



Frequencies for wireless microphones

This is how it works in Austria, Australia, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Norway, The Netherlands, New Zealand, Norway, Portugal, Romania, Slovenia, Spain, South Korea, Sweden, Switzerland, USA, UAE, Ukraine and UK

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Australia

Current status

Wireless audio devices operate under a “Class Licence”, meaning that no special approvals or licence is required to operate equipment that meets the following frequency and power specs.

- Use of free frequencies (no approval needed) from 174 - 230 MHz,
(max. e.i.r.p. 3 mW)
- Use of free frequencies (no approval needed) between 520 - 694 MHz,
(max e.i.r.p. 100mW)
- Use of free frequencies (no approval needed) between 1785 - 1800 MHz,
(max e.i.r.p. 100mW)

Operation on the frequencies shown above is as a secondary service, sharing with DTV transmission, on the basis that you do not operate outdoors on the same frequency as a DTV service licenced in the location, and that you operate on a “no interference – no protection” basis.

Application can be made to operate outdoors on the same frequency as a DTV service licenced in the location for special events.

Note that DTV channels are allocated on a “Block Planning” approach in Australia, with 6 consecutive channels, each 7 MHz wide, allocated to each DTV market. This means that in any location there will be at least one complete block of 42 MHz fully occupied by DTV transmission. In some locations more than 1 Block is in use – refer to www.frequencyfinder.com.au for up to date information about VHF & UHF DTV frequency allocation in any area of Australia

Approval can be requested to operate on higher power levels within these bands for defined “Special Events”

Note: this information as of 2016 is still correct for Australia.

Austria

Mandatory application

- 174 - 216 MHz, max. 50 mW ERP
- 230 - 250 MHz, max. 50 mW ERP
- 470 - 694 MHz, max. 50 mW ERP
- 694 - 703 MHz, 733 -758 MHz, 788 -790 MHz,
20 mW e.i.r.p. or max. 90 mW e.i.r.p. for body-worn wireless microphones
- 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.
- 1350 - 1400 MHz, 20 mW e.i.r.p. or max. 50 mW e.i.r.p. for body-worn wireless microphones.
- 1427 - 1525 MHz, 20 mW e.i.r.p. or max. 50 mW e.i.r.p. for body-worn wireless microphones.

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

License exempt frequencies

- 863 - 865 MHz, max. 10 mW ERP
- 1785-1804.8 MHz, 20 mW e.i.r.p. or max. 50 mW e.i.r.p. for body-worn wireless.

Fees

Fees of € 53 per transmitter will be levied.

<http://www.bmvit.gv.at/telekommunikation/recht/aut/verordnungen/tkgv.html>

Further information

- Contact addresses of the four responsible Local Telecommunication Offices:
<https://www.bmvit.gv.at/ofb/organisation/nachgeordnet/fmb/index.html>
- Downloadable application form on the website of the bmvit web space,
in section “PMSE-Funkanlagen”:
<https://www.bmvit.gv.at/ofb/formulare/bewilligung/land/index.html>
- Wireless interfaces:
<https://www.bmvit.gv.at/ofb/marktueberwachung/fsb/index.html>

Note: information as of February 2017

Belgium

Generally approved

- * 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, except province of Hainaut

Additional information:

- from 1st Jan 2017 the operation of devices in 694 - 790 MHz isn't allowed any more.
- from 1st Jan 2020 there will be no longer license granted for 694 - 790 MHz.

