



Amateur Radio Licence (B)

Date of issue

Fee on issue

Renewable in each year

Fee on renewal

Call Sign

1. (1) Licence of

(hereinafter called "the Licensee") is hereby licensed, subject to the terms, provisions and limitations herein contained:

(a) to establish in the United Kingdom an amateur sending and receiving station for wireless telegraphy (hereinafter called "the Station");

(i)

(hereinafter called "the main address") or

(ii) At any premises (hereinafter called "the temporary premises") or any location (hereinafter called "the temporary location") for separate periods none of which shall exceed four consecutive weeks; or

(iii) At any premises (hereinafter called "the alternative premises") provided that at least 7 days before the Station is established at the alternative premises notice in writing of the postal address of the alternative premises is given to the Manager of the Radio Investigation Service District in which the alternative premises are situate or, in the case of the Channel Islands to the Controller of the Telecommunications Board of the appropriate Bailiwick. The said General Manager or Controller shall also be notified in writing when the Station is no longer established at the alternative premises; or

(iv) in any vehicle or vessel but not on the sea or within any estuary, dock or harbour;

(v) as a pedestrian.

(b) to use the Station for the purpose of sending to, and receiving from, other licensed amateur stations as part of the self-training of the Licensee in communication by wireless telegraphy;

(i) Messages in plain language which are remarks about matters of a personal nature in which the Licensee, or the person with whom he is in communication, has been directly concerned;

(ii) Facsimile Signals;

(iii) Radio Teleprinter Signals;

(iv) Visual Images;

(v) Signals (not being in secret code or cypher) which form part of, or relate to, the transmission of such messages, signals or images.

(c) to use the Station, as part of the self training of the Licensee in communication by wireless telegraphy, during disaster relief operations conducted by the British Red Cross Society, the St. John Ambulance Brigade, the County Emergency Planning Officer, or any police force in the United Kingdom ("The user services"), or during any exercise relating to such disaster relief operations, or any other operation conducted by the said user services (provided that such other operations shall not exceed 4 in any one calendar month and not more than 12 in any one calendar year) for the purpose of sending to other licensed amateur stations such messages as the Licensee may be requested by the user service concerned to send and of receiving from any other licensed amateur station such messages as the person licensed to use such other licensed amateur station may be requested by the user service concerned to send.

(d) to use the Station for the purpose of receiving transmissions in the Standard Frequency Service.

(2) Limitations. The foregoing Licence to establish and use the Station is subject to the following limitations:

(a) The Station shall not be established or used in an aircraft or a public transport vehicle.

(b) The Station shall be used only with emissions which are of the classes specified in the Schedule hereto and are within the frequency bands specified in the Schedule hereto in relation to those respective classes of emission, and with a power not exceeding that specified in the Schedule hereto in relation to the class of emission and frequency band in use at the time.

(c) The Station shall be operated only

(i) by the Licensee personally; or

(ii) in the presence of and under the direct supervision of the Licensee, by any other person who holds a current wireless telegraphy licence issued by the Secretary of State to use another amateur station or who holds an Amateur Radio Certificate issued by the Secretary of State; or

(iii) exceptionally, during any disaster relief operation referred to in clause 1(1)(c) and in the presence of and under the direct supervision of the Licensee, by a representative nominated by the user service conducting the said operation.

(d) Messages other than initial calls shall not be broadcast to amateur stations in general, but shall be sent only to (i) amateur stations with which communication is established separately and singly, or (ii) groups of particular amateur stations provided that communication is first established separately and singly with each station in any such group.

(e) No message which is grossly offensive or of an indecent or obscene character shall be sent.

2. **International Requirement.** The Licensee shall observe and comply with the relevant provisions of the Telecommunication Convention.

3. **Frequency Control and Measurement.**

(1) A satisfactory method of frequency stabilisation shall be employed in the sending apparatus comprised in the Station.

