

PUBLIC WIRELESS NETWORK LICENCE

This licence document replaces the version of the Licence issued by Ofcom on 18 May 2021, to EE Limited.

Licence no. **0249666**
Date of issue: **27 July 2021**
Fee payment date: **31 October** (annually)

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

EE Limited

(Company registration number 02382161)
("the Licensee")

Trident Place
Mosquito Way
Hatfield
Hertfordshire
AL10 9BW

to establish, install and use radio transmitting and receiving stations and/or radio apparatus as described in the schedule(s) (hereinafter together called "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 2006 Act"), Ofcom may not revoke or vary this Licence under schedule 1 paragraph 6 of the 2006 Act save at the request or with the consent of the Licensee except:
 - (a) in accordance with clause 6 of this Licence;
 - (b) in accordance with schedule 1 paragraph 8(5) of the 2006 Act;
 - (c) for reasons related to the management of the radio spectrum, provided that in such case the power to revoke may only be exercised after five years' notice is given in writing and after Ofcom has considered any pertinent factors;

- (d) 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 section 30(1) and (3) of the Act;¹
- (e) if there has been a breach of any of the terms of this Licence or the schedule(s) hereto.

Changes

- 4. 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
- 5. The Licensee must give prior or immediate notice to Ofcom in writing of any change in the details of the name and/or address recorded in paragraph 1 of this licence.

Fees

- 6. The Licensee shall pay Ofcom the relevant fee as provided in section 12 of the 2006 Act and the Regulations made thereunder on or before the fee payment date shown above each year, or on or before such dates as shall be notified in writing to the Licensee, failing which Ofcom may revoke this Licence.

Radio Equipment Use

- 7. The Licensee must ensure that the Radio Equipment is constructed 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 must 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 3 (EMF Licence Condition) of this Licence.

Access and Inspection

- 10. The Licensee shall permit a person authorised by Ofcom:
 - (a) to have access to the Radio Equipment; and
 - (b) to inspect this Licence and 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.

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.

Modification, Restriction and Closedown

11. A 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 this Licence has occurred; and/or
 - (b) the use of the Radio Equipment is causing or contributing to undue interference to the use of other authorised radio equipment.
12. Ofcom may in the event of a national or local state of emergency being declared require the Radio Equipment to be modified or restricted in use, or temporarily or permanently closed down either immediately or on the expiry of such period as Ofcom may specify. Ofcom shall exercise this power by a written notice served on the Licensee or by a general notice applicable to holders of this class of Licence.

Geographical Boundaries

13. This Licence does not authorise the establishment and use of the Radio Equipment on the Isle of Man or any of the Channel Islands.

Interpretation

14. 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 2006 Act;
 - (b) the expression "interference" shall have the same meaning that it has under the 2006 Act (Section 115);
 - (c) the expression "inspect" includes examine and test;
 - (d) the schedules form part of this Licence together with any subsequent schedule(s) which Ofcom may issue as a variation to this Licence at a later date; and
 - (e) the Interpretation Act 1978 shall apply to the Licence as it applies to an Act of Parliament.

Issued by Ofcom

Office of Communications

SCHEDULE 1 TO LICENCE NUMBER: 0249666

Licence Category: **Public Wireless Network**

This schedule forms part of licence no **0249666**, issued to **EE Limited**, the Licensee on **27 July 2021**, and describes the Radio Equipment covered by this schedule and the purpose for which that Radio Equipment may be used.

Description of Radio Equipment Licensed

1. In this schedule, the Radio Equipment means the base transceiver stations or repeater stations forming part of the Network (as defined in paragraph 2 below).

Purpose of the Radio Equipment

2. The Radio Equipment shall form part of a radio telecommunications network ("the Network"), in which User Stations which meet the appropriate technical performance requirements as set out in the relevant Wireless Telegraphy (Exemption) Regulations made by Ofcom communicate by radio with the Radio Equipment to provide a telecommunications service.

