

# M4A

## CQ WW DX SSB Contest

### Operating guide

#### Introduction

CQ WW DX is the biggest amateur radio contest of the year. It comes in three parts: RTTY in the final weekend of September, SSB in the final weekend of October and CW in the final weekend of November. In this contest, everyone can work everyone.

The exchange is RS(T) followed by the CQ Zone. There are 40 zones in the world, starting with 1 in Alaska and incrementing to the east (broadly speaking, there are exceptions). Most of Western Europe, including the UK, is in Zone 14, so we always give a report of:

**5914**

We are operating the category Multi-Single All High Power. In this category, we are permitted multiple operators but only one station working at any time (the run station). The second station (the mult station) is only permitted to work contacts in zones and countries not yet worked on that given band ('mults').

The score is: the sum of (QSO points x (number of countries + number of zones)) per band.

Each QSO with Europe scores 1 point; outside Europe scores 3 points.

#### Band Change Rule

The run station may not change bands more than once every ten minutes. The mult station may change to one other band within that ten minute period to work a mult.

In case that isn't clear, here it is in the rules:

*Only one transmitter and one band permitted during any 10-minute period, defined as starting with the first logged QSO on a band. Exception: One—and only one—other band may be used during any 10-minute period if—and only if—the station worked is a new multiplier. Logs found in violation of the 10-minute rule will automatically be reclassified as M2.*

#### Run Operator (Op1)

Your job is to work as many people as possible, as quickly as possible. As a general rule, you should find a frequency and CQ and let people find you. Finding a frequency will not always be easy as the bands will be completely full of very loud stations, so you might find yourself just squeezing in where the splatter is the least. This also means that it's crucial to be aware of propagation; ideally you want to move to the best band just before openings occur (before everyone else does).

#### Mult Operator (Op2)

As noted above, you can only work a station if he is in a country or zone not yet contacted on that band. This means that Op2s will tend to be busy when a band first opens, and then it dies down. But you should keep an eye on the incoming cluster spots looking for those mults, and also help the Run Operator make decisions as to when to change band as propagation changes (and find him clear frequencies).

#### Important Note

The two stations do have band-filters on them, but no protection within the same band so never, under any circumstances, should the Run and Mult stations be on the same band. This means that the Run station needs to make the Mult station aware of what he is doing. The Mult station can also see the Run station's frequency on the computer screen. If you are Run station and there is no Mult on with you, again, check your computer screen (or better the Mult rig) to see where the Mult station is, before changing band.

## The Win-Test screen

Run station frequency

Mult station frequency

Can the run & mult station change band yet? (Band change rule)

DX Spots from the cluster are automatically arranged by frequency, centred on your current frequency 'Band Map'

Speed in QSOs per Hour

Your frequency

Do we need this multiplier on other bands?

Check partial

Check N+1

Latest entries in log

Have we had a QSO with him on other bands already?

New mult just spotted on Cluster

Map showing greyline propagation

Current Score

(Note that operators can move items on the screen around or remove them all together. They can be replaced from the 'Window' menu)

Win-Test uses a colour coding scheme for callsigns, which is explained on the cheat sheet later in this booklet.