(2) Equipment shall be provided capable of verifying that the sending apparatus comprised in the Station is operating with emissions within the authorised frequency bands.

4. **Non-Interference.**

(1) The apparatus comprised in the Station shall be so designed, constructed, maintained and used that the use of the Station does not cause any undue interference with any wireless telegraphy.

(2) At all times, every precaution shall be taken to avoid over-modulation, and to keep the radiated energy within the narrowest possible frequency bands having regard to the class of emission in use. In particular, the radiation of harmonics and other spurious emissions shall be suppressed to such a level that they cause no undue interference with any wireless telegraphy. To ensure that the requirements of this subclause are met, tests shall be made from time to time and details of those tests shall be recorded in the Log as required in clause 6 hereof.

5. **Operators and access to Apparatus.** The Licensee shall not permit or suffer any unauthorised person to operate the Station or to have access to the apparatus comprised therein. The Licensee shall ensure that persons operating the Station shall observe the terms, provisions and limitations of this Licence at all times.

6. **Log.**

(1) An indelible record shall be kept in one book (not loose-leaf) (in this Licence called "the Log") showing the following:

(Fixed Station)

(a) Date;

(b) Time of commencement of period of operation of the Station;

(c) Call signs of the stations from which messages addressed to the Station are received or to which messages are sent, times of establishing and ending communication with each such station, frequency band(s) and class or classes of emission in each case (including the tests referred to in clause 4(2) above; and CQ calls);

(d) Time of closing down the Station;

(e) The address of the temporary premises or the alternative premises or particulars of the temporary location when the Station is established other than as provided in clause 1(1)(a)(i) hereof;

(f) No gaps shall be left between entries and all entries shall be made at the time of sending and receiving.

(Mobile Station or as a Pedestrian)

(g) Entries made in respect of calls made when operating from a vehicle or vessel, or as a pedestrian should be made as soon as practicable after the end of a journey and must consist of date, geographical area of operation, frequency band(s) used and time of commencement and end of journey. A separate log book may be maintained for mobile or pedestrian use.

(2) If the Station is at any time operated by a person other than the Licensee (see clause 1(2)(c)(ii) hereof) the Licensee shall ensure that the Log is signed by that person with his full name, and that the call sign of the station which he is licensed to use, or (if there is no such station) the number of his Amateur Radio Certificate, is shown in the log.

(3) All times shall be stated in GMT.

7. **Receiver.** The Station shall be equipped for the reception of messages sent on the frequency or frequencies, and by means of the class or classes of emission, which are in current use at the Station for the purpose of sending.

8. **Recorded messages.**

(1) Messages addressed to the Station from any licensed amateur station with which the Licensee is in communication may be recorded and retransmitted in accordance with this Licence, provided that the retransmission is intended for reception by the originating station only, and that the call sign of that station is not included in the retransmission.

(2) Modulation is prohibited by means of recordings of any kind other than special recordings of sinusoidal tone or tones within the audio frequency spectrum which may be either constant or steadily changing in frequency.

(3) Gramophone or tape recordings of the type intended for entertainment purposes may not be transmitted for any purpose.

9. Call Sign and notification of location.

(1) Whenever the Station is used the call sign mentioned on the first page of this Licence shall be transmitted, provided that when the Station is used:

(a) at an address other than the main address the Licensee shall, in order to indicate the country or place of use, vary the prefix letter(s) to the call sign by using the prefix letter(s) appropriate to that country or place, being G for England, GM for Scotland, GW for Wales, GI for Northern Ireland, GJ for Jersey, GU for Guernsey and GD for the Isle of Man;

(b) at the temporary premises the suffix "/A" shall be added to the call sign;

(c) at the temporary location or as a pedestrian the suffix "/P" shall be added to the call sign;

(d) in or on a vehicle or vessel the suffix "/M" shall be added to the call sign.