Approved Standards for the Radio Equipment

3. The Radio Equipment covered by this Licence shall comply with the appropriate Interface Requirement (IR 2014 – Public Wireless Networks and/or IR 2019 – Third Generation Mobile and/or IR 2087 - 900 / 1800 MHz LTE and WiMAX) or, for equipment placed on the market before 8 April 2000, is required to be type approved in accordance with a recognised technical performance standard relating to the service licensed.

Special Conditions relating to the Operation of the Radio Equipment

4.
 - (a) During the period that this Licence remains in force and for 6 months thereafter, the Licensee shall compile and maintain accurate written records of:
 - (i) The following details relating to the Radio Equipment:
 - a) postal address;
 - b) National Grid Reference, (to 100 Metres resolution);
 - c) antenna height (AGL) and type;
 - d) radio frequencies in operation;
 - (ii) a statement of the number of subscribing customers using the Network;

and the Licensee must produce the above records when a person authorised by Ofcom requires him to do so;

- (b) In respect of femtocell equipment and smart/intelligent low power repeater equipment, the conditions relating to the keeping of records contained in sub-paragraphs 4(a)(i)(a), 4(a)(i)(b) and 4(a)(i)(c), shall not apply;
- (c) The Licensee shall inform Ofcom of the address of the premises at which this Licence and the information detailed at sub-paragraph (a) above shall be kept;
- (d) The Licensee must submit to Ofcom copies of the records detailed in sub-paragraph (a) above at such intervals as Ofcom shall notify to the Licensee;
- (e) The Licensee shall, upon request, supply Ofcom or any person authorised on their behalf with the name and address of any subscribing customers to the Network, or require its agents to provide such information on its behalf.

Technical Performance Requirements

5. The Radio Equipment shall be operated in compliance with such co-ordination and sharing procedures as may be considered necessary and notified to the Licensee by Ofcom.

The Licensee must ensure that the Radio Equipment performs in accordance with the following technical performance requirements.

Voice Coverage Obligation

6. The Licensee shall maintain an electronic communications network that is capable of providing mobile voice telecommunications services to an area covering at least 90% of the geographic landmass of the United Kingdom at at least one of the minimum signal strengths set out in Table 1 of this condition. For the avoidance of doubt the Licensee shall be permitted to meet the obligation set out in this condition using any frequencies and technologies available to the Licensee.

Table 1

Technology and Band	Minimum Signal Threshold
GSM 900	-93 dBm
GSM 1800	-93 dBm
UMTS 2100	-103 dBm
LTE 800	-115 dBm

Assessment of compliance with the Voice Coverage Obligation

7. Ofcom will assess the Licensee's compliance with the Coverage Obligation by reference to the document "*Voice Coverage Obligation Notice of Compliance Methodology*" published by Ofcom.

2020 Coverage Obligations

8.