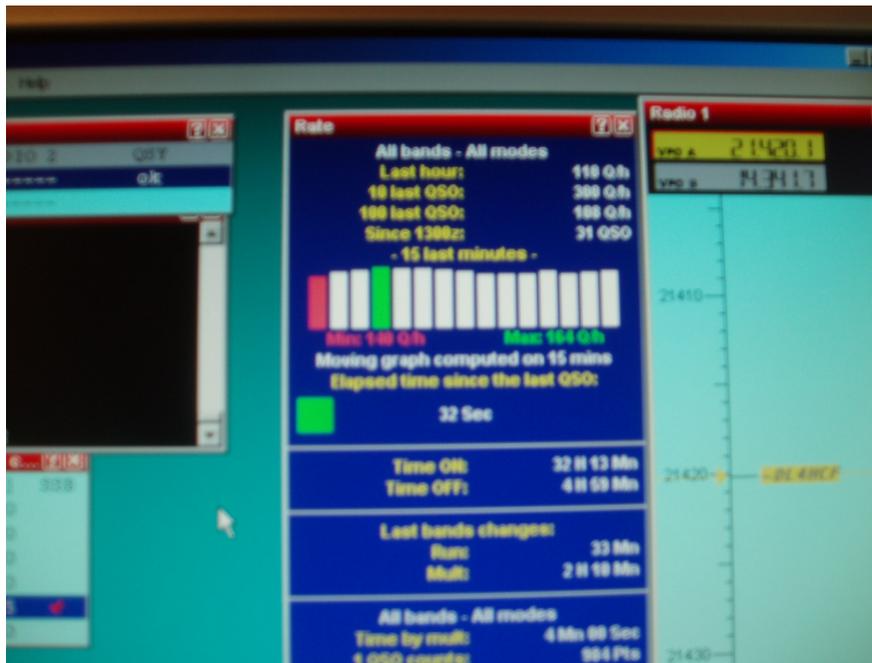
When logging, the software will automatically enter the received zone for you but, especially with a few US calls, it might get it wrong, so be prepared to correct it. If it's a station we've already worked on a different band, the previously received zone will be used, so make sure they match and add a note giving the QSO number of the previous QSO (shown in the Check Multiplier Window) if they don't.

As well as the colour-coding, the Mult station can use the 'Worked DXCC' and 'Worked Zones' windows (not pictured above) to look for mults. Also, if either station enters a callsign and presses tab or space to change field, the text: \* New Country \* or \* New Zone \* will appear immediately below the cursor if it's a mult.

## Making best use of the software

One of the greatest features is SCP ('Super Check Partial') and its variant, N+1. It takes practice, and don't expect to be able to multi-task like this at first, but imagine the following scenarios (just don't rely on it too much):

1. There is a lot of noise on the band. You can hear G3ZA but not the rest.  
Type G3ZA in the log. The Check Partial window will show you the callsigns of all known contesters whose callsigns contain G3ZA. The only one is G3ZAY, which is in green, meaning that we have already spoken to him on another band. It's likely to be him again, so you type a 'Y' on the end of the callsign.
2. You thought you heard the callsign G1ACB and that's what you typed in. But perhaps it was G1ACP? Look up at the N+1 window. That shows you all known contesters whose callsigns differ from G1ACB by just one character.
3. YB1A calls the run station on 15m. You know he's in Indonesia, so we might well need him on another band to get the multiplier for that country, if not zone. You look up at the mult station frequency, which is on 20m at the moment. You check the window showing you whether you need the mult on other bands and find that we need Indonesia on 20m. You quickly ask YB1A if he has another station on 20m. If he gives you a frequency type Alt+G and enter the 20m one. This will now flash up on the mult station's screen, and the mult station can work him. If the mult station can still change bands under the band change rule, he could then ask whether YB1A has a 10m frequency, and if so, go to work him there too.



A good rate from the run station ... fairly solid between 148 and 164 QSOs/hour over the last 15 minutes, with the last ten QSOs made at a speed of over 300 QSOs/hour. (Taken at M4A at about 13:20Z on the Sunday of CQ WW DX SSB 2006)

## If things go wrong with the computers

- If one computer fails, restart it. When Win-Test reloads, do File -> Merge Logs to synchronise the logs across the network.
- If the network fails, make a note on paper of when it happened, inform Martin and/or Dominic, and carry on with the contest as best as possible. We will manually put the logs together later.
- Dominic's phone number: 07989 150680

## Win-Test Cheat Sheet

### Colour-coding in the SCP (Check Partial and N+1) windows

*Red Italic: Dupe (already contacted on this band).*

White: Not yet worked on this band.