(2) The call sign shall be sent for identification purposes at the beginning and at the end of each period of sending, and whenever the frequency is changed. When the period of use exceeds 15 minutes the call sign shall be repeated (in the same manner) at the commencement of each succeeding period of 15 minutes.

(3) The letters of the call sign may be confirmed by the pronouncement of well-known words of which the initial letters are the same as those in the call sign; but words used in this manner shall not be of a facetious or objectionable character.

(4) When the Station is used at the temporary premises or location, the address of the temporary premises or location shall be sent at the beginning and end of the establishment of communication with each separate amateur station, or at intervals of 15 minutes, whichever is the more frequent.

(5) When sending high definition television signals, the call sign sent for identification purposes must be adjusted to the centre of the video channel.

10. Inspection. The Station, this Licence and the Log shall be available for inspection at all reasonable times by a person acting under the authority of the Secretary of State.

11. Station to close down. The Station shall be closed down at any time on the demand of a person acting under the authority of the Secretary of State.

12. Period of Licence, Renewal, Revocation and Variation. This Licence shall continue in force for one year from the date of issue, and thereafter so long as the Licensee pays to the Secretary of State in advance in each year on or before the anniversary of the date of issue the renewal fee prescribed by or under the regulations for the time being in force under section 2(1) of the Wireless Telegraphy Act, 1949; provided that the Secretary of State may at any time after the date of issue (i) revoke this Licence or vary the terms, provisions or limitations thereof by a notice in writing served on the Licensee, or by a general notice published in the London, Edinburgh and Belfast Gazettes, or in a newspaper published in London, a newspaper published in Edinburgh and a newspaper published in Belfast addressed to all holders of Amateur Radio Licence (B), (ii) revoke this Licence by a general notice published by being broadcast by the British Broadcasting Corporation addressed to all holders of Amateur Radio Licence (B). Any notice given under this clause may take effect either forthwith or on such subsequent date as may be specified in the notice.

13. This Licence is not transferable.

14. Return of Licence. This Licence shall be returned to the Secretary of State when it has expired or been revoked.

15. Previous Licences Revoked. Any licence, however described, which the Secretary of State has previously granted to the Licensee in respect of the Station is hereby revoked.

16. Interpretation.

(1) In this Licence:-

(a) The expressions —

(i) "the Secretary of State" shall mean the Secretary of State for Trade and Industry;

(ii) "messages" and "signals" shall include visual images sent by television and facsimile transmission;

(iii) "remarks about matters of a personal nature" shall not include messages about business affairs;

(iv) "Standard Frequency Service" shall have the same meaning as in the Radio Regulations and Additional Radio Regulations in force under the International Telecommunication Convention signed at Malaga-Torremolinos on the 25th day of October 1973 where it is defined as "A radiocommunication service for scientific, technical and other purposes, providing the transmission of specific frequencies of stated high precision, intended for general reception";

(v) "the Telecommunication Convention" shall mean the International Telecommunication Convention signed at Malaga — Torremolinos on the 25th day of October 1973, and the Radio Regulations and Additional Radio Regulations in force thereunder and includes any Convention and Regulations which may from time to time be in force in substitution for or in amendment of the said Convention or the said Regulations;

(vi) "the United Kingdom" shall mean the United Kingdom of Great Britain and Northern Ireland, the Isle of Man and the Channel Islands.

(b) References to the operation of the Station shall include references to the speaking into the microphone comprised in the Station;

(c) References to a certificate issued or granted by the Secretary of State shall include references to a certificate issued or granted by the Secretary of State for the Home Department, the Postmaster General or Minister of Posts and Telecommunications.

(d) Except where the context otherwise requires other words and expressions shall have the same meaning as they have in the Wireless Telegraphy Act, 1949 or in the Regulations made under Part 1 thereof.

(2) Section 19(5) of the Wireless Telegraphy Act, 1949, shall apply for the purposes of this Licence as it applies for the purpose of the Act.

