N R W IC-7300 TechNote

UK 60m BAND SETTINGS

by Ian Wade, G3NRW
g3nrw@g3nrw.net

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Introduction

This TechNote provides an example of IC-7300 Memory Channel and Band Edge settings for the UK 60m band. The Band Edge settings are particularly important, to prevent transmission outside the band segments.

Details of the segments are shown in the "UK 60m Band Utilization Chart" [1].

The procedures for setting up the memory and band edge settings are described in [2], [3] and [4].

Background

Most of the amateur bands occupy a continuous spectrum, without gaps (for example, 20m extends from 14.000 -14.350 MHz) and the band edge frequencies are easy to remember. But on 60m in some countries the band is fragmented into several non-contiguous channels or segments, and it can be more difficult to remember where to set the VFO to stay in band.

In the United States the situation is fairly straightforward. There are just five individual fixed-width channels on 60m, each 3.0 kHz wide. In this case you just need to set up five memory channels in the IC-7300.

In the United Kingdom, however, there are no fewer than 11 separate band segments on 60m, varying in width between 3 kHz and 12.5 kHz. It is possible to set up memory channels for favorite frequencies, but this is not a particularly flexible approach. Also, because we are secondary users of the band (the primary users are the military), we need to take additional steps to avoid the risk of accidentally transmitting out of segment.

IC-7300 Memory/Mode Settings for the 60m Band

The IC-7300 lets you specify up to 99 Memory/Mode settings, which is much more than adequate for the 5 MHz band. In fact, the method proposed in this TechNote for setting up the UK 5 MHz band requires just 15 memory channels. Most of the 15 specify the low-frequency end of each band segment. The remaining channels specify spot frequencies within certain segments that are frequently used.

IC-7300 Band Edge Settings for the 60m Band

The IC-7300 lets you specify up to 30 sets of band edge settings. The default settings provided by Icom specify the edges of the established bands where we can transmit; for example, in Region 1, 1.810-2.000 MHz for top band, 3.500-3.800 MHz for 80m, 7.000-7.200 MHz for 40m, and so on. The 60m band sits between 80m and 40m, and we need to squeeze in an additional ten extra band edge settings for ten of the eleven 60m band segments – the one segment where transmission is discouraged is the beacon segment, so band edge settings are not required for this segment.

After squeezing in the ten 60m band edge settings, the remaining band edge settings up to 70.5 MHz are more or less the same as the Icom-defined default settings. In the example described in this TechNote, this means that up to 21 band edge settings are used in total, out of the 30 available.

Default Band Edge Settings

In the settings specified in this HOWTO, some of the band edge settings differ from Icom's defaults. This applies to the bands where upper sideband SSB is used. In these cases, the higher band edge limit is changed to 3 kHz lower than the actual band edge, to prevent sidebands from being transmitted out of band. For example, Icom's default limits for 20m are 14.000-14.350 MHz, whereas in this TechNote the limits are set to 14.000-143**47** MHz (14.347 = 13.500 - 0.003).

Example of Memory Channel / Band Edge Settings for the UK 60m band

This table shows an example of the settings for the UK 60m Memory Channels, and the corresponding entries for the Lower and Upper Band Edges.

Memory Channel	Memory Frequency	Mode	Name	User Band Edge	Lower Band Edge	Upper Band Edge
				1	1.810.000	2.000.000
				2	3.500.000	3.800.000
50	5.258.500	CW	Old FA	3	5.258.500	5.264.000
51	5.276.000	USB		4	5.276.000	5.281.000
52	5.278.500	USB	Old FB			
53	5.288.500	CW	Beacons		(Receive only in beacon segment, no TX)	
54	5.298.000	USB		5	5.298.000	5.304.000
55	5.313.000	USB		6	5.313.000	5.332.000
56	5.333.000	USB		7	5.333.000	5.335.000
57	5.354.000	USB		8	5.354.000	5.355.000
58	5.362.000	USB-D	Data Modes	9	5.362.000	5.371.500
59	5.366.500	USB	Old FK			
60	5.371.500	USB	Old FL			
61	5.378.000	USB		10	5.378.000	5.379.000
62	5.395.000	USB		11	5.395.000	5.398.500
63	5.398.500	USB	Old FE			
64	5.403.500	USB	Old FM	12	5.403.500	5.403.501
				13	7.000.000	7.200.000
				14	10.100.000	10.150.000
				15	14.000.000	14.347.000
				16	18.068.000	18.165.000
				17	21.000.000	21.447.000
				18	24.890.000	24.987.000
				19	28.000.000	29.697.000
				20	50.000.000	51.997.000
				21	70.000.000	70.497.000
				22	--.---.---	--.---.---
				23	--.---.---	--.---.---
				24	--.---.---	--.---.---
				24	--.---.---	--.---.---
				26	--.---.---	--.---.---
				27	--.---.---	--.---.---
				28	--.---.---	--.---.---
				29	--.---.---	--.---.---
				30	--.---.---	--.---.---

