions
Block edge mask		Wireless audio PMSE equipment for handheld equipment
Frequencies below 1785 MHz (Out-of-block)	-17 dBm/200 kHz e.i.r.p.	
1785-1785.2 MHz (Restricted frequency range)	4 dBm/200 kHz e.i.r.p.	
1785.2-1803.6 MHz	13 dBm/ channel e.i.r.p.	
1803.6-1804.8 MHz	10 dBm/200 kHz e.i.r.p. with a limit of 13 dBm/channel.	
1804.8-1805 MHz (Restricted frequency range)	-14 dBm/200 kHz e.i.r.p.	
Frequencies above 1805 MHz (Out-of-block)	-37 dBm/200 kHz e.i.r.p.	
Block edge mask		Wireless audio PMSE equipment for body-worn equipment
Frequencies below 1785 MHz (Out-of-block)	-17 dBm/200 kHz e.i.r.p.	
1785-1804.8 MHz	17 dBm/ channel e.i.r.p.	
1804.8-1805 MHz (Restricted frequency range)	0 dBm/200 kHz e.i.r.p.	
Frequencies above 1805 MHz (Out-of-block)	-23 dBm/200 kHz e.i.r.p.	

1880-1900 MHz,

DECT (Digital European Cordless Telecommunications) systems, 250 mW (24 dBm) nominal transmit power, max 26 dBm (400 mW) EIRP for omni-directional antennas, max 30 dBm (1

W) EIRP for directional antennas; channel spacing 1728 kHz, instant dynamic channel selection

Reference: EN 301 406, EN 301 489-1, EN 301 489-6, 91/287/EEC, ERC/DEC/(98)22, ERC/DEC/(94)03, ERC/REC 70-03, national documents - [Rules](#); [Annex 2.13](#)

Video PMSE

2010-2025 MHz, 2025-2110 MHz, 2300-2400 MHz, 10.00-10.15 GHz, 21.2-21.4 GHz, 47.20-48.50 GHz,

Cordless Cameras,

-7 dBW e.i.r.p. for band 2010-2025 MHz,

6 dBW e.i.r.p. for bands 2025-2110 MHz, 2300-2400 MHz and 10.00-10.15 GHz,

13 dBW e.i.r.p. for bands 21.2-21.4 GHz and 47.20-48.50 GHz,

service area <500 m, Tx antenna gain 0 dBi, Rx antenna gain 6 dBi

Reference: EN 302 064, EN 302 064-1, EN 302 064-2, EN 301 489-1, EN 301 489-28, 2016/339/EC, ERC/REC 25-10, national documents - [Rules](#); [Annex 4](#)

2010-2025 MHz, 2025-2110 MHz, 2300-2400 MHz, 10.00-10.15 GHz,

Portable video link, 16 dBW e.i.r.p., service area <2 km, Tx antenna gain 6 dBi, Rx antenna gain 17 dBi

Reference: EN 302 064, EN 302 064-1, EN 302 064-2, EN 301 489-1, EN 301 489-28, 2016/339/EC, ERC/REC 25-10, national documents - [Rules](#); [Annex 4](#)

2010-2025 MHz, 2025-2110 MHz, 2300-2400 MHz,

Mobile video link (vehicle or aircraft),

10 dBW e.i.r.p. for band 2010-2025 MHz,

26 dBW e.i.r.p. for bands 2025-2110 MHz and 2300-2400 MHz,

service area <10 km, Tx antenna gain 3 dBi, Rx antenna gain 13 dBi

Reference: EN 302 064, EN 302 064-1, EN 302 064-2, EN 301 489-1, EN 301 489-28, 2016/339/EC, ERC/REC 25-10, national documents - [Rules](#); [Annex 4](#)

10.00-10.15 GHz, 21.2-21.4 GHz,

Temporary point-to-point video links, 40 dBW e.i.r.p., service area <80 km, Tx antenna gain 13 dBi, Rx antenna gain 17 dBi

Reference: EN 302 064, EN 302 064-1, EN 302 064-2, EN 301 489-1, EN 301 489-28, 2016/339/EC, ERC/REC 25-10, national documents - [Rules](#); [Annex 4](#)

Fees

No fees are required

Further information

Contact addresses of the responsible Local Telecommunication Offices:

Communications Regulation Commission (CRC), <https://www.crc.bg/en>

Address: Sofia 1000, 6 Gen. Joseph V. Gurko Str.

EIK: 121747864

Email: info@crc.bg

« contact us » : <https://www.crc.bg/en/contacts/contact-us> (January 2024)

Note: information as of March 2020 and January 2024

Canada

Table A1: Frequency bands where wireless microphone use was permitted prior to the release of this decision paper

Frequency band (MHz)	Licensing mechanism	Radio standards specification (RSS)	Licensing procedure, where applicable
26.10-26.48 (HF), 88-107.5 (FM), 150-174 (VHF), 450-451, 455-456 (UHF)	Licensed	RSS-123	CPC-2-1-11
72-73, 74.6-74.8, 75.2-76	Licence-exempt	RSS-210 annex C	n/a
88-108 (FM), 902-928, 2400-2483.5, 5725-5850	Licence-exempt	RSS-210 annex B	n/a
54-72, 76-88, 174-216 (VHF), 470-608, 614-698* (UHF)	Licence-exempt	RSS-210 annex G	n/a
54-72, 76-88, 174-216 (VHF), 470-608, 614-698* (UHF)	Voluntarily licensed	RSS-210 annex G	CPC-2-1-28
902-928, 2400-2483.5, 5725-5850	Licence-exempt for digital modulation	RSS-247	n/a

* As a result of SAB-003-17, on May 25, 2018, ISED no longer accepted applications for the certification of new low-power apparatus that operate in the bands 617-652 MHz and 663-698 MHz. As of November 15, 2018, no low-power apparatus in the bands 617-652 MHz and 663-698 MHz may be sold, offered for sale, manufactured, imported, distributed or leased on the Canadian market.

Table A2: Frequency bands where wireless microphone use is permitted as of the release of this decision paper

Frequency band (MHz)	Licensing mechanism	Radio standards specification (RSS)	Licensing procedure, where applicable
26.10-26.48 (HF), 88-107.5 (FM), 150-174 (VHF), 450-451, 455-456 (UHF)	Licensed	RSS-123	CPC-2-1-11
941.5-952, 953-960, 6930-6955, 7100-7125	Licensed (if eligible)	TBD	TBD
72-73, 74.6-74.8, 75.2-76	Licence-exempt	RSS-210 Annex C	n/a
88-108 (FM), 902-928, 2400-2483.5, 5725-5850	Licence-exempt	RSS-210 Annex B	n/a
54-72, 76-88, 174-216 (VHF), 470-608, 657-663 (UHF), 614-617, 652-657 (UHF)	Licence-exempt	RSS-210 Annex G*	n/a
54-72, 76-88, 174-216 (VHF), 470-608, 657-663 (UHF)	Voluntarily-licensed (if eligible)	RSS-210 Annex G*	CPC-2-1-28*
902-928, 2400-2483.5, 5725-5850	Licence-exempt for digital modulation	RSS-247	n/a

* To be updated to reflect decision including eligibility.

Source:

<https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/learn-more/key-documents/consultations/decision-technical-policy-and-licensing-framework-wireless-microphones>

License exempt frequencies / no license required

* 72-73 MHz, 74.6-74.8 MHz and 75.2-76 MHz, information in [RSS-210 Annex C](#)

- * 54-72 MHz, 76-88 MHz, information in [RSS-210 Annex G](#)
- * 174-216 MHz, information in [RSS-210 Annex G](#)
- * 470-608 MHz, information in [RSS-210 Annex G](#)
- * 614-616 MHz and 653-663 MHz, information in [RSS-210 Annex G](#)
- * 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, information in [RSS-210 Annex B](#)

Individual assignment / Licence required

- * 26.10-26.48 MHz, 88-107.5, 450-451 MHz and 455-456 MHz, ≤ 1 W ERP, 200 kHz RF bandwidth
- * 150-174 MHz, ≤ 50 mW output power, 200 kHz RF bandwidth
- * 941.5-952 MHz and 953-959.85 MHz, ≤ 1 W output power, 200 kHz RF bandwidth

Further frequencies and information are published in the Radio standard specification [RSS-123](#)

The licensing procedure is described in [CPC-2-1-11, Licensed Wireless Microphones](#)

Notes

The update of RSS-210, as of April 2020, removes the bands 616-652 MHz and 663-698 MHz to reflect decisions in these references:

- * SAB-003-17 "Low-power Radio Apparatus, Including Wireless Microphones, in the Band 614-698 MHz": <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11341.html>
- * Decision on the Technical, Policy and Licensing Framework for Wireless Microphones: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11490.html>

Further information

- * Link to the official website of the Government of Canada:
<https://www.canada.ca/en.html>
- * Addresses and Telephone Numbers of District Offices:
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01742.html>
- * Voluntary Licensing of Licence-Exempt Wireless Microphones in the TV Bands:
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10931.html>

CPC-2-1-28 – Voluntary Licensing of Licence-Exempt Wireless Microphones in the TV Bands

December 2019

- * Decision on the Technical, Policy and Licensing Framework for Wireless Microphones:
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11490.html>
- * Permits, licences and regulations:
<https://www.canada.ca/en/services/business/permits.html>
- * Link to Industry Canada:
<http://www.ic.gc.ca/eic/site/icgc.nsf/eng/home>

Note: information as of January 2024

Cyprus

Within Cyprus, radio PMSE equipment be used within the following bands:

- 29.7 - 47MHz;
- 169.8125 - 261MHz;
- 470 - 789MHz;
- 823 - 832MHz;
- 863 - 865MHz;
- 1350 - 1400MHz;
- 1492 - 1525MHz; and
- 1785 - 1804.8MHz.

PMSE equipment in Cyprus that conforms to the technical specifications outlined in ERC/REC 25-10 and ERC/REC 70-03 is generally permitted to be operated on a licence exempt basis. As such, much of the PMSE usage within the sub-700MHz UHF spectrum is licence exempt within Cyprus.

Note: information as of November 2022

Czech Republic

License exempt frequencies / no license required

- 174 - 216 MHz, max. 50 mW ERP, reference to national publication documents: Article 10 of General Authorization No. VO-R/10/12.2019-9 *
- 470 - 694 MHz, max. 50 mW ERP, reference to national publication documents: Article 10 of General Authorization No. VO-R/10/12.2019-9 *
- 863 - 865 MHz, max. 10 mW ERP, reference to national publication documents: Article 10 of General Authorization No. VO-R/10/12.2019-9 *
- 1785 - 1804,8 MHz, max. 30.49 (body-worn) / 12.2 mW ERP, reference to national publication documents: Article 10 of General Authorization No. VO-R/10/12.2019-9 *
- 1880 - 1900 MHz (standard DECT), max. 152,44 mW ERP, reference to national publication documents: General Authorization No. [VO-R/8/08.2005-23](#)
- 2400 - 2483 MHz:
 - according to ETSI EN 300 440: max. 25 mW e.i.r.p., reference to national publication documents: Article 3 of General Authorization No. VO-R/10/12.2019-9 *
 - according to ETSI EN 300 328: max. 100 mW e.i.r.p., reference to national publication documents: General Authorization No. [VO-R/12/12.2019-10](#)

* Links: [Document in Czech language](#); [older version in English](#) (no changes regarding mics; “This is an unofficial translation (2019). The legally binding text is the original Czech version”).

Individual assignment / Licence required

- 174 - 230 MHz, Technical conditions e.g. max. 100 mW ERP, Reference to national publication documents: [RSUP-P/21](#)

(Note: for 174 - 216 MHz, max. 50 mW ERP see „License exempt frequencies“ above.)

Fees

See <https://www.ctu.eu/charges-individual-and-short-time-authorisations-use-radio-frequencies>

Further information

Contact addresses of the responsible Local Telecommunication Offices:

see

<https://www.ctu.eu/telefonicke-kontakty-odboru-spravy-kmitoctoveho-spektra-ctu>

and

<https://www.ctu.eu/contacts>

Note: information as of March 2022

Denmark

No individual license required / License exempt frequencies

In the Danish frequency plan some frequency bands have been allocated to be used for wireless microphones. In all of those bands the frequencies can be used without a licence (licence exemption).

