

Ofcom application form OfW434

# Application Form for a Business Radio Technically Assigned Licence

- 1. Please note that applicants are encouraged to register and apply for their licences via the Ofcom website at www.ofcom.org.uk.
- Before filling out this form, please read these notes.
   If you are unsure how to complete any part of this form, please refer to the Guidance Notes at the end of the form.
- 3. All fields are mandatory unless stated otherwise.
- 4. Please use **BLOCK CAPITALS** and **black ink** throughout this form.
- 5. Incomplete or illegible applications may result in delays and/or the application form being returned.
- 6. When making a new application you are advised not to commit to the purchase of the equipment until we have notified you of your assignment(s).
- 7. The Wireless Telegraphy (Licence Charges)
  Regulations set out the fees for licences to use radio
  equipment issued under the Wireless Telegraphy Act.

Information on how to calculate your licence fee can be found on the Ofcom website.

### 8. Data protection

Ofcom may use or share your information to help us:

- a) issue, amend, validate and/or surrender a Wireless Telegraphy Act licence;
- b) maintain and publish a register of licences under the Wireless Telegraphy Act.

Ofcom will not give anyone your information except:

- a) where we have your permission; or
- b) where we are required or permitted to do so by law; or
- c) to other companies or organisations who provide a service to us or you.

We may transfer your information to other countries. If we do this we will ensure that anyone to whom we pass it provides an adequate level of protection.

A Customer details					
A.1 If you are an existing licensee please provide your customer reference number and go to question 4. If not, go to question 2.					
A.2 Who is the licence to be issued to?  A licence can only be issued to a legal entity. Ofcom recognises the following types of entity, please tick the relevant box:					
individual or sole trader	public body	religious body			
partnership	local government	NHS England and Wales			
limited company/plc	registered charity	NHS Scotland			
unincorporated association	university/educational	NHS Northern Ireland			
government	non UK company	sporting club			
crown body	non UK govt/administration	royal charter			
Individual or sole trader	Full name				
Partnership	Full name				
NB: For a partnership, please give the full name of one partner (who must also sign the declaration on page 11) and supply a list of the full names of all other partners in the declaration.					
Limited or public limited company/Incorporate	ed association				
Name	Name Company registration no.				
Registered charity					
Name	Name Charity registration no.				
Other legal entity					
Name Registration no. (where applicable)					

A.3 If your organisation is a registered charity, does it have as its object the safety of human life in an emergency?	Yes No
A.4 Licensee name and address (use registered address unless you specifically want an alternative)	Name Address Postcode
	Tel
	Fax
	E-mail
	Please indicate your communication preference: E-mail Letter
A.5 Company or partnership trading name	
A.6 Licensee contact name and address (where different from above)	Name
(	Address
	Postcode
	Tel
	Fax
	E-mail
	Please indicate your communication preference: E-mail Letter
A.7 Contact name and address for payments or account queries (where different)	Name
decount queries (where differency	Address
	Postcode
	Tel
	Fax
	E-mail E-mail
	Please indicate your communication preference: E-mail Letter

A.8 Technical contact name and address (where different)	Name
	Address
	Postcode
	Tel
	Fax
	E-mail
	Please indicate your communication preference: E-mail Letter
<b>A.9</b> If you are applying via a third party (e.g. radio supplier, consultant etc) please complete the following:	I/we authorise the following company to apply for this licence on my/our behalf:
consultant etc) please complete the following.	Name
	Address
	Postcode
	Tel
	Fax
	E-mail E-mail
	I/we would like a copy of the licence to be sent to our radio dealer/supplier
	Please indicate your communication preference: E-mail Letter
A.10 Contact name and address for licence trades (where different)	Name
(where different)	Address
	Postcode
	Tel
	Fax
	E-mail E-mail
	Please indicate your communication preference: E-mail Letter
A.11 If you wish to apply for a licence period of less than one year, please indicate the duration required	Months
A so life constant and the second sec	
A.12 If you are an existing customer and wish to harmonise the renewal date of your new licence with the renewal	
date of an existing licence, please enter the preferred renewal date	Day Month Year