Definitions

- (1) For the purposes of interpreting conditions 8.(2)-(8) below, these terms shall have the following meaning:
- (a) **“2019 Baseline Coverage Level”** means the Licensee’s coverage footprint of the Required Service as measured by the Licensee’s predictive model on the basis of their September 2019 data as submitted to Ofcom in October 2019;
 - (b) **“2020 Baseline Coverage Footprint”** means the Licensee’s coverage footprint of the Required Service as submitted to Ofcom in January 2020 on the basis of:
 - (i) the data submitted to Ofcom in September 2019 for the Connected Nations 2019 report and (ii) the Licensee’s forward-looking predictions for any additional site which is expected to be on-air by 30 June 2020, excluding any site which is not on-air by 30 June 2021;
 - (c) **“Available”**, for the purposes of condition 8.(4)(a), has the meaning given in the Grant Agreement;
 - (d) **“EAS Site”** means: (i) any of the 292 extended area service sites that the Home Office is intending to build to improve coverage in remote areas and (ii) any alternative or additional extended area service site which is publicly funded in the same way whose location is specified by Government by 31 March 2024, excluding any such site the deployment of which would materially duplicate the coverage from any site in Total Not Spots for which land has already been acquired by the Licensee;
 - (e) **“Full Coverage Area”** means a geographical area within the UK falling within all the MNOs’ 2020 Baseline Coverage Footprints;
 - (f) **“Grant Agreement”** means the funding agreement entered into by Government and the SRN Entity in March 2020 as amended on 1 March 2021;
 - (g) **“Initial Coverage Deadline”** means 30 June 2024;
 - (h) **“MNO”** (Mobile Network Operator) means each of EE Limited,³ Hutchison 3G UK Limited,⁴ Telefónica UK Limited⁵ and Vodafone Limited⁶ (collectively, the **“MNOs”**);
 - (i) **“Partial Not Spot”** means a geographical area within the UK falling within at least one, but not all, the MNOs’ 2020 Baseline Coverage Footprints;
 - (j) **“Required Service”** means an electronic communications network that provides with a confidence level of more than 95% a mobile telecommunications service to users (i) with a sustained downlink speed of not less than 2 megabits per second, and (ii) on which 90 second voice calls can be made without interruption. This is equivalent to providing an outdoor LTE telecommunications service at a predicted mean signal strength of at least -105dBm;

³ **EE Limited**, registered in England under company number 02382161. Registered office address: Trident Place, Mosquito Way, Hatfield, Hertfordshire, AL10 9BW.

⁴ **Hutchison 3G UK Limited**, registered in England under company number 03885486. Registered office address: Star House, 20 Grenfell Road, Maidenhead, Berkshire, SL6 1EH.

⁵ **Telefónica UK Limited**, registered in England under company number 01743099. Registered office address: 260 Bath Road, Slough, Berkshire, SL1 4DX.

⁶ **Vodafone Limited**, registered in England under company number 01471587. Registered office address: Vodafone House, The Connection, Newbury, Berkshire, RG14 2FN.

- (k) “**Road**” means all motorway, A-road, B-road, minor (non-numbered) roads and local roads excluding restricted access, private roads and cul-de-sacs;
- (l) “**Subsequent Coverage Deadline**” means, in relation to each obligation that falls due on such deadline, 31 January 2027, unless Government suspends funding in response to a “Suspension Event” (as defined in the Grant Agreement), in which case the deadline shall be extended by the number of days included within such suspension;
- (m) “**SRN Entity**” means the joint venture set up by the MNOs to run the SRN Programme;
- (n) “**SRN Programme**” means the programme agreed between the MNOs and Government in March 2020 to improve mobile coverage in rural areas;
- (o) “**Total Not Spot**” means geographical areas within the UK falling outside all the MNOs’ 2020 Baseline Coverage Footprints.

88% coverage

- (2) By the Initial Coverage Deadline the Licensee shall provide, and thereafter maintain, the Required Service to an area covering at least:
 - (a) 88% of the geographic landmass of the United Kingdom;
 - (b) 93% of the geographic landmass of England;
 - (c) 89% of the geographic landmass of Northern Ireland;
 - (d) 75% of the geographic landmass of Scotland; and
 - (e) 83% of the geographic landmass of Wales.

In meeting these obligations, the Licensee shall ensure that:

- (i) any additional coverage relative to the 2020 Baseline Coverage Footprint is either:
 - (A) provided in Partial Not Spots;
 - (B) gained by deploying on sites located in Partial Not Spots; or
 - (C) gained by deploying on sites located in a Full Coverage Area, provided that any such coverage which is added in Total Not Spots does not exceed 0.3% of the geographic landmass of the United Kingdom; and
- (ii) any additional coverage which is provided in Total Not Spots does not limit the Licensee’s ability to meet condition 8.(4)(b)(ii) below.

