

Guidance for filling in application for use of Fixed Terrestrial Links in Norway

The Norwegian Communications Authority (Nkom) may issue frequency licences for fixed terrestrial links. In accordance with the Norwegian Electronic Communications Act of 4 July 2003 and regulations, Nkom may attach conditions to the licenses.

The application includes two parts: Information about the provider and system and technical information of each site. Technical information for each site must be provided.

A short guidance for filling out the form follows.

FORM WITH INFORMATION ABOUT PROVIDER AND SYSTEM

Field 1: Name of the company who will be the legal owner of the licence.

Field 2: Company organisation number if registered in the Central Coordinating Register for Legal Entities in Brønnøysund, <http://www.brreg.no>. Alternatively company registration number in the country it is registered.

Field 3 Postal address

Field 4: Postal code / City / Country

Field 5-7: Contact information for licence owner.

Field 8-9: Billing address and invoice reference.

Field 10: Technical responsible person in company who design the system.

Field 11-13: Telephone, fax and e-mail to the technical responsible person.

Field 14: Customer number at Norwegian Communications Authority. Blank if new customer.

Field 15: Licence number, if there is an operative license and the form is regarded as a correction or a termination of this licence.

Field 16: Installation contractor of the radio equipment (authorized installation contractor shall be used)

Field 17: Supplier of equipment (authorized distributor of microwave equipment shall be used)

Field 18-21: Information about the radio relay system.

If the system contains more than one radio relay link it is necessary to fill in one form with technical information for each radio relay link.

Attach a copy of a map in type M711, scale 1:50 000 (field 21). Mark the sites on the map.

Attach antenna radiation pattern envelope. The electronic format NSMA is the preferred format of the radiation pattern. Send a query to: antenner@nkom.no to check if antenna is already registered in the database to Nkom. See fields 50 – 56.

Extra documents with technical specifications of the equipment.

Information in appendix do not compensate for filling in the form.

Field 22-23: Date and place for signature.

Field 24: Signature of the person in charge (can be blank if application is sent by e-mail). Repeat the signature with CAPITAL LETTER

- Field 25:** Name of the company who will be the legal owner of the licence.
- Field 26:** Company organisation number if registered in the Central Coordinating Register for Legal Entities in Brønnøysund, <http://www.brreg.no>
- Field 27:** Customer number at Norwegian Communications Authority. Blank if new customer.
- Field 28:** Licence number, if there is an operative license and the form is regarded as a correction or a termination of this licence.
- Field 29:** Tick whether the the application is regarding a new license, changes/correction or termination of an existing licence.
- Field 30:** All appendixes shall be numbered in a sequential order.
- Field 31, 32:** Officially name used by the operator of the A-station and name of the site owner.
- Field 33, 34:** Geographical name (name on the map where the site is), county, local council.
- Field 35:** Geographical coordinates for the site declared in WGS84/EUREF89. An example: 60°, 14', 30" North. 11°, 24', 42" East, or declared in UTM coordinates (32 633515E, 6680765N in zone 32). WGS84/EUREF 89 is used as datum. If link is placed in an existing construction the coordinates must be exactly the same as the official position.
- Field 36:** Altitude (m). Height of the station above the sea level measured by the ground level.
- Field 37:** Height of antenna in the tower / building. Height above the ground level (m) to the centre of the antenna.
- Field 38:** Providers name of the station.
- Field 39:** Distance between A- and B- station in kilometre (km).
- Field 40:** Providers indication of desired frequency band.
- Field 41:** Necessary bandwidth (MHz)
- Field 42, 43:** Transfer rate (Mbit/s) and type of modulation (for example 4QPSK, 16QAM etc).
- Field 44** Radio equipment: Manufacture, model, family, version
- Field 45:** If a specific transmitter frequency is applied. Blank if not applicable.
- Field 46:** Preferred polarization: Blank if not applicable.
- Field 47:** Applied transmitter output power (dBm). Output power is specified in the equipment specification.
- Field 48:** Receiver thresholds (dBm) BER: 10^{-3} or 10^{-6} . Thresholds is specified in the equipment specification.
- Field 49:** Applied reliability (%), expected fading in rain, expected multi-path fading and other expected fading.
- Field 50-52:** Antenna manufacturer, model and type. Antenna radiation pattern envelope shall be sent as an appendix. (see field 18-21).
- Field 53-54:** Specifications of the antenna
- Field 55-56:** Statement of the direction of the antenna. Azimuth is the direction of the main beam with reference 360°. In the circle is 0° north, 90° east, 180° south and 270° west. Elevation is the direction of the main beam in vertical plan. 0° indicates that the beam is horizontal, negative value indicates that antenna is pointing downwards, positive value that antenna is pointing upwards.

When, in the application form of technical information distinguish between A and B sites, it means the location you wish to have, respectively, low / high frequency in a channel pair. It is the applicant's responsibility to clarify the use of low / high frequency with site- / mast-owner so that A and B site is correct. For reasons of interference it is required that low and high frequencies are not placed on the same site in the same frequency band.

Application for use of Fixed Services in Norway

Information about the provider and system

The Norwegian Communications Authority (Nkom) may issue frequency licences for fixed terrestrial links. In accordance with the Norwegian Electronic Communications Act of 4 July 2003 and regulations, Nkom may attach conditions to the licenses.