**Green bold: Already worked on another band.**

### Colour-coding on the Band-Map

*Grey Italic: Dupe (Do Not Work)*

White: Not worked but not a mult, so only Run station can work him

**Green bold: New country mult.**

**Blue bold: New zone mult.**

To log callsign, then received zone, hit Space after the callsign

To log callsign, then sent RST, then received RST and zone, hit Tab after the callsign

To change frequency to 14.260MHz, enter 14260 as the callsign

To change to a station in the band-map, double-click it

**Alt+G** – Gab. Send a message to other stations on the network

**Alt+N** – Add a plain-text note to this QSO (eg. 'Not sure about callsign')

**Alt+T** – Send command to DXCluster. (Connect with **c gb7cdx**)

**Alt+W** – Wipe. Clears the line currently being entered into the log.

**Alt + F1** – Go down a band

**Alt + F2** – Go up a band

## 2007 Set-up

We will have two FT-1000MPs. The run station will have the TL-922 linear, and the mult will have the Quadra (as that one needs to change frequency more often than the run).

### Important Notes

Be gentle with band change switch on TL922  
Keep all needles in left hand half of meter on TL922 when tuning - especially grid current  
Also never transmit on the SteppIR while it is tuning!

## FT-1000MP Hints and Tips



Remember: the Clarifier and DSP are your friends:

The Clarifier (activated by pressing the RX Clar button and then turning the clarifier knob) allows you to tune in on a station that is slightly off your frequency.

If you have splatter from a station to one side of you on a crowded, you can use the contour control to block out most of that signal. Activate the DSP button, then choose the contour required.

If you encounter interference from a signal tuning on your frequency (constant note), the DSP notch filter may help to remove it.

If you are feeling brave, you might try operating the Run station with both VFOs. As noted previously, you should never have the mult station on the same band as you. But what if you are calling CQ on say 15m and notice on the screen that a needed mult has appeared elsewhere on 15m? Quickly tune the other VFO on the rig to the multiplier's frequency, call CQ on your frequency, if no-one comes back to you, swap the VFOs over, try to have a QSO with the multiplier station, and then swap back to your CQ frequency again. You have to be quick doing this, though, or you will lose the CQ frequency, which could cost even more points. (Also, it's not a good idea to have the two VFOs too close in frequency, so make sure the two frequencies are a little way apart before trying this).

## Working Dupes

Some contesters make a big fuss about working stations twice on the same band/mode. This is an attitude dating back to the days of paper-logging. If someone calls you whom we have already worked, work them again. Either party could have made a mistake.

If you call someone and they say 'In the log' or similar, try to gently persuade them to work you again. If they won't, leave it.