(3) Nothing in this Licence shall be deemed to authorise the use of the Station for business, advertisement or propaganda purposes or (except as provided by clause 1(1)(c) hereof) for the sending or receiving of news or messages of or on behalf of, or for the benefit or information of any social, political, religious or commercial organisation, or anyone other than the Licensee or the person with whom he is in communication.

THE SCHEDULE

Frequency bands in MHz	Status of allocations in the UK to: The Amateur Service	The Amateur Satellite Service	Maximum power Carrier PEP	Permitted types of transmission
1.810-1.850	Available to amateurs on a basis of non interference to other services.	No allocation.	9dBW 15dBW	Morse Telephony RTTY Data Facsimile SSTV
1.850-2.000				Morse Telephony Data Facsimile SSTV
3.500-3.800	Primary. Shared with other Primary services.	No allocation.	20dBW 26dBW	Morse Telephony RTTY Data Facsimile SSTV
7.000-7.100	Primary.	Primary.		
10.100-10.150	Secondary.	No allocation.		
14.000-14.250	Primary.	Primary.		
14.250-14.350		No allocation.		
18.068-18.168	Available to amateurs on a basis of non interference to other services. Antennas limited to horizontal polarisation, maximum gain 0dB with respect to a half-wave dipole.	No allocation.	10dBW —	Morse, A1A only
21.000-21.450	Primary.	Primary.	20dBW 26dBW	Morse Telephony RTTY Data Facsimile SSTV
24.890-24.990	Available to amateurs on a basis of non interference to other services. Antennas limited to horizontal polarisation, maximum gain 0dB with respect to a half-wave dipole.	No allocation.	10dBW —	Morse, A1A only
28.000-29.700	Primary.	Primary.	20dBW 26dBW	Morse Telephony RTTY Data Facsimile SSTV
70.025-70.500	Secondary basis until further notice. Subject to not causing interference to other services. Use of any frequency shall cease immediately on demand of a government official.	No allocation.	16dBW 22dBW	
144.0-146.0 *	Primary.	Primary.	20dBW 26dBW	Morse Telephony RTTY Data Facsimile SSTV Television
430.0-431.0	Secondary. This band is not available for use within the area bounded by: 53 N 02 E, 55 N 02 E, 53 N 03 W, and 55 N 03 W.	No allocation.	10dBW 16dBW e.r.p. e.s.p.	
431.0-432.0	Secondary. This band is not available for use: a) Within the area bounded by: 53 N 02 E, 55 N 02 E, 53 N 03 W, and 55 N 03 W. b) Within a 100km radius of Charing Cross, 51 30'30"N 00 07'24"W.			
432.0-435.0	Secondary.	No allocation.	20dBW 26dBW	
435.0-438.0		Secondary.		
438.0-440.0		No allocation.		

Frequency bands in MHz	Status of allocations in the UK to: The Amateur Service	The Amateur Satellite Service	Maximum power Carrier PEP	Permitted types of transmission
1240-1260	Secondary.	No allocation.	20dBW 26dBW	Morse Telephony RTTY Data Facsimile SSTV Television
1260-1270		Secondary. Earth to Space only.		
1270-1325		No allocation.		
2310-2400		No allocation.		
2400-2450	Secondary. Users must accept interference from the ISM allocations in this band.	Secondary. Users must accept interference from the ISM allocations in this band.		
3400-3475	Secondary.	No allocation.		
5650-5670		Secondary. Earth to Space only.		
5670-5680		No allocation.		
5755-5765	Secondary. Users must accept interference from the ISM allocations in this band.	No allocation.		
5820-5830		Secondary. Users must accept interference from the ISM allocations in this band. Space to Earth only.		
5830-5850	Secondary. Users must accept interference from the ISM allocations in this band.	Secondary. Users must accept interference from the ISM allocations in this band. Space to Earth only.		
10000-10450	Secondary.	No allocation.		
10450-10500		Secondary.		
24000-24050	Primary. Users must accept interference from the ISM allocations in this band.	Primary. Users must accept interference from the ISM allocations in this band.		
24050-24250	Secondary. This band may only be used with the written consent of the Secretary of State. Users must accept interference from the ISM allocations in this band.	No allocation.		
47000-47200	Primary.	Primary.		
75500-76000				
142000-144000				
248000-250000				

(*See Footnote A overleaf.)

