

Guide to Licensing of Repeaters, Gateways and Packet Radio Stations

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Introduction.

The revised amateur radio licence published by Ofcom in February 2024 included a lot of changes compared to the previous lifetime licence of 2006 and BR68 from before that.

The amateur radio licence now includes a lot of terms and conditions that previously were part of the notice of variation (NoV) to the licence when you applied to run a repeater, a simplex gateway or a packet station.

Therefore, the NoV to all intents and purposes is in the past. They still exist for some types of high power applications and for applications on certain secondary bands, but for 99% of applications that ETCC deal with, they have been replaced by the Frequency Assignment Certificate (FAC). The FAC is simply a coordination document.

You will find the new Amateur Radio Wireless Telegraphy Licence Conditions Booklet (OFW611) on the Ofcom Website. <https://www.ofcom.org.uk/spectrum/radio-equipment/amateur-radio-info/>

Within the licence document it is important to note that Packet Radio (in its various forms) is called a 'Data Station'

Coordination.

One of the conditions attached to operating a repeater, gateway or data station is as follows:

The Licensee is able to demonstrate that reasonable steps have been taken to minimise the risk of the Gateway/ Repeater/Data Station causing undue interference to other authorised uses of radio and provide evidence of this if requested by Ofcom;

As an individual there is nothing to stop you doing this coordination yourself, but to gather the evidence that you had done so would take some considerable time and effort.

ETCC on the other hand have years of experience of coordinating applications and will assess your proposal and provide you with a Frequency Assignment Certificate to back up your operation on a particular frequency etc.

When you apply to ETCC to self declare your station operation, we now only require minimal information to assist us in carrying out the assessment of your station. There is also an option to specify what level of publicity you give to your application so that other amateurs are aware of the station, what frequency it is on etc.

Effective Radiated Power (ERP) and Class of Licence.

It is important to note that all gateways are now limited to a maximum of 5 Watts (7dBW) ERP (See later on in this document about how to calculate your ERP) Gateways can now be run by all classes of amateur licence (Foundation, Intermediate and Full Licence)

Repeaters up to 5 Watts ERP can only be run by Intermediate and Full, Full (Club) or Full (Temporary Reciprocal) Licence holders.

Repeaters up to 25 Watts (14 dBW) ERP can only be run by Full, Full (Club) or Full (Temporary Reciprocal) Licence holders and must be identified using a callsign allocated and published by RSGB or any other body stipulated by Ofcom for that purpose.

Data Stations up to 5 Watts (7dBW) ERP can be run by all classes of amateur licence.

For stations wanting to run up to 25 Watts (14 dBW) ERP they will be required to hold an Intermediate or Full, Full (Club) or Full (Temporary Reciprocal) Licence.

Category	Definition	<5 Watts ERP	5-25 Watts ERP	>25 Watts ERP
Beacon	TX only	Any (Foundation, Inter, Full)	Intermediate, Full, Full Club	Full via NoV (E1)
Gateway	Tx/Rx on the same frequency	Any (Foundation, Inter, Full)	N/A	N/A
Repeater	Tx/Rx on the different frequencies	Intermediate, Full	Full, Full Club	N/A
Data Station	Tx/Rx data	Any (Foundation, Inter, Full)	Intermediate, Full, Full Club	N/A

Close Down Requirements.

For all types of operation the licensee must be able to close down the station within two hours of being required to do so by Ofcom.

ETCC no longer requests your phone number details or close down procedure etc as this is now part of the licence issued by Ofcom and applies to all stations when operating.

Note that Ofcom does not stipulate how close down is achieved. In the past ETCC recommended some form of remote control power switch linked via WiFi or a mobile phone service. These are quite reliable and easy to procure.

Call signs.

For all types of operation (Repeater, Gateway, Data Station) Ofcom do not require you to use a specific call sign if your ERP is less than 5 Watts, you can use your own callsign or a club call sign if that is your preference.

However, from feedback we have received stations prefer to use a GB or MB callsign for their station to indicate that the repeater, gateway or data station is for full amateur use not just personal use only by the station call sign holder. Therefore we have now included a method of requesting a callsign for all types of station including those below 5 Watts ERP on the ETCC website when self-declaring your station operation.

For stations with an ERP between 5 Watts and 25 Watts it is an Ofcom requirement that you use a callsign allocated to you by RSGB.

Call signs available.

When requesting a call sign, be sure to check that the callsign you are requesting is not already in use. There is a page on the ETCC website of all the callsigns already issued.

<https://ukrepeater.net/gridlist.html>

Please note that callsigns previously issued are kept on the list for six months before they are made available again.

