

# California QSO Party

## Operator's Guide to the California QSO Party For Operators Inside CA

This is a guide for both beginners and experts in the California QSO Party on the following topics:

- Calling CQ vs. Search & Pounce (S&P)
- Operating CW
- Operating SSB
- What frequencies to operate
- When to operate and which bands to operate
- Multipliers
- Assisted vs. Unassisted
- Power level
- Additional tips

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## Calling CQ vs. Search & Pounce (S&P)

- You are a station inside CA. Most stations outside of CA are tuning the bands, listening for CA stations calling CQ. The California QSO Party is the one time every year that the entire world is tuning the HF bands, looking for you! So, you should call CQ as much as possible, and as long as you are able to get responses.
- Calling CQ is not just for the biggest stations. If you have a modest station, you should also be calling CQ. See specific techniques throughout this document to be successful as a small station.
- Search & Pounce (find other stations calling CQ) whenever you aren't getting responses to your CQs.
- Sometimes a band is open when we assume it is closed. 10M and 15M are good examples. Calling CQ is the way to jumpstart action on these bands. If you are listening for activity, and stations outside of CA are also listening for activity, then no one is transmitting and no one is making any QSOs! Make the first move as the CA station by calling CQ.
- For the biggest stations that mostly call CQ, you will find it advantageous to S&P at certain times. For example, Saturday evening on 80M CW, there are many CA stations calling CQ. Don't miss this opportunity to S&P for a lot of easy QSOs.

## Operating CW

- CW activity was at an all-time high in CQP 2020.
- CW QSOs are worth 3 points in CQP, while SSB QSOs are worth 2 points. You should consider staying on CW for this scoring advantage as long as you are able to continue making QSOs at a reasonable rate.
- Use computerized CW keying. Connect a CW keyer to the USB port on your computer and configure it with a contest logging software program that supports it. Because the CQP exchange includes a serial number, you will find it extremely useful for your computer to send the CW, as opposed to you keeping track of every serial number and manually sending it with a CW paddle. Some popular options are:
  - K1EL WinKeyer: <https://hamcrafters2.com/>
  - Mortty CW keyer which emulates Winkeyer protocol: <https://hamprojects.info/Mortty/>
  - Use the serial port or USB port on your radio to key CW. For information about how you do this for your specific Elecraft, Icom, Kenwood or Yaesu radio, see this impressively detailed presentation by Bob N6TV:
    - “Everything You Need to Know about USB and Serial Interfaces”  
<https://www.kkn.net/~n6tv/Everything%20You%20Need%20to%20Know%20About%20USB%20and%20Serial%20Interfaces%20by%20N6TV.pdf>
- Spend time setting up CW messages in the function key definitions of your contest logging program. It is well worth the effort.
- How to call CQ on CW in CQP:

In this example, assume you are signing the callsign N6DE.

Preferred CQ option:

  - CQ CQP N6DE

Other CQ options:

- CQ N6DE N6DE
- CQ TEST N6DE
- CQ N6DE N6DE CQP

You will want to be spotted on the Reverse Beacon Network (RBN) by CW Skimmer nodes around the world. This is so that the stations in CQP that are operating in the Assisted category will be able to see what frequency you are on and tune to you to give you a QSO. The above examples will be successful in spotting you to the RBN.

A frequently used CQ option:

- CQP N6DE

This is a way of shortening your CQ message and is used by several CQP participants. However, keep in mind that this CQ message will not get you spotted on RBN. You will be missing out on an audience of callers who may not find you. If you still like this short CQ message, make sure you also have an additional function key programmed for a long CQ message like "CQ CQP N6DE". Send the long CQ message twice in a row every 10 minutes, then use your short "CQP N6DE" message the rest of the time.

Also, if you program your CQ message to change speeds during the message so that the CQ portion is sent fast but your callsign is sent slower, that also will not get you spotted to RBN. So, keep the CW speed the same for the entire string that you transmit.