90% coverage

- (3) By the Subsequent Coverage Deadline the Licensee shall provide, and thereafter maintain, the Required Service to an area covering at least:
 - (a) 90% of the geographic landmass of the United Kingdom;
 - (b) 94% of the geographic landmass of England;
 - (c) 89% of the geographic landmass of Northern Ireland;
 - (d) 85% of the geographic landmass of Scotland;

- (e) 88% of the geographic landmass of Wales;
- (f) 40,000 premises in the United Kingdom which do not fall within the Licensee's 2019 Baseline Coverage Level. Premises which are built after September 2019 will not count towards satisfaction of this requirement; and
- (g) 4,000 kilometres of Roads in the United Kingdom which do not fall within the Licensee's 2019 Baseline Coverage Level. Roads which are built after September 2019 will not count towards satisfaction of this requirement.

Coverage from the Extended Area Service Sites and in Total Not Spots

- (4) In meeting the obligations set out in condition 8.(3)(a), the Licensee shall ensure that any coverage required to meet such condition which is incremental to the 88% geographic coverage to be met under condition 8.(2)(a):
 - (a) includes, as far as possible, coverage from the EAS Sites in so far as these sites are made Available by the Home Office no later than one year before the Subsequent Coverage Deadline and continue to be made Available to the Licensee for the duration of this condition; and
 - (b) the remaining additional coverage:
 - (i) is provided in areas that are Total Not Spots and are not provided with the Required Service from either sites located within the 2020 Baseline Coverage Footprint or the EAS Sites, as far as possible by deploying on any other publicly funded sites; and
 - (ii) includes, in any case, at least 1 percentage points in such areas.

Proportionate reduction

- (5) The obligations set out in conditions 8.(3)(a)-(e) and 8.(4) will be removed or proportionately reduced if the conditions described in the document "2020 Coverage Obligations - Notice of compliance verification methodology" published by Ofcom in March 2020 (and updated in July 2021) are met.

Duration

- (6) The obligations set out in conditions 8.(3) and 8.(4) will remain in force for 14 years from the Subsequent Coverage Deadline.

Technology neutrality

- (7) For the avoidance of doubt, the Licensee is permitted to meet the obligations set out in this Licence using any frequencies and technologies available to the Licensee.

Assessment of compliance with the 2020 coverage obligations

- (8) Ofcom will assess the Licensee's compliance with the obligations set out in conditions 8.(2) to 8.(4) after the date at which each obligation is due to have been met by reference to the document "2020 Coverage obligations - Notice of compliance verification methodology" notified by Ofcom to the Licensee in March 2020 (and updated in July 2021). In addition to verifying compliance when these obligations fall due, Ofcom may repeat this assessment from time to time to ensure continued compliance.

Frequencies of Operation

9. The Radio Equipment may operate on any of the following frequency bands:

Base Transmit /
Mobile Receive

1831.7 – 1876.7 MHz

Base Receive /
Mobile Transmit

1736.7 – 1781.7 MHz

RF Carrier Spacing

10. In the absence of bilateral or multilateral agreements which have been notified to Ofcom specifying alternative arrangements between the licensee and the licensee(s) of neighbouring networks the licensee must ensure that in respect of the frequencies set out at paragraph 6 of this schedule:

- the centre frequency of any of their GSM carriers is 100 kHz or more inside any edge of their permitted frequency bands;
- the centre frequency of any of their UMTS carriers is 2.7 MHz or more inside any edge of their permitted frequency bands where a neighbouring licensee has deployed a GSM carrier or carriers (including GSM-R) in the immediately adjacent spectrum;
- the centre frequency of any of their UMTS carriers is 2.5 MHz or more inside any other edge of their permitted frequency bands;
- the channel edge of any of their LTE channels is 200 kHz or more inside any edge of their permitted frequency bands where a neighbouring licensee has deployed a GSM carrier or carriers (including GSM-R) in the immediately adjacent spectrum;
- the channel edge of any of their LTE channels does not extend beyond their permitted frequency bands;
- the channel edge of any of their WiMAX channels is 200 kHz or more inside any edge of their permitted frequency bands where a neighbouring licensee has deployed a GSM carrier or carriers (including GSM-R) in the immediately adjacent spectrum; and
- the channel edge of any of their WiMAX channels does not extend beyond their permitted frequency bands.