	Do you require a:			
	Base station Please tick and complete section B	Do you also require a remote control point?* Yes No		
	Operational area			
	Please tick and complete section C			
	*This should only be ticked for Remote Contr RCPs using other control methods, e.g. landli	ol Points (RCPs) using Reverse Frequency Working as the control method. ne. do not need to be captured.		
В	Base station details			
If yo	u do not require a base station, please proceed to	section C		
B.1	<b>Base station location</b> (choose one of the following to input the data)	g possibilities		
	GB National Grid Reference	T Q 3 0 0 8 0 0		
	OR	(2 Letters; 3-figure Easting; 3-figure Northing)		
	Latitude	2 3 °N 5 8 3 9		
	Longitude	2 3 °E/W 5 8 3 9		
		(circle E or W as appropriate)		
B.2	Site address	A d d		
D.2	Site address	Address		
		Postcode		
B.3	Site contact name and address	Name		
		Address		
		Postcode		
		Tel		
		Fax		
		E-mail E-mail		
B.4	Customer Requested Service Area			
	Circle radius:	0 0 1 km		
B.5	Additional services:			
	a) Talkthrough			
	<b>b) Trunking</b> (note this will require exclusive assignment)	nent type)		

В.6	Assignment type
	Shared Exclusive  The assignment type that you choose will apply to all channels associated with this station
_	
B.7	Callsign/System ID B.8 Mobile ERP 0 1 W
B.9	Antenna location  Outdoor Indoor Underground
B.10	Antenna height 0 0 1 B.11 Antenna ERP 0 1 W  (in metres above ground level)
B.12	Antenna type  Omni-directional Radiating Cable  Down-fire Directional (If directional is chosen, please also complete question 13)  Angle of tilt (where applicable)  Gain dB (relative to a half-wave dipole)
B.13	Directional antenna type (only applicable if the directional antenna option is chosen above)  Directional antenna type:  Offset Omni Elliptical Cardioid Figure-of-Eight  Azimuth O O 1 degrees East of True North  Beam width O O 1 degrees  Front-to-back ratio O 1 dB
ОРТ	
	Advanced antenna options  Berlin Antenna Codes Horizontal Vertical Vertical Gain  Azimuth  O 0 1 degrees East of True North

# C Operational area details

This section should only be completed if a base station is not being used

C.1	Centre of operational area (choose one of the following possibilities to input the data)  GB National Grid Reference  OR  Latitude  Longitude	T Q 3 0 0 8 0 0 (2 Letters; 3-figure Easting; 3-figure Northing)  2 3 °N 5 8 3 9   2 3 °E/W 5 8 3 9   (circle E or W as appropriate)
C.2	Radius of operational area	0 1 km (maximum of 30 kms permitted)
С.3	Site address	Address Postcode
C.4	Site contact name and address	Name Address  Postcode  Tel  Fax  E-mail
C.5	Assignment type  Shared Exclusive  The assignment type that you choose will apply to all channels.	nels associated with this operational area
C.6	Callsign/System ID	
C.7	Mobile ERP  0 1 W	

