SPECTRUM ACCESS 1492–1517 MHz LICENCE

Office of Communications (Ofcom)
Wireless Telegraphy Act 2006

Licence number: XX

Date of issue: DD Month YYYY

Commencement Date: [11 June 2027, or 'date of issue', whichever is later]

1. The Office of Communications (Ofcom) grants this wireless telegraphy licence (the "**Licence**") to:

[XXX (Licensee's name)]
(Company registration number [XXX]) (the "**Licensee**")
[XXX – address of Licensee's registered office]

to establish, install and use wireless telegraphy stations and/or wireless telegraphy apparatus as described in the schedules to this Licence (together the "**Radio Equipment**") subject to the terms set out below.

Licence term

2. This Licence shall continue in force until revoked by Ofcom or surrendered by the Licensee.

Licence variation and revocation

3. Pursuant to schedule 1, paragraph 8 of the Wireless Telegraphy Act 2006 (the "**Act**"), Ofcom may not revoke this Licence under schedule 1, paragraph 6 of the Act except:

   a) at the request of, or with the consent of, the Licensee;
   b) if there has been a breach of any of the terms of this Licence;
   c) in accordance with schedule 1, paragraph 8(5) of the Act;
   d) if it appears to Ofcom to be necessary or expedient to revoke the Licence for the purposes of complying with a direction by the Secretary of State given to Ofcom under section 5 of the Act or section 5 of the Communications Act 2003;

e) if, in connection with the transfer or proposed transfer of rights and obligations arising by virtue of the Licence, there has been a breach of any provision of regulations made by Ofcom under the powers conferred by sections 30(1) and 30(3) of the Act;[1]

f) for reasons related to the management of the radio spectrum, provided that in such case this power to revoke may only be exercised after at least five (5) years' notice is given in writing to the Licensee (such notice period must not expire before [20 years after the Commencement Date]).

4. Ofcom may only revoke or vary this Licence by notification in writing to the Licensee and in accordance with schedule 1, paragraphs 6, 6A and 7 of the Act.

Transfer

5. This Licence may not be transferred. The transfer of rights and obligations arising by virtue of this Licence may however be authorised in accordance with regulations made by Ofcom under powers conferred by section 30 of the Act.[2]

Changes to Licensee details

6. The Licensee shall give prior notice to Ofcom in writing of any changes to the Licensee's name and/or address as recorded in paragraph 1 of this Licence.

Fees

7. In accordance with the Wireless Telegraphy (Licence Award) Regulations 202[X], the fee in consideration of which this Licence is granted is £[X].

8. From [20 years after the Commencement Date], the Licensee shall each year pay to Ofcom the relevant fee(s) as provided for in section 12 of the Act and the regulations made thereunder on or before such dates as are notified in writing to the Licensee.

9. The Licensee shall also pay interest to Ofcom on any amount which is due under the terms of this Licence or provided for in any regulations made by Ofcom under sections 12 and 13(2) of the Act, from the date such amount falls due until the date of payment, calculated with reference to the Bank of England base rate from time to time. In accordance with section 15 of the Act any such amount and any such interest is recoverable by Ofcom.

10. If the Licence is surrendered, varied or revoked, no refund, whether in whole or in part of any amount which is due under the terms of this Licence (including paragraphs 7 – 9 above) or provided for in any regulations made by Ofcom under sections 12 and 13(2) of the Act will be made, except at the absolute discretion of Ofcom.

[1] These are regulations on spectrum trading.

[2] See Ofcom's website for the latest position on spectrum trading and the types of trade which are permitted.

Radio Equipment Use

11. The Licensee shall ensure that the Radio Equipment is established, installed and used only in accordance with the provisions specified in the schedules to this Licence. Any proposal to amend any detail specified in the schedules to this Licence must be agreed with Ofcom in advance and implemented only after this Licence has been varied or reissued accordingly.
12. The Licensee shall ensure that the Radio Equipment is operated in compliance with the terms of this Licence and is used only by persons who have been authorised in writing by the Licensee to do so and that such persons are made aware of, and of the requirement to comply with, the terms of this Licence.
13. The Licensee must ensure that all Radio Equipment is established, installed, modified and used only in accordance with the provisions specified in schedule 2 (EMF Licence Condition) of this Licence.