ITU Class of Emission

11.	For GSM:	271KG7W
	For UMTS:	5M00D7W
	For 1.4 MHz LTE:	1M40D7W
	For 3 MHz LTE:	3M00D7W
	For 5 MHz LTE:	5M00D7W
	For 10 MHz LTE:	10M0D7W
	For 15 MHz LTE:	15M0D7W
	For 20 MHz LTE:	20M0D7W
	For 5 MHz WiMAX:	5M00D7W
	For 10 MHz WiMAX:	10M0D7W

Maximum Permissible e.i.r.p.

12. The maximum e.i.r.p. is:

for GSM	62 dBm per carrier;
for UMTS	65 dBm per carrier;
for LTE	65 dBm per 5 MHz;
for WiMAX	65 dBm per 5 MHz.

Interpretation

13. In this schedule:

- (a) "dBm" means the power level in decibels (logarithmic scale) referenced against 1 milliwatt (i.e. a value of 0 dBm is 1 milliwatt);
- (b) "e.i.r.p." 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);
- (c) "IR" means a United Kingdom Radio Interface Requirement published by Ofcom in accordance with Article 4.1 of Directive 1995/5/EC of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment (RTTE) and the mutual recognition of their conformity;
- (d) "ITU" means the International Telecommunication Union, and "Class of Emission" shall have the meaning as defined in the ITU Radio Regulations Appendix 1;
- (e) "RF" means Radio Frequency;
- (f) "User Station" means any vehicle mounted or hands portable mobile station designed for mobile use and/ or any station designed or adapted to be established and used from static locations which meet the appropriate technical performance requirements as set out in the Wireless Telegraphy (Exemption) Regulations and either complies with the appropriate Interface Regulation listed in paragraph 3, or for equipment placed on the market before 8 April 2000, is type approved in accordance with a recognised technical standard relating to the service licensed;
- (g) "A femtocell" is a base station of the Network which operates at a power not exceeding 24 dBm e.i.r.p. per carrier which may be established by customers of the Network but which is or will be used only by and under the control of the Network, following the establishment of a telecommunications link between the femtocell and the Network;

- (h) A “smart/intelligent low power repeater” is a repeater of the Network which operates with power not exceeding 24 dBm e.i.r.p. per carrier, which may be established by customers of the Network who have written agreements with the Licensee and:
- The Licensee has ultimate control of the repeater, i.e. each individual repeater can be disabled remotely by the Licensee;
 - The repeater operates only on the Licensee’s frequencies and with their valid Public Land Mobile Network Identifier;
 - Must not cause undue interference to other spectrum users; and
 - The repeater only transmits on the Licensee’s Base Receive frequencies when actively carrying a call (voice, video or data) or signalling from serviced handsets;
- (i) “GSM system” means an electronic communications network that complies with GSM standards, as published by ETSI, in particular EN 301 502 and EN 301 511 and “GSM” means pertaining to such a network or its Radio Equipment;
- (j) “GSM-R” means the variant of GSM for railways as specified in IR 2064;
- (k) “UMTS system” means an electronic communications network that complies with the UMTS standards as published by ETSI, in particular EN 301 908-2, EN 301 908-3 and EN 301 908-11 and “UMTS” means pertaining to such a network or its Radio Equipment;
- (l) “LTE system” means an electronic communications network that complies with the LTE standards as published by ETSI, in particular EN 301 908-1, EN 301 908-13, EN 301 908-14, EN 301 908-15 and EN 301 908-11 and “LTE” means pertaining to such a network or its Radio Equipment; and
- (m) “WiMAX system” means an electronic communications network that complies with the WiMAX standards as published by ETSI, in particular EN 301 908-1, EN 301 908-21 and EN 301 908-22 and “WiMAX” means pertaining to such a network or its Radio Equipment.