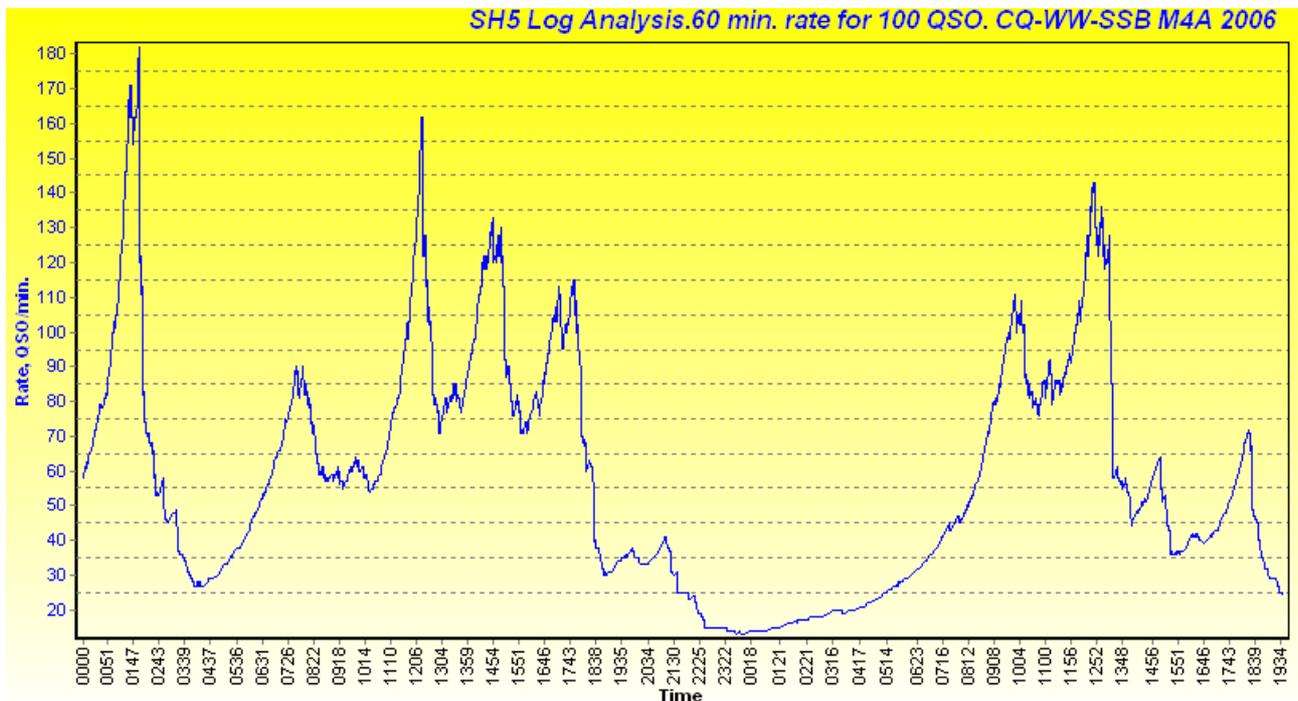
## 2006 Band Choices

We got our choice of what band to be on when pretty good last year, so here's the break-down:

Time	Run	Mult	Comments
0000-0030	40	160	
0030-0100	80	40	
0100-0240	40	160	
0240-0310	160	40	About the right amount of time?
0310-0420	80	160/40	
0420-0610	40	80	Could we have been multiplying on 20 towards then end?
0610-0840	20	40	
0840-1005	20	15	
1005-1055	15	40	
1055-1110	10	-	Mult should probably have been making the 10m QSOs, rather than losing the 15m frequency
1110-1130	15	-	
1130-1310	20	15	
1310-1330	10	15	
1330-1430	15	40	We only made 2 QSOs mult'ing on 40! 10 or 20 would probably have been better
1430-1445	10	40	Ditto. Should we have spent a little more time on 10?
1445-1545	20	15	
1545-1610	15	40	
1610-1620	10	-	Almost all are mults, so mult station should have done these, rather than lose the 15m frequency. Only 7 Qs, so probably not worth 10 minutes!
1620-1655	15	-	
1655-1915	20	80/40	Possibly multiplying on 80 too early, but otherwise good. Rate fell off suddenly at 1830, down to 30. This is around sunset, so should we have moved earlier to 40, and just multiplied on 20?
1915-2140	40	80/160	Good. We even got a frequency immediately on 40m!
2140-0020	80	160	Was this too early to change? Looks like we were struggling to hold a frequency on 40m, so we moved to 80
0020-0310	40	20/160	Don't neglect 20m in the evening! Might we have got some there earlier?
0310-0430	80	20/40	
0430-0600	40	-	
0600-0830	20	40	Rate steadily climbs with the sun, up to 100 by 0830. Was probably good to move when we did, though, as we'd have mainly worked 40 out.
0830-1000	15	-	
1000-1040	20	-	
1040-1210	10	15	
1210-1235	20	-	Looks like we struggled to keep a 20m frequency
1235-1410	15	-	Rate suddenly drops from 130-60 at 1330. Why?
1410-1430	10	-	Mult should have done this, rather than waste 20 mins for 6 Qs
1430-1640	20	15	
1640-1755	15	20	

