



Radio Society of Great Britain

Advancing amateur radio since 1913



Reference Data for use in the Foundation Level Examination

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Queries:

Invigilators are not permitted to explain or comment on questions but you may draw their attention to any question you believe is wrong. Please do that before you submit your answers to allow the question number to be noted.

You may also comment on any aspect of the examination, either to the invigilators or to the RSGB Examinations Office exams@rsgb.org.uk. All comments should be received within 5 days of the examination.

All comments are dealt with in strict confidence.

Foundation Licence Parameters

Frequency Bands (in MHz)	Status of allocations in UK to the Amateur Service	Status of allocations in UK to the Amateur Satellite Service	Maximum Peak Envelope Power level in Watts (and dB relative to 1 Watt)
0.1357-0.1378	Secondary. Available on the basis of non-interference to other services inside or outside the UK.	Not allocated	1W (0 dBW) e.r.p.
1.810-1.830	Primary. Available on the basis of non-interference to other services outside the UK.	Not allocated	10W (10 dBW)
1.830-1.850	Primary	Not allocated	10W (10 dBW)
1.850-2.000	Secondary. Available on the basis of non-interference to other services inside or outside the UK.	Not allocated	10W (10 dBW)
3.500-3.800	Primary. Shared with other services	Not allocated	10W (10 dBW)
7.000-7.100	Primary	Primary	10W (10 dBW)
7.100-7.200	Primary	Not allocated	10W (10 dBW)
10.100-10.150	Secondary	Not allocated	10W (10 dBW)
14.000-14.250	Primary	Primary	10W (10 dBW)
14.250-14.350	Primary	Not allocated	10W (10 dBW)
18.068-18.168	Primary	Primary	10W (10 dBW)
21.000-21.450	Primary	Primary	10W (10 dBW)
24.890-24.990	Primary	Primary	10W (10 dBW)
28.000-29.700	Primary	Primary	10W (10 dBW)
50.00-51.00	Primary. Available on the basis of non-interference to other services outside the UK	Not allocated	10W (10 dBW)
51.00-52.00	Secondary. Available on the basis of non-interference to other services inside or outside the UK	Not allocated	10W (10 dBW)
70.00-70.50	Secondary. Available on the basis of non-interference to other services inside or outside the UK	Not allocated	10W (10 dBW)
144.0-146.0	Primary	Primary	10W (10 dBW)
430.0-431.0	Secondary	Not allocated	10W (10 dBW) e.r.p.
431.0-432.0	Secondary. Not available for use within 100km radius of Charing Cross, London (51°30'30"N, 00°07'24"W)	Not allocated	10W (10 dBW) e.r.p.
432.0-435.0	Secondary	Not allocated	10W (10 dBW)
435.0-438.0	Secondary	Secondary	10W (10 dBW)
438.0-440.0	Secondary	Not allocated	10W (10 dBW)
10000-10125	Secondary	Not allocated	1W (0 dBW)
10225-10450	Secondary	Not allocated	1W (0 dBW)
10450-10475	Secondary	Secondary	1W (0 dBW)
10475-10500	Not allocated	Secondary	1W (0 dBW)

Notes to the bandplans

Necessary bandwidth: For a given class of emission, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

All Modes: CW, SSB and those modes listed as Centres of Activity, plus AM. Consideration should be given to adjacent channel users.

Image Modes: Any analogue or digital image modes within the appropriate bandwidth, for example SSTV and FAX.

Narrowband Modes: All modes using up to 500Hz bandwidth, including CW, RTTY, PSK, etc.

Digimodes: Any digital mode used within the appropriate bandwidth, for example RTTY, PSK, MT63, etc.

Sideband usage: Below 10MHz use lower sideband (LSB), above 10MHz use upper sideband (USB). Note the lowest dial settings for LSB Voice modes are 1843, 3603 and 7043kHz on 160, 80 and 40m. Note that on (5MHz) USB is used.