Access and inspection

14. The Licensee shall permit any person authorised by Ofcom:

    a) to have access to the Radio Equipment; and

    b) to inspect this Licence and to inspect, examine and test the Radio Equipment,

    at any and all reasonable times, or, when in the opinion of that person an urgent situation exists, at any time, to ensure the Radio Equipment is being used in accordance with the terms of this Licence.

Modification, restriction and closedown

15. Any person authorised by Ofcom may require the Radio Equipment or any part thereof, to be modified or restricted in use, or temporarily or permanently closed down immediately if in the opinion of the person authorised by Ofcom:

    a) a breach of a term of this Licence has occurred; and/or

    b) the use of the Radio Equipment is, or may be, causing or contributing to undue interference to the use of other authorised radio equipment.

16. Ofcom may require any of the Radio Equipment to be modified or restricted in use, or temporarily closed down either immediately or on the expiry of such period as may be specified in the event of a national or local state of emergency being declared. Ofcom may only exercise this power after a written notice has been served on the Licensee or a general notice applicable to holders of a named class of licence has been published.

Geographical boundaries

17. Subject to the requirements of any coordination procedures notified to the Licensee pursuant to schedule 1 to this Licence, and excluding the areas set out in paragraph 18 of

this Licence, the Licensee is authorised to establish, install and use the Radio Equipment in the United Kingdom.[3]

18. The areas excluded from this Licence are the territorial sea and any inland waters adjacent to the territorial sea, but in the case of streams, rivers or other watercourses which form part of such inland waters they are only excluded where such stream, river or watercourse is more than 2 km wide.

19. Paragraph 17 of this Licence does not prohibit the Licensee from using the Radio Equipment such that radio transmissions continue outside the United Kingdom or over the territorial sea or any inland waters provided those transmissions are otherwise permitted under the Licence.

Interpretation

20. In this Licence:

a) the establishment, installation and use of the Radio Equipment shall be interpreted as establishment and use of stations and installation and use of apparatus for wireless telegraphy as specified in section 8(1) of the Act;

b) the expression "**interference**" shall have the meaning given by section 115 of the Act;

c) the expressions "**wireless telegraphy apparatus**" and "**wireless telegraphy station**" shall have the meanings given by section 117 of the Act.

d) the expression "territorial sea" shall be determined in accordance with the Territorial Sea Act 1987;

e) the expression "inland waters" shall have the meaning given by section 221(1) of the Water Resources Act 1991;

f) the schedules to this Licence form part of this Licence together with any subsequent schedule(s) which Ofcom may issue as a variation to this Licence; and

g) the Interpretation Act 1978 shall apply to this Licence as it applies to an Act of Parliament.

Issued by Ofcom
Office of Communications

[3] For the avoidance of doubt, the Licensee is not authorised to establish, install and use the Radio Equipment in the Channel Islands or the Isle of Man.

SCHEDULE 1 TO LICENCE NUMBER: [xxx]

Schedule date:	[DD Month YYYY]
Licence category:	Spectrum Access Licence (1492-1517 MHz)

Description of Radio Equipment

1. The Radio Equipment means any radio transmitting Base station that is authorised to transmit in accordance with this schedule.

Interface Requirements for the Radio Equipment

2. Use of the Radio Equipment shall be in accordance with the following Interface Requirement:

   IR 2068 for Spectrum Access in the Band 1452-1517 MHz.

Special conditions relating to the Radio Equipment

3. During the period that this Licence remains in force and, unless consent has otherwise been given by Ofcom, the Licensee shall compile and maintain accurate written records of:

a) The following details relating to the Radio Equipment:

   i) postal address; and

   ii) radio frequencies used by the Radio Equipment; and

b) the operational details of all transmitting stations including:

   i) postal address (including post code)

   ii) the National Grid Reference to a one (1) metre resolution of each transmitting site;

   iii) the date on which each transmitting station is brought into operation;

   iv) the height above ground level of each transmitting antenna, type, and boresight bearing east of true north;

   v) the down-tilt (physical and electrical) of each transmitting antenna;

   vi) the radio frequencies which the Radio Equipment uses;

   vii) transmitted power expressed in dBm/5 MHz EIRP over the Permitted Frequencies for each transmitting antenna; and

and the Licensee must produce these records if requested by a person authorised by Ofcom.