Current	Future	Notes
GB3+3	GB3+3	Beacons
GB3+2	GB3+2	Predominately used for Analogue Repeaters – Note 1, Note 2
GB7+2	GB7+2	Predominately used for Digital Repeaters – Note 1, Note 2
GB7+3	GB7+3	Packet Radio Mailboxes – Note 2
MB7I+2	MB7I+2	Analogue Gateways
MB7A+2	MB7I+2	Previously used for Attended only gateways will move to MB7I+2
MB6+2	MB6+2	Digital Voice Gateways
MB6I+2	MB6+2	Previously used for Attended only gateways will move to MB6+2
MB7N+2	MB7N+2	Packet Radio Nodes, likely to shift towards Packet Mailbox/Nodes
MB7U/V+1	MB7U/V+1	APRS digipeaters, more likely these will become APRS iGates – Note 2
MB7U+2	MB7U+2	APRS iGateways – Note 2
MB7P+2	MB7P+2	Packet/Pagers
MB7P+1	MB7P+1	Parrot Repeaters
MB7T+1	MB7T+1	Slow Scan TV repeaters (Regen)
	MB0+3	Callsigns may be utilized across all station types and configurations. See Note 3
	MB4	To be allocated.
	MB5	Voice Repeaters, may be mixed mode voice repeaters – Note 2
	MB5T	TV repeaters.
	MB8	To be allocated.
	MB9	RAYNET-UK Temporary repeaters and data stations.

Notes

1. Designations are only 'guidance' not strictly obeyed.
2. There are times where you may wish to use your own/club callsign for a high power (5-25W) repeater. Enter this callsign in the "Requested Callsign" field when applying.
3. MB0 callsigns consist of a three-letter suffix. Suffixes may be rejected if they contain or relate to offensive language or inappropriate content.

In accordance with Ofcom policy, suffixes cannot commence with the letters 'Q' or 'Z'.

The primary intended use is for experimental and temporary systems. However, these callsigns may also be assigned to permanent installations at the applicant's discretion.

Station Location.

The amateur radio licence now permits you to operate a repeater, gateway or data station remote from your home address as long as you comply with all the requirements of the amateur licence.

When self declaring your station we require that you provide the following information:

- National Grid Reference or What3Words identifier
- Latitude and Longitude coordinates in a decimal format
- The IARU locator information
- Nearest Town and the post code of the station

To find the NGR and Lat/Long.

Go to this site: <https://wtp2.appspot.com/wheresthepath.htm>

1. Change the left hand pane to 'hybrid'
2. Change the right hand pane to 'hide'
3. Then zoom in to your station location in the usual Google Maps way.
4. Clicking on the station location should leave a stationary blue arrow cursor on the map.
5. At the top of the window they click on the 'Finger' icon, this will cycle through various NGR and other indicators. Click until you get to 'Compact 5 Fig UK Grid Reference' And then read off the full '2 letters 10 number' NGR
6. Click again on the 'Finger' icon until you get to 'Decimal WGS84 Lat,Long' and this is the correct format of Lat Long that we require.

Stations located in Northern Ireland.

If your station is located in Northern Ireland the above method will not work. Northern Ireland works on a different grid reference system and uses only one letter followed by numbers. To identify a grid reference for Northern Ireland the grid reference is prefaced with an I so for example a location in Belfast is shown as J 33502 74134 to make it clearer on your application put in the grid reference as IJ 33502 74134

If you had used the OS grid reference for this same location it would have resulted in this NGR NW4594029645 which is incorrect.

To find the Irish Grid Reference we suggest using this website: <https://irish.gridreferencefinder.com/>

Zoom in to your location and then a simple right click on the map will bring up the location information. It will also include the Latitude and Longitude information in the correct decimal format.

To find your Locator.

Go to this site:

<http://www.carabus.co.uk/jscalculators.html>

Enter your NGR and it will calculate your IARU locator.

How to calculate your Effective Radiated Power (ERP).

To calculate your station ERP you need three factors of information.

1. Transmitter Output Power in Watts, this will be converted in to dBW
2. Coax/Filter loss in dB
3. Antenna Gain in dBd (Decibels compared to a dipole)

Transmitter Output Power.

Either measure the transmitter output power or use the manufacturer's specification figure.

To convert the power from Watts to dBWatts (The power in dB's compared to 1 Watt) requires some maths, or use this site to do the conversion:

<https://www.rapidtables.com/electric/dBW.html>

Coax/Filter Loss.

To find the loss of your coax/filters(if used) you will either have to measure the loss with some suitable test equipment, or for coax loss, measure the length in feet and look up the loss figure using a simple on-line calculator such as this one:

<https://timesmicrowave.com/Calculator/>

If your particular coax isn't included do a search for your coax and include 'loss figure' as part of your search then find out the loss figure for 100 feet at the frequency in mind then recalculate the loss in dB for the length you will be using: e.g. if the loss is quoted as 4.2 dB per 100ft and you are using 25 feet of coax then it will be $\text{Loss} = 4.2 \times 0.25$

For filter loss you will have to either trust the manufacturers specification or to be more accurate it is best to measure the through loss.

See Annex 1 of this document for some typical coax cable loss figures.

Antenna Gain.