For the sake of convenience, this schedule appears in an identical format in both the Class A and Class B licences.

FOOTNOTES

A. Except in accordance with clause 1 (2) (c) (ii) holders of the Amateur Radio Licence (B) are not permitted to use frequencies below 144 MHz, nor may they use the type of transmission known as morse (whether sent manually or automatically).

B. Definition of types of transmission and classes of emission permitted:

Under the ITU classification (see section I) emissions are designated by groups of three characters. The types of transmissions defined here are grouped according to the third character, that is the type of information being used.

1. **Morse:** Morse telegraphy intended for aural reception using any classes of emission ending in A, i.e. **A.

Telephony: Telephony using any classes of emission ending in E, i.e. **E.

Television: Television using any classes of emission ending in F, i.e. **F.

This may only be used where indicated on bands above 430 MHz and the station's callsign must be sent periodically using either morse telegraphy or telephony on the centre frequency of the video channel, as required by this licence.

2. When using any of the following types of transmission the station's callsign must be sent periodically on the same frequency using either morse telegraphy or telephony.

Radio Teleprinter (RTTY): Automatic telegraphy using any classes of emission ending in B, i.e. **B.

This includes teleprinters using any CCITT recognised codes, and morse telegraphy intended for automatic reception.

Data: Data using any classes of emission ending in D, i.e. **D. The Radio Regulations require that transmissions between amateur stations in different countries shall be in plain language. Transmissions between UK amateur stations and those in different countries shall be restricted to using CCITT recognised codes (in plain language); this requirement also applies to transmissions between UK amateur stations in all bands allocated to the Amateur Service on a secondary basis.

Facsimile: Facsimile using any classes of emission ending in C, i.e. **C.

Slow Scan Television (SSTV): Television operating in a reduced bandwidth using any classes of emission ending in F, i.e. **F.

Simultaneous use of combinations of any of the preceding types of transmission, e.g. Telephony and Data, are described as classes of emission ending in W, i.e. **W.

NB: The symbol "*" when used in emission designators represents any appropriate symbol as defined in section I.

C. Maximum power levels refer to the rf power supplied to the antenna. These levels will be specified by carrier power. For emissions having a suppressed, variable or reduced carrier, the power shall be determined by the peak envelope power (p.e.p.) under linear conditions.

For pulse emissions (P**) the mean power shall not exceed the carrier power, and the peak power shall not exceed the p.e.p. specified on that band.

D. For frequency bands above 1 GHz, since high intensities of rf radiation may be harmful, the following safety precaution must be taken: in locations to which people have access, the power flux density on transmit must not exceed the limits recommended by the competent authorities. (Currently, this limit is 10mW per square centimetre.)

E. The bands allocated to the amateur service at 3.5, 7.0, 10.1, 14.0, 18.068, 21.0, 24.890 and 144 MHz may, in the event of a natural disaster, be used by non-amateur stations to meet the needs of international disaster communications in the disaster area in accordance with the Radio Regulations.

F. The bandwidths of emissions shall be such as to ensure the most efficient utilisation of the spectrum; in general this requires that bandwidths be kept at the lowest values which technology and the nature of the service permit.

Where bandwidth-expansion techniques are used, the minimum spectral power density consistent with efficient spectrum utilisation shall be employed.

However, whatever class of emission is in use, the bandwidth occupied by the intended emission shall be such that not more than 1% of the mean power of the transmission shall fall outside of the authorised bands. This 1% does not include the power contained in harmonic and spurious emissions.

