

Information regarding regulations relating to wireless networks (WLAN)

The purpose of this document is to provide comprehensive information on relevant regulatory requirements for import, sale, installation as well as frequency use for wireless networks (WLAN¹), also called RLAN².

1. Import

Import/production for resale requires registration as a supplier of radio and telecommunications terminal equipment.

2. Sales

There are no restrictions on sales.

Further details regarding regulations relating to import and sales are available here:

http://www.npt.no/portal/page/portal/PG_NPT_NO_EN/PAG_NPT_EN_HOME/PAG_EQUIPM_ENT_TEXT?p_d_i=-121&p_d_c=&p_d_v=48665

3. Installation

Installation of equipment requiring antenna adjustment and/or fitting /adaptation of coaxial cables must be performed by an authorised radio fitter (RIA or RIB). Further details regarding requirements related to authorisation are available here:

http://www.npt.no/portal/page/portal/PG_NPT_NO_EN/PAG_NPT_EN_HOME/PAG_INFRAS_STRUCTURE_TEXT?p_d_i=-121&p_d_c=&p_d_v=48453

When installing equipment supplied with a fixed antenna within maximum allowed radiated power limits, cf. Item 7, and where all connections are fitted with standardised connectors (plug and play), an authorised fitter will not be required.

4. Requirements Related to Radio and Telecommunications Terminal Equipment

Radio and telecommunications terminal equipment must comply with Regulations of 20 June 2000 No. 628 relating to EEA requirements related to radio and telecommunications terminal equipment (R&TTE Regulations), which implements the Radio and Telecommunications Terminal Equipment Directive (the R&TTE Directive) in Norwegian law. In practice this means that all equipment subject to the regulations must be CE-labelled. For more information, see

http://www.npt.no/portal/page/portal/PG_NPT_NO_EN/PAG_NPT_EN_HOME/PAG_EQUIPM_ENT_TEXT?p_d_i=-121&p_d_c=&p_d_v=47835

¹ WLAN – Wireless Local Area Network

² RLAN – Radio Local Area Network

5. Market Inspection

The Norwegian Post and Telecommunications Authority (PT) supervises that the R&TTE Regulations are complied with, e.g. by carrying out market inspection of radio and telecommunications terminal equipment sold by suppliers and distributors. Compliance with technical requirements, labelling and documentation may be checked during the market inspections. The results from the inspections are published on our web pages, see (in Norwegian)

http://www.npt.no/portal/page/portal/PG_NPT_NO_NO/PAG_NPT_NO_HOME/PAG_UTSTYR/PAG_MARKEDSKONTROLL?menuid=11714

6. Frequency Use in the 2.4 GHz and 5 GHz Bands

The right to broadcast radio signals to neighbouring properties, etc. follows from the right to unrestricted use of the frequencies, cf. Regulations of 20 June 2005 No. 715 relating to permitted use of frequencies (Regulations providing general authorisations for the use of radio frequencies). This means that except the criteria in the Regulations providing general authorisations for the use of radio frequencies, there are no restrictions as regards the coverage area of an IP zone. On the other hand, one is not protected against interference from other legitimate use of frequencies.

The Regulation of 20 June 2005 No. 715 has recently been revised. The new regulation was adopted 20. April 2007 and comes into force 1 July 2007. The new Regulations are available at (in Norwegian): <http://www.lovdatab.no/for/sf/sd/xd-20070420-0439.html>

PT supports the CEPT's (European Conference of Postal and Telecommunications Administrations) proposal for a European harmonisation of frequencies for wireless networks (WLAN). Below is an overview of which frequency bands may be used and which requirements apply:

- Use of the frequency band 2400 – 2483.5 MHz is authorised for data transmission in accordance with the frequency use defined in the standard EN 300 328. Maximum permitted radiated power is 100 mW e.i.r.p. For broadband modulation techniques other than FHSS, maximum permitted e.i.r.p density is 10 mW/MHz. This subsection does not apply to the geographical area within a radius of 20 km from the centre of Ny-Ålesund.
- Use of the frequency band 5150 – 5250 MHz is authorised for data transmission with maximum radiated power of 200 mW e.i.r.p. Maximum permitted mean e.i.r.p. density shall not exceed 0,25 mW/25kHz in any 25 kHz band.
- Use of the frequency band 5250 – 5350 MHz is authorised for data transmission with maximum permitted radiated power of 200 mW e.i.r.p. Maximum permitted mean e.i.r.p. density shall not exceed 10 mW/MHz in any 1 MHz band. The radio equipment shall implement Transmitter Power Control (TPC), which provides, on average, a mitigation factor of at least 3 dB. If TPC is not in use, the maximum permitted mean e.i.r.p. and the corresponding mean e.i.r.p. density limits set forth in the first and second sentence respectively shall be reduced by 3 dB. The radio equipment shall implement Dynamic

Frequency Selection (DFS) as defined in Annex 1 of ITU-R Recommendation M.1652 or in the standard EN 301 893.

- Use of the frequency band 5470 – 5725 MHz is authorised for data transmission with maximum permitted mean e.i.r.p. of 1 W. Maximum permitted mean e.i.r.p. density shall not exceed 50 mW/MHz in any 1 MHz band. The radio equipment shall implement Transmitter Power Control (TPC), which provides, on average, a mitigation factor of at least 3 dB. If TPC is not in use, the maximum permitted mean e.i.r.p. and the corresponding mean e.i.r.p. density limits set forth in the first and second sentence respectively shall be reduced by 3 dB. The radio equipment shall implement Dynamic Frequency Selection (DFS) as defined in Annex 1 of ITU-R Recommendation M.1652 or in the standard EN 301 893.
- Use of the frequency bands 5725-5795 / 5815-5850 MHz is authorised for data transmission with maximum radiated power of 4 W e.i.r.p. Maximum permitted mean e.i.r.p. density shall not exceed 200 mW/MHz in any 1 MHz band. The radio equipment shall implement Dynamic Frequency Selection (DFS) as defined in Annex 1 of ITU-R Recommendation M.1652 or in the standard EN 301 893. The radio equipment shall implement Transmitter Power Control (TPC), which provides, on average, a mitigation factor of at least 3 dB. If TPC is not in use, the maximum permitted mean e.i.r.p. and the corresponding mean e.i.r.p. density limits set forth in the first and second sentence respectively shall be reduced by 3 dB. The power flux density at the border between Norway and neighbouring states shall not exceed - 122.5 dBW/m² measured with a reference bandwidth of 1 MHz unless otherwise determined in a co-ordination agreement.
- Point-to-point operation within the frequency bands 5725-5795 / 5815-5850 MHz with transmission power up to 1 W and e.i.r.p. up to 200 W is authorised. Maximum authorised mean e.i.r.p. density shall not exceed 10 W/MHz in any 1 MHz band. The term “point-to-point operation” excludes all kinds of point-to-multipoint, omnidirectional applications and multiple co-located transmitters transmitting the same information (sector antennas). The radio equipment shall implement Dynamic Frequency Selection (DFS) as defined in Annex 1 of ITU-R Recommendation M.1652 or in the standard EN 301 893. The power flux density at the border between Norway and neighbouring states shall not exceed - 122.5 dBW/m² measured with a reference bandwidth of 1 MHz unless otherwise determined in a co-ordination agreement.

7. Relevant Standards

For the 2.4 GHz frequency band

- EN 300 328, HomeRF, Bluetooth, IEEE 802.11, IEEE 802.11b and IEEE 802.11g

For the 5 GHz frequency band

- ETS 300 836 (Hiperlan1), Draft EN 301 893 V1.2.1 (5 GHz High Performance RLANs), IEEE 802.11a and IEEE 802.11h

8. Placement of Equipment

The right to establish and install equipment follows from rules relating to proprietary rights and contract law. If one is the owner of the property where the equipment will be installed, no other rules apply than what would be relevant for installing other types of antennas. The fact that this concerns a radio *transmitter* is of no significance. Rules related to planning and building codes as well as any special rules for the specific property in question should be taken into consideration in the usual manner.

If it is a lease or some other form of agreement that constitutes the basis for the right to use the property, the right to install such equipment must be evaluated on the basis of the wording of the lease.

Please submit any questions regarding this information via e-mail to: wlan@npt.no