D	Spectrum details						
D.1 Please indicate your preferred choice of frequency band (As it may not be possible to assign your preferred band, you should also indicate a second choice.)  Paging 26.225 to 49.49375 MHz  VHF-Low 68.08125 to 87.49375 MHz  VHF-High 165.04375 to 173.09375 MHz  UHF-1 * 425.00625 to 449.49375 MHz  Please note that assignments in UHF1 are subject to co-ordination with other users of the band. Also, duplex channels are only available in certain major conurbations  * Please note for Band III there will be changes as a result of the RRC-06 Treaty that may affect the longer term availability of some channels. The latest information on Band III is available in the Business Radio section of the Ofcom website					ilability of some		
D.2 How	v many channels do you require	.?		No. of dual frequency channels frequency channels			
D.3 Plea	se specify the channel bandwid	dth you require	1	2.5 kHz	25 l	kHz	Other
D.4 How	v many signalling codes per cha	nnel do you require?		TCSS	DCS	DMR a	ccess code
<b>D.5 Do</b> y	(generally only applicable for trunked use – optional)						
	Base transmit frequency (MHz)	Mobile transmit frequ	uency	Channel Bandwidth (kHz) optional	Preferred CTCSS optional	Preferred DCS optional	DMR access code optional
Channel 1	1 6 5 . 0 4 3 7 5	1 6 5 . 0 4 3					
Channel 2	1 6 5 . 0 4 3 7 5	1 6 5 . 0 4 3	7 5				
Channel 3	1 6 5 . 0 4 3 7 5	1 6 5 . 0 4 3	7 5				
Channel 4	1 6 5 . 0 4 3 7 5	1 6 5 . 0 4 3	7 5				
Channel 5 1 6 5 . 0 4 3 7 5 1 6 5 . 0 4 3 7 5							
D.7 If you will be using IR2008 technology, please complete the following:  Timeslot type:  No. of base transmit timeslots  No. of mobile transmit timeslots  OPTIONAL - Please circle preferred timeslots:  Base 1 2 3 4 5 6 7 8 Mobile 1 2 3 4 5 6 7 8							

# E Remote Control Points (RCP)

This section should only be completed for RCPs using Reverse Frequency Working as the control method. RCPs using other control methods, e.g. landline, do not need to be captured

E.1	RCP location (choose one of the following possibilities to input the data)		
	GB National Grid Reference		
	OR Latitude Longitude	(2 Letters; 3-figure Easting; 3-figure Northing)  2 3 °N 5 8 3 9  2 3 °E/W 5 8 3 9  (circle E or W as appropriate)	
E.2	RCP address	Address Postcode	
E.3	RCP contact name and address	Name Address Postcode Tel Fax E-mail	
E.4	RCP antenna height  O O 1 W (in metres above ground level)		
E.5	RCP antenna ERP  0 1 W		
E.6	Angle of tilt (where applicable) 2 3 ° down/up (de	he main base station antenna)  Figure-of-Eight  of True North  elete where appropriate)  o a half wave dipole)	

## F Payment details

For information on how to calculate your fees, please view the following webpage: www.ofcom.org.uk/licensing/applications08/changes/Fees/			
If you do not know what your licence fee will be, please tick he	and we will send you a request for payment		
If you know what your licence fee will be, please use one of the	ne following methods of payment:		
Credit or debit card Please fill in the details in the boxes below	Direct debit * Please fill in the direct debit mandate on the next page		
Cheque Please make cheques payable to 'Ofcom'	<ul> <li>Please note: the direct debit option is only open to customers who are already Ofcom licensees and have an existing direct debit arrangement with Ofcom</li> </ul>		
Cardholder name (Please print)	Billing		
	address		
Cardholder signature			
	Postcode		
	Country		
Card type  Master Switch/ Visa Debit/	Tel		
Visa Card UK Maestro Delta	E-mail		
Please note: we cannot accept Amex or Electron cards			
Card number	Start date / End date /		
	,		
Card verification (Last 3 digits on back of card) Issue number (Where appropriate)	Amount £		
2			
Direct debit mandate  1) Name and full postal address of your Bank or Building Society	DIRECT		
1) Name and full postal address of your Bank or Building Society	DIRECT		
	FOR OFFICE OF COMMUNICATIONS OFFICIAL USE ONLY		
1) Name and full postal address of your Bank or Building Society	FOR OFFICE OF COMMUNICATIONS OFFICIAL USE ONLY ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT		
1) Name and full postal address of your Bank or Building Society  To the manager	ADDITIONAL INFORMATION TO BE PROVIDED		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society  Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode  2) Names(s) of account holder(s)	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode  2) Names(s) of account holder(s)  3) Bank/Building Society number  Banks may not accept direct debit instructions for some types of account	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Ofcom and, if so, details will be passed electronically to my Bank or Building Society		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode  2) Names(s) of account holder(s)  3) Bank/Building Society number	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Ofcom and, if so, details will be passed electronically to		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode  2) Names(s) of account holder(s)  3) Bank/Building Society number  Banks may not accept direct debit instructions for some types of account 4) Branch sort code	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Ofcom and, if so, details will be passed electronically to my Bank or Building Society		
To the manager  Bank/Building Society  Address  Postcode  2) Names(s) of account holder(s)  Bank/Building Society number  Banks may not accept direct debit instructions for some types of account  4) Branch sort code  5) Originator reference no.	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Ofcom and, if so, details will be passed electronically to my Bank or Building Society  Signature(s)		
1) Name and full postal address of your Bank or Building Society  To the manager  Bank/Building Society  Address  Postcode  2) Names(s) of account holder(s)  3) Bank/Building Society number  Banks may not accept direct debit instructions for some types of account 4) Branch sort code	ADDITIONAL INFORMATION TO BE PROVIDED BY THE APPLICANT  This is not part of the instruction to your Bank or Building Society.  Ofcom Customer Account Reference (Please quote from renewal notice):  Mandate start date (Please advise):  6) Instruction to your Bank or Building Society Please pay Ofcom Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Ofcom and, if so, details will be passed electronically to my Bank or Building Society		