- 138.2 - 142.070 MHz, 50 mW ERP, 200 kHz - Only some frequencies are allowed
- 470 – 695 MHz, 50 mW ERP, 200 kHz - White spaces only

It is possible to use wireless microphones without permission in parts of the frequency band 470-695 MHz. Which parts you may use depends on where in Denmark you use the wireless microphones.

Find frequencies on maps

Wireless microphones can use 470-695 MHz (and in addition 695-703 MHz) without permission, as long as they live up to the technical requirements given in the Executive Order on the use of radio frequencies without permission as well as amateur radio tests and call signals etc. and radio interface no. 00 025, cf. executive order on radio interfaces.

A Frequency app has been developed for Android and iPhone. With the app you can always find a frequency in 470-695 MHz - even when you are out in the field.

The available frequencies will change as the TV network is rebuilt. Therefore, one should regularly check the available frequencies at lengthy events.

- 695 – 703 MHz, 60 mW ERP, 200 KHz
- 823 – 832 MHz, 100 mW e.i.r.p. 200 kHz - Handheld only 20mW in 823-826 MHz
- 863 – 865 MHz, 10 mW ERP, 200 kHz
- 1785 – 1804,8 MHz, 50 mW e.i.r.p., 200 kHz - Handheld only 20mW

Frequency Band (MHz)	Maximum Transmission Power (mW ERP)	Maximum Bandwidth (kHz)	Comments
32-39,4	2	50	Only certain frequencies in the band may be used.
138,250-142,070	50	200	Only certain frequencies in the band may be used.
169,4000-169,5875	500	50	Radio system for use by the hearing impaired.
169,8250-173,9625	10	50	Radio system for use by the hearing impaired. Only certain frequencies in the band may be used.
180,5-222,5	2	50	Radio system for use by the hearing impaired. Only certain frequencies in the band may be used.
470-695	50	200	Only "white spaces " may be used.
695-703	60	200	
733-736	60	200	NB: May only be used until 31 December 2021.
823-832	As specified in Table 1 of Radio Interface 00 025 of the Executive Order on Radio Interfaces.	200	
863-865	10	200	
1785-1804,8	10	200	

Link to administrations homepage regarding Wireless Microphones

<https://ens.dk/ansvarsomraader/frekvenser/traadloese-mikrofoner-og-kystradio>

Danish radio interface (No 00 025) for audio PMSE

<https://www.retsinformation.dk/pdfPrint.aspx?id=184975&exp=1>

Further Information

Online tool to find legal location specific whitespaces

<https://frekvens.erhvervsstyrelsen.dk/>

Note: information as of July 2021, Chart from Nov. 2022 = EU study (<https://apwpt.org/wp-content/uploads/2022/10/study-on-the-use-of-the-sub-700-mhz-band-470-694-mhz-KK0722768ENN.pdf>)

Estonia

License exempt frequencies / no license required

- 37.6 - 38.6. max 10 mW ERP; Estonian Frequency Allocation Plan (in Estonian language only) https://www.riigiteataja.ee/akt/1250/1201/9006/MKM_22012019_m6lisa1.pdf#, national documents
- 174 - 216 MHz, 50 mW ERP; Estonian Frequency Allocation Plan, national documents
- 470 - 694 MHz, 50 mW ERP; Estonian Frequency Allocation Plan, national documents
- 823 - 826 MHz, 100 mW e.i.r.p. for body-worn wireless microphones, otherwise max. 20 mW e.i.r.p. Estonian Frequency Allocation Plan, national documents
- 826 - 832 MHz, 100 mW e.i.r.p.; Estonian Frequency Allocation Plan, national documents,
- 863 - 865 MHz, ERP; 10mW Estonian Frequency Allocation Plan, national documents
- 1785 - 1804.8 MHz, max. 50 mW e.i.r.p. for body-worn wireless microphones, otherwise max. 20 mW e.i.r.p.; Estonian Frequency Allocation Plan, national documents
- 1880 - 1900 MHz, DECT equipment only*
- 2400 - 2483 MHz; Estonian Frequency Allocation Plan*

Further information

- Consumer Protection and Technical Regulatory Authority:

Endla 10a, 10142 Tallinn
 Telephone: (+372) 667 2000
 Fax: (+372) 667 2001
 Reg. nr. 70003218
 E-mail: info@ttja.ee
www.ttja.ee / www.ttja.ee/en

- Applying for a frequency licence:
<https://www.ttja.ee/en/fields-services/communications-services/radio-communications/applying-frequency-licence>
- Estonian Frequency Allocation Plan:
<https://www.riigiteataja.ee/akt/102102014004>

Note: information as of November 2022, * = not yet re-confirmed in Nov. 2022

Finland

License exempt frequencies / No individual license required

- 174 – 195; 216 - 225 MHz, max. 50 mW ERP
- 470 - 694 MHz, max. 50 mW ERP
- 823 - 832 MHz
823-826 MHz: max. 12 mW ERP or max. 60 mW ERP for body-worn wireless microphones
826-832 MHz: max. 60 mW ERP
- 863 - 865 MHz, max. 10 mW ERP
- 1785 - 1804.8 MHz, max. 20 mW e.i.r.p. or
max. 50 mW e.i.r.p. for body-worn wireless microphones
- 1881.792 MHz + (0...9) x 1.728 MHz, DECT equipment, max. 250 mW ERP.*

To get further information on license-exempt radio microphones and frequency selection, see TRAFICOM's website <http://mics.traficom.fi/>

Regulation on collective frequencies for license-exempt radio transmitters (includes DECT devices) and on their use.

<https://www.traficom.fi/en/regulations/regulation-15-collective-frequencies-licence-exempt-radio-transmitters-and-their-use>

Mandatory application / Applying for a short-term license (PMSE-license)

- The radio microphones will be license-exempted if they operate on the allowed frequencies and accordance with the standard. In cases where parameters of use such like maximum ERP (10 mW - 60 mW) or bandwidth (≤ 200 kHz) deviates from those exempted from license TRAFICOM grants a radio license if necessary to the radio microphone. The radio licenses are applied for from TRAFICOM using the form on the website and TRAFICOM assigns parameters and the frequencies to be used in the radio license.
<https://www.traficom.fi/en/contact-form-event-organizers>

Fees

- The frequency fee of a license bases on the number of equipment and frequencies used. The frequency fee of a short-term license is at least one fourth of an annual frequency fee but no less than EUR 18.
- Typical fees (for using a bandwidth of 200 kHz):
 - 18 EUR for a single microphone up to 12 months
 - 18 EUR for 8 microphones up to 3 months
 - 65 EUR for 8 microphones up to 12 months

Link to administrations homepage

<https://www.traficom.fi/en/>

Note: information as of August 8th, 2021, updated August 16th, 2021 and Nov 2022; * = not yet reconfirmed

France

License exempt frequencies / No license required

The access to spectrum for PMSE (wireless microphones, In-Ear monitor systems, talk-back applications) is subject to a licence-exempt regime, authorized by the national regulatory authority ARCEP (Autorité de régulation des communications électroniques et des postes).

Such use is allowed in the following bands and is restricted to professional users.

- 174 - 223 MHz, max. 50mW ERP
- 470 - 694 MHz, max. 50 mW ERP
- 823 - 826 MHz, max. 20 mW e.i.r.p. or max. 100 mW e.i.r.p. for body-worn wireless microphones
- 826 - 832 MHz, max. 100 mW e.i.r.p.
- 863 - 865 MHz, max. 10 mW ERP ***NOT RE-CONFIRMED IN 2022***
- 1785 - 1800 MHz, max. 50 mW e.i.r.p. for body-worn wireless microphones otherwise max. 20 mW e.i.r.p.

Question

What the effect of change in 700 MHz?

PMSE Help Portal: <https://aidepmse.anfr.fr/#/>

Further Information

Link to France administrations homepage, see;

Audio PMSE:

<https://www.arcep.fr/la-regulation/grands-dossiers-reseaux-mobiles/les-frequences-pour-les-professionnels-de-laudiovisuel-et-du-spectacle/les-equipements-auxiliaires-sonores-de-conception-de-programmes-et-de-radiodiffusion.html>

Video PMSE:

<https://www.arcep.fr/la-regulation/grands-dossiers-reseaux-mobiles/les-frequences-pour-les-professionnels-de-laudiovisuel-et-du-spectacle/les-liaisons-video-mobiles.html>

Temporary authorizations too meet certain specific needs, particularly during major events:

Downloadable application form on the website of ARCEP, 'Formulaire de demande d'autorisation temporaire d'utilisation de fréquences':

<https://www.arcep.fr/fileadmin/cru-1582218129/reprise/dossiers/licences/EN-17-54.xlsx>

Note: information as of July 2021, upadted Nov. 2022

Germany

Generally assigned frequencies / No individual license required (see VVnömL for details)

- 32.475 - 34.325 and 36.610 - 38.125 MHz, 10 mW ERP, [permit 53/2015](#) - <https://bit.ly/3t9sxle>
- 174 - 230 MHz, 50 mW ERP, [permit 59/2015](#) <https://bit.ly/3JbsKQO>
- 470 - 608 MHz, 614 – 698 (since 2022*), 694 (until 2022) MHz, 50 mW ERP, [permit 34/2020](#)
<https://bit.ly/3i3bdhR>
- * The four MHz 694 - 698 MHz are new in 2022. This was originally a guard band to protect / decouple Broadcast from Mobile IMT. Since it is the uplink from the smartphones, we are not sure how much spurious emissions come in in the four MHz, i.e. whether there can be interference. BNetzA-Verfügungen 99/2022 und 100/2022 (Amtsblatt 20/2022 vom 19.10.2022) = <https://bit.ly/3VoFDfR>
- 736-753 MHz: BNetzA-Verfügungen 99/2022 und 100/2022 (Amtsblatt 20/2022 vom 19.10.2022 = <https://bit.ly/3VoFDfR>)
- 823 - 832 MHz, 82/100mW e.i.r.p., [permit 2/2015](#) <https://bit.ly/3CFKUyS>
- 863 - 865 MHz, 10mW ERP, [permit 107/2018](#) <https://bit.ly/3IcYfIO>
- 1350 - 1400 MHz, 50 mW e.i.r.p., indoor only, permit 06/2022 <https://bit.ly/3q5ZRhl>
- 1785 - 1805 MHz, 82mW e.i.r.p., [permit 3/2015](#) <https://bit.ly/3i2Vtva>
- 1795 - 1800 MHz, 20mW ERP, [permit 21/2017](#), see also [permit 43/2020](#)
- 1880 – 1900 MHz, 250 mW ERP, [permit 25/2015](#), **DECT only**

Individual assignment up to 10 years / Individual license required (see VVnömL for details)

- Single frequencies in 34.25 to 38.05 MHz, see [VVnömL](#)
- 733 - 823 MHz, 50 mW ERP;
758-788 and 791-821 additional optional capacity, see [VVnömL](#)
- 1452 - 1492 MHz, 50 mW e.i.r.p., additional optional capacity, see [VVnömL](#)
- **1492 - 1518 MHz, 50 mW e.i.r.p., indoor only -- UNCLEAR in sept 2024, if still usable**
- **1518 - 1525 MHz, 50 mW e.i.r.p., indoor only -- UNCLEAR in sept 2024, if still usable**

Fees for a "PA system" (wireless microphone systems) - long term frequency assignment up to 10 years

- Fees are charged for the allocation of frequencies in accordance with the Special Fees Ordinance of the Federal Network Agency - Frequency Allocations (BNetzA BGebV-FreqZut). The allocation fees are steering fees. The actual fee amount is calculated depending on the specific allocation parameters (Info from March 2022).
- Non recurrent fee was around € 130.00 per application before 2021. This amount included one-time administration costs regardless of the number of wireless microphones and the number of frequencies that are used in the system (wireless station).
- Now, there is a new fee scheme. It is not more expensive, but hard to calculate. Often it is cheaper; see B.43 in: <https://www.gesetze-im-internet.de/bnetzafreqzutbgebv/anlage.html>
- Get possibly updates here:
https://www.bundesnetzagentur.de/DE/Sachgebiete/Telekommunikation/Unternehmen_Institutionen/Frequenzen/Grundlagen/GebuehrenundBeitraege/gebuehrenundbeitraege-node.html