- What if I'm in CA but I have a non 6-land callsign?

Let's take Tom N3ZZ in CA as an example. Stations outside of CA may hear N3ZZ calling CQ and incorrectly conclude he's not in CA, so they may decide not to call him. What can N3ZZ do to indicate to stations that he is in CA when he calls CQ on CW?

- Option 1: Sign N3ZZ/6.
  - CQ CQP N3ZZ/6
  - There is no FCC requirement to sign /6.
  - It does not matter to the CQP organizing team whether you sign N3ZZ or N3ZZ/6. This is your personal decision.

- Option 2: Still sign N3ZZ but indicate he is in CA.
    - CQ CQP N3ZZ /CA
    - “/CA” at the end of your CQ message, with enough spacing between N3ZZ and /CA, will indicate to the listener that N3ZZ is in CA.
- Option 3: Ask the owner of a 6-land callsign to use his/her callsign or club callsign during CQP.
  - CQ CQP N6CQP
  - If you need assistance finding an available club callsign to use for CQP, please email [cqp.chairman@gmail.com](mailto:cqp.chairman@gmail.com) and we will help you.
- Option 4: Reserve a special event 1x1 callsign for the contest event.
  - CQ CQP K6A
  - Check availability and reserve a 1x1 callsign at:  
<http://www.1x1callsigns.org/>
  
- If I'm a mobile station, how do I call CQ on CW?  

Let's take K6AQL/M in Glenn County as an example:

  - Option 1: CQ CQP K6AQL/GLEN
  - Option 2: CQ CQP K6AQL K6AQL/GLEN

You want to be logged in everyone's logs as K6AQL/GLEN instead of K6AQL. The reason is that when you move to the next county (example: Colusa), you want stations to enter your call as K6AQL/COLU, which appears as a new QSO, instead of K6AQL, which appears as a Dupe.

Sending your callsign once makes your CQ message shorter. Sending it twice allows the listener to hear your callsign, know that it's you as a recognizable mobile station in CQP, and then get ready to enter your callsign with the /<cty> suffix. This way, the caller doesn't have to wait to you're your CQ message a second time to be sure about your new county. It's your personal preference which option to choose.

Your TU message can be:

- Option 1: TU K6AQL/GLEN
- Option 2: TU K6AQL

One other note about CQing:

- Don't call CQ as K6AQL/M. Listeners will not know if you are a duplicate QSO or a new QSO because they won't know your county. Also, if you call CQ as "CQ CQP K6AQL/M GLEN" then listeners will know your county but they will log you as K6AQL/M. You don't want that either because the next time they come across you in another county, K6AQL/M will appear as a dupe in their log, and they won't immediately remember the county they logged in a previous QSO with you.
- Here is an example of a complete CW QSO with good form in CQP:
  - <from N6DE> CQ CQP N6DE
  - <from K8MR> K8MR
  - <from N6DE> K8MR 1 SCLA
  - <from K8MR> TU 1 OH
  - <from N6DE>TU N6DE

Observations:

- The S&P station (K8MR) only sent his call once and then listened. Do this when you answer someone's CQ. Don't send your callsign twice or more.
- Serial number and QTH were only sent once.
- Both stations did not send "NR" before the number. This is personal preference. There can be a case made to send "NR" before your number. This makes every exchange take longer, but some stations may not be ready to immediately copy the serial number upon your transmission and might have to ask you for the number again, which would waste time. A CQing exchange with NR would be "K8MR NR 1 SCLA" and an S&P exchange with NR would be "TU NR 1 OH".
- Both N6DE and K8MR did not send leading 0s for their serial number. They sent 1 instead of 001. They also did not use "cut numbers." They didn't send TT1. For example, T is a "cut number" for 0 and N is a "cut number" for 9. Don't use "cut numbers" in CQP for your serial number because it will only create confusion.
- In the "Thank you" message, N6DE signed his callsign at the end of the QSO, instead of just sending "TU QRZ?". Send your callsign at the end of every QSO as the CQing station.
- If you are a QRP station, do not send your call as K8MR/QRP. Simply send K8MR.