This Guarantee should be detached and retained by the payer

### **The Direct Debit Guarantee**

This Guarantee is offered by all Banks and Building Societies that take part in the Direct Debit Scheme. The efficiency and security of the Scheme is monitored and protected by your own Bank or Building Society.

If the amount to be paid or the payment date changes then Ofcom will notify you 10 working days in advance of your account being debited or as otherwise agreed. If an error is made by Ofcom or your Bank or Building Society you are guaranteed a full and immediate refund from your branch of the amount paid.

You can cancel a direct debit at any time by writing to your Bank or Building Society. Please also send a copy of your letter to us.

### **Declaration** G

# I understand and accept that: Telegraphy Act licence; Wireless Telegraphy Act;

- Ofcom may use or share my information to help:
  - a) issue, amend, validate and/or surrender a Wireless
  - b) maintain and publish a register of licences under the
- Ofcom will not give anyone my information except:
  - a) where Ofcom have my permission; or
  - b) where Ofcom are required or permitted to do so by law; or
  - c) to other companies or organisations who provide a service to Ofcom or me;
- Ofcom may transfer my information to other countries. If Ofcom does this you will ensure that anyone to whom Ofcom pass it provides an adequate level of protection;
- It is an offence to knowingly make a false statement in support of this application and may lead to the licence being refused or revoked as well as to possible prosecution under the Wireless Telegraphy Act.

Signature of applicant				
For self and partners (tick if applicable)				
Date of application				
Full name				
Position in organisation				
Partnerships must be applied for by one partner signing 'for self and partners'. A director or authorised person must sign for public limited companies, limited companies and other legal entities.				
Name	Signature			
Name	Signature			

If the number of partners exceeds the space provided above, additional partners' details should be provided on a separate sheet of paper in the format given above and attached to this form.

Signature

Signature

Name

Name

### Where to send this form Н

Please send your completed application form to the Ofcom Licensing Centre:

**Ofcom Licensing Centre** PO Box 56373 London SE1 9SZ

Tel 020 7981 3131/0300 123 3000 Fax 020 7981 3333

### **Guidance notes**

PLEASE ALSO READ THE KEY GUIDANCE NOTES ON PAGE 2 OF THIS APPLICATION FORM. IF THESE NOTES DO NOT ANSWER YOUR QUERY, PLEASE CONTACT THE OFCOM LICENSING CENTRE USING THE DETAILS AT THE BOTTOM OF PAGE 11

### General information

Under the terms of the Wireless Telegraphy Act 2006, it is an offence to install or use radio apparatus, unless:

- you do so under and in accordance with a licence issued by Ofcom (the Office of Communications); or
- the apparatus is specifically exempt from licensing.