Administrative provisions relating to frequency assignments in the private land mobile radio

VVnömL

https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Sachgebiete/Telekommunikation/Unternehmen_Institutionen/Frequenzen/Verwaltungsvorschriften/VVnoemL.pdf?__blob=publicationFile&v=22

(in German language only)

General licenses (Allgemeinzuteilung)

www.bundesnetzagentur.de/allgemeinzuteilungen (in German language only)

PMSE Programme Making and Special Events (Drahtlose Mikrofone)

www.bundesnetzagentur.de/drahtlosemikrofone (in German language only)

Short-term frequency assignment

www.bundesnetzagentur.de/shortterm

Zuteilungsgebiete Deutsche Motorsportrennstrecken / Allocation areas German motor racing circuits (pdf / 124 KB):

[ZuteilungsflaechenMotorsport.pdf \(bundesnetzagentur.de\)](http://www.bundesnetzagentur.de/ZuteilungsflaechenMotorsport.pdf) = <http://bitly.ws/x2ZK>

Note: information as of September 2024

Greece

Individual license required

- 174 - 216 MHz, BW=50 kHz, max. >50 mW ERP, Wireless Microphones
- 470 - 786 MHz, max. >50 mW ERP, Wireless Microphones

No individual license required / License exempt frequencies

- 29.70 - 47.05 MHz, maximum transmitted power up to 10mW ERP, Wireless Microphones
- 174 - 216 MHz, maximum transmitted power up to 50 mW ERP, Wireless Microphones
- 470 - 786 MHz, maximum transmitted power up to 50mW ERP, Wireless Microphones
- 786 - 789 MHz, BW=200kHz, up to 12mW ERP, Wireless Microphones

NOT CONFIRMED in 2022:

- 823 - 826 MHz, BW=200kHz, up to 20mW e.i.r.p restricted to mobile devices or up to 100mW e.i.r.p restricted to body worn microphones
- 826 - 832 MHz, BW=200kHz, up to 100mW e.i.r.p, Wireless Microphones
- 863 - 865 MHz, up to 10 mW ERP, Wireless Microphones
- 1785 - 1804.8 MHz, up to 20 mW e.i.r.p. restricted to mobile devices or up to 50 mW restricted to body worn microphones
- 1880 - 1900 DECT equipment, up to 250 mW e.i.r.p

Fees

General Notes and Information for PMSE licensing can be found here:

https://www.eett.gr/opencms/export/sites/default/EETT_EN/Electronic_Communications/Radio_Communications/Rights_Of_Use/guidelines.pdf

The general rule for the fees is the following: The cost for any temporary license issued for a maximum period of 2 months is 300 Euros per frequency per area of use except for SNG, which is 1000 Euros per station.

Further information

Contact address of the responsible Local Telecommunication Offices: info@eett.gr

Downloadable application form on the website of add your relevant organization web space.

The form can be found here

https://www.eett.gr/opencms/opencms/EETT_EN/Electronic_Communications/Radio_Communications/Rights_Of_Use/temporary.html

...by clicking on SAP/SAB and ENG/OB Temporary License Application Form.

Note: the information as of November 2022.

Hungary

No individual license required / License exempt frequencies

In the following bands license exemption applies for frequency usages employing transmit parameters that match license exemption criteria (check the spectrum information system for details via this link; <http://stir.nmhh.hu/?lang=2>). Otherwise a license has to be asked for and the requested transmission parameters will be subject of thorough investigation (for possible interference), based on which a temporary license might be issued (see note 1):

- 174 - 216 MHz, max. 50 mW ERP
- 470 - 694 MHz, max. 50 mW ERP
- 694 - 703 MHz, 733 - 758 MHz, 50 mW ERP; available until 05.09.2020
- 786 - 789 MHz, 12 mW ERP; available until 05.09.2020
- 823 - 826 MHz, max. 20 mW e.i.r.p. or max. 100 mW e.i.r.p. for body-worn wireless microphones
- 826 - 832 MHz, max. 100 mW e.i.r.p.
- 863 - 865 MHz, max. 10 mW ERP
- 1350 - 1400 MHz, max. 20 mW e.i.r.p. or max. 50 mW e.i.r.p. for body-worn wireless microphones or for use with SSP (Spectrum Scanning Procedure)
- 1492 - 1518 MHz, 50 mW e.i.r.p.
- 1518 - 1525 MHz, 50 mW e.i.r.p.
- 1785-1804.8 MHz, max. 20 mW e.i.r.p. or max. 50 mW e.i.r.p. for body-worn wireless microphones or for use with SSP
- 1880 - 1900 MHz, for DECT equipment, max 250 mW e.i.r.p. (see note 2).

Notes:

1) In fortunate cases when the tuning range of an equipment falls outside the listed frequency ranges but harmful interference will probably not be caused (based on the interference check of the Authority) a license might also be issued. In such cases please request information from our licensing department.

2) Stations fulfilling the requirements of Decision ERC/DEC/(98)22 are exempted from the obligation of individual licensing. It is not forbidden to use the band for audio PMSE although it is originally not meant for this purpose.

Fees

Fees of HUF 4000 per transmitter will be levied (fee of temporary license for shorter than 1 month of operation).

The relevant rules can be found in the Decree NMHH 1/2011 (III. 31.):

http://njt.hu/cgi_bin/njt_doc.cgi?docid=136918

Further information

Contact addresses:

- Web address with further information: <http://english.nmhh.hu/>
- Contact for general regulatory issues: berecz.laszlo@nmhh.hu
- Direct contact for licensing issues: feo@nmhh.hu
- Downloadable application form on the website of the National Media and Infocommunications Authority of Hungary:
http://english.nmhh.hu/dokumentum/173145/temporary_licence_application_hng.xlsx
(this refers to the form for the temporary licensing of PMSE use)

Note

Please always check before use the valid frequency usage regulation at the Authority's spectrum information system at:

<http://stir.nmhh.hu/?lang=2>

Note: information as of February 2020, data checked Nov 2022 (not the links)

Iceland (not yet informed / 2024)

Ireland

Link for the temporary frequency request:

Frequency Band (MHz)	Maximum Transmission Power for Licence Exemption	Comment
174 – 230	50mW ERP	Radio microphones (licence exempt in 173.965 - 174.015 MHz at max 2mW only)
470 – 703	50mW ERP	Radio microphones
733 – 753	50mW ERP	Radio microphones
823 – 826	20mW EIRP 100mW EIRP (body worn equipment)	Radio microphones
826 - 832	100mW EIRP	Radio microphones (licence exempt in 863-865 MHz only at 10 mW)
1785 – 1785.2	20mW EIRP 50mW EIRP (body worn equipment or spectrum sharing procedure, SSP, equipment)	Radio microphones
1785.2 – 1803.6	20mW EIRP 50mW EIRP (body worn equipment or spectrum sharing procedure, SSP, equipment)	Radio microphones
1803.6 – 1804.8	20mW EIRP 50mW EIRP (body worn equipment or spectrum sharing procedure, SSP, equipment)	Radio microphones
1804.8 - 1805	N/A	

Note: information as of November 2022 from the EU study

Italy

No individual license required / License exempt frequencies

- 823 - 832 MHz, Radio microphones, max 10 mW ERP
- 863 – 865 MHz, Radio microphones, max 10 mW ERP
- 174 - 230 MHz, Radio microphones, max 50 mW ERP
- 470 - 694 MHz, Radio microphones, max 50mW ERP
Comunicato stampa 22 April 2021 → Refarming 700 MHz til spring 2022
- 786 - 790 MHz, Radio microphones, max 12mW ERP
- 1785 - 1805 MHz, Radio microphones, max 20 mW e.i.r.p. or
max 50 mW e.i.r.p. for body-worn

Individual assignment / individual license required /

- 174 - 230 MHz, Radio microphones, > 50mW ERP
- 470 - 786 MHz, Radio microphones, > 50mW ERP

How to get a short- or long-term license?

Link for the temporary frequency request:

<https://www.mise.gov.it/index.php/en/201-contents/2034593-temporary-frequencies-use#1>

= <https://bit.ly/3q4gFFp>

https://www.mise.gov.it/images/stories/moduli/frequenze/GUIDELINES-FOR-TEMPORARY_FREQUENCIES%20USE%2026_5_2017.pdf

One can find specific form on the following link:

<http://www.sviluppoeconomico.gov.it/images/stories/documenti/richiesta%20autorizzazione%20temporanea%20GB.pdf>

Fees for a license

Note: fees might vary depending the region

Mail contact address of Italian administrations

frq.temp@mise.gov.it

Note: information as of March 2022

Japan

License exempt frequencies / no individual license required

- 74.58 - 74.76 MHz, Radio Microphones (Unlicensed low-power), Transmitting power max. 10mW
- 322.025 - 322.150, 322.250 - 322.400 MHz, Radio Microphones (Unlicensed low-power), Transmitting power max. 1mW
- 806.125 - 809.750 MHz, Radio Microphones (Unlicensed low-power), Transmitting power max. 10mW
- 1893.5 - 1906.1 MHz, DECT equipment
- 2400 - 2483.5 MHz, ISM band

Individual assignment / individual licence required

- 470 - 710 MHz, Radio microphones, Transmitting power for analogue system max. 10mW / digital system max. 50mW
- 710 - 714 MHz, Radio microphones, Transmitting power for analogue system max. 10mW / digital system max. 50mW
- 1240 - 1260 MHz, Radio microphones, Transmitting power for analogue system max. 50mW / digital system max. 50mW

Fees

Spectrum user fees per year for individual licensees, Revised in October 1, 2019

- 470 - 710 MHz, Radio microphones, Fee of 400 YEN per transmitter
- 710 - 714 MHz, Radio microphones, Fee of 400 YEN per transmitter
- 470 - 710 MHz and 710-714MHz Radio microphone, Fee of 900 YEN per transmitter
- 1240 - 1260 MHz, Radio microphones, Fee of 900 YEN per transmitter

Please find further information by this link:

<https://www.tele.soumu.go.jp/e/fees/index.htm>

Further information

- Contact addresses of the responsible Local Telecommunication Offices:
<https://www.tele.soumu.go.jp/e/index.htm>
- Downloadable application form:
<https://www.tele.soumu.go.jp/e/index.htm>
- Frequency assignment Plan
<https://www.tele.soumu.go.jp/e/adm/freq/search/index.htm>

Note: information as of February 2020

Latvia

According to [rules of the Cabinet of Ministers of the Republic of Latvia No. 1151](#) (interface RS PMSE.01 and table 8.10 and 8.14.2) the following frequency bands can be used for radio microphones:

License exempt frequencies / no license required

- 29.7 - 47 MHz, max. 10 mW e.i.r.p.
- 863 - 865 MHz, max. 10 mW e.i.r.p.
- 1785 - 1804.8 MHz, max. 50 mW e.i.r.p. for body-worn wireless microphones
otherwise max. 20 mW e.i.r.p.
- 1880 - 1900 MHz, max. 250 mW e.i.r.p. (DECT only)
- 2400 - 2483.5 MHz, max. 10 mW e.i.r.p.
- 5725 - 5875 MHz, max. 25 mW e.i.r.p.

Individual assignment / Licence required

- 174 - 216 MHz, max. 50 mW e.i.r.p.
- 470 - 694 MHz, max. 50 mW e.i.r.p.
- 823 - 826 MHz, max. 100 mW e.i.r.p. for body-worn wireless microphones
otherwise max. 20 mW e.i.r.p.
- 826 - 832 MHz, max. 100 mW e.i.r.p.