- * 823 - 826 MHz, Radio microphones,
20 mW e.i.r.p for hand-held and 100 mW e.i.r.p. for body worn
- * 826 - 832 MHz, Radio microphones, 100mW e.i.r.p.
- * 863 - 865 MHz, Radio microphones, 10 mW ERP
- * 1795 - 1805 MHz, Radio microphones,
20 mW e.i.r.p. for hand-held and 50mW e.i.r.p. for body-worn

Individual assignment

- * 174 - 216 MHz, In-ear monitor systems and Radio microphones, max 50 mW ERP
- * 470 - 790 MHz, In-ear monitor systems and Radio microphones, max 50 mW ERP
- * 1492 – 1518 MHz, max 50 mW, indoor use only

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

The form you can download from:

<http://www.bipt.be/en/consumers/radio/radio-networks> (French or Dutch)

Retour address: radiovergunningen@bipt.be / fax : +32 2 226 87 97

Fees

Price for one unit with 50 mW = €33,88 for one year

For temporary use minimum period is one month: price is 33,88/12

Link to Belgian administrations homepage where PMSE user can apply for a license

<http://www.bipt.be/en/consumers/radio/radio-networks/mobile-networks/application-form-to-obtain-a-license-for-the-use-of-private-radio-communications-stations>

More information is at

Belgisch Instituut voor postdiensten en telecommunicatie
 Dienst Radiovergunningen
 Ellipse Building – Gebouw C
 Koning Albert II-laan 35
 1030 BRUSSEL

Note: information as of May 2016

Denmark

No license required

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 - 790 MHz, 50 mW ERP, 200 kHz - White spaces only
Note: the 700 MHz use is noted to be changed from 2020
- 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

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 March 2017

Finland

No license required / Licence exempt frequencies

- 174 - 230 MHz
- 470 - 694 MHz
- 823 - 832 MHz
- 863 - 865 MHz
- 1785 - 1804.8 MHz

To get further information see FICORA's regulation on collective frequencies for license-exempt radio transmitters, PMSE are in section 19:

<https://www.viestintavirasto.fi/en/steeringandsupervision/actsregulationsdecisions/regulations/regulation15regulationoncollectivefrequenciesforlicence-exempradiotransmittersandontheiruse2011337fin.html>

Mandatory application / Applying for a short-term licence

- The radio microphones will be licence-exempted if they operate on the allowed frequencies and accordance with the standard. In cases where parameters of use such like maximum ERP or bandwidth deviates from those exempted from licence. FICORA grants a radio licence if necessary to the radio microphone. The radio licences are applied from FICORA with the application form and FICORA assigns parameters and the frequencies to be used in the radio licence.

<https://www.viestintavirasto.fi/attachments/lomakkeet/SHORTUSe.pdf>

- The conditions for licence exempt from FICORA Regulation 15
https://www.viestintavirasto.fi/attachments/maaraykset/Regulation_15AK.pdf

Fees

- The frequency fee of a licence bases on the number of equipment and frequencies used. The frequency fee of a short-term licence 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
 - 29 EUR for 10 microphones up to 3 months
 - 71 EUR for 30 microphones up to 3 months
- Detailed information about frequency fees at
<https://www.viestintavirasto.fi/en/spectrum/radiolicences/frequencyfees.html>

Link to administrations homepage regarding Wireless Microphones

Wireless cameras, video links and microphones:

<http://mics.ficora.fi>

Radio microphone user - are your licence matters in order?

<https://www.viestintavirasto.fi/en/ficora/news/2015/radiomicrophoneuser-areyourlicencemattersinorder.html>

Note: information as of April 2017

France

License exempt frequencies

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
- 694 - 789 MHz, max. 50 mW ERP (until the 1st of July 2019)
Note: Arcep Decision n° 2016-0272 clarifies the transitional use within the band 694-790 MHz by PMSE equipment until 1 July 2019. It contains the list of cities and the associated dates of reallocations beyond which the PMSE use will be restricted.
- 786 - 789 MHz, max. 12 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.
- 1785 - 1800 MHz, max. 50mW e.i.r.p. for body-worn wireless microphones
otherwise max. 20mW e.i.r.p.

Question

What the effect of change in 800 and 700 MHz?