Responsibility for obtaining and paying for a licence rests with the user of the system, not with the supplier of the equipment. You may need the help of your equipment supplier to complete the technical part of the form. Submitting a licence application form does not permit you to use or even install any equipment – you must wait until we have issued the licence and you have received it.

### Radio interference

Since the operation of a new system may cause interference to existing users, your supplier may consider it necessary to carry out compatibility tests before you apply for your licence. Once installed and operating, your system must not cause undue interference to any other wireless telegraphy equipment. If it does, you may need to stop operating until the cause of the interference has been rectified. Ofcom cannot offer any protection against interference radiated by other authorised services, or by industrial, scientific and medical equipment; however, if you do experience interference, please contact the Ofcom Licensing Centre on 0300 123 1000.

### Applying for multiple base stations or operational areas

If you wish to apply for multiple base stations or operational areas under the same licence, you can print off and complete multiple copies of the relevant section. If you do this, please help us by writing the number of the base station/operational area at the top of each page, e.g. 'Base Station 1', 'Operational Area 1' etc.

If each base station or operational area will use different channel details, you will also need to complete a copy of Section E for each base station/operational area. If this is the case, please help us by writing the number of the relevant base station/operational area at the top of each copy of Section E.

### Applying for multiple antennas on the same base station

If you wish to apply for multiple antennas on a base station, you can print off and complete multiple copies of Section B. For example, if you wish to apply for two antennas on the same base station, you should print off two copies of Section B. On the first one, you should provide the full details of the base station including the details of the first antenna. On the second one, you should provide the details of the second antenna by completing questions 9-14 only. If you do this, please help us by writing the number of the base station at the top of each copy of Section B, e.g. 'Base Station 1'.

### Applying for multiple remote control points on the same base station

If you wish to apply for multiple remote control points on a base station, you can print off and complete multiple copies of Section D. For example, if you wish to apply for two remote control points on the same base station, you should print off and complete two copies of Section D. If you do this, please help us by writing the number of the base station at the top of each copy of Section D, e.g. 'Base Station 1'.

The remainder of these guidance notes provide section by section guidance on the information requested within this application form:

### Section A - Customer details

Q1 – Existing customers

If you already hold an Ofcom radio licence, you should write your customer reference number in the box provided. Your customer reference number will be quoted in licence documentation or correspondence that we have previously sent to you

### Section B - Base station details

This section should only be completed if you intend to use a base station. If you only wish to use mobile radios, please skip section B and complete section C instead.

### Q1 - Base station location

The base station location refers to the location of your radio base station antenna. The location can either be recorded using longitude and latitude coordinates or a National Grid Reference (NGR). These can be checked on a map. Alternatively, you may be able to obtain your location coordinates or NGR by entering your station location postcode in certain mapping websites.

### Q2 - Site address

The site address is the full postal address for the base station location.

### Q3 - Site contact name and address

The site contact is the person we would contact in the event that we need access to the base station antenna, e.g. in relation to interference investigations.

### Q4 – Customer Requested Service Area

The requested service area refers to the geographical area you wish to cover with your radio system expressed as a radius distance (in kilometres) from the base station. For base stations, the size of the requested service area is limited to 100km.

### Q5 – Additional services

There are two available additional services: Talkthrough and Trunking.

- Talkthrough facilitates automatic communication between mobiles through a base station. If a base station is set to talkthrough mode, signals received at the base station from mobile stations are immediately re-transmitted to all the other mobile units monitoring the base station's output. If you wish to use this facility, please tick the talkthrough box.
- Trunking is a spectrally efficient method of utilising a number of individual channels in a cohesive system of radio traffic management. In conventional radio systems, each mobile only has access to one radio channel. However, with trunking, the mobiles operating on the system have access to a pool of channels. When a mobile becomes involved in communications, one of the unused channels is dynamically assigned for use. This assignment lasts for the duration of the call. After this time, the channel is returned to the pool for future use by another mobile. If your radio system will use trunking, i.e. if it is a trunked radio system, please tick the trunking box.