The application includes two parts. Information about the provider and system and technical information of each site. Technical information for each site must be provided.

Fill in one form for each fixed point to point system.

INFORMATION ABOUT APPLICANT		
1. Name of the applicant (juridical person, company name)		2. Company organisation number
3. Postal address		4. Postal code / City / Country
5. Telephone	6. Fax	7. E-mail (company)
8. Billing address		8b. Invoice reference
		9. Postal code / City / Country
10. Technical contact person		
11. Telephone	12. Fax	13. E-mail (contact person)
14. Customer number at Nkom (see invoice, nothing if new customer)		15. Licence number (see guidance)

INFORMATION ABOUT THE INSTALLATION CONTRACTOR AND SUPPLIER OF THE RADIO EQUIPMENT
16. Installation contractor of the radio equipment (authorized installation contractor shall be used)
17. Supplier of equipment (authorized distributor of microwave equipment shall be used)

INFORMATION ABOUT THE SYSTEM	
18. Number of radio relay links applied for.	19. Number of appendixes
20. Description of the radio relay system and other relevant information	
21. Appendix with map. <input type="checkbox"/> Copy of map including all stations and connections. Detailed map with precise specification about location of the stations. See guidance.	

SIGNATURE	
22. Date	23. Place
24. Signature of person in charge (can be blank if application is sent by e-mail)	
Repeat the Signature here with CAPITAL LETTER	

Application for use of Fixed Services in Norway

Technical information

INFORMATION ABOUT APPLICANT

25. Name of the applicant (juridical person, company name)	26. Company organisation number	27. Customer number	28. Licence number
29. Application for <input type="checkbox"/> New licence <input type="checkbox"/> Changes / correction <input type="checkbox"/> Termination			30. Appendix number

INFORMATION ABOUT A-STATION (transmitter with low frequency)

31 (a). Name of the station (officially name used by the operator)		32 (a). Site owner (If owned by another operator)	
33 (a). Geographical name (name on the map where the site is located)		34 (a). County, local council	
35 (a). Position (WGS84/EUREF89. State zone if UTM is used)	36 (a). Altitude (m)	37 (a). Height of antenna above the ground level (m)	
38 (a). Name of the A - station		39 (a). Distance to B - station (km)	
40 (a). Desired frequency band (MHz)	41 (a). Necessary bandwidth (MHz)	42 (a). Transfer rate (Mbit/s)	43 (a). Modulation
44 (a). Radio equipment/ Manufacture/model/family	45 (a). Specific transmitter frequency 1. 2. 3. 4.	46 (a). Preferred polarization 1. 2. 3. 4.	47 (a). Applied transmitter output power (dBm) 48 (a). Receiver thresholds (dBm) with BER: <input type="checkbox"/> 10 ⁻³ <input type="checkbox"/> 10 ⁻⁶
50 (a). Antenna manufacturer		51 (a). Antenna model and type ¹	49 (a). Other parameters for the link budget Applied reliability (%): Margin in rain (dB): Margin multi-path (dB): Margin for selective fading (dB):
53 (a). Antenna gain (dBi)	54 (a). Half-power beamwidth (° with -3 dB) +/- °	55 (a). Azimuth (0-360 °) °	52 (a). Antenna radiation pattern envelope appendix. <input type="checkbox"/> Electronical <input type="checkbox"/> Paper 56 (a). Elevation (°) °

INFORMATION ABOUT B-STATION (transmitter with high frequency)

31 (b). Name of the station (officially name used by the operator)		32 (b). Site owner (If owned by another operator)	
33 (b). Geographical name (name on the map where the site is located)		34 (b).). County, local council	
35 (b). Position (WGS84/EUREF89. State zone if UTM is used)	36 (b). Altitude (m)	37 (b). Height of antenna above the ground level (m)	
38 (b). Name of the B- station		39 (b). Distance to A-station (km)	
40 (b). Desired frequency band (MHz)	41 (b). Necessary bandwidth (MHz)	42 (b). Transfer rate (Mbit/s)	43 (b). Modulation
44 (b). Radio equipment/ Manufacture/model/family	45 (b). Specific transmitter frequency 1. 2. 3. 4.	46 (b). Preferred polarization 1. 2. 3. 4.	47 (b). Applied transmitter output power (dBm) 48 (b). Receiver thresholds (dBm) with BER: <input type="checkbox"/> 10-3 <input type="checkbox"/> 10-6
50 (b). Antenna manufacturer		51 (b). Antenna model and type ¹	49 (b). Other parameters for the link budget Applied reliability (%): Margin in rain (dB): Margin multi-path (dB): Margin for selective fading (dB):
53 (b). Antenna gain (dBi)	54 (b). Half-power beamwidth (° with -3 dB) +/- °	55 (b). Azimuth (0-360 °) °	52 (b). Antenna radiation pattern envelope appendix. <input type="checkbox"/> Electronical <input type="checkbox"/> Paper 56 (b). Elevation (°) °

¹Send a query to: antenner@nkom.no to check if antenna already is registered in the Nkom database.