See: <http://www.arcep.fr/index.php?id=10887&L=1>

Further Information

Link to France administrations homepage (in English) where PMSE user can apply for a license, see: <http://www.arcep.fr/index.php?id=10887&L=1>

Additional information about regulation for audio PMSE is published on ARCEPs homepage:

<http://www.arcep.fr/?id=10887>

Note: information as of March 2017

Germany

Generally assigned frequencies

- 32.475 - 34.325 and 36.610 - 38.125 MHz, 10 mW (ERP), permit 53/2015
- 174 - 230 MHz, 50 mW (ERP), permit 59/2015
- 823 - 832 MHz, 82/100mW (e.i.r.p.), permit 2/2015
- 863 - 865 MHz, 10mW (ERP), permit 47/2013
- 1785 - 1805 MHz, 82mW (e.i.r.p.), permit 3/2015
- 1880 – 1900 MHz, 250 mW (ERP), permit 25/2015, **DECT only**

Individual assignment up to 10 years

- Single frequencies in 34.25 to 38.05 MHz, see VVnöml
- 470 - 608 MHz, 50 mW (ERP)
- 614 - 703 MHz, 50 mW (ERP)
- 733 - 823 MHz, 50 mW (ERP);
758-788 and 791-821 additional optional capacity, see VVnöml
- 1350 - 1400 MHz, 50 mW (ERP), indoor only
- 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

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

- Non recurrent fee is € 130.00 per application. This amount includes one-time administration costs regardless of the number of wireless microphones and the number of frequencies that are used in the system (wireless station).
- An additional frequency use and EMC contribution (TKG & EMVG) is currently around € 10,00 – 15,00 per transmitter per year, depending on the actual costs of the year.
- Changes of non-technical parameters of an existing license are currently € 60.00, changes of technical parameters of an existing license are currently € 130,00.
- Fees for a "PA system" (wireless microphone systems) – **short term frequency assignment** - see the link below.

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

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

General licenses (Allgemeinzuteilung)

<http://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

<http://www.bundesnetzagentur.de/shortterm>

Note: information as of March 2017

Greece

Generally approved

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

Individual assignment

- 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
- 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

Fees

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

http://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

http://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.

Italy

Generally approved

- 863 – 865 MHz, Radio microphones, max 10 mW ERP

Individual assignment

- 174 - 230 MHz, Radio microphones, max 50 mW ERP
- 470 - 786MHz, Radio microphones, max 50mW ERP
- 786 - 790MHz, 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

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

Link for the temporary frequency request:

<http://www.sviluppoeconomico.gov.it/index.php/en/documents/2034593-temporary-frequencies-use>

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

Find some information by using this link:

<http://www.sviluppoeconomico.gov.it/index.php/it/comunicazioni/ispettorati-territoriali-e-altri-organismi>

Note: fees might vary depending the region

Mail contact address of Italian administrations

frq.temp@mise.gov.it

Note: information as of March 2017

The Netherlands

Current status

With the Dutch newspaper “Staatscourant Nr. 3750” an updated frequency allocation plan was published on March 4, 2015. Subcategory 8 refers to radio transmission equipment intended for low power wireless audio connections (PMSE). The use of free frequencies (no approval needed) is permit in this tuning ranges:

- 195 - 202 MHz, ≤ ERP 50mW
- 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 - 791 MHz, ≤ ERP 50mW
- 823 - 826 MHz, hand-held ≤ e.i.r.p. 20mW, body-worn ≤ e.i.r.p 100mW
- 826 - 832 MHz, ≤ e.i.r.p 100mW
- 863 - 865 MHz ≤ ERP 10mW
- 1785 - 1805 MHz, portable ≤ e.i.r.p. 20mW, body-worn ≤ e.i.r.p 50mW
- 1375-1400 MHz, can be licenced in case of an event and just for short duration.

Further Information

[Nationaal Frequentieplan 2014](#) (Dutch)

[Programme Making and Special Events](#) (Dutch)

[Application-form-events](#) (E)

Note: information as of April 2017

Norway

No license required

In the Norwegian 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).