Fees

In accordance with the [Electronic Communications Law](#) Section 50 it is permitted to utilise the radio frequency spectrum for radio equipment operations after the receipt of a radio frequency assignment use permit from the State stock company "Electronic Communications Office" or in accordance with a common radio frequency assignment use permit according to the procedures stipulated by the Cabinet.

Fees are imposed for each permit request consideration and in addition depend from the duration of the use according to [rules of the Cabinet of Ministers of the Republic of Latvia No. 652](#):

1. Consideration of a request for short-time use of radio frequency spectrum
- EUR 35.57 (single-payment);
2. Providing of EMC for low-power radio equipment on secondary service bases
- EUR 8.06 per month or proportion to the duration of the use.

Further information

Requests for an individual license (frequency assignment usage permit) should be submitted to:

[Electronic Communications Office](#)

5 Eksporta Street,
Riga, LV-1010
Latvia
vases@vases.lv

+37167333157

Note: information as of July 2021

Lithuania

Audio PMSE within Lithuania is permitted in the following bands:

- 30.01 – 30.3MHz;
- 30.5 – 32.15MHz;
- 32.45 – 37.5MHz;
- 174 – 216MHz;
- 470 – 694MHz;
- 736 – 753MHz;
- 823 – 832MHz;
- 1164 – 1260MHz;
- 1350 – 1400MHz;
- 1492 – 1525MHz; and
- 1785 – 1805MHz.

Audio PMSE spectrum is made available on a licence exempt basis. Regulator is RRT
(Communications Regulatory Authority for the Republic of Lithuania)

Note: information as of November 2022

Luxembourg

We recommend to use the band 470 - 694 MHz in Luxembourg! (Nov. 2022)

License exempt frequencies / no license required

- 29.7 - 47 MHz, Technical conditions max. 10 mW e.r.p., Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_01
Wireless microphones operating on a tuning basis, excluding the 34.995-35.225 MHz frequency band.
- 174 - 216 MHz, Technical conditions max. 50 mW e.r.p. , Radio interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_04
- 470 - 694 MHz, Technical conditions max 50 mW e.r.p, Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_05
(Interface 470-786 MHz but the band 694-790 MHz no longer applicable for PMSE)
- 823 - 826 MHz, Technical conditions 20 mW e.i.r.p or 100 mW restricted to body worn microphones see technical conditions for PMSE (including radio microphones) in Annex 3 of Decision ECC/DEC/(09)03 section 3.1, Radio interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_12
- 826 - 832 MHz, Technical conditions max 100 mW e.i.r.p , Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_13
- 863 - 865 MHz, Technical conditions max 10 mW e.r.p , Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_03
- 1492 - 1518 MHz, Technical conditions max 50 mW e.i.r.p, Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_14
"The frequency band 1 492-1 518 MHz, which is currently authorized for wireless microphones, will be analyzed in the near future at the European level for possible harmonization for IMT systems. As a result, it is likely that the band will no longer be available in the medium term for wireless microphone applications."
- 1785 - 1795 MHz, Technical conditions max 20 mW e.i.r.p or 50 mW e.i.r.p. restricted to body worn microphones, Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_06
- 1795 - 1800 MHz, Technical conditions max 20 mW e.i.r.p or 50 mW e.i.r.p. restricted to body worn microphones, Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_07
- 1800 - 1804.8 MHz, Technical conditions max 20 mW e.i.r.p or 50 mW e.i.r.p. restricted to body worn microphones, Radio Interface:
https://assets.ilr.lu/frequencies/Documents/ILRLU-1723895916-182.pdf#SRD-A10_15

- 1880 - 1900 MHz, DECT equipment only

*Note: Applications are authorized subject to the conditions as contained in the Radio Interfaces

Fees

No fees for the provision of radio frequencies are due.

Further information

<https://web.ilr.lu/FR/Particuliers/Frequences-radioelectriques/Utilisation-de-frequences/Microphones-sans-fil>

- National Frequency Allocation Table (10. Sept. 2020):
<https://web.ilr.lu/FR/Professionnels/Frequences-radioelectriques/Utilisation-de-frequences/Plan-des-frequences/Pages/default.aspx>
- Institut Luxembourgeois de Regulation (ILR): <https://web.ilr.lu/FR/ILR>
17, rue du Fossé
L-1536 Luxembourg
Luxembourg
Tél.: (+352) 28 228 228
Languages: French, German, English, Luxembourgish.

Note: information as of March 2022

Malta

License exempt frequencies / no licence required (refer to SL399.40)

- 29.7 - 34.9 MHz, 30 mW ERP
- 37.5 - 40.98 MHz, 30 mW ERP
- 470 - 526 MHz, 50 mW ERP (currently under review)
- 534 - 550 MHz, 50 mW ERP (currently under review)
- 558 - 566 MHz, 50 mW ERP (currently under review)
- 574 - 582 MHz, 50 mW ERP (currently under review)
- 590 - 606 MHz, 50 mW ERP (currently under review)
- 614 - 646 MHz, 50 mW ERP (currently under review)
- 654 - 662 MHz, 50 mW ERP (currently under review)
- 670 - 694 MHz, 50 mW ERP (currently under review)
- 694 - 750 MHz, 50 mW ERP (currently under review), permitted until 31 December 2020
- 758 - 766 MHz, 50 mW ERP (currently under review), permitted until 31 December 2020
- 774 - 782 MHz, 50 mW ERP (currently under review), permitted until 31 December 2020
- 823 - 826 MHz, 20mW e.i.r.p. for hand-held wireless devices and 100 mW e.i.r.p. for body-worn wireless devices
- 826 - 832 MHz, 100 mW e.i.r.p.
- 863 - 865 MHz, 10 mW ERP
- 1785 - 1805 MHz, 20 mW e.i.r.p. for hand-held wireless devices and 50 mW e.i.r.p. for body-worn wireless devices
- 1880 - 1900 MHz, 250 mW e.i.r.p. using DECT technology only

Individual assignment / Licence required

- 174 - 223 MHz, 50 mW ERP

Fees

- The annual licence fee for the grant of individual licenses is €23.20 per transmitter. The fee for the grant of temporary licenses is calculated on a pro-rata basis.

Further information

- Contact address of the responsible Local Telecommunication Office:
Malta Communications Authority
Valletta Waterfront, Pinto Wharf, Floriana FRN 1913, Malta
<https://www.mca.org.mt> / info@mca.org.mt
- Downloadable application form (for individual licences only):
<https://www.mca.org.mt/downloadable-eforms> - Refer to Form no. MCA/F/11-0579
- SL399.40 – General Authorisation (Radiocommunications Apparatus) Regulation:
<http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11475&l=1>

Note: information as of March 2020

Monaco

Coordination agreements between ANFR and Monaco are listed here:

<https://www.anfr.fr/planifier/coordination-aux-frontieres/accords-par-pays/monaco>

This one regards the 470-694 MHz band and is multilateral:

[https://www.anfr.fr/fileadmin/mediatheque/documents/coordination/Accords par pays/Agreement SCV France Italy and Monaco for frequency co-ordination of Dig....pdf](https://www.anfr.fr/fileadmin/mediatheque/documents/coordination/Accords_par_pays/Agreement_SCV_France_Italy_and_Monaco_for_frequency_co-ordination_of_Dig....pdf)

For what it's worth, the relevant administration on the Principality of Monaco makes available online the forms relative to requesting authorization for a temporary radio-electric network:

<https://monentreprise.gouv.mc/thematiques/activites-sectorielles-ou-reglementees/autorisations-ponctuelles/communications-et-media/demander-une-autorisation-pour-un-reseau-radioelectrique-temporaire>

Note: information as of January 2024

The Netherlands

No individual license required / License exempt frequencies

Regulations for license free use of frequencies (*see below), subcategory 8 refers to radio transmission equipment intended for low power wireless audio connections (PMSE). The use of free frequencies (no approval needed) is permitted among others in these tuning ranges:

- 36,6 - 36,8 MHz, ≤ ERP 10 mW, 200 kHz
- 37,0 - 37,2 MHz, ≤ ERP 10 mW, 200 kHz
- 37,8 - 38,0 MHz, ≤ ERP 10 mW, 200 kHz
- 38,2 - 38,4 MHz, ≤ ERP 10 mW, 200 kHz
- 38,6 - 38,8 MHz, ≤ ERP 10 mW, 200 kHz

- 37,480 - 37,6 MHz, ≤ ERP 10 mW, 50 kHz

- 87,5 - 108 MHz, ≤ ERP 50 nanoW, 200 kHz

- 195 - 202 MHz, ≤ ERP 50 mW, 200 kHz

- 470 - 556 MHz, ≤ ERP 50mW
- 558 - 564 MHz, ≤ ERP 50mW
- 566 - 572 MHz, ≤ ERP 50mW
- 574 - 580 MHz, ≤ ERP 50mW
- 582 - 588 MHz, ≤ ERP 50mW
- 590 - 596 MHz, ≤ ERP 50mW
- 598 - 604 MHz, ≤ ERP 50mW
- 614 - 694 MHz, ≤ ERP 50mW

- 736 - 753 MHz, ≤ ERP 50mW

- 823 - 826 MHz, hand-held ≤ e.i.r.p. 20 mW, body-worn ≤ e.i.r.p. 100 mW

- 826 - 832 MHz, ≤ e.i.r.p 100 mW

- 863 - 865 MHz, ≤ ERP 10mW

- 1785 - 1805 MHz, portable ≤ e.i.r.p. 20 mW, body-worn ≤ e.i.r.p. 50mW

Individual license required

- 608 - 614 MHz, coordination with RAS and only in case of demonstrable frequency shortage related to the event in question.
- 1350 - 1400 MHz, ≤ ERP 50 mW, 200 kHz
- 1518 - 1525 MHz, ≤ ERP 50 mW, 200 kHz, only indoor

(*) Regeling gebruik van frequentieruimte zonder vergunning en zonder meldingsplicht 2015 (Dutch)
<http://wetten.overheid.nl/BWBR0036378/2016-12-28>

Further Information

Nationaal Frequentieplan 2014:

<http://wetten.overheid.nl/BWBR0035791/2017-02-01> (Dutch)

Programme Making and Special Events (Dutch)

<https://www.agentschaptelecom.nl/onderwerpen/microfoons---draadloos-gebruik-en-frequenties>

Application-form-events:

<https://www.agentschaptelecom.nl/documenten/formulieren/2017/april/4/application-form-for-the-use-of-frequencies-during-events-in-the-netherlands> (English)

Frequencytool for wireless microphones in the band 470-694 MHz:

<https://www.microfoonbanden.nl/>

Note: information as of July 2021, checked Nov. 2022

Norway

No individual license required / License exempt frequencies

In the Norwegian frequency plan some frequency bands have been allocated to be used for low power audio devices. In these bands the frequencies can be used without a license (license exemption).