4. The Licensee shall inform Ofcom of the address of the premises at which this Licence and the information detailed at sub-paragraph 3(a) above shall be kept.

5. The Licensee must submit to Ofcom copies of the records detailed in sub-paragraph 3 above at such intervals as Ofcom shall notify to the Licensee.

6. The Licensee shall submit to Ofcom in such manner and within such period as specified by Ofcom, such other information in relation to the Radio Equipment, or any wireless telegraphy station or wireless telegraphy apparatus which the Licensee is planning to use, as Ofcom may from time to time request. Such information may include, but is not limited to, information in relation to the radio frequency, transmitted power and date of first use for wireless telegraphy stations or wireless telegraphy apparatus to be established, installed or used within such timeframe and in such areas as Ofcom may reasonably request.
7. The Licensee must ensure that the Radio Equipment is established and installed only for terrestrial use.

Co-ordination at frequency and geographical boundaries and compliance with other procedures relating to interference

8. The Licensee shall ensure that the Radio Equipment is operated in compliance with such co-ordination procedures as may be notified to the Licensee by Ofcom from time to time. The Licensee shall also ensure that it complies with any other procedures relating to the mitigation of interference as may be notified to the Licensee by Ofcom from time to time.
9. The Licensee shall keep, or shall procure that a third party shall keep, records that demonstrate how it has complied with any co-ordination procedures identified in paragraph 8 above (including any coordination calculations), and shall make them available to Ofcom on request without undue delay.

Cross-border coordination

10. The Licensee must ensure that the Radio Equipment is operated in compliance with such cross-border coordination and sharing procedures as may be notified to the Licensee by Ofcom.

Requirement to give notice to audio link licensees before deploying

11. The Licensee must give at least 6 months' written notice prior to operating the Radio Equipment within a 2 km radius of the locations notified to the Licensee by Ofcom. Ofcom will not expand the list of locations notified to the Licensee but may, from time to time, notify the Licensee of any locations that are no longer relevant.
12. This notice must be given to the most recent relevant contact(s) notified to the Licensee by Ofcom and copied to Ofcom. Ofcom may notify the Licensee of updated contact details from time to time.

Permitted Frequencies

13. Subject to the out of band emissions permitted under paragraph 15 below, the Radio Equipment must only transmit on the following frequencies (the "**Permitted Frequencies**"):

1492-1517 MHz

Maximum permissible (mean) EIRP within the Permitted Frequencies

14. Subject to any more restrictive limitations imposed by the coordination requirements notified by Ofcom in accordance with paragraphs 8 and 10 of this schedule, the power transmitted in any direction in the Permitted Frequencies by the Radio Equipment shall not exceed:

Frequency range	Maximum EIRP per cell
1492-1512 MHz	68 dBm/5MHz
1512-1517 MHz	58 dBm/5MHz

Maximum power outside the Permitted Frequencies

15. The EIRP emanating from the Radio Equipment transmissions at any frequency outside the Permitted Frequencies shall not exceed:

Frequency Range	Maximum mean EIRP per antenna
1427-1449 MHz	-20 dBm/1 MHz
1449-1452 MHz	14 dBm/3 MHz
Within 1452-1517 MHz:	
-10 to -5 MHz from the lowest occupied frequency	11 dBm/5 MHz
-5 to 0 MHz from the lowest occupied frequency	16.3 dBm/5 MHz
0 to +5 from the highest occupied frequency	16.3 dBm/5 MHz
+5 to +10 MHz from the highest occupied frequency	11 dBm/5 MHz
Other frequencies within 1452-1517 MHz (but outside the occupied frequencies)	9 dBm/5 MHz
1518-1520 MHz	-0.8 dBm/1 MHz
1520-1559 MHz	-30 dBm/1 MHz

Interpretation of terms in this schedule

16. In this schedule:

a) "**EIRP**" means the equivalent isotropically radiated power. This is the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain);

b) "**dBm**" means the power level in decibels (logarithmic scale) referenced against 1 milliWatt (i.e. a value of 0 dBm is 1mW);

c) "**out of band emissions**" means radio frequency emissions generated by the Radio Equipment and radiated into the frequency(s) adjacent (in terms of frequency) to the Licensee's Permitted Frequency(s);

d) "**Base station**" means a radio transmitter not intended to be used while in motion to provide a communications service, typically used in mobile or broadcasting radio systems.