Antenna manufacturers often quote their antenna gains in just dB or they quote the dBi figure which is a higher dB figure than dBd. To convert dBi to dBd subtract 2.15 dB to get dBd. If the manufacturer isn't specific about what sort of dB's they have used, assume it is dBi and subtract 2.15 from the figure and use that figure not the figure they quote.

See Annex 2 of this document for some typical antenna gain figures.

Calculation.

Once you have the three figures the calculation is relatively simple:

$\text{ERP in dBW} = \text{Tx Output Power (dBW)} - \text{Coax/Filter Loss (dB)} + \text{Antenna Gain (dBd)}$

That will give you the ERP figure in dBW, you can convert that back to Watts again by visiting the site used earlier:

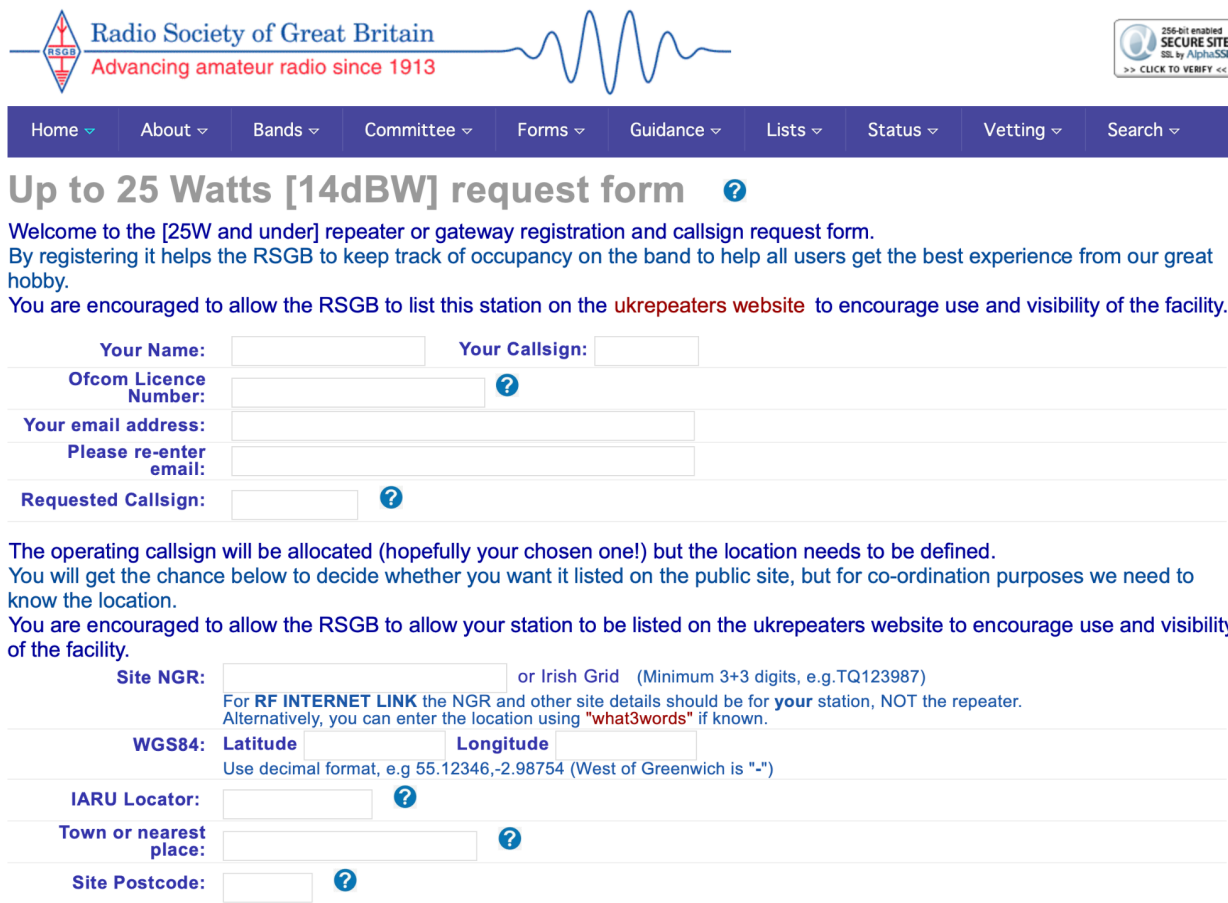
<https://www.rapidtables.com/electric/dBW.html>

See Annex 3 of this document for an example of how to calculate your ERP figures.

How to fill in the form on the ETCC website.