- CQing with good technique
  - Listen to audio recordings from CQP 2020 by CQing stations with good form:
    - <https://cqp.org/av.html>
- How to ask for fills
  - If you're the CQing station or the S&P station, chances are good that sometimes you will need the other station to repeat their callsign, serial number or QTH.
  - For callsign, send "CALL?"
  - For serial number, send "NR?"
  - For county, send "CTY?"
  - For US/VE mult, send "STATE?" or "QTH?"
  - If you need the whole exchange again, send "AGN"
- CW Speed in CQP
  - For information about what CW speeds to expect in CQP, please read:
    - [http://cqp.org/files/cqp2020\\_cw\\_speeds\\_rbn.pdf](http://cqp.org/files/cqp2020_cw_speeds_rbn.pdf)
  - If someone is operating at a speed faster than you can copy, send QRS. They will most likely slow down so that they can make a QSO with you.
  - Operate at your comfortable CW speed. If your proficient CW speed is 20wpm, then operate at 20wpm. Find a frequency in the CW band above where the main action is and call CQ at your proficient speed. You will still make a lot of QSOs!
  - If you called CQ at 35wpm or faster in CQP 2020, you were transmitting faster than most everyone in the contest. You may want to ponder the time savings of quicker transmissions vs. any negatives such as reducing your available audience of callers or causing your callers to have to ask you for fills.
- Where to find CW activity in CQP
  - CQP rules suggest 40kHz from bottom of the band on 10m-80m and 1815kHz on 160m.
  - For charts showing where exactly the CW activity was on 20M and 40M in CQP 2020, please read:
    - [https://cqp.org/files/cqp2020\\_frequencies.pdf](https://cqp.org/files/cqp2020_frequencies.pdf)
  - If you have a modest station, or if you are a mobile, consider calling CQ at the high end of the frequency ranges shown in the above analysis. You will be heard better there in the clear as opposed to being lost among loud stations in the middle of the activity window. K6AQL/M is a successful

example of this strategy. He operated in the high end of both 20M and 40M and made over 1,000 QSOs combined on those two bands, not including his QSO totals on other bands.

- Practice
  - Go to the CQP Audio-Video page at:
    - <https://cqp.org/av.html>
    - Listen to the two CW audio clips. Open a CQP test log in your contest logging program, pretend you are the CQing station, and try copying the callsigns and exchanges. At the end, compare your log with the log posted on the web page. This is a great way to get into the groove for the CQP exchange, for practicing CW, and for typing callsigns and exchanges into the contest logger you'll be using in the real CQP.
  - Participate in the CQP practice session on the Friday before CQP. Look for details on <https://cqp.org> the week before CQP.
  - Participate in other QSO Parties. See them listed the WA7BNM contest calendar page:
    - <https://www.contestcalendar.com/stateparties.html>
- Want to learn CW or increase your speed?
  - CWOps has a great program called CW Academy. Check it out at:
    - <https://cwops.org/cw-academy/cw-academy-options/>