Amplitude Modulation (AM): AM with a bandwidth greater than 2.7kHz is acceptable in the All Modes segments provided users consider adjacent channel activity when selecting operating frequencies (Davos 2005).

Extended SSB (eSSB): Extended SSB (eSSB) is only acceptable in the All Modes segments provided users consider adjacent channel activity when selecting operating frequencies.

Digital Voice (DV): Users of Digital Voice (DV) should check that the channel is not in use by other modes (CT08_C5_Rec20).

FM Repeater & Gateway Access: CTCSS Access is recommended. Toneburst access is being withdrawn in line with IARU-R1 recommendations.

MGM: Machine Generated Modes indicates those transmission modes relying fully on computer processing such as RTTY, AMTOR, PSK31, JTxx, FSK441 and the like. This does not include Digital Voice (DV) or Digital Data (DD).

WSPR: Above 30MHz, WSPR frequencies in the band plan are the centre of the transmitted frequency (not the suppressed carrier frequency or the VFO dial setting).



Radio Society of Great Britain

Foundation Licence Amateur Radio Band Plans

For Examination use only

144MHz (2m)	NECESSARY BANDWIDTH	UK USAGE
144.000-144.025MHz 144.025-144.100	2700Hz 500Hz	All Modes – including Satellite Downlinks Telegraphy (including EME CW) 144.050MHz – Telegraphy Centre of Activity 144.100MHz – Random MS Telegraphy Calling, (Note 1)
144.110-144.150	500Hz	Telegraphy and MGM EME MGM Activity (Note 7)
144.150-144.400	2700Hz	Telegraphy, MGM and SSB 144.175MHz – Microwave Talk-back 144.200MHz – Random MS SSB 144.250MHz – GB2RS News Broadcast and Slow Morse 144.260MHz – See Note 10 144.300MHz – SSB Centre of Activity 144.370MHz – MGM MS Calling
144.400-144.490 144.490-144.500		Propagation Beacons only Beacon guard band 144.491-144.493 Personal Weak Signal MGM Beacons (BW: 500Hz max)
144.500-144.794	20kHz	All Modes (Note 8) 144.500MHz – Image Modes Centre (SSTV, FAX, etc) 144.600MHz – Data Centre of Activity (MGM, RTTY, etc) 144.6125MHz – UK Digital Voice (DV) Calling (Note 9) 144.625-144.675MHz – See Note 10 144.750MHz – ATV Talk-back 144.775-144.794MHz – See Note 10
144.794-144.990	12kHz	MGM Digital Communications 144.800-144.9875MHz – MGM/Digital Communications 144.8000MHz – Unconnected Nets – APRS, UIVIEW etc (Note 14) 144.8125MHz – DV Internet Voice Gateway 144.8250MHz – DV Internet Voice Gateway 144.8375MHz – DV Internet Voice Gateway 144.8500MHz – DV Internet Voice Gateway 144.8625MHz – DV Internet Voice Gateway 144.9250MHz – TCP/IP Usage 144.9375MHz – AX25 Usage 144.9500MHz – AX25 Usage 144.9625MHz – FM Internet Voice Gateway 144.9750MHz, 144.9875MHz To Be Decided (Note 5)
144.990-145.1935 145.200	12kHz 12kHz	FM/DV RV48-RV63 Repeater Input Exclusive (Note 2 & 5) FM/DV Space Communications (eg ISS) – Earth-to-Space 145.2000MHz – (Note 4 & 10)
145.200-145.5935	12kHz	FM/DV V16-V48 – FM/DV Simplex (Note 3, 5 & 6) 145.2250MHz – See Note 10 145.2375MHz – FM Internet Voice Gateway (IARU common channel) 145.2500MHz – Used for Slow Morse Transmissions 145.2875MHz – FM Internet Voice Gateway (IARU common channel) 145.3375MHz – FM Internet Voice Gateway (IARU common channel) 145.5000MHz – FM Calling (Note 12) 145.5250MHz – Used for GB2RS News Broadcast. 145.5500MHz – Used for Rally/exhibition Talk-in 145.5750MHz, 145.5875MHz (Note 11)
145.5935-145.7935 145.800 145.806-146.000	12kHz 12kHz 12kHz	FM/DV RV48-RV63 – Repeater Output (Note 2) FM/DV Space Communications (eg ISS) – Space-Earth All Modes – Satellite Exclusive