We will split the form up in to three sections to make the description of each part easier to understand;

Section 1



The screenshot shows the Radio Society of Great Britain (RSGB) website. The header includes the RSGB logo, the text 'Radio Society of Great Britain Advancing amateur radio since 1913', and a '256-bit enabled SECURE SITE' badge. A navigation bar contains links: Home, About, Bands, Committee, Forms, Guidance, Lists, Status, Vetting, and Search. The main heading is 'Up to 25 Watts [14dBW] request form'. Below this is a welcome message and instructions. The form fields are as follows:

Your Name:		Your Callsign:	
Ofcom Licence Number:			
Your email address:			
Please re-enter email:			
Requested Callsign:			
Site NGR:	or Irish Grid (Minimum 3+3 digits, e.g.TQ123987)		
WGS84:	Latitude	Longitude	
IARU Locator:			
Town or nearest place:			
Site Postcode:			

This section is just about the person who is going to run the station, name, callsign, Ofcom licence number. Note that we do not require you to supply a copy of your licence.

Your email address and requested callsign, if you use the less than 5 Watt form then the requested callsign will be your own callsign. For gateways, using the form as shown above you can request an MB callsign but the power limit is still only 5 Watts ERP.

The second half of this section goes into the location of the station and we request that you fill in all of the information. See the instructions on Station Location earlier in this document.

Section 2

Now for the all important frequency and power bit.

Channel/Frequency:	Repeater Channel:	
	else enter the frequency: Transmit MHz	RX (if applies) Leave RX blank if simplex.
ERP:	Watts	
Station Mode/s:	☒ ANALOGUE VOICE ☐ DIGITAL VOICE REPEATER [also select DV modes below] ☐ AV AND DV MODES REPEATER [also select DV modes below] ☐ DIGITAL DATA MODE [DD] ☐ ANALOGUE GATEWAY ☐ DV GATEWAY [also select DV modes below] ☐ RF INTERNET REPEATER LINK ☐ TELEVISION ☐ PACKET NODE ☐ PACKET MAILBOX ☐ REGENERATIVE NODE ☐ APRS ☐ DV DMR ☐ DV DSTAR ☐ DV FUSION ☐ DV P25 ☐ DV NXDN ☐ M17 ☐ TETRA [Note: Requires a separate simplex frequency, this is NOT a multimode add-on] OTHER	
DMR Network:	DMR Colour Code:	(for DMR only) (Select colour code if using DMR)
CTCSS:	Hz	
TX Bandwidth:	kHz	(All 2m and 70cm voice repeaters use 12.5kHz)
Height agl:	Height in Metres of Transmit antenna above ground level at the site.	
Polarisation:	☒ Vertical ☐ Horizontal	

In section 2 you are describing what type of station you are applying for the first option Analogue Voice is for a repeater, not an analogue gateway, that is further down the list.

When applying for a Packet Mailbox, you do not need to submit an additional application for the node part of the station, that is covered by the Mailbox application and can operate using the same callsign as the mailbox with just a different SSID.

See Annex 4, 5, 6 or 7 for the details of frequencies available for applications covered by this document.

Section 3

Nearly done!

We would love to be able to show details of this station on our public site (ukrepeater.net), but you are at liberty to restrict this information if you prefer.

However by registering here we will use the site and frequency details to co-ordinate other applications to prevent (or at least try to prevent) interference to you and others wishing to get equipment on-air.

You can choose how you wish details to be recorded, and in doing so agree under data privacy law to us holding the above details solely for that purpose.

Unless you enter a specific end date, we will contact you in about 3 years time to check the station is still up and running.

Publicity: ☒ Happy to share with the amateur community ☐ Just truncate the location stuff and no mapping please
Your NGR is publicly available when selecting 'Happy to share!'

Web url: If you wish to publicise a web site for your station (omit http://)

End date:  Leave blank if ongoing, and we will check with you in the future.

Private Message (optional):
(seen by ETCC agents only)

Status: ☒ Yes, up and running! ☐ No! not in operation.

EMF regulations: It is YOUR responsibility to ensure compliance with current **EMF requirements** around the station.
Click [here](#) for further information. [opens in a separate page]

Data collection: Please give us permission to hold the data above for the reasons given and to allow your Frequency Assignment Certificate to be generated.
Data Collection and Store ☒ YES ☐ NO

Captcha: Enter Characters seen from box:

Please [click here](#) to read about our privacy and data protection policies.

Just once only please.

In the final section you are being asked to confirm the level of publicity you require on the ETCC website. Also is the station operational already and information about the EMF regulations and the Data Protection Regulations.

Only press submit once.... Every time that button is pressed it creates a new application.

How long does self declaration take?

Assuming you have given all the correct information, you should receive your Frequency Assignment Certificate within 36 hours of applying. Remember we are volunteers on ETCC so don't expect instant responses at 3am!

What happens next?

Once you have put your station on air, remember to report the status of your station on the ETCC site here:

https://rsgb.online/etccsecureforms/selfdec_review1.php

If you wish to change the station parameters at any point in the future please contact the ETCC agent that dealt with your application, don't just amend the form and expect it to be ok.

Make a note of the review date (normally 3 years from the date of issue or slightly longer in some cases) on your calendar/diary.

Non-Operational Stations.