41 - 43.6 MHz, 10 mW e.r.p.	Wireless microphones
494- 694 MHz, 50 mW e.r.p.	Wireless microphones can be used in white spaces only. Vacant frequencies are given by an online tool (link below).
823 - 826 MHz, 20 mW e.i.r.p.	Wireless microphones
823 - 826 MHz, 100 mW e.i.r.p.	Body worn microphones
826 - 832 MHz, 100 mW e.i.r.p.	Wireless microphones
863 - 865 MHz, 10 mW e.r.p.	Wireless microphones

1785 - 1805 MHz allowed used for handheld microphones with maximum permitted e.i.r.p. spectral density limitations:

<i>Frequency Range</i>	<i>Max permitted e.i.r.p. spectral density</i>
<1785 MHz	-17 dBm/200 kHz
1785-1785,2 MHz	4 dBm/200 kHz
1785,2-1803,6 MHz	13 dBm/channel
1803,6-1804,8 MHz	10 dBm/200kHz, with a limit of 13 dBm/channel
1804,8-1805 MHz	-14 dBm/200 kHz
>1805 MHz	-37 dBm/200 kHz

1785-1805 MHz allowed used for body worn microphones and wireless microphones with Spectrum Scanning Procedure (SSP) implemented in the 1785-1804.5 MHz band, and with maximum permitted e.i.r.p. spectral density limitations:

<i>Frequency Range</i>	<i>Max permitted e.i.r.p. spectral density</i>
<1785 MHz	-17 dBm/200 kHz
1785-1804,8 MHz	17 dBm/channel
1804,8-1805 MHz	0 dBm/200 kHz
>1805 MHz	-23 dBm/200 kHz

Online tool that shows vacant white space frequencies for wireless microphones:

<https://finnsenderen.no/#/ledige?type=mikrofon>

Assistive listening devices: <https://finnsenderen.no/#/ledige?type=ald>

Video PMSE: [https://www.nkom.no/english/frequency-licences#temporary frequency use for events and research campaigns](https://www.nkom.no/english/frequency-licences#temporary%20frequency%20use%20for%20events%20and%20research%20campaigns)

Individual license required

Information regarding individual licenses and how to apply

[https://www.nkom.no/english/frequency-licences#temporary frequency use for events and research campaigns](https://www.nkom.no/english/frequency-licences#temporary%20frequency%20use%20for%20events%20and%20research%20campaigns)

Note: information as of August 2021

New Zealand

No individual license required / License exempt frequencies

Wireless audio devices are permitted to operate in New Zealand between the frequencies of 510 MHz and 606 MHz and between 622 MHz and 698 MHz, under class licence provisions which limit maximum e.i.r.p. to 250 mW and can operate on blocks used by DTV on the “no interference – no protection” basis.

At the time of writing no DTV channels are planned to operate between 622 MHz and 698 MHz from March 11th, 2015, however the lower block between 526 MHz to 606 MHz is used for DTV throughout most of the country. TV Channels in New Zealand are 8 MHz wide, and in some places frequencies of operation start at 510 MHz.

Operation under the General User Licence is as a secondary service, sharing with DTV transmission, on the basis that you do not operate on the same frequency as a DTV service licenced in the location, and that you operate on a “no interference - no protection” basis.

From 11 March 2015, radio microphones (and other wireless audio devices such as in-earpieces) are no longer permitted to operate in the 698-806 MHz frequency range (the 700 MHz band).

Note 1: 502 MHz to 510 MHz may also be used with the maximum power limit of -10 dBW e.i.r.p. which is equivalent to around 100 mW.

Operation under the class licence means there is no need to apply for a licence to operate equipment that complies, and there are no fees or charges applicable.

Further Information

Further information can be found here:

- UHF radio microphone devices
<https://www.rsm.govt.nz/licensing/types-of-licences/general-user-spectrum-licence/uhf-radio-microphone-devices>
- Change to radio microphone operating frequencies
<https://www.rsm.govt.nz/cms/policy-and-planning/projects/radio-microphone-changes>
- Radio Spectrum Management website
<https://www.rsm.govt.nz/>
- Wireless Users New Zealand
<http://www.wunz.co.nz>

Note: information as of March 2017

Poland

PMSE equipment within Poland is mainly used in the following bands:

- 29.7 – 47MHz (audio PMSE);
- 174 – 216MHz (audio PMSE); and
- 470 – 694MHz (audio PMSE, with channels for PMSE equipment are chosen individually so as to avoid potential interference to and from DTT).

Generally, audio PMSE applications are licence exempt.

Note: information as of Nov. 2022

Portugal

No individual license required / License exempt frequencies

- 174 – 223 MHz, Radio microphones and in-ear monitor systems, ≤ 50 mW e.r.p.
- 470 – 694 MHz, Radio microphones and in-ear monitor systems, ≤ 50 mW e.r.p.
- 823 – 826 MHz, Radio microphones, ≤ 20 mW e.i.r.p.
- 823 - 832 MHz, Radio microphones (body- worn audio PMSE equipment), ≤ 100 mW e.i.r.p.
- 863 - 865 MHz, Radio microphones, ≤ 10 mW e.r.p.
- 1785 – 1795 MHz, Radio microphones, ≤ 20 mW e.i.r.p.
- 1785 – 1795 MHz, Radio microphones (body- worn audio PMSE equipment), ≤ 50 mW e.i.r.p.
- 1795 – 1800 MHz, Radio microphones, ≤ 20 mW e.i.r.p.
- 1795 – 1800 MHz, Radio microphones (body- worn audio PMSE equipment), ≤ 50 mW e.i.r.p.
- 1800 – 1804.8 MHz, Radio microphones, ≤ 20 mW e.i.r.p.
- 1800 – 1804.8 MHz, Radio microphones (body- worn audio PMSE equipment), ≤ 50 mW e.i.r.p.
- 1880 - 1900 MHz, DECT equipment up to 250 mW e.i.r.p

Individual assignment / License required

- 174 - 223 MHz, if ERP > 50 mW
- 470 - 694 MHz, if ERP > 50 mW, In-ear monitor systems and Radio microphones

For other cases that are not covered by the licence exemption regime, or by the specific cases referred above, a radio licence shall be requested.

Additional information available at

<https://www.anacom.pt/render.jsp?contentId=1364270&languageId=1>

How to get a short- or long-term license?

Any request for license should be addressed to ANACOM using our virtual desk, available at: https://www.anacom.pt/bvirtual/bvru/index.do?do=/acesso_direto.do&languageId=1

Fees for a short-term license

For temporary licences, the value of the usage fees to be collected is reached by using the following formula: Applicable annual fee x (no. of days of licence validity / 360 days). For occasional audio links, the applicable annual fee is as follows:

SAP/SAB -Annual fee	
Audio links (per frequency)	€ 2 250,00

We would also like to point out that minimum and urgency (when applicable) fees will be applied. See below:

- **Minimum Fee:** The value of 50 euros is the minimum value of spectrum fee applicable to stations or networks of each Radiocommunications Service/Application to be used for temporary events.
- **Urgency Fee:** If the application for temporary licensing is not submitted to ANACOM up to ten days prior to the date on which it is proposed the radio licence should come into force, the applicable fee will be increased by 50% of its value, with a minimum of 75 euros.

Link to Table of Frequency Allocation (eQNAF), which is electronic format (Source of implementation)

PT: <https://www.anacom.pt/render.jsp?categoryId=348130>

EN: <https://www.anacom.pt/render.jsp?categoryId=343582&languageId=1>

More information is at: [Station license exemptions](#)

Note: information as of July 2021

Romania

No individual license required / License exempt frequencies

In the Romanian frequency plan some frequency bands have been allocated to be used for wireless microphones. In all those bands the frequencies can be used without a license (license exemption).

Short Range Devices / Radio microphones

- 29.7 - 30.3 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 30.5 - 32.15 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 32.45 - 33.1 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 33.6 - 34.975 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 37.5 - 40.02 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 40.66 - 41.015 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 44.5 - 45.2 MHz, 10 mW ERP, 50 kHz - on a tuning range basis
- 174 - 216 MHz, 50 mW ERP - in accordance with Annex 10 of ERC/REC 70-03; On a tuning range basis; Geographical restrictions for the sharing usage with the TV Broadcasting; It is needed to contact the National Spectrum Management Authority (ANCOM)
- 470 - 574 MHz, 582 – 694, 50 mW ERP - in accordance with Annex 10 of ERC/REC 70-03; On a tuning range basis; Geographical restrictions for the sharing usage with the TV Broadcasting; It is needed to contact the National Spectrum Management Authority

In the frequency band 470-694 MHz, the use of the 574-582 MHz frequency band is performed under licensing authorisation regime. Therefore, the technical specification for RO-IR MICRO 04 radio interface (former RO-IR 10-04) shall include only the frequency bands 470–574 MHz and 582–694 MHz.

- 823 - 826
- 1785 – 1804.8 MHz, 20 mW EIRP (50 mW EIRP restricted to body worn equipment)

Wireless audio / multimedia applications

- 87.5 - 108 MHz, 50 nW ERP, 200 kHz - when audio signals are not present, apparatus must employ a transmission time out of facility. Pilot tones that ensure continuity of transmission are not permitted
- 863 - 865 MHz, 10 mW ERP
- 864.8 - 865 MHz, 10 mW ERP
- 1795 - 1800 MHz, 20 mW EIRP

For the purpose of this technical regulation, Short-Range Device (SRD) means radio transmitters, which provide either unidirectional or bidirectional communication and which transmit over a short distance at low power.

For the purpose of this Technical Regulation, radio microphones are small, low power (typically 50 mW or less) transmitters designated to be worn on the body, or hand held, for the transmission of sound.

For the purpose of this technical regulation, non-interference and non-protected basis means the interdiction that no harmful interference may be caused to any radio communications service and that no claim may be made for protection of these devices against harmful interference originating from radio communications services.

Temporary Spectrum Licences and Fees

See: http://www.ancom.org.ro/en/temporary-spectrum-licences_4689

http://www.ancom.org.ro/reglementari-interfete_2723

To get an idea of the amount of these tariffs, for example, for a frequency in Bucharest, for up to 30 days, the price shall not exceed 50 euros.

Further information

Contact addresses of the four responsible Local Telecommunication Offices:

<http://www.ancom.org.ro/en/harta-locatii>

Note: see on the map the addresses for the Bucharest, Iasi, Timisoara and Cluj Regional Headquarters

Downloadable application form on the website of add ANCOMs web space:

http://www.ancom.org.ro/en/temporary-spectrum-licences_4689

Interface Regulations:

<http://www.ancom.org.ro/en/interface-regulations-2723>

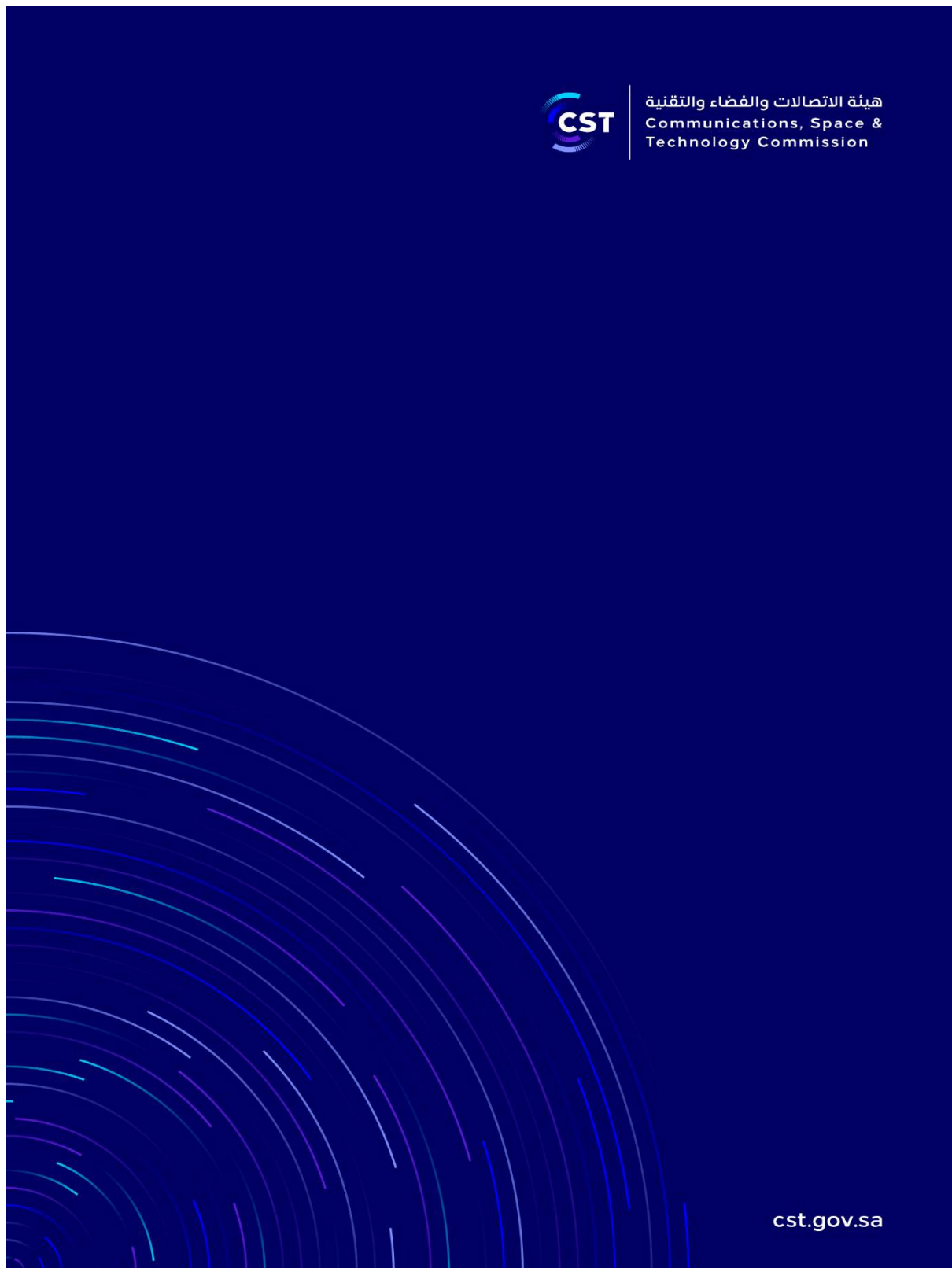
Further information can be found here - Romanian Regulation:

http://www.ancom.org.ro/en/romanian-regulation_2719

Note: information as of July 2021

Saudi Arabia

<https://www.cst.gov.sa/ar/services/spectrum/Documents/NationalFrequencyPlanEN.pdf>



ation purposes
imposed by the
es between the

The Allocated Spectrum for PMSE Applic

cst.gov.sa

Introduction

The Communication, Space & Technology Commission (CST) harbors ambitious plans to enhance the utilization of Programme Making and Special Events (PMSE) equipment across the Kingdom, recognizing the significant value these applications contribute to our nation's capacity for hosting and producing premier events and programs.