G. The class of emissions, type P**, may only be used on bands above 1 GHz.

H. **Primary, permitted and secondary services:** For the purpose of this licence, bands are allocated to the Amateur Service and the Amateur Satellite Service on a primary basis on the understanding that they cannot claim protection from harmful interference from any other authorised services. This applies equally to bands allocated on a secondary basis where stations of the Amateur Service and the Amateur Satellite Service are also required not to cause harmful interference to stations of a primary or permitted service to which frequencies are already assigned or to which frequencies may be assigned at a later date.

I. Designation of emissions:

The symbols used to designate the classes of emission have the meaning assigned to them in the Radio Regulations, International Telecommunication Union (Geneva 1982).

The classification is specified by three symbols. The first denotes the type of modulation of the main carrier, the second the nature of the modulating signal(s), and the third the nature of the information to be transmitted.

FIRST SYMBOL

Type of modulation of main carrier

1. Emission of unmodulated carrier;
2. Emission in which the main carrier is amplitude modulated, including cases where sub-carriers are angle modulated.

Double sideband:
 Single sideband, full carrier:
 Single sideband, reduced or variable carrier:
 Single sideband, suppressed carrier:
 Independent sideband:
 Vestigial sideband:

3. Emission in which the main carrier is angle modulated.

Frequency modulation:
 Phase modulation:

4. Emission in which the main carrier is amplitude or angle modulated either simultaneously or in a pre-arranged sequence:

5. Emission of pulses.

Unmodulated sequence of pulses:

A sequence of pulses

- (a) modulated in amplitude:
- (b) modulated in width/duration:
- (c) modulated in position/phase:
- (d) in which the carrier is angle modulated during the period of the pulse:
- (e) which is a combination of the foregoing or is produced by other means:

6. Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following types of transmission — amplitude, angle, pulse:

7. Cases not otherwise covered:

Note: Emissions where the main carrier is directly modulated by a signal which has been coded into quantized form (e.g. pulse code modulation) should be designated under 2 or 3.

SECOND SYMBOL

Nature of signal(s) modulating main carrier

1. No modulating signal:
2. A single channel containing quantized or digital information without the use of a modulating subcarrier (excluding time-division multiplex):
3. A single channel containing quantized or digital information with the use of a modulating subcarrier (excluding time-division multiplex):
4. A single channel containing analogue information:
5. Two or more channels containing quantized or digital information:
6. Two or more channels containing analogue information:
7. Composite system with one or more channels containing quantized or digital information, together with one or more channels containing analogue information:
8. Cases not otherwise covered:

A
H
R
J
B
C

F
G

D

P

K
L
M
Q
V

W

X

THIRD SYMBOL

Type of information to be transmitted

1. No information transmitted: N
2. Telegraphy — for aural reception: A
3. Telegraphy — for automatic reception: B
4. Facsimile: C
5. Data transmission, telemetry, telecommand: D
6. Telephony (including sound broadcasting): E
7. Television (video): F
8. Combination of the above: W
9. Cases not otherwise covered: X

Notes:

a) In this context the word "information" does not include information of a constant, unvarying nature such as provided by standard frequency emissions, continuous wave and pulse radars etc.

b) For the purposes of this licence, modulation used only for short periods and for incidental purposes, such as identification or calling, may be ignored when calculating the emission designator.

c) For the purposes of this licence, Double Sideband emissions with reduced or suppressed carrier are included in the designation A**.

J. Interpretation:

Gain of an Antenna: The ratio, usually expressed in decibels, of the power required at the input of a loss free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. The gain may be considered for a specified polarisation. The reference antenna is usually either an isotropic antenna or a half-wave dipole. The gains may be referred to as decibels relative to an isotropic antenna (dBi) or as decibels relative to a half-wave dipole (dBd).

Equivalent Isotropically Radiated Power (e.i.r.p.): The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (e.r.p.) (in a given direction): The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

By convention, e.r.p. is used below 1GHz, and e.i.r.p. above 1GHz; e.i.r.p. is 2.1dB greater than e.r.p.