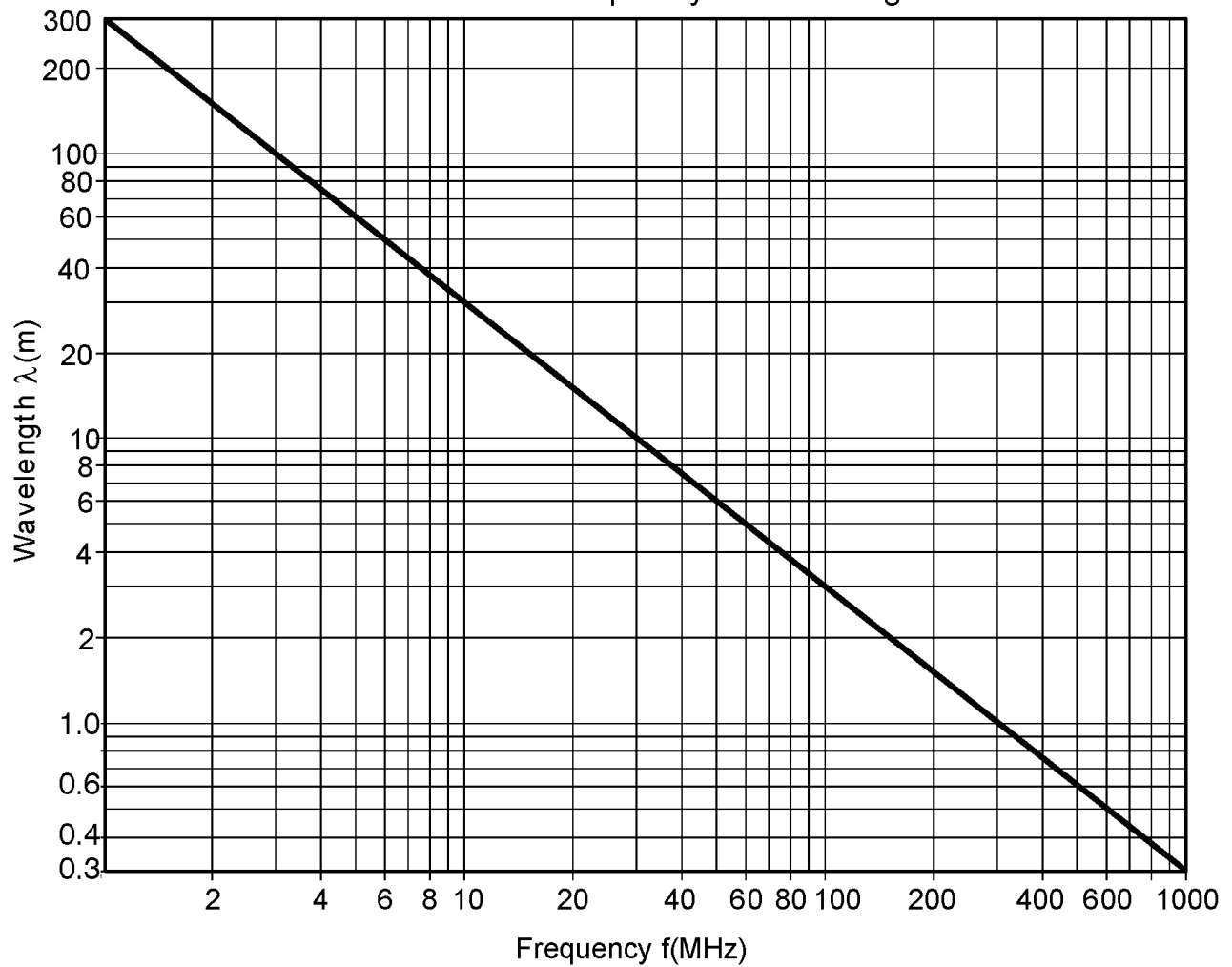
- Note 1: Meteor scatter operation can take place up to 26kHz higher than the reference frequency.
- Note 2: 12.5kHz channels numbered RV48-RV63. RV48 input = 145.000MHz, output = 145.600MHz.
- Note 3: 12.5kHz simplex channels numbered V16-V46. V16 = 145.200MHz.
- Note 4: Emergency Communications Groups utilising this frequency should take steps to avoid interference to ISS operations in non-emergency situations.
- Note 5: Embedded data traffic is allowed with digital voice (DV).
- Note 6: Simplex use only – no DV gateways.
- Note 7: EME activity using MGM is commonly practised between 144.110- 144.160MHz.
- Note 8: Amplitude Modulation (AM) is acceptable within the All Modes segment. AM usage is typically found on 144.550MHz. Users should consider adjacent channel activity when selecting operating frequencies.
- Note 9: In other countries IARU Region 1 recommends 145.375MHz.
- Note 10: May be used for Emergency Communications and Community Events.
- Note 11: May be used for repeaters in other IARU Region 1 countries.
- Note 12: DV users are asked not to use this channel, and use 144.6125MHz for calling.
- Note 13: Not used.
- Note 14: 144.800 use should be NBFM to avoid interference to 144.8125 DV Gateways.