- 41 - 43,6 MHz, 10 mW ERP
- 510 - 790 MHz, 50 mW ERP White spaces only
- 823 - 832 MHz, 100 mW e.i.r.p. Handheld only 20mW in 823-826 MHz
- 863 - 865 MHz, 10 mW ERP
- 1492 - 1518 MHz, 50 mW e.i.r.p. Only indoor use
- 1785 - 1804.8 MHz, 50 mW e.i.r.p. Handheld only 20mW

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

Link for the temporary frequency request:

<http://eng.nkom.no/technical/temporary-licenses/wireless-microphones/wireless-microphones>

Further Information

- Wireless microphones information
<http://eng.nkom.no/technical/temporary-licenses/wireless-microphones/wireless-microphones>
- For higher output power please see the link below for the application form:
http://eng.nkom.no/technical/mobile-communication/private-mobile-radio/professional-mobile-radio-pmr/_attachment/8071?_ts=14a99f9d75f
- Online tool to find legal location specific whitespaces

<http://finnsenderen.no/traadlos>

Note: information as of April 2017

New Zealand

Generally approved

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>

Portugal

Generally approved

- 863 - 865 MHz, Radio microphones, 10 mW ERP, 07/SRD/POR
- 1795 - 1804,8 MHz, Radio microphones, 20 mW e.i.r.p., 07/SRD/POR
Note: 07/SRD/POR is suggested to be updated in next time

Individual assignment

- 174 - 230 MHz, if ERP > 50 mW
- 470 - 750 MHz, if ERP > 50 mW, In-ear monitor systems and Radio microphones
- 758 - 786 MHz, if ERP > 50 mW, In-ear monitor systems and Radio microphones

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

<http://www.anacom.pt:8000/eqnaf/content/freqPortalSearch.do?search=currentSearch&changeLanguage=EN>

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

Note: information as of 2016

Romania

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

- 27.9 - 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
- 863 - 865 MHz, 10 mW ERP
- 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 - 862 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
- 1785 - 1800 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

Fees

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

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

How to get a temporary license?

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

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

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

Wireless interfaces:

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

Further information can be found here:

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

Note: information as of March 2017

Slovenia

Generally approved

- 29.7 - 47 MHz, Radio microphones, 10 mW ERP - bandwidth max. 50 kHz
- 823 - 826 MHz, Radio microphones, 20mW
body worn restricted to 100mW ERP - bandwidth max. 200 kHz
- 826 - 832 MHz, Radio Microphones, 100mW e.i.r.p. - bandwidth max. 200 kHz
- 863 - 865 MHz, Radio microphones, 10 mW ERP
- 1350 - 1400 MHz, Radio microphones, 20 mW
body worn restricted to 50 mW e.i.r.p.
- 1492 - 1518 MHz, Radio microphones, 50 mW e.i.r.p.
- 1795 - 1805 MHz, Radio microphones, 20 mW
body worn restricted to 50 mW e.i.r.p.
- 174 - 216 MHz, 50 mW ERP
- 470 - 786 MHz, 50 mW ERP, In-ear monitor systems and Radio microphones
- 786 - 789 MHz, 12 mW ERP, In-ear monitor systems and Radio microphones

Also all other bands, stated in document have technical limitations written in ERC/REC 70-03, 2014/641/EU - Commission implementing decision of EU on PMSE and subclasses SC86 and SC48 for continuous transmissions.

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

Point to point analogue audio links are used in 1518 MHz - 1530 MHz frequency band and they should comply with EN 302 217 EU harmonized standard. For this audio analogue links, our agency is issuing licences (max bandwidth is 500 kHz).