SCHEDULE 2 TO LICENCE NUMBER: [xxx]

Schedule date:	[DD Month YYYY]
Licence category:	Spectrum Access ([XXXX - XXXX] MHz)

EMF Licence Condition

Sites which are not shared with another licensee

1. The Licensee shall only establish, install, modify or use Relevant Radio Equipment if the total electromagnetic field exposure levels produced by the Licensee's On-Site Radio Equipment do not exceed the basic restrictions[4] in the relevant tables for general public exposure identified in the ICNIRP Guidelines[5] in any area where a member of the general public is or can be expected to be present when transmissions are taking place.

Sites which are shared with another licensee

2. In the case of a shared site where the Shared Site Exemption applies to the Licensee, the Licensee shall comply with paragraph 1 above.

3. In the case of a shared site where the Shared Site Exemption does not apply to the Licensee, the Licensee shall only establish, install, modify or use the Relevant Radio Equipment if:

   a) the total electromagnetic field exposure levels produced by the Licensee's On-Site Radio Equipment, together with
   b) the total electromagnetic field exposure levels produced by all other wireless telegraphy stations and wireless telegraphy apparatus operated by another licensee on the same site for which the Licensee can reasonably assume that a Shared Site Exemption does not apply,

   do not exceed the basic restrictions[6] in the relevant tables for general public exposure identified in the ICNIRP Guidelines[7] in any area where a member of the general public is or can be expected to be present when transmissions are taking place.

Emergency situations

4. The obligations in paragraphs 1, 2 and 3 above will not apply if the Relevant Radio Equipment is being used for the purpose of seeking emergency assistance or reporting and responding to an

[4] Compliance with the reference levels for general public exposure identified in the ICNIRP Guidelines will ensure compliance with the basic restrictions.
[5] The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".
[6] Compliance with the reference levels for general public exposure identified in the ICNIRP Guidelines will ensure compliance with the basic restrictions.
[7] The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".

emergency situation (in the vicinity of that situation) including for search and rescue activities and maritime emergency communications.[8]

Relationship with authorised transmission levels

5. The Licensee shall comply with paragraphs 1, 2 and 3 above notwithstanding the maximum transmission levels authorised in the Licence.

Records

6. The Licensee shall keep, or shall procure that a third party shall keep, and shall make available to Ofcom on request, records (including the type of records identified in Ofcom's "Guidance on EMF Compliance and Enforcement") that demonstrate how it has complied with paragraphs 1, 2 and 3 above when Relevant Radio Equipment is established, installed, modified or used.

Radio Equipment use

7. The Licensee shall ensure that the Radio Equipment is established, installed and used only in accordance with the provisions specified in the schedules to this Licence. Any proposal to amend any detail specified in the schedules to this Licence must be agreed with Ofcom in advance and implemented only after this Licence has been varied or reissued accordingly.
8. The Licensee shall ensure that the Radio Equipment is operated in compliance with the terms of this Licence and is used only by persons who have been authorised in writing by the Licensee to do so and that such persons are made aware of, and of the requirement to comply with, the terms of this Licence.
9. The Licensee must ensure that all Radio Equipment is established, installed, modified and used only in accordance with the provisions specified in schedule 2 (EMF Licence Condition) of this Licence.

Ofcom's "Guidance on EMF Compliance and Enforcement"

10. When evaluating its compliance with paragraphs 1, 2 and 3 above, the Licensee shall take into account Ofcom's "Guidance on EMF Compliance and Enforcement" that is in force at the relevant time.

Interpretation

11. In this schedule:

    a) "**dBi**" means the ratio in dB (decibel) when comparing the gain of the antenna to the gain of an isotropic antenna. An isotropic antenna is a theoretical antenna which radiates power uniformly in all directions;

[8] Further information on emergency situations is set out in Ofcom's "Guidance on EMF Compliance and Enforcement".