Mean Power (of a radio transmitter): The average power supplied to the antenna by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

Carrier Power (of a radio transmitter): The average power supplied to the antenna by a transmitter during one radio frequency cycle taken under the condition of no modulation.

Peak Envelope Power (p.e.p.) (of a radio transmitter): The average power supplied to the antenna by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.

Telegraphy: A form of telecommunication which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form.

For the purposes of the Radio Regulations, unless otherwise specified therein, telegraphy shall mean a form of telecommunication for the transmission of written matter by the use of a signal code.

Telephony: A form of telecommunication primarily intended for the exchange of information in the form of speech.

Television: A form of telecommunication for the transmission of transient images of fixed or moving objects.

Facsimile: A form of telegraphy for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form.

These licence conditions represent the situation in the UK. Frequency allocations may differ from the international allocations given in Article 8 of the Radio Regulations.

BACKGROUND NOTES

(a) The Secretary of State should be notified promptly of any change in the correspondence address of the Licensee. Remittances and correspondence should be sent to the Radio Amateur Licensing Unit, Post Office Headquarters, Chetwynd House, Chesterfield S49 1PF. It is unnecessary to send the licence when making remittances.

(b) Clause 4(1) of the Licence requires that the apparatus comprised in the Station shall be so designed, constructed, maintained and used that the use of the Station does not cause any undue interference with any wireless telegraphy. In order to prevent interference due to close coupling of antennas, the antenna to be used for the Station should be sited as far as possible from any existing television or other receiving antennas in the vicinity. This is particularly important if it is proposed to install an indoor transmitting antenna, e.g. in the loft, where interference may be conducted through the electricity supply wiring. In some circumstances it might not be possible to use an indoor antenna.

(c) If the Station is situated within 0.80 km of the boundary of any aerodrome, the height of the antenna or any mast supporting it must not exceed 15.24m above the ground level. An antenna which crosses above or is liable to fall or to be blown on to any overhead power wire (including electric lighting) or power apparatus must be guarded to the reasonable satisfaction of the owner of the power wire or power apparatus concerned.

(d) Demands for closing down (see clause 11) can be expected to be received in connection with national emergencies or when interference is being caused to a Government wireless station or other important services. An oral demand by a person acting under the authority of the Secretary of State to close down the Station will be confirmed in writing.

(e) Under Section 1 of the Wireless Telegraphy Act, 1949, it is an offence to use any station or apparatus for wireless telegraphy except under and in accordance with a licence granted by the Secretary of State. Breach of this provision may result in this Licence being revoked and the offender being prosecuted.

(f) If any message, the receipt of which is not authorised by this Licence, is received by means of the Station, neither the Licensee nor any person operating the Station should make known the contents of any such message, its origin or destination, its existence or the fact of its receipt to any person except a duly authorised officer of Her Majesty's Government, a person acting under the authority of the Secretary of State, or a competent legal tribunal, and should not retain any copy or make any use of any such message, or allow it to be reproduced in writing, copied or made use of. It is an offence under Section 5 of the Wireless Telegraphy Act, 1949, deliberately to receive messages the receipt of which is unauthorised or (except in the special circumstances mentioned in that section of the Act) to disclose any information as to the contents, sender or addressee of any such message.

(g) It is an offence under Section 5 of the Wireless Telegraphy Act, 1949, to send by wireless telegraphy certain misleading messages.

(h) This Licence does not authorise the Licensee to do any act which is an infringement of any copyright which may exist in the matter sent or received.

(i) This Licence does not absolve the Licensee from obtaining any necessary consent before entering on private or public property with any apparatus.

(j) The Secretary of State regards himself as free to publish the Licensee's name and address at his discretion unless within one month of the date of issue of this Licence the Licensee specifically asks that this should not be done.