SCHEDULE 2 TO LICENCE NUMBER: 0249666

Schedule date: **27 July 2021**

Licence Category: **Public Wireless Network:
(backhaul of 1900 MHz Emergency Services Gateway equipment)**

Description of Radio Equipment Licensed

1. References in this schedule to the Radio Equipment are references to any wireless telegraph station or wireless telegraphy apparatus that is established, installed and/or used under this schedule.
2. Radio Equipment that is established, installed and/or used under this schedule must only be used for the purpose of providing backhaul for temporary occasional use base stations which are established and/or installed in the 1899.9 – 1909.9 MHz band (in accordance with schedule 3 to Licence number: **0207128**) for use in connection with user stations used by the emergency services (“Emergency Services Gateway equipment”).

Interface Requirements for the Radio Equipment

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

IR 2101 – Backhaul for Emergency Services Gateway equipment in the 800 MHz and 1800 MHz bands.

Co-ordination at Frequency and Geographical Boundaries

4. The Licensee shall ensure that the Radio Equipment is operated in compliance with such co-ordination and sharing procedures as may be notified to the Licensee by Ofcom from time to time.

International Cross-Border Coordination

5. The Licensee shall ensure that the Radio Equipment is operated in compliance with such cross-border co-ordination and sharing procedures as may be notified to the Licensee by Ofcom from time to time.

Permitted Frequency Block

6. Subject to the emissions permitted under paragraph 8 of this schedule, the Radio Equipment may only transmit within the following frequency bands (the “Permitted Frequency Blocks”):

Downlink frequencies	Uplink frequencies
1831.7 – 1876.7 MHz	1736.7 – 1781.7 MHz

Maximum power within the Permitted Frequency Blocks

7. The power transmitted in the Permitted Frequency Blocks shall not exceed:

(a) Downlink frequencies

Frequency Block	Maximum mean power
1831.7 – 1876.7 MHz	As set out in paragraph 11 of schedule 1 to this licence

(b) Uplink frequencies

Frequency Block	Maximum mean power
1736.7 – 1781.7 MHz	31 dBm e.i.r.p.

Note 1: Power control must be applied to minimise interference to adjacent channels.

Note 2: No transmissions are permitted when the Radio Equipment is in motion.

Maximum Power outside the Permitted Frequency Blocks

8. For transmissions on the uplink frequencies, the e.i.r.p. emanating from the Radio Equipment transmissions at any frequency outside the Permitted Frequency Blocks shall not exceed the following:

Frequency range	Maximum mean e.i.r.p.				Measurement bandwidth
	5 MHz channels	10 MHz channels	15 MHz channels	20 MHz channels	
±0-1 MHz from block edge	-15 dBm	-18 dBm	-20 dBm	-21 dBm	30 kHz
±1-2.5 MHz from block edge	-10 dBm	-10 dBm	-10 dBm	-10 dBm	1 MHz
±2.5-2.8 MHz from block edge	-10 dBm	-10 dBm	-10 dBm	-10 dBm	1 MHz
± 2.8-5 MHz from block edge	-10 dBm	-10 dBm	-10 dBm	-10 dBm	1 MHz
± 5-6 MHz from block edge	-13 dBm	-13 dBm	-13 dBm	-13 dBm	1 MHz
± 6-10 MHz from block edge	-25 dBm	-13 dBm	-13 dBm	-13 dBm	1 MHz
± 10-15 MHz from block edge	-	-25 dBm	-13 dBm	-13 dBm	1 MHz
± 15-20 MHz from block edge	-	-	-25 dBm	-13 dBm	1 MHz
± 20-25 MHz from block edge	-	-	-	-25 dBm	1 MHz