## Operating SSB

- There will be lots of activity to keep you busy on SSB in CQP. Here are some tips.
- Watch a 2 minute video of W6S (W1SRD op.) calling CQ in CQP 2020. This is an excellent example of good operating technique in CQP, while also showing him logging stations live in the N1MM+ contest logger.
  - <https://cqp.org/av.html>
- How to call CQ on Phone in CQP:  
In this example, assume you are signing the callsign N6DE.
  - CQ California QSO Party, November 6 Delta Echo
- Here is an example of a complete SSB QSO with good form in CQP:
  - <from N6DE> CQ California QSO Party, November 6 Delta Echo
  - <from K8MR> Kilo 8 Mike Radio
  - <from N6DE> Kilo 8 Mike Radio 1 Los Angeles
  - <from K8MR> Thank you, 1 Ohio
  - <from N6DE> Thank you, November 6 Delta Echo
- Ways to say your county
  - If your county is easily understood when you say it (examples: Los Angeles, Lake, Glenn, San Francisco, Sierra), then you can simply say your county name.
  - For most CA counties, the abbreviation to log will not be obvious from hearing the county name. There are counties that sound very similar (Marin and Mariposa, San Benito and San Bernardino). Also, it will not be obvious to most stations outside of CA that upon hearing San Joaquin, the abbreviation is SJOA. For these reasons, you ought to give your county abbreviation phonetically.
    - <from N6DE> Kilo 8 Mike Radio 1 Sierra Juliet Oscar Alpha
  - You can also say the word “County” at the end of your county.

- <from N6DE> Kilo 8 Mike Radio 1 Nevada County
  - This makes it clear you are in Nevada County, California, not the State of Nevada.
  
- Saying your number
  - You may find that saying the word “number” will help increase the chance of your number being copied the first time:
    - <from N6DE> Kilo 8 Mike Radio Number 1 Los Angeles
    - <from K8MR> Thank you, Number 1 Ohio
  - Give your number, one digit at a time, to increase readability.
    - For number 965:
      - Say “Number Nine Six Five”
      - Don’t say “Number Nine Hundred and Sixty Five”
      - “Sixty” and “Fifty” sound very much alike and are often confused.
  
- Phone operating DO’s and DON’Ts
  - DO’s
    - Use phonetics.
    - Speak clearly, at your normal pace.
    - Keep reminding yourself during the contest of the phrase “Omit needless words” from *The Elements of Style* by Strunk and White. This mindset will help you in Phone contesting.
    - Ask for repeats on the callsign, serial number or QTH if you didn’t get it the first time.
    - Correct the station’s callsign in your “Thank you” message if you got it wrong the first time.
      - <from N6DE> CQ California QSO Party, November 6 Delta Echo
      - <from K5TR> Kilo 5 Tango Radio
      - <from N6DE> Kilo 5 ECHO Radio 1 Los Angeles

- <from K5TR> Kilo 5 TANGO Radio, Thank you, 1 Texas
- <from N6DE> Kilo 5 TANGO Radio, Thanks, November 6 Delta Echo
- Persist and adapt. Phone contesting can be difficult at times. If you don't get an answer to your CQ after about 5 minutes, try something else. Either try a different frequency or a different band. Sometimes you will be on the same frequency as another CA station who you can't hear.
- Be patient. If you are calling CQ, you may have many casual stations call you. Work dupes instead of giving them a hard time for calling again. Help make their exposure to contesting a positive one.
- Be mindful that there are non-contest uses of the 20M Phone band by nets, emergency frequencies and maritime channels. There should be enough room in the Phone band to avoid these and spread out.

- DON'Ts

- Say "Please Copy." It's not needed.
- Give signal report. It's not a part of the CQP exchange. If a station asks you for a signal report, give it to them, but otherwise don't give signal reports.
- Repeat back the station's exchange if you don't have questions about it. For example, don't say "Thanks for the number 27 in Connecticut, and good luck in the contest, this is November 6 Delta Echo, QRZ?" Just say, "Thanks. November 6 Delta Echo"
- Say your callsign twice in a row when answering someone. Just give it once and listen.
- Say your exchange twice.
  - Instead of "You're number 27, Twenty-Seven, in San Joaquin County, that's Sierra Juliet Oscar Alpha, QSL?" just say "Number 27, Sierra Juliet Oscar Alpha"

