

Q65 QSO PROCEDURE AND TIPS FOR EME DXPEDITIONS

The new Q65A mode in WSJT-X offers a number of advantages over the older JT65 mode. Because all messages include both callsigns, there no longer can be any confusion regarding the station being sent a report, RRR or 73! And there can never be any question about the validity of a contact, because the contact now involves exchange and confirmation of callsigns, reports AND some unknown information (the dB level of the report). And the MULTIDECODER averages callers across the bandpass and displays all stations decoded! In addition, the bandwidth is half that of JT65, so it is much easier for many stations to spread out and still be in the bandpass! However, with Q65A, it is **ESSENTIAL** that your computer time is very accurate and your transmitter frequency is very stable, so please make sure of this!

If you are new to Q65A, please setup your system according to the step-by-step checklist on my website:

<http://www.bigskyspaces.com/w7gj/Q65SETUP.pdf>

Q65A-60A mode will be used for all 6m EME operation, and the DXpedition will always transmit in the FIRST SEQUENCE. My plan is to use 50.190 unless there is a problem with that frequency, in which case another frequency such as 50.200 will be announced. Please see the ON4KST EME chat page and the MMM on VHF internet pages for last minute status updates.

Typically, on ionospheric propagation, the rule is that stations not call unless you hear the DX station. However, on 6m EME, propagation between linearly polarized stations is often non-reciprocal, so I may copy you even though you are not copying me. Besides, after hours and hours of not hearing any callers, I may decide to shut down and get some sleep! It is always valuable to know that there are still stations out there trying to make a contact. So I always invite people who are QRV to call even if they are not copying me at that particular time. Often, I will stay operating longer than originally planned if I see stations still calling me, or see their calls accumulate in the AVERAGE column.

Much valuable moon time can be lost during EME DXpeditions by trying to answer stations who are not copying. If they are not copying me, of course they will only send calls and their gridsquare (Q65 standard message #1). Please make sure you start out with my callsign in the DX CALL box and my grid in the DX GRID box, and then press the GENERATE STANDARD MSGS bar to properly populate the standard messages. And of course, click in the round circle to the left of TX#1 so you can start out calling ME instead of CQ! I always use the standard EME QSO procedure, which involves alternating down through the standard messages, *EXCEPT* that I ask people who are seeing something from me during my last transmit sequence to call me with calls and a fixed report rather than just callsigns, as explained below.

If you **ARE** seeing a signal from me **IN THE IMMEDIATELY PRECEDING SEQUENCE** (even if it is only a trace from me on the Wide Graph waterfall, or you decode me sending a message to someone else), I ask that you call me with calls and a report (Q65 standard message #2). . If you are no longer copying me at that time, it is **ESSENTIAL TO REMEMBER TO CHANGE YOUR TRANSMITTED MESSAGE BACK TO ONLY CALLS AND YOUR GRID** (Q65 standard message #1)!

If you previously sent me TX#2, lost me and had to switch back to TX#1, please make sure to select the same report (using the little up/down arrows next to the REPORT box in the center of the screen) before you go back to sending me TX#2 the next time you see me again. It is important that you NOT change your report from time to time, since I will be trying to decode it using the AVERAGE option, and it will not be possible for me to decode your TX#2 in the average if you keep changing the report. When I reply to you, you should be able to decode me if you saw something from me the preceding sequence.

Because both calls are included in every message, when I receive your standard message #2, I can reply with standard message #3, in the expectation that I will quickly receive message #4 (calls and RRR). The advantage in answering a station who is copying me at that time is that is that a station will be chosen who can be worked quickly. When one station receives a message with final RRR, the contact is complete. We both will **NEVER** use RR73, so please make sure your standard message #4 is calls and RRR!

If it is me receiving the final RRR, I will most likely simply start sending standard message #3 to the next caller who appears to be copying me at that time, indicated by calling me with message #2 (calls and a report). If you see my

message change, that is an indication to you that I received your RRR. If I see no other callers, I will send you standard message #5 (calls and 73) or switch to message #6 (CQ with my gridsquare), which is very easily decoded by everyone. Usually, however, I will only call CQ when I am not decoding anybody.

If it happens to be me who is sending you message #4 (calls and RRR), I will continue to keep transmitting message #4 until I receive message #5 (calls and 73) from you. When I receive 73 from you, that will be my sign that it is finally OK for me to stop sending you RRR and time for me safely to move on to the next caller. **NOTE:** You may have to uncheck AUTO SEQUENCE and/or press ENABLE TX to keep sending 73 to me! Make sure on your FILE/SETTINGS/BEHAVIOR screen that you have NOT checked the option to DISABLE TX AFTER SENDING 73, since you may have to send 73 a number of times for me to receive it!

Remember that the polarity often will probably not be correct for both stations at the same time, so we very well may not be copying each other at the same time. Therefore, I will keep trying to answer you even if you do not seem to be copying me, at least until I see someone calling who IS COPYING me right at that time (someone who is calling me with message #2). I have used this method very successfully on my previous JT65 6m EME Dxpeditons.