### Q6 – Assignment type

The assignment type indicates whether or not a channel is shared with other users in the same geographical area. There are two assignment types: Shared and Exclusive.

- A Shared assignment type means that the channel will be shared with other users in the same geographical area. The vast majority of current business radio systems fall under the Shared assignment type.
- An Exclusive assignment type means that the channel will not be shared with other users in the same geographical area. Exclusive assignments attract higher fees. In addition, due to high demand for business radio frequencies, it may not always be possible to make exclusive frequency assignments in certain areas.

### Q7 – Callsign

In voice systems, callsigns are announced at the beginning of transmissions to enable identification of the user. This is especially useful in areas where frequencies are shared with other users. The callsign must not be more than 12 alphanumeric characters in length and should not be a place name.

### Q8 - Mobile ERP

Mobile ERP refers to the power output of the mobile radio. ERP is the abbreviation for Effective Radiated Power and is measured in watts. Most handheld radios will have a mobile ERP of between 0.1 and 5 watts. Mobile radios mounted in vehicles may have a mobile ERP of up to 25 watts.

### Q10 – Antenna height

The antenna height selected will have an effect on the coverage area for the proposed system. The antenna height is the height of the top of the antenna above ground level measured in metres.

### Q11 – Antenna ERP

Mobile ERP refers to the power output of your antenna. ERP is the abbreviation for Effective Radiated Power and is measured in watts. For indoor antennas, an ERP of 2 watts will usually be sufficient. For radio systems covering a large geographical area, an ERP of between 10 and 25 watts may be required.

### Q12 – Antenna Type

The type of antenna that is used can have an effect on the coverage area of the proposed system. Your radio supplier should be able to advise you on the most suitable type of antenna for your radio system. The four general antenna types that we record are described below:

- Omni-directional antenna. Omni-directional antennas provide a uniform pattern of coverage in all directions and are the most common type of antenna used in business radio systems.
- Directional antenna. Directional antennas radiate greater power in one or more directions allowing for increased performance on transmit and receive and reduced interference from unwanted sources. There are four main types of directional antennas cardioid, elliptical, figure of eight and offset-omni.
- Downfire antenna. Downfire antennas radiate energy downwards and are commonly placed on the roof of a building to provide inbuilding coverage. Use of a downfire antenna can result in a fee discount.
- Radiating cable. A radiating cable (also known as a leaky feeder)
  is a special type of coaxial cable which acts as an antenna and
  which can be used to provide radio coverage inside buildings and
  tunnels, etc. Use of a radiating cable can result in a fee discount

Angle of tilt refers to the angle of the tilt of the antenna (if applicable) above or below the horizontal plane.

Gain refers to the gain of your antenna in dBd, i.e. the difference between the gain of your antenna and the gain of a reference antenna (a half-wave dipole).

If you are unsure of the technical characteristics of your antenna, please contact your equipment supplier.

### Q13 – Directional antennas

This question should only be completed if you have ticked 'Directional antenna' in question 12.

Antenna azimuth refers to the direction in which the antenna will be pointing and is measured in degrees east of true north.

Antenna beamwidth, also known as the half-power beamwidth, is the angle of an antenna pattern or beam over which the relative power is at or above 50% of the peak power.

Antenna front to back ratio is the difference in dB between the level of the maximum radiation in the forward direction and the level of radiation at 180 degrees. This ratio indicates an antenna's ability to reject signals coming from the rear (rear rejection).

If you are unsure about any of these details, please contact your equipment supplier.

### Section C - Operational area details

This section should only be completed if you are not using a base station.

### Q1 – Operational area location

The operational area location refers to the centre of the area within which you use your radios. The location can either be recorded using longitude and latitude coordinates or a National Grid Reference (NGR). These can be checked on a map. Alternatively, you may be able to obtain your location coordinates or NGR by entering the postcode of your operational area location in certain mapping websites.