- Get in a frequency fight. There will be plenty of other open frequencies available in the Phone band in CQP. Just move to a better frequency and call CQ again.
- Headsets
  - You should use a headset: headphones with a microphone built in. Using a hand mic or desk mic occupies one hand, forcing you to type QSOs in your logging software with the other hand. This will slow you down considerably. Invest in a headset. Popular headsets that contesters use are:
    - Inrad W1
    - Yamaha CM500
    - Radiosport headsets by ARLAN Communications
    - Heil Proset
  - It is not our place to provide a review of each headset. Please do research, read reviews on eham.net, and ask your contest club members for advice.
- VOX vs. Footswitch
  - There are two ways to key PTT on SSB.
    - VOX
    - External footswitch
  - This is personal preference. VOX requires you to adjust settings in your radio, fine tuning them for your particular situation. If VOX settings are not adjusted well, you will experience problems. Instead, a footswitch is an inexpensive alternative to VOX and is the foolproof way to control PTT for SSB contesting. A majority of competitive SSB contesters use footswitches.
- Mic Gain and Compression Settings
  - Adjust your mic gain and compression settings carefully. A common mistake is to set these too high. It results in poor audio which is difficult to understand.

- Before CQP, ask someone on the air to listen to your audio and give you suggestions as you adjust mic gain and compression.
  - Please read a great presentation by Jim K9YC on the topic.
    - “Clean, Punchy, Competitive Contest Audio Without Splatter”  
<http://k9yc.com/ContestAudio.pdf>
- Voice Keyer
  - Consider using a voice keyer to help you save your voice.
  - Record a CQ message, a “Thank you” message and a message with just your callsign sent once.
  - Some radios may have a voice recording option built in, such as the Icom IC-7610 or the Elecraft K3S with the DVR option. Through a rig control connection between your radio and a logging program which supports a command to transmit your prerecorded messages on your radio (N1MM+, for example), you should be able to configure different function keys to transmit your voice recordings.
  - Another way to do this is to record WAV files on your computer with software like Audacity, trim and adjust each WAV file, connect your computer’s sound card to your radio, and configure your logger to transmit certain WAV files associated with defined function keys. Watch a video presentation by Jim K9YC demonstrating this process.
    - <http://nccc.cc/misc/RecordingVoiceMessages-K9YC.wmv>
- Recommended Reading
  - Finally, you should read pages 53 to 58 of the following tutorial by Jim K9YC. These pages include info about types of microphones, speech frequency content and levels.
    - <http://k9yc.com/RFI-Ham.pdf>

## What Frequencies to Operate

- From CQP rules:
  - **BANDS:** 160, 80, 40, 20, 15, and 10 meters  
**Frequencies:**  
CW: 40 kHz up from the bottom band edge on 10m-80m; 160m at 1815 kHz  
SSB: 1845 kHz, 3610 & 3750-3820 kHz (avoiding 3790-3800 kHz DX window), 7230 kHz, 14250 kHz, 21300 kHz, 28450 kHz.
- For charts showing exactly where activity was on the busiest bands (20M and 40M) in CQP 2020, please read:
  - [https://cqp.org/files/cqp2020\\_frequencies.pdf](https://cqp.org/files/cqp2020_frequencies.pdf)
- Conclusions from this analysis
  - If you are a large station that can easily command a frequency, you can see where most of the QSOs were made on 20M and 40M.
  - If you are a small station, spread out from the main activity. Notice that there is 50kHz of space on CW where CQP activity takes place, 180kHz on 20M SSB and the full 175kHz on 40M SSB. Take advantage of that fact and try a spot above or below the main fray so that you can be heard.
  - When you are S&P, make sure to check the full range shown in the analysis for stations.
  - Don't waste time in a frequency fight with a net or another station. There are plenty of available frequencies in CQP. QSY somewhere that you can hear well. Stations will find you.
- For activity on less active bands, it makes sense to congregate closer to the suggested frequency in the rules. As an example, if you are on 10M CW to call CQ and check if the band is open, it makes sense to do this close to 28040kHz instead of 28020kHz or 28060kHz. Stations outside of CA may quickly scan the area around 28040kHz, and if they don't hear anything, they may QSY to another band and miss you calling CQ far away from the suggested center frequency in the CQP rules.
- Make sure to relinquish your frequency for any emergency purposes.
- Don't operate too close to the upper band edge on 20M SSB. The highest you should go is 14347.0kHz.

