

GB3US - Sheffield

The local 70cm repeater for the city on RB0 (RU240).

Output 433.000MHz, Input 434.600MHz.

Located on the University of Sheffield's Metallurgy Building in the City Centre.

GB3US was one of the first 70cm repeaters in UK and became operational on Friday the 13th of January, 1978, from the University's Hicks Building (Mathematics and Physics), which is about a quarter of a mile west of its present location. The equipment was an old Pye F450T UHF Base Station (mid 60's vintage), originally destined for the icy wastes of Antarctica and, perhaps surprisingly, it is still going strong some 25+ years later. The same holds true for the aerial, which is a J-Beam colinear (Rx) over a J-Beam 4 dipole stack (Tx), kindly donated by the company. The first control logic was the prototype of the GB3US Mk1 (RadCom, Jan 1980 and Jan 1982) followed a couple of years later by the microprocessor Mk2 version (RadCom Oct/Nov 1983), both of which designs are used extensively by other UK repeaters. In July 2001, after a few years of experimental linking to The Internet by some local stations, GB3US became the first repeater in UK to operate 24/7 on the IRLP system, as node 5150.

GB3US - IRLP Node 5150

General

GB3US is one of some 1500+ worldwide stations linked together via the Internet on the IRLP system (Internet Radio Linking Project, "<http://www.irlp.net>"). Every station has its own 4-digit node number and the status of the whole system, as well as individual stations, can be found at "<http://status.irlp.net>". Unlike other systems (eQSO and EchoLink), IRLP can only be accessed through an RF Gateway, either a simplex node or a repeater like GB3US. Except for reflectors, which are the IRLP equivalent to chat rooms, the system only supports single, not multiple, connections.

Connection and operation

To connect to another station on the system, its node number must be known and, if necessary, this can be found from the status page at "<http://status.irlp.net>". Make sure that the repeater is fully open, announce your callsign and intention, and then key in the required 4-digit node number using DTMF tones. Most rigs now have this facility, either as a keypad on the front or on the microphone, but if not, phone tone diallers or even mobile phones held in front of the microphone will work. After a few seconds, the repeater will reply with an audio message indicating the connection attempt and a few seconds later there should be a further message indicating that the connection has been made. If unsuccessful, there will be a message stating the reason. Once connected, use the repeater as normal, though it is advisable to leave a slightly longer gap between overs to overcome the propagation delays through the system. Never just open a link without giving a couple of calls through and never leave a link open, either when no-one answers or after a QSO. To close a link, just key in the 2-digit number "73". It is the convention that the person who opens the link also closes it, but sometimes this is not possible, so be prepared to do so. One pitfall to watch

out for is, apart from any timeout on the gateways in use (5 minutes on GB3US), the system itself has a timeout, again usually 5 minutes, to prevent an unclosed link locking out a pair of nodes. This requires that activity alternates between the two nodes, i.e. ping-pong, so if there are several stations on a node, do not hand on from one to another without passing it back to the other node. Remember, "all ping and no pong equals phut!".

GB3US Starcodes

In addition to the standard IRLP operation, GB3US has an extensive set of starcode commands, which give additional information and operations. The basic starcode is keyed in as a DTMF tone, with the first character as a star (asterisk) followed by 2 digits. Some codes require further digits, and those presently implemented are given below.

<u>Code</u>	<u>Description</u>
00	Home node IRLP identification
10	IRLP System status
11	Home node status
12	+2 Starcode directory ¹
13	+4 Node directory ²
14	(+1) Random node toggle ^{3,4}
15	(+1) Time gated random node toggle ^{3,4,5}
16	Last node connected
17	Last node recall, i.e. reconnect to last node
18	Last number dialled
19	Home node reported time
21	+4 Remote node status ²
22	Alpha-numeric search
23	Alpha-numeric search and connect
24	Total connections this calendar month
29	+4 Remote node reported time ²
30	Random node toggle - Australasia ⁴
31	Random node toggle - USA ⁴
32	Random node toggle - Canada ⁴
33	Random node toggle - UK ⁴
34	Random node toggle - Carribean ⁴
35	Random node toggle - Europe ⁴
36	Random node toggle - Asia and South Africa ⁴
50	Home node information
52	Alpha-numeric search information

Notes

- 1 This code is followed by a 2-digit number.
- 2 This code is followed by a 4-digit node number.
- 3 This code can be followed by an optional digit, so only a node beginning with that number will be selected. Nominally, the selected node will be available for connection.
- 4 The toggle action indicates that the same starcode will close a successfully opened link (as well as the usual 73). This is to allow easy

one-button push operation from DTMF memory during mobile operation.

- 5 Only a node whose reported time is between 0700 and 2400 will be selected.

Examples

- *19 This will report the time as given by the GB3US IRLP computer clock.
*291000 This will report the local time as given by the VE7RHS repeater in Vancouver.
*1224 This reports that starcode 24 gives the total connections this calendar month.
*30 Selects a random node in Australasia and connects to it.

Alpha-numeric search

This is a powerful facility, though perhaps a little "fiddly" to use at first, allowing up to 8 alpha-numeric characters to be keyed in. For example, suppose you wanted to connect to GB3EE but did not know what its node number was and had no means of finding out. Using the alpha-numeric search starcode *22, keying in GB3EE will return the answer 5120, whereas using *23 would then try connecting to it.

Each alpha-numeric character is represented by 2 digits in the pattern used on some, though not all, front panel keypads. For example, the "3" pad is usually marked with the letters "DEF", so "D" could be considered as the first letter associated with the "3" pad, "E" the second and "F" the third. Thus the letter "D" is represented by the 2-digit number 31, "E" by 32 and "F" by 33. The numbers are associated with position zero, so the number 3 itself is represented by the 2 digit number 30. Thus the full 40 possible characters are:-

	0	1	2	3
0	0	/	-	
1	1	Q	Z	*
2	2	A	B	C
3	3	D	E	F
4	4	G	H	I
5	5	J	K	L
6	6	M	N	O
7	7	P	R	S
8	8	T	U	V
9	9	W	X	Y

Note:

"03" represents the space character.

A minimum of three and not more than eight characters are required.

If there is more than one node matching the search criteria, then a random selection is made.

The search is made for the required sequence in the entry line given in the IRLP status page, so some unexpected results may occur. For example,

looking for the callsign VA7MAR and just putting in MAR (*22 61 21 72) would also find place names like Mt. Martha, Palomar Mt., etc..

So, for the GB3EE example, the required sequence would be:- *22 41 22 30
32 32

Examples

GB3 (*22 41 22 30) will find all the nodes with GB3 in their descriptions, which hopefully should only be the GB3 callsigns, and randomly select one.

LOS ANG (*22 53 63 73 03 21 62 41) will randomly select a node in Los Angeles.