Further information

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

http://www.akos-rs.si/files/Zakonodaja/podzakonski_akti/Splosni-akt-o-nacrtu-uporabe-radijskih-frekvenc-NURF-3-Akos.pdf

Note: information as of March 2017

Spain

License exempt frequencies

- 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](#)
- 863 - 865 MHz, 10mW ERP, 200 kHz, see [IR-100](#)
- 1785 – 1805 MHz, 20mW hand-held and 50 mW EIRP body-worn, see [IR-101](#)

Fees

No fees are required

Further information

- 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.boe.es/boe/dias/2013/05/09/pdfs/BOE-A-2013-4845.pdf>

Note: information as of March 2017

South Korea

Licence required / Mandatory application

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

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:
www.rapa.or.kr (Korea Radio promotion Association)

Note: information as of March 2017

Sweden

Licence required - Generally approved

- 174 - 240 MHz, 50mW ERP
- 470 - 790 MHz, 50mW, ERP
- 1785 - 1800 MHz, 20mW ERP, Handheld TX, 50mW ERP, Body Worn TX

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

- 220 SEK per transmitter
- Max 2200 SEK per system

Current activity

In November 2016, the relevant administration updated the present information:

The band 694 - 790 MHz will not be available for PMSE after January 1st, 2018.

Information

Info: <https://www.pts.se/sv/Bransch/Radio/Radiotillstand/Anvandning-av-tradlosa-mikrofoner/>

Application form: <https://www.pts.se/upload/Ovrigt/Radio/Radiotillstand/ansbl-horselhjalpmedel-tradlosa-mikrofoner.pdf>

Note: information as of April 2017

Switzerland

Licence required - Generally approved

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

Frequency band	Maximum transit power	Technical regulations	Remarks
31.4 - 39.6 MHz	100 mW ERP	RIR1009-01	Use only in the channels indicated in RIR 1009-01
174 - 223 MHz	50 mW ERP	RIR1009-02	
470 - 786 MHz	50 mW ERP	RIR1009-10	The use of the 694-790 MHz frequency band could be limited after 2018.
477 - 782 MHz	250 mW ERP	RIR1009-11	Use only in the channels indicated in RIR 1009-11. The use of the 694-790 MHz frequency band could be limited after 2018.
786 - 789 MHz	12 mW ERP	RIR1009-17	Use only possible until ca. end of 2018.
823 - 826 MHz	20 mW EIRP (ca. 12 mW ERP)	RIR1009-18	100 mW EIRP (ca. 60 mW ERP) for wireless microphones carried on the body
826 - 832 MHz	100 mW EIRP (ca. 60 mW)	RIR1009-13	
863 - 865 MHz	10 mW ERP	RIR1009-05	
1785 - 1800 MHz	20 mW EIRP (ca. 12 mW)	RIR1009-09	50 mW EIRP (ca. 30 mW ERP) for wireless microphones carried on the body
1800 - 1804.2 MHz	20 mW EIRP (ca. 12 mW)	RIR1009-09	New frequency band from 1.1.2015 50 mW EIRP (ca. 30 mW ERP) for wireless microphones carried on the body

Notes:

- The use of radio microphones in the bands 789 - 823 MHz and 832 - 862 MHz is forbidden.
- Some frequency bands for non-specific applications may also be used for the operation of radio microphones. Technical regulations RIR 1008 define the frequency bands and radio parameters for these non-specific applications.

Frequency coordination

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](#)

Further Information

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

Note: information as of March 2017

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)	
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 short- or long-term license?

One can find online application on the following link: www.tra.gov.ae

Fees for a license

Find information about the UAE Spectrum Regulations for SAB/SAP (PMSE) by using this link: <http://www.tra.gov.ae/en/services-and-activities/frequency-spectrum-management/services/issue-frequency-spectrum-authorizations-for-programme-making-and-special-events-pmse.aspx>

Contact address of UAE administration

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

Note: information as of April 2017

United States of America

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.

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. Locally unused television channels may be determined by consulting one of the wireless microphone manufacturers' online frequency finders, or the web site 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 will no longer be able to register with a database. The FCC made this change because they expanded licensing eligibility.

In addition to the television bands, wireless microphones can also operate in one of the license-exempt (ISM) bands at 902 - 928 MHz, 2400 - 2483.5 MHz, or 5725 -5850 MHz as well as the UPCS (DECT) band at 1920 - 1930 MHz. Microphones operating in these bands have different technical requirements than those for use in the television bands. These bands are shared with other devices, and may be congested at certain times and places.