Licence Notes: Amateur Service and Amateur Satellite Service – Primary User. Beacons may be established for DF competitions except within 50km of TA 012869 (Scarborough).

14MHz (20m)	NECESSARY BANDWIDTH	UK USAGE
14,000-14,060kHz	200Hz	Telegraphy – Contest Preferred 14,055kHz – QRS (slow telegraphy) Centre of Activity
14,060-14,070	200Hz	Telegraphy 14,060kHz – QRP (low power) Centre of Activity
14,070-14,089 14,089-14,099	500Hz 500Hz	Narrowband Modes Narrowband Modes – Automatically Controlled Data Stations (unattended)
14,099-14,101 14,101-14,112		IBP – Reserved Exclusively for Beacons All Modes – Automatically Controlled Data Stations (unattended)
14,112-14,125 14,125-14,300	2.7kHz 2.7kHz	All Modes (excluding digimodes) All Modes – SSB Contest Preferred Segment 14,130kHz – Digital Voice Centre of Activity 14,195 ±5kHz – Priority for DXpeditions 14,230kHz – Image Centre of Activity 14,285kHz – QRP Centre of Activity
14,300-14,350	2.7kHz	All Modes 14,300kHz – Global Emergency Centre of Activity

Licence Notes: Amateur Service – Primary User.
14,000-14,250kHz Amateur Satellite Service – Primary User.

Conversion chart Frequency to Wavelength



The velocity of radio waves is 3×10^8 meters per second (m/s)

Frequency Allocation Table

Frequency	Use
87.5 - 108.0MHz	Broadcasting
108.0 - 117.975MHz	Aeronautical Radionavigation
117.975 - 137.0MHz	Aeronautical Mobile
137.0 - 138.0MHz	Space Operations & Space Research
138.0 - 144.0MHz	Land Mobile
144.0 - 146.0MHz	Amateur & Amateur Satellite
146.0 - 149.9MHz	Mobile (except aeronautical mobile)
149.9 - 150.05MHz	Radionavigation-Satellite
150.05 - 152.0MHz	Radio Astronomy
152.0 - 156.0MHz	Land Mobile
156.0 - 158.525MHz	Maritime Mobile
158.525 - 160.6MHz	Land Mobile
160.6 - 160.975MHz	Maritime Mobile

dB Conversion Table

dB	multiplier
3dB	2
6dB	4
9dB	8
10dB	10