Some notes on the table entries

1.   Memory Channels

- There are 11 memory channels that specify the minimum suppressed carrier frequency of each 60m band segment.

- Some channels are designated "old" channels – Old FA, Old FB etc. These channels were specified in an earlier version of the UK band plan, but many people still choose to use them as meeting points for calling CQ. The Memory Channel settings for these old channels specify the suppressed carrier frequency for each of them.

- The channels are arbitrarily numbered from 50 to 64 – you can choose any range of unused channel numbers.

- Channel 53 specifies the segment used mostly for beacons. No transmission is allowed in this segment.

- Channel 58 is used mainly for data modes, but there is also an "old" USB channel in this segment. An exception is Channel 64.

2.   Band Edge Frequencies

- By default, the Band Edge table looks something like this:

User Band Edge	Lower Band Edge	Upper Band Edge
1	1.810.000	2.000.000
2	3.500.000	3.800.000
3	7.000.000	7.200.000
4	10.100.000	10.150.000
5	14.000.000	14.350.000
6	18.068.000	18.168.000
7	21.000.000	21.445.000
8	24.890.000	24.990.000
9	28.000.000	29.700.000
10	50.000.000	52.000.000
11	70.000.000	70.500.000
12	--.---.---	--.---.---
13	--.---.---	--.---.---
14	--.---.---	--.---.---
14	--.---.---	--.---.---

etc, up to Band Edge slot #30.

- However, because the table entries must be in ascending frequency order, we need to make room for the 10 band edge entries for 60m, between

80m and 40m (from slot #3 to #12). Then the remaining band edge entries will occupy slots #13 to #21.

- The upper band limit in USB channels is reduced by 3 kHz, to ensure the speech channels remain in-band. An exception is Channel 64 (old FM), which is only 3 kHz wide. Here the band edge slot #12 limits are specified as 5.403.000 to 5.403.00*1* MHz.

- There are no band edge limits specified for Channel 53 (the beacon segment). This is because this segment is Receive-Only.

- The settings given here are just some of many possibilities. Obviously you can introduce further refinements if necessary for different modes in different band segments. This may be particularly relevant where some data transmissions actually require you to set the suppressed carrier frequency *lower* than the start of a segment.
  Also, the situation will be further complicated when the UK is eventually allowed to use the new WRC-15 approved low power channel from 5.351.500 to 5.366.500 MHz. Computation of the required band edge frequencies for this new allocation is left as an exercise for the reader!

References

	Resource	URL
[1]	The UK 60m Band Utilization Chart	http://g3nrw.net/60m/160429_UK_60m_Band_Utilization.pdf
[2]	Setting up IC-7300 Memory Channels	IC-7300 Full Manual, Section 9: "Memory Operation" Go to the IC-7300 Reference Page: http://www.g3nrw.net/IC-7300 Click on "Documentation" Scroll down to "IC-7300 Technical Documentation" Select document #4
[3]	Setting Band Edges	IC-7300 Full Manual, Section 3: "Basic Operation", pages 3-7 to 3-9 Go to the IC-7300 Reference Page: http://www.g3nrw.net/IC-7300 Click on "Documentation" Scroll down to "IC-7300 Technical Documentation" Select document #4
[4]	Videos on setting memory channels and band edges	Go to the IC-7300 Reference Page: http://www.g3nrw.net/IC-7300 Click on "Videos"

DOCUMENT VERSION HISTORY

Version	Date	History
1.0	6 December 2017	First public release