1755-1900	20	-	
1900-1920	40	-	Too early for running? Wasted 20 mins for 5 QSOs, could have been getting 3 pointers on higher bands
1920-1955	80	-	
2000-2020	40	-	Same comment as above. Just 4 QSOs as we couldn't get a frequency
2020-2100	160	-	Probably would have done better on 20?
2115-2215	20	160	Too late for 20 by now
2215-2320	40	160	
2320-2345	160	40	
2345-0000	40	-	

## 2006 QSOs per Hour



## 2007 Propagation Forecast

Propagation in 2007 is expected to be very poor. Last year, my forecast was based on a solar flux of 75 and A of 15 on the Saturday, decreasing to 5 on Sunday, due to a recurring coronal hole. This year, we are expecting a flux of just 67 units, but with A following a similar trend (high on Saturday, improving on Sunday).

Consequently, the forecast openings are not much changed from last year, and so a new forecast has not been prepared. A copy of the forecast from last year will be in the shack during the 2007 contest, and is also available from me on request.

## 2006 analysis

(A version of this analysis was emailed to soc-cuws-active on 31<sup>st</sup> October 2006. Bits in italics are new comments for the 2007 contest)

### BAND QSO DUP DXC CQ POINTS AVG

160	73	0	40	6	78	1.07
80	281	0	61	12	331	1.18
40	396	0	85	23	797	2.01
20	980	8	118	35	1845	1.88
15	591	0	113	31	1004	1.70
10	189	2	53	16	247	1.31

TOTAL 2510 10 470 123 4302 1.71

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TOTAL SCORE : 2 551 086

*This was an improvement on 2005. Can we beat it again?*

\*Operators:\* DL5RB, G3ZAY, G7VJR, KC5WNG, M0BLF, M0DEG, M0FFX, M0HSW, M0TDG, OZ7AGL

\*Soapbox:\* A very fun contest entry with a large team made up almost entirely of current students or recent graduates of Cambridge University. We had our fair share of problems, such as melting two baluns during the weekend, which left us with 80m for much of Sunday evening, and we also had only one 14/21/28MHz antenna, so the mult station could not use these bands while the run station was on one of them. Nevertheless, we improved on our score from last year and felt that conditions weren't as bad as they might have been.

#### Highs and lows

Good points were beating last year's score and taking the opportunity to introduce many students to contesting for the first time.

Low points included melting two baluns, which meant that we couldn't use 80m for the last four hours on Sunday; getting the mobile tower stuck and not having sufficient antennas for a full mult station.

#### Band breakdown

(QSO totals below include dupes)

Band	QSO	%	Time	%	QSO/min.
160	73	3	79	4	0.924
80	281	11	273	13	1.030
40	396	16	409	19	0.968
20	988	39	855	39	1.160
15	591	23	411	19	1.440
10	191	8	149	7	1.280
Total	2520	100	2176	100	0.877

*Ahead of the 2006 contest, I had remarked that the previous year we had spent too long on 40 and 15m at the expense of 20m. In 2006 we did a lot better on the time/QSO ratio but we could still reduce our reliance on 40m slightly, in favour of 15m. Nevertheless, the score table shows that 40m did again give us most points per QSO, indicating that the dipole and four-square were getting us the DX and so this band shouldn't be neglected.*

#### Distribution

There were 1970 unique calls in the log, of which 2 were worked on all bands, 8 on five bands, 24 on four bands and 82 on three bands.