After 90 days of a station still not being operational, the keeper will be emailed asking for an update to the status.

The keeper will then be given a further 90 days to respond or to put the station on air and inform ETCC of the update to the status.

After 180 days, the ETCC **may** revoke the FAC, restoring the availability of the callsign and frequency for use by somebody else.

The applicant can of course reapply. But the applicant must then get the station on air within the next 180 days.

ETCC will not permit someone to game the system to block others from applying.

Failure to communicate with ETCC is also seen as grounds to revoke your FAC, because communication is a key element in ETCC being able to coordinate all applications in the UK.

Further Information.

- UK Repeaters: <https://ukrepeater.net/>
- APRS: <https://aprs.f/>
- Allstar: <https://www.allstarlink.org/>
- DMR:
- Dstar: <https://icomuk.co.uk/What-is-D-STAR>
- Echolink: <https://www.echolink.org/>
- FreeDMR UK: <https://www.freedmr.uk/>
- Freestar: <https://freestar.network/>
- North West Fusion Group: <https://www.nwfg.info/>
- Ofcom: <https://www.ofcom.org.uk/spectrum/radio-equipment/amateur-radio/>
- RAYNET-UK <https://www.raynet-uk.net>
- Repeater Builder: <https://www.repeater-builder.com/>
- UK Packet Radio: <https://groups.io/g/ukpacketradio>

Annex 1 - Coax Loss Figures.

These are some typical figures for coax cable loss for some commonly used coax cables.

Figures shown in dB per 100 feet

Frequency (MHz)	Westflex103	RG58	RG213	Echoflex 10	Echoflex 15	Ultraflex 7	Ultraflex 10
29	0.73	2.44	1.04	0.64	0.44	0.91	0.61
50	1.07	3.20	1.37	0.85	0.60	1.22	0.82
70	1.31	3.81	1.62	0.99	0.72	1.45	0.99
145	1.89	5.52	2.38	1.49	1.04	2.10	1.43
433	3.49	9.78	4.36	2.71	1.86	3.75	2.62

If your particular coax isn't included do a search for your coax and include 'loss figure' as part of your search then find out the loss figure for 100 feet at the frequency in mind then recalculate the loss in dB for the length you will be using: e.g. if the loss is quoted as 4.36 dB per 100ft and you are using 25 feet of RG213 coax on 70cms then it will be $\text{Loss} = 4.36 \times 0.25 = 1.09 \text{ dB}$.

Annex 2 - Antenna Gain.

These are antenna gain figures (dBd) for some commonly used antennas.

Frequency (MHz)	X30	X50	X200	V2000	SQBM100	G2BCX 'Slim Jim' Single Band
50	-	-	-	0.00	-	<3.00
144	0.85	2.35	3.85	4.05	3.00	<3.00
433	3.35	5.05	5.85	6.25	6.00	<3.00

Always check the manufacturer's website for the specification of your antenna. If the gain figure is quoted as just dB it is likely to be dBi (Gain relative to an isotropic radiator) and therefore you need to subtract 2.15 dB from that figure to get the gain compared to a dipole (dBd).

Annex 3 - Worked example of ERP calculation.

We will work through a typical 'application' for a gateway using some typical numbers.

We are aiming for a 70cms port with a typical amateur transceiver, an X50 antenna and about 30 feet of RG213 coax.

Transmitter output power 5 Watts (low power setting) = 7 dBW

Coax loss= 4.36 (for 100 feet) x 0.3 = 1.308 dBd

Antenna gain = 5.05 dBd

Our ERP would be equal to $7 - 1.308 + 5.05 = 10.742$ dBW

But we are aiming for no more than 7dBW (5 Watts ERP). You could make the coax longer to reduce your TX output power into the antenna, but you would be adding an extra 3.74 dB of loss to your received signal, not ideal.

On some transceivers it is possible to reduce the low power setting to a much lower output power, in this case we would have to reduce it down to 2.12 Watts to get under the 5 Watt limit.

Or you could of course use a lower gain antenna, but that will also result in a lower receive sensitivity.

Running the calculation again after reducing the transmitter output power.

Transmitter output power 2.12 Watts (new low power setting) = 3.258 dBW

Coax loss= 4.36 (for 100 feet) x 0.3 = 1.308 dBd

Antenna gain = 5.05 dBd

Our ERP would be equal to $3.258 - 1.308 + 5.05 = 7$ dBW (5 Watts)

Annex 4 - Repeater Frequencies.