Interpretation

9. In this schedule:

- (a) “dBm” means the power level in decibels (logarithmic scale) referenced against 1 milliwatt (i.e. a value of 0 dBm is 1 milliwatt);
- (b) “block edge” means, in relation to the Permitted Frequency Block, the lowest or highest frequency in that Permitted Frequency Block;
- (c) “downlink” means transmissions from a base station to Emergency Services Gateway equipment;
- (d) “e.i.r.p.” 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);
- (e) “Emergency Services Gateway equipment” means Radio Equipment which may be established under this schedule, as described in paragraph 2;
- (f) “IR” means a United Kingdom Radio Interface Requirement published by Ofcom in accordance with Article 4.1 of Directive 1995/5/EC of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment (RTTE) and the mutual recognition of their conformity;
- (g) “maximum mean power” is the maximum mean e.i.r.p. radiated in any direction from the Radio Equipment for any transmitted carrier and determined irrespective of the number of antennas. Power for this limit is defined as the mean modulated carrier power time averaged over any suitable time period in which the transmitter is continuously transmitting at its maximum operational power level;
- (h) “measurement bandwidth” means the size of an individual spectrum segment within the specified frequency range that is used to measure compliance with the specified power limit;
- (i) “Permitted Frequency Blocks” has the same meaning given to it in paragraph 7 of this schedule; and
- (j) “uplink” means transmissions from Emergency Services Gateway equipment to a base station.

SCHEDULE 3 TO LICENCE NUMBER: 0249666

EMF Licence Condition

Schedule Date: 27 July 2021

Licence category: Public Wireless Network

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 restrictions⁷ in the relevant tables for general public exposure identified in the ICNIRP Guidelines⁸ 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 restrictions⁹ in the relevant tables for general public exposure identified in the ICNIRP Guidelines¹⁰ in any area where a member of the general public is or can be expected to be present when transmissions are taking place.

⁷ Compliance with the reference levels for general public exposure identified in the ICNIRP Guidelines will ensure compliance with the basic restrictions.

⁸ The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".

⁹ Compliance with the reference levels for general public exposure identified in the ICNIRP Guidelines will ensure compliance with the basic restrictions.

¹⁰ The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".

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 emergency situation (in the vicinity of that situation) including for search and rescue activities and maritime emergency communications¹¹.

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.

Ofcom's "Guidance on EMF Compliance and Enforcement"

7. 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.

¹¹ Further information on emergency situations is set out in Ofcom's "Guidance on EMF Compliance and Enforcement".

Interpretation

8. 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;
- (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;¹²
- (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.¹³
- (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.¹⁴

¹² 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](#).

¹³ 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/ICNIRPmfgdl.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/ICNIRPPrfgdl2020.pdf> (“2020 Guidelines”). However, once work on the relevant standards explaining the methodology for assessing compliance with the 2020 Guidelines has progressed sufficiently, Ofcom will publish a public consultation on updating its “Guidance on EMF Compliance and Enforcement” to explain that going forward Ofcom will be requiring the Licensee to comply with the 2020 Guidelines only. Following this public consultation, Ofcom will publish an updated version of Ofcom’s “Guidance on EMF Compliance and Enforcement” on its website. Ofcom will follow the same process for any subsequent versions of the ICNIRP Guidelines.

¹⁴ 10 Watts EIRP is equivalent to 6.1 Watts ERP. In linear units $EIRP (W) = 1.64 \times ERP (W)$; 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”.

- (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:
- 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 direction¹⁵ that is higher than 100 Watts EIRP or 61 Watts ERP;¹⁶
 - 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 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;¹⁷
 - 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.

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¹⁵ 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.

¹⁶ 100 Watts EIRP is equivalent to 61 Watts ERP.

¹⁷ The relevant tables for general public exposure are identified in Ofcom’s “Guidance on EMF Compliance and Enforcement”.