Rates

we had 6Qs/min at these times:

(MHz	Mode	Date	Time)
7158	PH	2006-10-28	0141
7157	PH	2006-10-28	0205
7158	PH	2006-10-28	0234
14246	PH	2006-10-29	1215

(I think Mike did the first 3 of those, and I did the other one)

We had 5Qs/min at the following times:

7158	PH	2006-10-28	0148
7157	PH	2006-10-28	0203
7158	PH	2006-10-28	0222
7158	PH	2006-10-28	0225
7158	PH	2006-10-28	0229
14284	PH	2006-10-28	1233
14284	PH	2006-10-28	1244
14151	PH	2006-10-28	1505
14151	PH	2006-10-28	1514
14151	PH	2006-10-28	1517
14115	PH	2006-10-28	1721
28346	PH	2006-10-29	1207
21420	PH	2006-10-29	1307
21420	PH	2006-10-29	1311
14322	PH	2006-10-29	1542
3669	PH	2006-10-29	1943

(Again, I think I'm right in saying that Mike is responsible for the Saturday early morning QSOs, Tim and I did Saturday afternoon, I did Sunday lunchtime and Tim did Sunday evening)

And we had 4Qs/min during a further 56 individual minutes.

**and some thoughts from Phil M0DEG (emailed to soc-cuws-active on 1<sup>st</sup> November 2006):**

We had:

- 160m Inverted V on the 60' tower.
- 80m directional whatnot on the mobile tower
- 80m Inverted V on the 60' tower (after the above came down)
- 40m 4 square
- 40m rotating dipole
- 20m/15m/10m Steppir (sharing a rotator with the 40m dipole).

The hours of work you guys put into erecting antennas paid off. The 40m 4 square and the 80m directional antenna were especially good. One issue was that the mult station didn't have antennas for the higher bands, so was limited to either using the 40m dipole on 15m, or staying on 40m during the day when the run station was using the steppir.

*We have a mult yagi this year. Thanks to G3ZAY and the rest of the working party!*

We smoked several supposedly 1kw baluns on 160 and 80. Either bigger baluns or chocolate blocks are needed.

The mobile tower jammed up because of the sideways load on it. Removing the load fixed the problem, and let the tower come down. Guy ropes would have lessened the risk of the tower blowing over, and let us keep it up if the wind had got bad. Martin mentions that the winch on the mobile tower is a bit old and might need replacing.

*It will only be supporting the 80m dipole this year :)*

The fuse in the 4 square went for some reason. It was replaced with a spare found in the tool box.

*Quote from ZAY 'Haven't got one... A piece of wire will do'!*

Rig  
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The 2 radios with headsets worked flawlessly. Noise cancelling was definitely an advantage. The FT-2000 did a good job of digging DX out of a pileup on the mult station. Tuning the TL-922 wasn't too hard after all, and the Quadra+FT1000 worked without issue except for the time that the Quadra threw its toys out of the pram and refused to tune up.

*We'll be using two FT-1000MPs this year (Thanks Martin for buying another second-hand at HFC). We'll have the same linears this year.*

Whether it was intentional or not, having the keyboard in front of rig for the run station and to the side for the mult station worked well, since the run station is mostly typing in call signs, and the mult station is mostly tuning around. There were intermittent RFI problems locking up the USB keyboard and mouse. At times it would have been useful to have a USB mouse for the laptop. I had never used 'stamp-to-talk' before, but it is nicer than VOX, in my opinion.

WinTest is magic, and we should remember that Dom is the master of it. I didn't have a very good understanding of when it was OK to work a station as a mult and when not, given the user interface of WinTest. Some screenshots of Work/Don't Work cases would be nice for new users.

*I hope the first few pages of this document help!*

Some way of checking the quality of our transmitted audio would have been nice to have.

Other Things  
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I should think about eating and sleeping arrangements somewhat earlier. Many thanks to Martin for both putting me up and helping me find my way at half 7 in the morning. Next time draw up a map first.

When the 80m balun blew up, we didn't have a decent torch with us. I must remember to bring something with a bit more power than a key ring light.

*Good point. There are two in the shack. Do other people have torches too?*