Transmit Frequency (MHz)	Receive Frequency (MHz)	
29.6200	29.5200	RH1
29.6300	29.5300	RH2
29.6400	29.5400	RH3
29.6500	29.5500	RH4
29.6600	29.5600	RH5
29.6700	29.5700	RH6
29.6800	29.5800	RH7
29.6900	29.5900	RH8
50.7200	51.2200 (51.7200)	R50-01 (RW50-01)
50.7300	51.2300 (51.7300)	R50-02 (RW50-02)
50.7400	51.2400 (51.7400)	R50-03 (RW50-03)
50.7500	51.2500 (51.7500)	R50-04 (RW50-04)
50.7600	51.2600 (51.7600)	R50-05 (RW50-05)
50.7700	51.2700 (51.7700)	R50-06 (RW50-06)
50.7800	51.2800 (51.7800)	R50-07 (RW50-07)
50.7900	51.2900 (51.7900)	R50-08 (RW50-08)
50.8000	51.3000 (51.8000)	R50-09 (RW50-09)
50.8100	51.3100 (51.8100)	R50-10 (RW50-10)
50.8200	51.3200 (51.8200)	R50-11 (RW50-11)
50.8300	51.3300 (51.8300)	R50-12 (RW50-12)
50.8400	51.3400 (51.8400)	R50-13 (RW50-13)
50.8500	51.3500 (51.8500)	R50-14 (RW50-14)
50.8600	51.3600 (51.8600)	R50-15 (RW50-15)
50.8700	51.3700 (51.8700)	R50-16 (RW50-16)
50.8800	51.3800 (51.8800)	R50-17 (RW50-17)
145.5750	144.9750	RV46 (Low Power Repeaters)
145.5875	144.9875	RV47 (Low Power Repeaters)
145.6000	145.0000	RV48
145.6125	145.0125	RV49
145.6250	145.0250	RV50

Transmit Frequency (MHz)	Receive Frequency (MHz)	
145.6375	145.0375	RV51
145.6500	145.0500	RV52
145.6625	145.0625	RV53
145.6750	145.0750	RV54
145.6875	145.0875	RV55
145.7000	145.1000	RV56
145.7125	145.1125	RV57
145.7250	145.1250	RV58
145.7375	145.1375	RV59
145.7500	145.1500	RV60
145.7625	145.1625	RV61
145.7750	145.1750	RV62
145.7875	145.1875	RV63
430.2500	439.2500	DVU-R20
430.2625	439.2625	DVU-R22
430.2750	439.2750	DVU-R23
430.3000	439.3000	DVU-R24
430.8000	438.4000	RU64 - Emerg Comms & Community Events only.
430.8125	438.4125	RU65
430.8250	438.4250	RU66
430.8375	438.4375	RU67
430.8500	438.4500	RU68
430.8625	438.4625	RU69
430.8750	438.4750	RU70
430.8875	438.4875	RU71
430.9000	438.5000	RU72
430.9125	438.5125	RU73
430.9250	438.5250	RU74
430.9375	438.5375	RU75
430.9500	438.5500	RU76
430.9625	438.5625	RU77
430.9750	438.5750	RU78

Transmit Frequency (MHz)	Receive Frequency (MHz)	
430.9875	438.5875	RU79
431.1750	431.1750	DMR Simplex Repeater
433.0000	434.6000(438.0000)	RB0 (RBW0)
433.0125	438.0125	RBW01
433.0250	434.6250(438.0250)	RB1(RBW02)
433.0375	438.0375	RBW03
433.0500	434.6500(438.0500)	RB2(RBW04)
433.0625	438.0625	RBW05
433.0750	434.6750(438.0750)	RB3(RBW06)
433.0875	438.0875	RBW07
433.1000	434.7000(438.1000)	RB4(RBW08)
433.1125	438.1125	RBW09
433.1250	434.7250(438.1250)	RB5(RBW10)
433.1375	438.1375	RBW11
433.1500	434.7500(438.1500)	RB6(RBW12)
433.1625	438.1625	RBW13
433.1750	434.7750(438.1750)	RB7(RBW14)
433.1875	438.1875	RBW15
433.2000	434.8000(438.2000)	RB8(RBW16)
433.2125	438.2125	RBW17
433.2250	434.8250(438.2250)	RB9(RBW18)
433.2375	438.2375	RBW19
433.2500	434.8500(438.2500)	RB10(RBW20)
433.2625	438.2625	RBW21
433.2750	434.8750(438.2750)	RB11(RBW22)
433.2875	438.2875	RBW23
433.3000	434.9000(438.3000)	RB12(RBW24)
433.3125	438.3125	RBW25
433.3250	434.9250(438.3250)	RB13(RBW26)
433.3375	438.3375	RBW27
433.3500	434.9500(438.3500)	RB14(RBW28)
433.3625	438.3625	RBW29