Please do NOT stop calling me when I am in QSO with someone else! That allows me to decode all the callers and select the next station to work while I am transmitting to the first station. And please, PLEASE NEVER CHANGE your frequency after you have started to call me – Q65 averages signals from the callers on each particular frequency, so I will lose the benefit of your previous calls if you move! Choose a clear frequency to call on and stay there! I will be using the offset of your signal to identify you. After a QSO is complete, I will call the next station but only if he was still transmitting the period before.

I will be moving the antenna by hand to track the moon, so I will have to leave the ham shack from time to time, and may have to stop transmitting during these periods (especially when the moon is very high on my end and I don't want to risk having the lower elements burn the guy ropes or me). Please, do NOT stop calling if you see my signal stop! I can still see what was received when I get back to the operating position, or I may even be able to continue transmitting using AUTO SEQUENCE while I am outside aiming the antenna.

As the DX station, I expect to be doing primarily one of the following:

1. Calling CQ with my callsign and grid (Q65 standard message #6). This will be sent only if I have not identified a caller. CQ is most easily decoded by everyone listening, because everyone knows my callsign and gridsquare in advance.
2. Replying to someone by sending both calls, a report and confirmation of report reception (Q65 standard message #3). This is very easily copied by the person involved in the contact, although other listeners may not decode it as easily.
3. Sending final RRR (Q65 standard message #4) or 73 (Q65 standard message #5) to the person with whom I am completing a contact. Please send 73 (Q65 standard message #5) after you receive my RRR so I know the contact is complete and I can move on. As soon as I receive 73, I will either call the next station on the list or go back to calling CQ (only if I see no callers).

Below is an example of how this works in an EME pileup, using TX7MB as the DXpedition station:

DX STATION (FIRST SEQUENCE - EVEN MINUTES)	HOME STATION(S) (SECOND SEQUENCE - ODD MINUTES)
CQ TX7MB CI00	TX7MB N0TB EN34 TX7MB OH2BC -24 TX7MB K2ZD -28 TX7MB ON4GG -26
OH2BC TX7MB R-22	TX7MB OH2BC RRR TX7MB K2ZD -28 TX7MB ON4GG JO20 TX7MB G8BCG -28

K2ZD TX7MB R-24	TX7MB N0TB -30 TX7MB K2ZD RRR TX7MB ON4GG JO20
N0TB TX7MB R-20	TX7MB N0TB RRR TX7MB G8BCG IO70 TX7MB ON4GG -24
ON4GG TX7MB R-22	TX7MB G8BCG -22 TX7MB ON4GG RRR
G8BCG TX7MB R-24	TX7MB G8BCG RRR
CQ TX7MB CI00	

In the above examples shown, notice that I always start out answering people who are copying me. Valuable moon window time is not wasted replying to people who cannot copy me. REMEMBER- Callers may not actually be DECODING ME at that moment, but if they are SEEING my Q65 trace on the WIDE GRAPH waterfall screen or see my Q65 ORANGE SPIKE below the waterfall, they probably will copy me OK as soon as I reply to them. This is a business requiring careful attention to what you see on the waterfall, as well as deciphering the information shown in the decodes.

If I have to choose between two stations who apparently are currently copying me, I try to choose the one who has the least amount of moon time left or will try to give priority to callers who have a record of 6m EME DXpeditions or have made a contribution to this DXpedition. Obviously, during European moonset, I will give priority to stations in Europe. When I am finished working all the stations who have indicated they are seeing me, I will start replying to the other stations until I find one who also is copying me. If there is no station clearly copying me, I will try replying to different callers until I get a message #3 in return. Only if I cannot see any callers, will I call CQ.

NOTE: If a station calls me with message #2 reports to indicate he is copying me, he had better be telling the truth! If I reply with message #3, and he does not reply with message #4, he goes to the bottom of my list. I will try to work all other callers and will only reply to him if there are no other callers seen.

Of course, for this to work best, all the callers need to SPREAD OUT so they don't QRM each other. With my Airspy R2 receiver, I have a very nice flat bandpass, and can see callers from 200 to 2600 Hz. Please spread out and leave 100 Hz between you and other callers, and remember to watch that your Doppler shift doesn't move your signal out of my bandpass! I probably will not have internet, so I cannot ask you to move - please coordinate this among yourselves. Fortunately, most modern home stations have the luxury of an internet connection so they can use the ON4KST EME CHAT page to coordinate among themselves to spread out:

<http://www.on4kst.org/chat/login.php?band=5>.

If you have questions about the procedure or on what frequency and offset to call, please feel free to ask other people on the above chat page. EME operators are a very helpful and friendly group! Please do not try to contact me multiple times. The windows will be very short - especially with Region 1 stations - and I want to be able to concentrate as much as possible on completing with new stations.

I hope to be able to provide an update to my log of contacts from time to time, as I can find access to the internet. For updates, watch my web page as well as posts to the MagicEME email list.

Good luck and I hope to be able to put you in the log! Thanks for your support and your effort to get on and watch for me.

GL and VY 73, Lance W7GJ

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