Currently, we are in the advanced stages of developing a comprehensive regulatory framework specifically tailored to govern PMSE applications. This framework is designed to cover a wide range of critical aspects, including but not limited to licensing requirements, fee structures, stakeholders' rights and responsibilities, relevant technical standards, and enforcement protocols.

The document we present herein primarily focuses on the spectrum allocation for PMSE, pinpointing the frequencies that will necessitate licensing.

It's important to note that while this document zeroes in on spectrum allocation for PMSE, it forms a part of the broader regulatory framework being developed to comprehensively oversee PMSE applications. Our aim through this document is to guarantee that the proposed frequency bands and maximum output power limits are optimally aligned with the operational needs of PMSE applications.

In the subsequent section, we will introduce the initial proposals for frequency bands allocated for PMSE use, which are intended to be incorporated into the comprehensive PMSE regulatory framework. These proposals will be governed by detailed terms and conditions, which are outlined below. The designated bands are aimed to accommodate a variety of PMSE equipment, including, but not limited to, radio microphones, video and audio links, in-ear monitors, talkback systems, and Private Mobile Radio (PMR).

Proposed Frequency Bands Allocated for PMSE

2.1 Radiomicrophones Frequency Band

Frequency Band	Channel Bandwidth	Maximum Power	Note
174 - 223	200 KHz	50 mW ERP	CST will undertake a study to make a total of 4 MHz of spectrum available for radiomicrophones to be used on a temporary basis, based on the identified location.
470 - 614	200 KHz	50 mW ERP	CST will study to allocate a total of 1 MHz of spectrum available for the use of radiomicrophones on an annual basis, with the flexibility to use in multiple locations. The remainder part of the band will be available for temporary use, on the identified locations.
733 - 738	200 KHz	50 mW ERP	
823 – 832	200 KHz	20 mW ERP	Licensing on an annual basis with the flexibility to use in multiple locations.
863 - 865	200 KHz	10 mW ERP	
1785 - 1805	200 KHz	20 mW ERP	Licensing on an annual basis with the flexibility to use in multiple locations.

2.2 Audio Links Frequency Band

Frequency Band	Channel Bandwidth	Maximum Power	Note
47 - 68	100 KHz	5 W ERP	CST will study to make a total of 1 MHz of spectrum available for fixed links (point-to-point) to be used on annual or temporary basis.
174 - 223	200 KHz	5 W ERP	CST will study to make a total of 0.6 MHz of spectrum available for audio links to be used on temporary basis.
400 - 470	50 KHz	25 W ERP	Used on temporary basis
470 – 614	200 KHz	5 W ERP	Used on temporary basis

2.3 Talkback

Frequency Band	Channel Bandwidth	Maximum Power	Note
29.7 - 47	12.5 KHz	5 W ERP	
47 - 49	12.5 KHz	25 W ERP	Use on a temporary basis, based on the identified location, using duplex with 57 – 59 MHz
57 - 59	12.5 KHz	25 W ERP	Use on a temporary and portable basis, duplex with 47 – 49 MHz.
150 - 174	12.5 KHz	10 W ERP	Use on a temporary basis, based on the identified location.
450 - 451	12.5 KHz	5 W ERP	Use on a temporary basis, based on the identified location, using duplex with 460 – 461 MHz
460 – 461	12.5 KHz	1 W ERP	Use on a temporary and portable basis, duplex with 450 – 451 MHz.
470 - 614	12.5 KHz	5 W ERP	For indoor uses on an annual basis.

2.4 Wireless Cameras and Video Links

Frequency Band	Channel Bandwidth	Maximum Power	Note
1980 - 2025	10 MHz	1 W ERP	Limited availability, use on a temporary basis, based on the identified location.
2200 - 2300	10 MHz	1 W ERP	Limited availability, use on a temporary basis, based on the identified location.
2400 - 2500	20 MHz	1 W ERP	Limited availability, use on a temporary basis, based on the identified location.
7000 - 8500	10 MHz	40 dBW ERP	Use on a temporary basis, based on the identified location.
10000 – 10680	20 MHz	40 dBW ERP	Use on a temporary basis, based on the identified location.
47200 - 50200	10 MHz	30 dBW ERP	Use on a temporary basis, based on the identified location.

2.5 Telemetry and Telecommand Links

Frequency Band	Channel Bandwidth	Maximum Power	Note
174 - 223	12.5 KHz	5 W	Use on a temporary basis, based on the identified location.
470 - 614	12.5 KHz	5 W	Use on a temporary basis, based on the identified location.

2.6 Private Mobile Radio

Frequency Band	Channel Bandwidth	Maximum Power	Note
136 - 174	12.5 KHz	5 W	Use on a temporary basis, based on the identified location.
400 - 470	12.5 KHz	5 W	Use on a temporary basis, based on the identified location.

Note: information as of 2024

Serbia

Pursuant to Article 83, paragraph 4 of the Law on Electronic Communications ("Official Gazette of RS", No. 44/10, 60/13 - US, 62/14 and 95/18) and Article 42, paragraph 1. Law on Government ("Official Gazette of RS", No. 55/05, 71/05 - correction, 101/07, 65/08, 16/11, 68/12 - US, 72/12, 7 / 14 - US, 44/14 and 30/18 - other law), the Government adopts (25 June 2020):

To find information in the National Allocation Plan (not available in English), search “ радио-микрофони “ (= radio microphones).

In the Table (<https://t1p.de/oo2z>), last column is a manner of granting individual licences. Almost in all bands for radio microphones you could find the acronym OO - Use of Radio-frequencies on the Basis of General Authorization. And one exception ПЗ - Use of Radio frequency on the basis of an individual licence issuance procedure, upon request.

29.7-47.0 MHz

173.965-216 MHz

216–223 MHz (with DAB+)

470-789 MHz

823–832 MHz

863–865 MHz

1350–1400 MHz

1492–1518 MHz

1785–1804.8 MHz

Source:

<https://t1p.de/oo2z>

=

https://www.ratel.rs/uploads/documents/empire_plugin/%D0%9F%D0%BB%D0%B0%D0%BD%20%D0%BD%D0%B0%D0%BC%D0%B5%D0%BD%D0%B5%20%D1%80%D0%B0%D0%B4%D0%B8%D0%BE-%D1%84%D1%80%D0%B5%D0%BA%D0%B2%D0%B5%D0%BD%D1%86%D0%B8%D1%98%D1%81%D0%BA%D0%B8%D1%85%20%D0%BE%D0%BF%D1%81%D0%B5%D0%B3%D0%B0.pdf

Note: information as of July 2021

Slovenia

*No individual license required / Individual license exempt frequencies
(General authorisation according to Art. 31 of our Electronic communication act)*

- 29.7 - 47 MHz, Radio microphones 10 mW ERP - bandwidth max. 50 kHz
- 174 - 216 MHz, Radio microphones 50 mW ERP
- 470 - 694 MHz, Radio microphones 50 mW ERP
- 694 - 698 MHz, Radio microphones 20mW ERP

- 736 – 738, 12 mW ERP Radio microphones ERP (?, should be checked)

- 1518 - 1530 MHz, Radio microphones 50 mW e.i.r.p.
- 1785 - 1804.8 MHz, Radio microphones 20 mW e.i.r.p., body worn restricted to 50 mW EIRP
- 1880 - 1900 MHz, DECT equipment up to 250 mW e.i.r.p.

All bands, stated in document have technical limitations written in ERC/REC 70-03, 2014/641/EU - Commission implementing decision of EU on PMSE and radio equipment class 1, in particular subclasses SC86 and SC48 for continuous transmissions.

All above radio equipment is allowed to operate on license - exempt and non-interference basis.

Further information

One can get additional information regarding other usage of radio spectrum in Slovenia at:

<https://www.akos-rs.si/en/>

National Table of Frequency Allocations - NTFA / NURF-4:

https://www.akos-rs.si/fileadmin/user_upload/NURF-4.4a.NUPB.pdf

Note: information as of November 2022

Spain / Andorra

Spectrum is made available through a mixture of licence exemptions (without a fee, and typically with an EIRP of <50mW) and individual licensing (subject to a fee).

No individual license required / License exempt frequencies

- 30 MHz band, 50 mW ERP, 25 kHz, see [IR-98](#)
- 174.100 / 179.300, 50 mW ERP, see [IR-99](#)
- 188.100 / 194.500, 50 mW ERP, see [IR-99](#)
- 470 - 786 MHz, up to 50 mW ERP, 200 kHz, see [IR-216](#)

Note:

- Secondary use. There should not be any interference to other emissions from the same band.
- For use in public spaces, multimedia productions, artistic and sport events, of temporary character.
- Compatible with TV service in the zone of use.

- 823 - 832 MHz, 20mW EIRP hand-held, 100mW EIRP body-worn, 200 kHz, see [IR-210](#)
- 1785 – 1805 MHz, 20mW hand-held and 50 mW EIRP body-worn, see [IR-101](#)

Fees

No fees are required

Further information

- 30 MHz band, 50 mW ERP, 25 kHz, see IR-98
- UN36: 470 - 786 MHz
- UN118: 863 - 865 MHz
- UN119: 1785 - 1805 MHz
- UN48: 1785 – 1805 MHz
- UN-95, UN-106 and UN-127: 174.1 - 194.5 MHz
- UN151: 823 - 832 MHz

Contact addresses for responsible Local Telecommunication Offices

* Local Telecommunication Offices list:

<http://www.minetad.gob.es/telecomunicaciones/es-ES/Jefaturas/Paginas/Jefaturas-Provinciales.aspx>

Local contact for information

AFIAL (Sound and Light Manufacturers and Importers Organization)

WEB : <http://www.afial.net> / Mail: afial@afial.net

Wireless interfaces

Cuadro Nacional de Atribución de Frecuencias (CNAF) :

<http://www.minetad.gob.es/telecomunicaciones/espectro/Paginas/cnaf.aspx>

Here you can select the different regions and then display the DVB-T stations of the provinces in Spain, and Andorra: <https://www.tdt1.com>

Note: information as of April 2018

South Africa

License exempt frequencies / no license required

- 174 - 216 MHz, max 50 mW ERP
- 402 - 406 MHz, max 10 mW ERP
- 470 - 786 MHz, max 50 mW ERP
- 786 - 789 MHz, max 50 mW ERP
- 823 - 832 MHz, max 100 mW ERP
- 863 - 865 MHz, max 10 mW ERP
- 1350 - 1400 MHz, max 20 mW ERP
- 1492 - 1525 MHz, max 50 mW ERP
- 1785 - 1795 MHz, max 20 mW ERP
- 1795 – 1804.9 MHz, max 20 ERP

Further information

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA, NOTICE 737 OF 2021

<https://www.ellipsis.co.za/radio-frequency-spectrum-regulations-2015/>

- Electronic Communications Act: Final Radio Frequency Spectrum Assignment Plan for Frequency Band 470 to 694 MHz
https://www.gov.za/sites/default/files/gcis_document/202005/43341gen284s.pdf

Note: information as of March 2022

South Korea

Individual licence required / Mandatory application

- 470 - 698 MHz, max. 50mW ERP – Broadcast
- 470 - 698MHz, max. 30mW ERP – Non-Broadcast market (Authorized sites)

No individual license required / License exempt frequencies

- 72.610 - 73.910MHz, 10mW ERP
- 74.000 - 74.800MHz, 10mW ERP
- 75.620 - 75.790MHz, 10mW ERP
- 173.020 - 173.280MHz, 10mW ERP
- 217.250 - 220.110MHz, 10mW ERP
- 223.000 - 225.000MHz, 10mW ERP
- 925 - 937.5 MHz, 10mW, ERP
- 2400 - 2483.5 MHz, 10mW ERP

Fees

One-time fee for 5 years: about 12 € (converted).