The Incentive Auction of UHF (600 MHz) television band frequencies has ended. Wireless carriers are currently bidding on specific frequency ranges within the auctioned band in what the FCC calls the "Assignment Phase". In the future, the spectrum below Channel 37 will continue to be used for television broadcasting. The auctioned band starts at 614 MHz, just above Channel 37. Wireless Microphone users will have up to 39 months to continue operating in auctioned spectrum, but they must not cause interference to new wireless services as they begin operation.

Several sub-bands within the auctioned band will continue to be available for wireless microphone use after the auction, including 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 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.

Additional spectrum for licensed users will become available in the 941.5-960 MHz, 1435-1525 MHz, 6875-6900 MHz, and 7100-7125 MHz ranges. Technical standards and operating requirements for these bands are being finalized. Further developments are expected in April or May of 2017.

Note: information as of March 2017

United Kingdom

Preliminary remark

'Site' License required and issued where frequencies are not used for broadcasting in a given geographical location – access could be for a limited period or on a long-term basis.

- 470 - 606 MHz, max. 50 mW ERP
- 614 - 790 MHz, max. 50 mW ERP
- 960 – 1164 MHz – details to be confirmed¹
- 1785 - 1800 MHz, max 50 mW ERP

'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

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

¹ 960 – 1164 MHz is also referred to as the 'Aeronautical' band. The band was opened for sharing with audio PMSE in March 2016. The opening up of this band is currently unique to the UK. As the Aeronautical Band is assigned globally, it might be possible, ultimately, for the same band to be opened up in other countries around the world. However, this will depend on the decisions of National Administrations and National Air Safety Agencies, at the very least. Additionally, despite Ofcom UK's view that 'sharing is possible' in this band, it is still very unclear just how usable the band will ultimately prove to be. So despite Ofcom UK's statement on the band, much work still needs to be done to establish the quantity and quality of spectrum availability. Finally, as this is a completely 'new' band for audio PMSE, at time of writing, no audio PMSE equipment currently exists that can tune to part or all of the band.)

Running Activities

- 790 - 862 MHz paired with 2.6 GHz spectrum – licences now sold by Ofcom and 4G services are now being deployed. 823 – 832 MHz mandated for audio PMSE use by the European Commission. However, quality and usability of spectrum can vary hugely depending on the application. For example, events where there are large numbers of spectators with 4G phones can seriously degrade the quality of the band. BEIRG (British Entertainment Industry Radio Group) in constant contact with UK regulator Ofcom. Having regular high level meetings with Philip Marnick (Group Director of Spectrum) along with Helen Hearn and Vaughan John (Secretary of FM51).
- 700 MHz clearance scheduled for Q2 2020. After a 'PMSE Review' 960-1164 MHz 'identified' as mitigation for audio PMSE's future lack of access to the 700 MHz band. This frequency band is globally assigned for use by aeronautical services. . Ofcom UK's view is that 'sharing is possible', however, a 'round Britain' scan conducted over two days in the second half of 2016 has shown that 'sharing could be challenging'. Ofcom UK are developing a 'spectrum availability tool' for the 960-1164 MHz band which should identify spectrum availability at a given location.
- BEIRG/APWPT talking to Ofcom to try to identify alternative frequency bands outside of UHF bands IV/V for future PMSE use.
- Ofcom have now allowed UK mobile operator Everything Everywhere to deploy LTE 4G services (re-farm) into the band adjacent to 1785 - 1800 MHz. This has yet to happen.
- European Commission has mandated the duplex gaps 823 - 832 MHz and 1785 - 1805 MHz, but no protection for audio PMSE from adjacent LTE services on offer. These bands do not meet the needs of professional PMSE services, either in terms of quantity or quality of spectrum. However, they are very useful bands for non-professional applications.
- Ofcom have taken the responsibility for licensing PMSE operation back 'in-house'. For details of how to licence; <http://licensing.ofcom.org.uk/radiocommunication-licences/pmse/>