Transmit Frequency (MHz)	Receive Frequency (MHz)	
433.3750	434.9750(438.3750)	RB15(RBW30)
434.01875	434.01875	TETRA Simplex
434.0500	434.0500	TETRA Simplex
438.3875	430.7875	UR63
439.1500	430.1500	DVU12
439.1625	430.1625	DVU13
439.21875	430.21875	DVU17A TETRA Duplex
439.3250	430.3250	DMU26
439.3375	430.3375	DMU27
439.3500	430.3500	DMU28
439.3625	430.3625	DMU29
439.3750	430.3750	DMU30
439.4000	430.4000	DVU32
439.4125	430.4125	DVU33
439.4250	430.4250	DVU34
439.4375	430.4375	DVU35
439.4500	430.4500	DVU36
439.4625	430.4625	DVU37
439.4750	430.4750	DVU38
439.4875	430.4875	DVU39
439.5000	430.5000	DVU40
439.5125	430.5125	DVU41
439.5250	430.5250	DVU42
439.5375	430.5375	DVU43
439.5500	430.5500	DVU44 (Low Power Repeaters)
439.5625	439.5625	DVU45
439.5750	430.5750	DVU46
439.5875	430.5875	DVU47
439.6000	430.6000	DVU48
439.6125	430.6125	DVU49
439.6250	430.6250	DVU50
439.6375	430.6375	DVU51

Transmit Frequency (MHz)	Receive Frequency (MHz)	
439.6500	430.6500	DVU52
439.6625	430.6625	DVU53
439.6750	430.6750	DVU54
439.6875	430.6875	DVU55
439.7000	430.7000	DVU56
439.7125	430.7125	DVU57
439.7250	430.7250	DVU58
439.7375	430.7375	DVU59
439.7500	430.7500	DVU60
439.7625	430.7625	DVU61
439.7750	430.7750	DVU62
1297.0000	1291.0000	RM0
1297.0250	1291.0250	RM1
1297.0500	1291.0500	RM2
1297.0750	1291.0750	RM3
1297.1000	1291.1000	RM4
1297.1250	1291.1250	RM5
1297.1500	1297.1500	RM6
1297.1750	1297.1750	RM7
1297.2000	1291.2000	RM8
1297.2250	1291.2250	RM9
1297.2500	1291.2500	RM10
1297.2750	1291.2750	RM11
1297.3000	1291.3000	RM12
1297.3250	1291.3250	RM13
1297.3500	1291.3500	RM14
1297.3750	1291.3750	RM15

Notes:

1. All 2 metre and 70cms repeater channels are now 12.5 kHz specification.
2. There is now an option of 5 MHz spacing in the 433/434 MHz RB channels.

Annex 5 - Simplex Internet Gateway Frequencies.

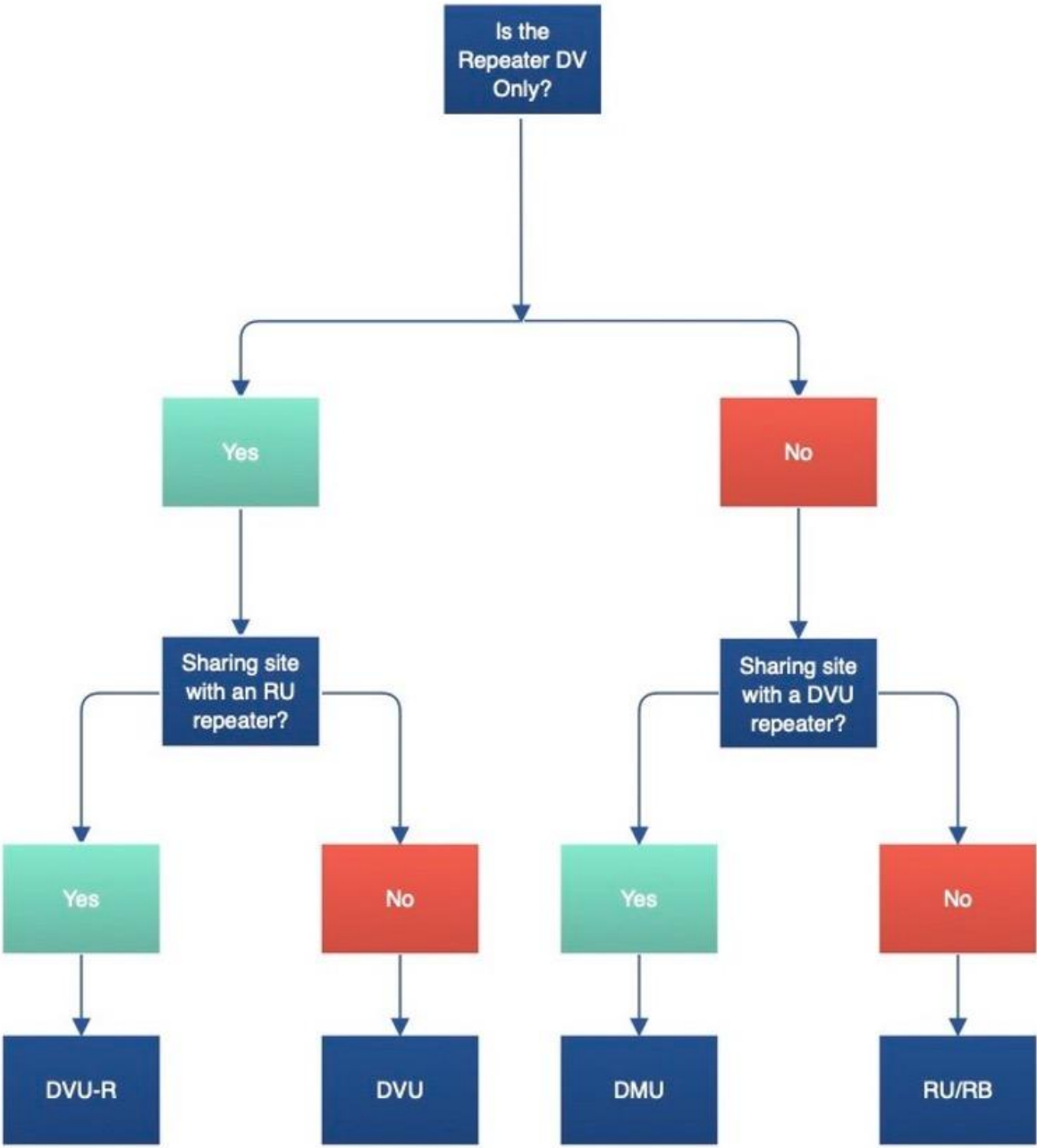
Frequency (MHz)		
29.2700		
29.2800		
29.2900		
50.5200		
50.5300		
50.5400		
70.3500		Shared with Emergency Comms and Community Events
70.3625		
70.3875		
70.4125		
70.4125		
144.8125	DV Simplex Internet Gateway	
144.8250	DV Simplex Internet Gateway	
144.8375	DV Simplex Internet Gateway	
144.8500	DV Simplex Internet Gateway	
144.8625	DV Simplex Internet Gateway	
144.8750	DV Simplex Internet Gateway	
144.8875	DV Simplex Internet Gateway	
144.9000	DV Simplex Internet Gateway	
144.9125	DV Simplex Internet Gateway	Current Analogue Gateways to move to 145.3125 MHz
144.9625		
145.2125		
145.2250		Shared with Emergency Comms and Community Events
145.2375		
145.2500		
145.2625		
145.2875		
145.3125		
145.3375		