In addition, per link and year: about 10 € (converted)

Further information

Contact addresses of the four responsible Local Telecommunication Offices

(Korea Radio Promotion Association): www.rapa.or.kr /

<http://www.rapa.or.kr/design/contents10.asp?code=1010&lang=eng&left=1&mncode=18>

Ministry of Science and ICT:

<http://www.msip.go.kr> / <http://english.msit.go.kr/english/main/main.do>

Note: information as of April 2018

Sweden

Individual licence required - Generally approved

- 174 - 240 MHz, 50mW ERP
- 470 - 694 MHz, 50mW, ERP
- 1785 - 1805 MHz, 20mW ERP, Handheld TX, 50mW ERP, Body Worn TX

No individual license required / License exempt frequencies

- 41 - 43.6 MHz, 10mW
- 823 - 826 MHz, 10mW ERP, Handheld TX, 50mW ERP, Body worn TX
- 826 - 832 MHz, 50mW ERP
- 863 - 865 MHz, 10mW ERP

Fees per year (from 1.1.2021 on)

- 100 - 5000 SEK or more per transmitter

Fee according to the Radio Equipment Act / Section 6 A / person who conducts activities that are notified in accordance with ch. § 1 of the law (2003: 389) on electronic communication and which has an annual turnover of less than SEK 5,000,000, must pay an annual fee of SEK 100 for market control according to the Radio Equipment Act (2016: 392). If the annual turnover amounts to SEK 5,000,000 or more, the person conducting it must the business pay an annual fee of 0.0065 percent of annual sales for market control according to the Radio Equipment Act. (non-binding translation from swedish by Jochen Zenthöfer)

<https://www.pts.se/globalassets/startpage/dokument/legala-dokument/foreskrifter/avgifter/ptsfs-2020-6-avgifter.pdf>

Here is also a look-up tool, like the British have in which you can select a location and the DVB-T usage is displayed:

<https://www.pts.se/en/english-b/radio/application/wireless-audio-transmission/>

= shorturl.at/hlsN6

The UHF frequencies have to be registered

<https://www.pts.se/en/english-b/radio/application/temporary-licences-for-events/>

= shorturl.at/aces2

A short time allocation per range cheated approx. 300SEK (for microphones in the corresponding ranges VHF, UHF etc. ...)

Information

Trådlösa mikrofoner och hörseltekniska hjälpmedel:

<http://www.pts.se/sv/bransch/radio/radiotillstand/tradlosa-mikrofoner-och-horseltekniska-hjalpmedel/>

or

Wireless audio transmission:

<http://www.pts.se/en/english-b/radio/application/wireless-audio-transmission/>

Application form:

<https://www.pts.se/contentassets/e4dc23b3aab04da4aa072dfc91679482/ansbl-horsehjalpmedel-tradlosa-mikrofoner.pdf>

Note: information as of November 2022

Switzerland

No individual license required / License exempt frequencies

The table below indicates the authorized power and the technical regulations for each frequency band in which wireless microphones and In-Ear monitor systems can be operated

- 31.4 - 39.6 MHz, 100 mW ERP, use only in the channels indicated in RIR 1009-01
- 174 - 223 MHz, 50 mW ERP, RIR1009-02
- 470 - 694 MHz, 50 mW ERP, RIR1009-10
- 477 - 694 MHz, 250 mW ERP, use only in the channels indicated in RIR 1009-11
- 823 - 826 MHz, 20 mW e.i.r.p., 100 mW e.i.r.p., for wireless microphones carried on the body, RIR1009-18
- 826 - 832 MHz, 100 mW e.i.r.p., RIR1009-13
- 863 - 865 MHz, 10 mW ERP, RIR1009-05
- 1350 - 1400 MHz, indoor only, 20 mW e.i.r.p., 50 mW e.i.r.p. for wireless microphones carried on the body or with built-in Spectrum Scanning Procedure (SSP), RIR1009-20
- 1785 - 1804.8 MHz, 20 mW e.i.r.p., 50 mW e.i.r.p. for wireless microphones carried on the body or with built-in Spectrum Scanning Procedure (SSP), RIR1009-09
- 1880 - 1900 MHz, 250 mW e.i.r.p., DECT only, 250 mW e.i.r.p., RIR0503-01.

Notes:

- The use of radio microphones in the bands 789 - 823 MHz and 832 - 862 MHz is forbidden.
- Wireless microphones can also operate in some other frequency bands. For example, in the frequency ranges intended for non-specific short-distance radio applications or in the frequency range for DECT (Digital Enhanced Cordless Telecommunications) at 1880 MHz. The technical interface requirements RIR1008 define the frequency ranges and radio parameters for non-specific applications, the RIR0503-01 for DECT in the 1880 MHz frequency range.

Frequency coordination for licence exempted PMSE users

Licence exempted PMSE users can register equipment on a voluntary basis to the database provided by a third party in order to coordinate frequency use at events: [PMSE Database](#)

Other equipment may only be used with a valid radiocommunication license

[Link to the application forms](#)

Further Information

[Radio microphones \(E\)](#) / [Drahtlose Mikrofone \(D\)](#) / [Microphones sans fil \(F\)](#) / [Microfoni senza filo \(I\)](#)

Nationaler Frequenzzuweisungsplan

[Nationaler Frequenzzuweisungsplan \(admin.ch\)](#)

Frequency Allocation Plan

<https://www.ofcomnet.ch/#/fatTable>

Note: information as of February 2020, addition Nov. 2022

United Arab Emirates

The table below indicates the authorized power and the technical regulations for each frequency band in which Audio PMSE can be operated:

Frequency Range [MHz]	Intended Use	Usage conditions	Authorization method	Notes
66.0 - 74.8	Radio microphones	Maximum 10 mW e.r.p.	Authorization	Above 73 MHz indoor only
138 - 156	Talkback	Maximum 1 W e.r.p.	Authorization	Based on sharing with PMR
174 - 230	Radio microphones	Maximum 100 mW e.r.p.	Authorization	Based on tuning range. Exact available channels for each location will be updated on the TRA Web.
406.1 - 450	Talkback	Maximum 1 W e.r.p.	Authorization	Based on sharing with PMR
470 - 694	Radio microphones, Talkback and IEM	Maximum 100 mW e.r.p.	Authorization	Based on tuning range. Exact available channels for each location will be updated on the TRA Web.
823 - 826	Radio microphones and IEM	Maximum 20 mW e.i.r.p.	Short Range Device (Class Authorization)	
826 - 832	Radio microphones and IEM	Maximum 100 mW e.i.r.p.	Short Range Device (Class Authorization)	
863 - 870	Radio microphones and IEM	Maximum 50 mW e.i.r.p.	Short Range Device (Class Authorization)	
1350 - 1400	Radio microphones and IEM	As authorized	Authorization	
1675 - 1710	Radio microphones and IEM	As authorized	Authorization	
1785 - 1804.8	Radio microphones and IEM	Maximum 20 mW e.i.r.p. (handheld) and 50 mW e.i.r.p. (body worn)	Short Range Device (Class Authorization)	
1880 - 1900	Radio microphones	Maximum 250 mW e.i.r.p.	Short Range Device (Class Authorization)	Using DECT technology only
2400 - 2483.5	Radio microphones	Maximum 10 mW e.i.r.p.	Short Range Device (Class Authorization)	Shared with SRD including wireless video
5150 - 5875	Indoor conference systems	160 mW	Short Range Device (Class Authorization)	Shared with SRD

How to get a Temporary or Annual Spectrum Authorization?

One can find online application on the following link: <https://www.tra.gov.ae>

Fees for a Spectrum Authorization

Find information about the UAE Frequency Spectrum Fees Regulations for SAB/SAP (PMSE) by using this link: <https://www.tra.gov.ae/en/about-tra/telecommunication-sector/regulations-and-ruling/details.aspx#documents>

Further Information

Find information about the UAE Spectrum Regulations for SAB/SAP (PMSE) by using this link:

<https://www.tra.gov.ae/en/about-tra/telecommunication-sector/regulations-and-ruling/details.aspx#documents>

Contact address of UAE administration

WEB: <https://www.tra.gov.ae/en/contact-us.aspx> / Email : info@tra.gov.ae

Note: information as of March 2020

United States of America

No individual license required / License exempt frequencies

- 54 - 72 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 15.236ff.
- 76 - 88 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 15.236ff.
- 174 - 216 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 15.236ff.
- 470 - 608 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 15.236ff.
- 614 – 616 & 657-663 MHz, 20 mW (EIRP), Title 47 Vol. 1 Part 15.236ff (when these frequencies become available or following the conclusion of the Incentive Auction transition).
- 902 - 928 MHz, 1W peak^{Note1}, Title 47 Vol. 1 Part 15.247ff.
- 1 920 - 1 930 MHz, 100μW multiplied by the square root of the emission BW in Hz, Title 47 Vol. 1 Part 15.301ff.
- 2 400 - 2 483.5 MHz, 1W peak^{Note1}, Title 47 Vol. 1 Part 15.247ff.
- 5 725 - 5 850 MHz, 1W* peak^{Note1}, Title 47 Vol. 1 Part 15.247ff.

Note1: maximum power depends on emission characteristics.

Individual license (up to 10 years) ^{Note2}

- 54 - 72 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 74.861ff.
- 76 - 88 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 74.861ff.
- 174 - 216 MHz, 50 mW (EIRP), Title 47 Vol. 1 Part 74.861ff.
- 470 - 608 MHz, 250 mW (conducted), Title 47 Vol. 1 Part 74.861ff.
- 653 - 657 MHz, 20 mW (EIRP), Title 47 Vol. 1 Part 74.861ff (when these frequencies become available or following the conclusion of the Incentive Auction transition).
- 941.5 - 952.0, 952.85 - 956.25, 956.45 - 959.85 MHz, 1 W (conducted), Title 47 Vol. 1 Part 74.801ff.
- 1 435 - 1 525 MHz, 250 mW (conducted), Title 47 Vol. 1 Part 74.861ff. ^{Note3}
- 6 875 - 6 900 MHz, up to 1 W (conducted), Title 47 Vol. 1 Part 74.861ff. ^{Note4}
- 7 100 - 7 125 MHz, up to 1 W (conducted), Title 47 Vol. 1 Part 74.861ff. ^{Note4}

Note2: the license term can vary but will be for up to 10 years, see <https://www.law.cornell.edu/cfr/text/47/74.15>

Note3: requires FCC license and advance frequency coordination with AFTRCC; <https://www.aftrcc.org/>

Note4: FCC had discussed limiting the power to 250 mW but it appears they settled on 1 Watt for this band, see: https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-100A1.pdf

Fees for wireless microphone systems

- \$165 for 10-year term

Further information

- FCC ULS: <http://wireless.fcc.gov/uls/index.htm?job=home>
- See: <https://magazine.local695.com/fcc-licensing/how-to-get-license>
- Downloadable application form:
<https://transition.fcc.gov/Forms/Form601/601.pdf>

Licensed and Unlicensed Operation Permitted

It is permissible to operate wireless microphones and in ear monitoring systems on either a licensed or unlicensed basis in several bands. In the television broadcasting bands, a power limit of 50 mW applies for unlicensed operation; licensed microphones and in ear monitor transmitters may operate with up to 250 mW in the UHF television band.