(k) The expression "wireless telegraphy" used in this Licence has the meaning assigned to it in the Wireless Telegraphy Act, 1949, and includes radiotelephony.

(l) With reference to clause 9(3) of the Licence it is recommended that for uniformity the phonetic alphabet contained in Appendix 24 of the Radio Regulations, Geneva, 1982, reproduced below should be used when the letters of the call sign are transmitted phonetically.

A.	Alpha	J.	Juliett	S.	Sierra
B.	Bravo	K.	Kilo	T.	Tango
C.	Charlie	L.	Lima	U.	Uniform
D.	Delta	M.	Mike	V.	Victor
E.	Echo	N.	November	W.	Whiskey
F.	Foxtrot	O.	Oscar	X.	X-Ray
G.	Golf	P.	Papa	Y.	Yankee
H.	Hotel	Q.	Quebec	Z.	Zulu
I.	India	R.	Romeo		

FREQUENCY — CHECKING EQUIPMENT IN AMATEUR STATIONS

Many enquiries are received seeking advice on suitable apparatus for frequency measurement for use in amateur stations. Particular makes and types of equipment cannot be endorsed or recommended, but the following notes should act as a guide to the necessary requirements.

1. A licensee must:-

- (a) be able to verify that his transmissions are within the authorized frequency band, (i.e. that no appreciable energy is radiated outside the band).
- (b) use a satisfactory method of frequency control.
- (c) ensure that his transmissions do not contain unwanted frequencies (i.e. harmonics and spurious frequencies).

2. When his station is inspected by officers authorised by the Secretary of State, the licensee will be expected to demonstrate that he can conform with the requirements (a) and (c) above.

3. As a general rule, a station requires a crystal reference source to comply with 1(a) and (b) above so that:-

- (a) with a crystal-controlled transmitter an absorption device of suitable frequency range and accuracy is necessary to check that the desired harmonic of the crystal frequency is selected.
- (b) with a transmitter that is not crystal-controlled a wavemeter based on a crystal oscillator is necessary.

Within these outline requirements the licensee is free to decide how he will meet the licence regulations.

4. The following comments may provide useful guidance:

(a) **Frequency measuring equipment** should be of sufficient accuracy to verify that emissions are within the authorised frequency bands. For example, operation in the centre of the 21.0 — 21.45 MHz band would require frequency measurement to an accuracy of $\pm 1.0\%$ to ensure that emissions were within band, whereas operation within, say, 10 kHz of band edge would require measurement to an accuracy of $\pm 0.05\%$. When determining the proximity of an emission to band-edge, the band-spread due to modulation, on the appropriate side of the carrier, needs to be added to the frequency tolerance of the carrier.

(b) **Heterodyne wavemeters and crystal calibrators.** When used in conjunction with a general coverage receiver, a 100 kHz crystal is usually adequate for checking frequencies up to 4 MHz. For higher frequencies the spacing between 100 kHz marker points is too small for accuracy, and a crystal of 500 kHz, or preferably 1 MHz should be used in addition. If the receiver covers only the Amateur frequency bands the bandspread scale will usually allow a 100 kHz crystal to be used with sufficient accuracy throughout the h.f. bands.

(c) **Absorption wavemeters and similar devices.** The scale length and accuracy should be suitable for measurements of the required accuracy to be made, and the frequency coverage must extend up to the second, and preferably the third, harmonic of the radiated frequency so that the presence of unwanted frequencies may be detected. For v.h.f. and u.h.f. transmitters, probably the best technique is to measure the frequency of the fundamental oscillator as accurately as possible and to use an absorption device to confirm that the wanted harmonic has been selected. When a v.h.f. or u.h.f. converter is used in conjunction with an h.f. receiver and the calibration of the main receiver can be checked with sufficient accuracy, this will provide a means of frequency measurement but it is also advisable to use an absorption wavemeter to check the measurement and to confirm that no unwanted radiations are present.