Frequency (MHz)		
430.0125		
430.0250		
430.0375		
430.0500		
430.0625		
430.0750		
430.0875		
430.1000		
431.0625	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.0750	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.0875	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.1000	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.1125	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.1250	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.1375	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.1500	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.1875	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.2000	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.2125	DV Simplex Internet Gateway	Not within 100km of Charing Cross
431.2250	DV Simplex Internet Gateway	Not within 100km of Charing Cross
433.6375	DV Simplex Internet Gateway	For use within 100km of Charing Cross
433.6500	DV Simplex Internet Gateway	For use within 100km of Charing Cross
433.6625	DV Simplex Internet Gateway	For use within 100km of Charing Cross
434.4750	DV Simplex Internet Gateway	For use within 100km of Charing Cross
434.4875	DV Simplex Internet Gateway	For use within 100km of Charing Cross
434.5000	DV Simplex Internet Gateway	For use within 100km of Charing Cross
434.5125	DV Simplex Internet Gateway	For use within 100km of Charing Cross
434.5250	DV Simplex Internet Gateway	For use within 100km of Charing Cross
1297.9000		
1297.9250		
1297.9500		

Annex 6 - Data Station Frequencies (Packet Radio)

Frequency (MHz)	
50.6400	10kHz BW - 2.3 kHz Peak Deviation
50.6500	10kHz BW - 2.3 kHz Peak Deviation
50.6600	10kHz BW - 2.3 kHz Peak Deviation
50.6700	10kHz BW - 2.3 kHz Peak Deviation
70.3125	12.5 kHz BW - 2.5 kHz Peak Deviation
70.3250	12.5 kHz BW - 2.5 kHz Peak Deviation
70.4875	12.5 kHz BW - 2.5 kHz Peak Deviation
144.8000	APRS 12.5 kHz BW - 2.5 kHz Peak Deviation
144.9250	12.5 kHz BW - 2.5 kHz Peak Deviation
144.9375	12.5 kHz BW - 2.5 kHz Peak Deviation
144.9500	12.5 kHz BW - 2.5 kHz Peak Deviation
430.2000	
432.6250	
432.6500	
432.6750	
433.6250	12.5 kHz BW - 2.5 kHz Peak Deviation
433.8000	APRS
439.9000	
439.9125	LORA Gateways 125 kHz BW Max ERP 0.2 Watts
439.9500	
439.9875	Paging Systems

Annex 7 - Frequency Assignment of 70cms Voice Repeaters.



DVU, DVU-R, DMU – 9 MHz channel spacing (Bandwidth 12.5 kHz)
RU, RU-R – 7.6 MHz channel spacing (Bandwidth 12.5 kHz)
RB – 1.6 MHz channel spacing (Bandwidth 12.5 kHz)