Wireless microphones may operate on locally unused television channels within the VHF and UHF television broadcasting bands between 54-72, 76-88, 174-216, and 470-698 MHz ^{Note5}.

Locally unused television channels may be determined by consulting one of the wireless microphone manufacturers' online frequency finders, or the website of one of the FCC approved database operators.

Licensed users may register TV channels they intend to use with one of the FCC approved database operators to receive interference protection from White Space Devices operating in the TV bands. Unlicensed users are no longer able to register with a database.

In addition to the television bands, wireless microphones can also operate in one of the three license-exempt (ISM) bands at 902 - 928 MHz, 2 400 - 2 483.5 MHz or 5 725 - 5 850 MHz as well as the UPCS (DECT) band at 1 920 - 1 930 MHz. Microphones operating in these bands have different technical requirements than those for use in the television bands. They are shared with other devices and may be congested at certain times and places.

As a result of the Incentive Auction of UHF (600 MHz) television band frequencies, wireless microphones and in ear monitoring systems must stop operating in the 600 MHz band except in designated guard band frequencies by the end of the transition period on July 13, 2020. Those who do not comply may experience high levels of interference and could also face fines. The 600 MHz frequencies that will continue to be available for wireless microphone use include a 2 MHz guard band from 614 - 616 MHz, plus a 10 MHz portion of the duplex gap from 653 - 663 MHz. The lower 4 MHz of the duplex gap will be exclusively for licensed wireless microphones, and the upper 6 MHz will be shared between wireless microphones and White Space Devices on a co-equal basis. Unlicensed operation will be permitted in 614 - 616 MHz and 657 - 663 MHz, and licensed operation will be permitted in 653 - 657 MHz. The spectrum below Channel 37 will continue to be used for television broadcasting. Wireless microphone users are advised to check with one of the TV Bands databases to determine the available channels at the location where they plan to operate.

Additional spectrum for licensed users is available in the 941.5 – 952, 952.85 – 956.25, 956.45 – 959.85, 1 435 - 1 525, 6 875 - 6 900, and 7 100 - 7 125 MHz ranges^{Note6}. Technical standards for these bands have now been finalized. Users must check with a local frequency coordinator before operation begins. There are special conditions for operation in the 1 435 - 1 525 MHz band. Access protocols are currently being worked on with AFTRCC, the coordinator for that band.

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Note5: after the current transition phase ends on July 13, 2020, the UHF television broadcasting band will be limited to 470-608 MHz. Wireless microphones will be permitted in the lower guard band at 612-614 MHz and in the duplex gap band from 653-663 MHz.

Note6: the 6 875 – 6 900 and 7 100 – 7 125 MHz bands may be reallocated to other services in the future.

Information as of February 2020

United Kingdom

Preliminary remark

'Site' License required and issued where frequencies are not used for broadcasting or aeronautical services at a given geographical location – access could be for a limited period or on a long-term basis. UHF shared frequencies can be used anywhere in the UK once licensed. The licence can also cover anyone hiring from the licensee. Frequencies on this licence are provided on a non-protected basis as they could be shared with other users in the local area. Ofcom PMSE team does not coordinate the use of these frequencies.

- 470 - 606 MHz, max. 50 mW ERP
- 614 - 702 MHz
- 863 – 865 MHz (can be used without a Licence)
- 960 – 1164 MHz – three 'sub-bands'
- 961 to 1015 MHz
- 1045 to 1075 MHz
- 1105 to 1154 MHz
- 1518-1525 MHz, max. 50 mW ERP
- 2400 – 2483.5 MHz (can be used without a Licence)

'Shared' License required – annual renewal

- 606 - 614 MHz, max. 50 mW ERP
- 823 – 832 MHz, max. 50 mW ERP
- 1785 - 1800 MHz, max 50 mW ERP

No individual license required / License exempt frequencies

- 863 - 865 MHz, max. 10 mW ERP
- 173.8 - 175 MHz max 50 mW ERP
- 2.4 - 2.485 GHz, 10 mW EIRP

Additional Information

Ofcom look up tool:

<https://pmse.ofcom.org.uk/pmse/wireless/public/microphone700.aspx>

Enter your location by list, postcode, NGR and see a list of the expected spectrum

<https://ukfree.tv/prediction>

Prediction by postcode with a map of transmitters including links to mobile phone coverage for different frequency ranges

<https://ukfree.tv/maps/tvregions/>

[https://ukfree.tv/section/TV Transmitters](https://ukfree.tv/section/TV%20Transmitters)

If you are looking for a special transmitter on a map:

<https://ukfree.tv/maps/freeview>

<https://ukfree.tv/maps/freeviewhd>

<https://ukfree.tv/maps/itv>

<https://ukfree.tv/maps/localtv>

<https://ukfree.tv/maps/bbc>

Example to get all details:

<https://ukfree.tv/maps/tvregions/>

choose an area/region

<https://ukfree.tv/maps/tvregions/5>

Scroll and zoom on the map

Click (once) on one transmitter on the map and it will show you the coverage of the transmitter (click once again to deactivate the coverage diagram)

If you double click on a special transmitter, you will be forwarded to the transmitter subsection of ukfree.tv

[https://ukfree.tv/transmitters/tv/Black Hill](https://ukfree.tv/transmitters/tv/Black%20Hill)

There you are able to look at the TV channel number with the frequency, the transmitter high, modulation, rf power and polarisation with the coverage direction diagram (There're also tables with the frequency transmission change over time and comparison of old analogue and current digital signal levels)

Education/interference hunting/expected problems with the weather conditions:

[https://ukfree.tv/section/Freeview Interference](https://ukfree.tv/section/Freeview%20Interference)

the actual article is:

[https://ukfree.tv/article/1107051977/High pressure causing channel loss through In versi](https://ukfree.tv/article/1107051977/High%20pressure%20causing%20channel%20loss%20through%20In%20versi)

Contacts:

Ofcom have taken the responsibility for licensing PMSE operation back 'in-house'.

For details of how to licence; <https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/pmse>

Video PMSE:

<https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/pmse/pmse-technical-info/video-links>

Note: information as of July 2021, addition in November 2022

Ukraine

Due to the situation in Ukraine (russian aggression), not all data could not be verified in September 2024.

Individual assignment / Individual license required

Bands allowed for cordless audio devices and radio microphones in Ukraine

Radio Frequency Band, MHz	Radio Technology	Conditions for Usage
30.01 - 47	Radio microphones	Radio microphones are permit- and fee-exempt, if operate in the frequency band of 30.01-33 MHz with the maximum radiated power up to 10 mW and upon availability of a non-directional integral/constructive antenna. Otherwise, operation of radio microphones is carried out on a permit-to-operate basis.
66 - 74	Radio microphones	Radio microphones are permit- and fee-exempt, if operate with the maximum radiated power up to 10 mW and upon availability of a non-directional integral/constructive antenna. Operation of radio microphone is carried out on the condition that it does not create interference to the other devices operating within the same frequency bands.
87.5 - 92		
100 - 108		
89.9 – 90.2	Cordless audio devices	Frequency band is used for sound transmission in TV broadcasting with radiated power up to 10 mW.
174-216	Radio microphones	Radio microphones are permit- and fee-exempt, if operate in the frequency bands of 174.4 – 174.6 MHz and 174.9 – 175.1 MHz with the maximum radiated power up to 10 mW and upon availability of a non-directional integral/constructive antenna. Otherwise, operation of radio microphones is carried out on a permit-to-operate basis. Operation of radio microphone is carried out on the condition that it does not create interference to the other devices operating within the same frequency bands.
470-862		
863 - 865	Cordless audio devices	For voice transmission only. Algorithm of device shall ensure absence of emission when it is out of operation. Cordless audio devices are permit- and fee-exempt, if the maximum radiated power is up to 10 mW and upon availability of a non-directional integral / constructive antenna. Operation of device is carried out on the condition that it does not create interference to the other devices operating within the same frequency bands.

Payment

Issuance of permissions for operation of radio electronic facilities (REFs) is performed on a fee paid basis. Information on the payment conditions is available on:

[National Commission for the State Regulation of electronic communications, radiofrequency spectrum and the provision of postal services | Registers \(nkrzi.gov.ua\)](https://nkrzi.gov.ua/index.php?r=site/index&pg=1&id=0&language=en)

<https://nkrzi.gov.ua/index.php?r=site/index&pg=1&id=0&language=en>

Additional Information

Contacts: National Commission for the State Regulation of Communications and Information:

<http://www.nkrzi.gov.ua/index.php?r=site/index&pg=1&id=0&language=en>

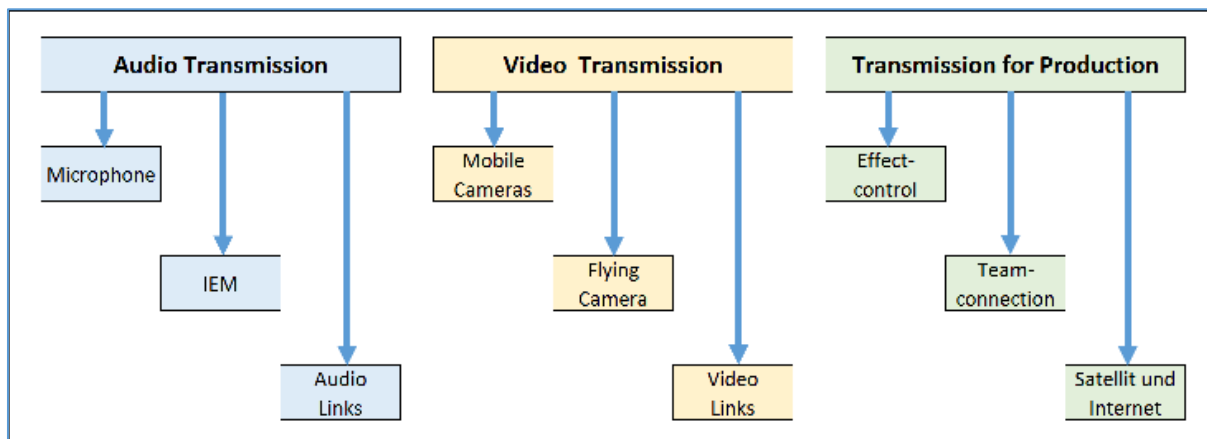
Ukrainian State Centre of Radio Frequencies:

<http://www.ucrf.gov.ua/en/>

Note: information as of March 2017; partly updated August 2021 and March 2022 and November 2022 and September 2024

Further information

This document is mainly focussing on audio PMSE. However, there are several PMSE in daily use:



Therefore, CEPT/ECO informs on a special homepage about “Programme making and special events applications (PMSE)”: <https://www.cept.org/ecc/topics/programme-making-and-special-events-applications-pmse>

In addition, CEPT/ECO provides a frequency database, called “EFIS”: <https://efis.cept.org/>

A similar database “APT Frequency Information System (AFIS)” is provided by the Asia-Pacific Telecommunity (APT): <http://www.aptafis.org/>

Note: information as of January 2024

Association for securing radio spectrum for the cultural and creative industries.

Association of Professional Wireless Production Technologies e. V.
Pappelallee 78/79
D-10437 Berlin | Germany

E-Mail: office@apwpt.org

APWPT is a sister organization of “SOS – Save Our Spectrum”
<https://sos-save-our-spectrum.org/?lang=en>

Responsible: Jochen Zenthöfer. Thanks to Marco Völzke, Berlin, for his help since 2022!