## When to operate and which bands to operate

- In CQP, you are able to contact a station on each band and each mode for QSO credit. This means that over the course of a contest, you can make a maximum of 12 QSOs with just one station (CW and SSB, 10M-160M). Use this to your advantage by frequently moving between bands and modes.
- From the CQP rules, if you are a Single-Operator, you can operate a maximum 24 of the 30 hours in CQP. Break times need to be at least 15 minutes long. This is different than other contests, where off-times are either 30 minutes or 60 minutes minimum at a time. If you're a competitive station and trying to operate all 24 hours, you may choose to take all 6 hours in one chunk for sleep, or you may choose to take many short off-times for food breaks with family, short naps, brief walks outside for fresh air, attend to a chore around the house, etc. 15 minute breaks give you the flexibility of being able to take brief off-times when you need them, without being forced to stay off the air for a long time during productive hours.
- Whether you're a casual station or serious station, you should study these charts below. Perhaps even print them and refer to them during the contest to help guide you.
  - CQP 2020 QSO percentage by hour for every band/mode
    - [http://cqp.org/files/cqp2020\\_qso\\_percentage\\_by\\_bandmode.pdf](http://cqp.org/files/cqp2020_qso_percentage_by_bandmode.pdf)
  - CQP 2020 total QSOs per hour
    - [http://cqp.org/files/cqp2020\\_total\\_qsos\\_by\\_hour.jpg](http://cqp.org/files/cqp2020_total_qsos_by_hour.jpg)
  - Low sunspot activity: CQP 2020 QSOs per band by hour
    - [http://cqp.org/files/cqp2020\\_band\\_qsos\\_by\\_hour.jpg](http://cqp.org/files/cqp2020_band_qsos_by_hour.jpg)
  - Medium sunspot activity: CQP 2017 QSOs per band by hour
    - <https://cqp.org/images/qsograph-2017.png>
  - High sunspot activity: CQP 2013 QSOs per band by hour
    - <https://cqp.org/pdf/qsograph2.pdf>

- Conclusions from charts
  - 8Z-10Z are the slowest hours. Sleep at this time.
  - For every hour of CQP, there are at least two bands active. During most hours, three bands are active. Use this to your advantage. Based on the antennas at your station and how well you hear above the noise level on each band, you should operate on your strongest band when QSOs are being made on that band in CQP.
  - Generally it is a good idea to follow the band with the highest activity per hour. However, there can be important exceptions to this:
    - Remember to keep checking 15M and 10M for openings. Don't assume they are dead! When they are open, work them to the fullest extent.
    - Consider short bursts on 40M before the band goes opens to the east. There will be several stations in W7 on 40M during our daylight hours looking for CA QSOs because they are too close to CA for 20M QSOs. These will be easy QSOs with W7 and W6 stations before the band goes long.
    - Don't give up on 20M too early on Saturday. If you strictly go by the charts, you would be on 40M by 2300Z. However, 20M propagation should be good in the 2300Z hour and even the 0000Z hour. On 20M SSB, you will be able to make QSOs with a lot of casual stations in those hours. You should consider going back and forth between 20M and 40M in the 2200Z, 2300Z and 0000Z hours.
    - If you are a small station, you might find that you will gain more traction by being on the band with relatively less activity. Your signal will have a better chance to stand out and be heard, instead of always battling it out on the most active band every hour.
- 80M CW vs. 75M PH
  - There is more activity on 80M CW than on 75M Phone in CQP. It is difficult to gain any traction in CQP on 75M Phone east of W7. 80M CW will be hopping with activity across the US and Canada.
  - Work 80M CW before the east coast and midwest stations go to sleep on Saturday night. Then work 75M PH. Go back and forth for the remainder of the evening.
- 160M vs. 80M
  - In the weeks before CQP, if you had to choose between improving your 80M antenna or installing a new 160M antenna, you should

improve your 80M antenna. If you already have a 160M antenna, then please do operate 160M in CQP and be sure to go there at 0500Z. But if you need to design a new 160M solution from scratch, you could easily spend a lot of time creating, installing and tuning a 160M antenna without a lot of QSO benefit in CQP. Improving your 80M antenna or height would give you the biggest bang for the buck.