### Q2 – Site address

The site address is the full postal address for the operational area location.

### Q3 – Site contact name and address

The site contact is the person we would contact in the event that we need access to the site within which you operate your radios, e.g. in relation to interference investigations.

### Q4 – Radius of operational area

This is the distance from the centre of the area in which you use your mobiles to the edge of the area in which you use your mobiles. In many cases, the area in which you operate may not be circular. Therefore, you should ensure that the circle that would be created by using the radius distance you provide would cover the whole area in which you operate. The permitted size of the radius of the operational area is limited to a maximum of 30km.

Q5-7 – Please see the guidance notes for questions 6-8 under Section B (above).

### Section D - Spectrum details

### Q1 – Frequency band

You can choose a first and second choice frequency band. This is optional. However, radio frequency use is very congested in some areas and choosing more than one band will increase your chances of receiving a frequency assignment. Additionally, some radio equipment can be tuned over more than one frequency band. Your radio supplier should be able to advise you on the frequency bands that your radio equipment can use.

Please note for Band III there will be changes as a result of the RRC-06 Treaty that may affect the longer term availability of some channels. The latest information on Band III is available in the Business Radio section of the Ofcom website.

Please also note that assignments in UHF1 are subject to coordination with other users of the band. Also, duplex channels are only available in the following major conurbations: London, Warrington, Birmingham, Glasgow, Aberdeen, Bradford, Derby, Edinburgh, Halifax, Leeds, Leicester, Middlesbrough, Nottingham, Preston, Sheffield, Tyneside, Swansea, Cardiff, Newport, Bristol, Coventry.

### Q3 – Channel bandwidth

Channel bandwidth refers to the width of the radio frequency measured in kilohertz (kHz). Most business radio equipment uses 12.5 kHz frequencies. However, TETRA systems and some paging systems use 25 kHz. Some newer equipment may use 6.25 kHz. If you intend to use a 2 x 12.5 kHz dual frequency channel, you should tick 12.5 kHz.

### Q4 - Signalling codes

CTCSS is an abbreviation for 'Continuous Tone Controlled Squelch System'. DCS is an abbreviation for 'Digitally Coded Squelch'. These tones/codes are used to reduce the annoyance of listening to other users on a shared two-way radiocommunications channel. Where more than one user group is on the same channel, CTCSS/DCS filters out other users if they are using a different CTCSS tone/DCS code or no CTCSS/DCS. DMR (Digital Mobile Radio) access codes refer to the codes used by DMR systems to manage different user groups using the same radio channel in the same geographical area.

### Q5 – Minimum channel separation

Some trunked radio systems require a minimum frequency separation between each channel that they employ. This minimum frequency separation is measured in kilohertz. For example, if your trunked radio system requires a minimum frequency separation of 8 x 12.5 kHz channels, you should enter 100 in the box provided.

### Q6 – Preferred frequencies

Please note, it will not always be possible to provide you with your preferred frequencies or signalling codes.

### Q7 - IR2008

Some business radio data systems use IR2008 technology. IR2008 is a channel access method for shared radio networks which allows several users to share the same frequency channel by dividing the signal into different time slots. The users transmit in rapid succession, one after the other, each using their own time slot. An IR2008 channel consists of two frequencies — a base station transmit frequency and a mobile station transmit frequency. There are 8 timeslots on each of the base and mobile transmit frequencies.

### Section E - Remote Control Points (RCP)

This section need only be completed if you intend to use a remote control point in addition to your base station. This section should only be completed for RCPs using Reverse Frequency Working as the control method. RCPs using other control methods, e.g. landline, do not need to be captured. A Remote Control Point is an auxilliary base station used to control the main base station from a separate

location. RCPs must use directional antennas pointing at the main base station. In the case of a RCP using reverse frequency working, the main base station is set to talkthrough mode. The RCP transmits on the mobile transmit frequency and this signal is picked up by the main base station and automatically re-transmitted on the base station transmit frequency to other mobile radios.