b) "**EIRP**" means equivalent isotropically radiated power which is the product of the power supplied to an antenna and the absolute or isotropic antenna gain in a given direction relative to an isotropic antenna;

c) "**ERP**" means effective radiated power which is the product of the power supplied to an antenna and its gain in a given direction relative to a half-wave dipole;

d) "**general public**" means any person who is not: (a) the Licensee, owner, operator or installer of the Relevant Radio Equipment; or (b) acting under a contract of employment or otherwise acting for purposes connected with their trade, business or profession or the performance by them of a public function;[9]

e) "**ICNIRP Guidelines**" means the version of the Guidelines published by the International Commission on Non-Ionizing Radiation Protection for limiting exposure to electromagnetic fields which are identified in Ofcom's "Guidance on EMF Compliance and Enforcement" that is in force at the relevant time.[10]

f) "**Licensee's On-Site Radio Equipment**" means the Relevant Radio Equipment and any other wireless telegraphy station(s) and wireless telegraphy apparatus on the same site which transmits at powers higher than 10 Watts EIRP or 6.1 Watts ERP.[11]

g) "**Relevant Radio Equipment**" means all the Radio Equipment that is authorised by this Licence to transmit at powers higher than 10 Watts EIRP or 6.1 Watts ERP.

h) "**Shared Site Exemption**" means any of the following three situations apply on a shared site in relation to the Licensee's or another licensee's wireless telegraphy station(s) or wireless telegraphy apparatus that is authorised to transmit at powers higher than 10 Watts EIRP or 6.1 Watts ERP:

   i) The first situation is that all of the licensee's wireless telegraphy station(s) or wireless telegraphy apparatus on a shared site do not transmit at a combined total radiated power in any particular direction[12] that is higher than 100 Watts EIRP or 61 Watts ERP;[13]

   ii) The second situation is that the total electromagnetic field exposure levels produced by the licensee's wireless telegraphy station(s) or wireless telegraphy apparatus in any area where a member of the general public is or can be expected to be present when

---

[9] There is pre-existing health and safety legislation which already requires employers to protect workers from exposure to electromagnetic fields ("EMF") including the following legislation specifically relating to EMF (as amended from time to time): The Control of Electromagnetic Fields at Work Regulations 2016, The Control of Electromagnetic Fields at Work Regulations (Northern Ireland) 2016 and The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016.

[10] Ofcom's "Guidance on EMF Compliance and Enforcement" will initially require the Licensee to comply with the ICNIRP Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz), published in: Health Physics 74(4):494-522, dated April 1998 and available at: https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf ("1998 Guidelines") or the ICNIRP Guidelines for limiting exposure to electromagnetic fields (100 KHz to 300 GHz), published in: Health Physics 118(5): 483–524; 2020 and available at: https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf ("2020 Guidelines"). However, once work on the relevant standards explaining the methodology for assessing Compliance and Enforcement" on its website. Ofcom will follow the same process for any subsequent versions of the ICNIRP Guidelines.

[11] 10 Watts EIRP is equivalent to 6.1 Watts ERP. In linear units EIRP (W) = 1.64 x ERP (W); in decibels EIRP (dB) = ERP (dB) + 2.15. Ofcom's "Guidance on EMF Compliance and Enforcement" explains how the Licensee can determine if wireless telegraphy station(s) or wireless telegraphy apparatus "transmits at powers higher than 10 Watts EIRP or 6.1 Watts ERP".

[12] For the purpose of this situation, the combined total radiated power is a simple sum of the radiated powers (in EIRP or ERP) of all of the licensee's wireless telegraphy station(s) or wireless telegraphy apparatus on the shared site that transmits signals covering the same or overlapping areas.

[13] 100 Watts EIRP is equivalent to 61 Watts ERP.

transmissions are taking place is no more than 5% of the basic restrictions or 5% of the reference levels in the relevant tables for general public exposure identified in the ICNIRP Guidelines;[14]

iii) The third situation is where the licensee's wireless telegraphy station or wireless telegraphy apparatus has an antenna gain that is equal to or higher than 29 dBi and has a fixed beam;

i) "**shared site**" means a site that is shared by the Licensee and at least one other licensee for the purposes of establishing, installing, modifying or using wireless telegraphy stations or wireless telegraphy apparatus;

j) "**site**" means a physical structure, building, vehicle or moving platform;

k) "**wireless telegraphy apparatus**" has the meaning given to it in section 117 of the Wireless Telegraphy Act 2006; and

l) "**wireless telegraphy station**" has the meaning given to it in section 117 of the Wireless Telegraphy Act 2006.

Ofcom

[14] The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".