Note: information as of March 2017

Ukraine

Individual assignment / 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 87.5 - 92 100 - 108	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.
89.9 – 90.2	Cordless audio devices	Frequency band is used for sound transmission in TV broadcasting with radiated power up to 10 mW.
174-216 470-862	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.
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:

<http://www.ucrf.gov.ua/en/tariffs-on-the-ucrf-works-services-connected-with-usage-of-radio-frequency-resource-of-ukraine-and-measurements-of-telecommunication-networks-parameters/>

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/>

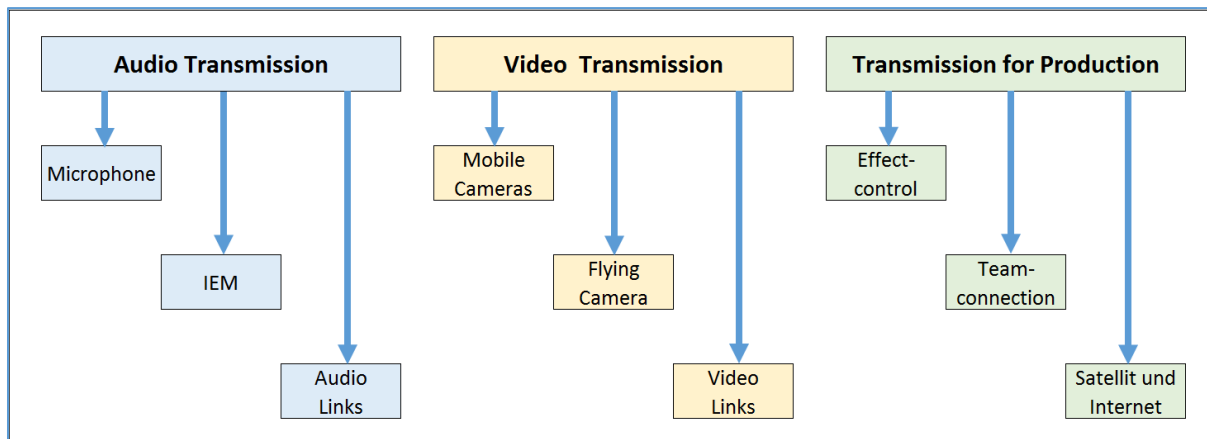
Application forms to obtain the permissions for operation of REFs are available on:

<http://www.ucrf.gov.ua/en/frequency-assignment/application-forms/>

Note: information as of March 2017

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)”: <http://www.cept.org/ecc/topics/programme-making-and-special-events-applications-pmse>

In addition, CEPT/ECO provides a frequency database, called “EFIS”. This tool will be updated to improve its usability: <http://www.efis.dk/>

A similar database “AFIS” is provided by the Asia-Pacific Telecommunity (APT): <http://www.apf.int/AFIS> / <http://www.apfafis.org/>

APWPT summarizes some PMSE information here: <http://www.apwpt.org/terminologies-j--p/pmse/index.html>

Note: information as of April 2017

APWPT - What is our focus?

Secure in long-term production frequencies and the required spectrum quality.

APWPT - What happens now?

In many countries, a decision regarding the 2nd digital dividend has yet to be made.

-> We want to work actively alongside this development

In countries where a decision has been made, we are working for a quick implementation.

→ We are working for planning security.

→ In many countries and committees, we are supporting a discussion of the facts.

The entire industry must now adjust to a new situation and, if need be, invest in suitable tools and methods.

APWPT - Activities?

- Inform decision makers on political and regulatory level on PMSE application and spectrum needs.
- Inform PMSE user on the status and trends in the spectrum discussion.
- Secure PMSE protection against interferers in international organisations on standardisation, e.g. EFSC, ETSI, ECC/CEPT and ITU-R.

Membership in APWPT?

Information on a membership in APWPT:

<http://www.apwpt.org/downloads/brief-background-information-on-a-membership-i.pdf>

APWPT – How get further information?

There is more information in the Internet at www.apwpt.org.

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