- Be sure to operate during the rally times listed in the CQP rules:
  - **Rallies:**  
1900Z: Try 10m at 28040 and 28450 kHz  
0300Z and 0600Z: Try 80CW at 3540 kHz and 75PH at 3610 kHz and 3750-3820 kHz (avoiding 3790-3800 kHz DX window)  
0500Z: Try 160CW at 1815 kHz  
0530Z: Try 160PH at 1845 kHz

## Multipliers

- As a CA station, you have 58 possible multipliers to contact:
  - 50 U.S. states. Your first contact with any CA County will count as your CA multiplier.
  - 8 Canadian areas
- Important: Notice that the 58 CA Counties are not multipliers for the CA station. So, you should not spend time trying to chase each of the 58 CA Counties. Instead, focus on contacting the U.S. states and Canadian areas.
- Multipliers are not per band or per mode. Contact a multiplier once and it counts for the whole contest, regardless of band or mode.
- Also notice that DXCC entities across the world are not multipliers in CQP. However, you will still have DX stations calling you for QSO credit. We encourage you to briefly turn your antenna toward Europe during openings. You can expect to hear OM2VL, DL3DXX, and other Europeans answering your CQs. All these QSOs should be logged with “DX” as the QTH.
- Please read our analysis of which multipliers have been the rarest between CQP 2018 and CQP 2020:
  - [https://cqp.org/files/cqp\\_rare\\_usve\\_mults.pdf](https://cqp.org/files/cqp_rare_usve_mults.pdf)
- For the number of multiplier sweeps by CA stations in CQP between 2008 and 2020, see the last page of this document:
  - [https://cqp.org/files/cqp\\_mult\\_analysis.pdf](https://cqp.org/files/cqp_mult_analysis.pdf)
- If you operate CW only, you will find it rather difficult to contact all 58 multipliers. Operating mixed-mode gives you the best chance for a multiplier sweep, as some mults tend to only appear on SSB.
- It will highly benefit you to know the abbreviations for the 58 US/VE mults as well as the 58 CA counties.

- Review and print this multiplier list as a cheat sheet during the contest:
  - [https://cqp.org/cqp\\_multipliers.html](https://cqp.org/cqp_multipliers.html)
- Set up your logging software so that you can view a window of the abbreviations for each multiplier.
  - In N1MM+ for example, click the “Window” menu, click “Multipliers”, and then click “Sections/States.” Click the “Window” menu again, click “Multipliers” and then select “Counties/Other.” This gives you two windows showing all the abbreviations for any state, VE area or CA County that you’ll log during CQP.
- If you are a slow typer, you might have trouble typing the serial number and QTH in your logging program before the station you’re contacting decides to be impatient and send you the exchange again. If you find typing to be an impediment to making efficient QSOs in CQP, there is one feature that you may find helpful:
  - In N1MM+, there is the option of specifying a “Call History” file. It is a file that contains callsigns and the QTH logged for each callsign from previous contests. There will be a Call History file specific to CQP, maintained by VE2FK. When you create your new CQP log in N1MM+, go to the “Associated Files” tab, find “Call History Filename” and click “Change.” If you have already created your log, you can use the following technique:
    - <https://n1mmwp.hamdocs.com/mmmfiles/categories/callhistory/>
    - Search on qsop\_ca.
    - Download the latest CQP call history file.
    - In N1MM+, select the “File”, “Import”, “Import call history...” option. Select the file you just downloaded.
  - When you contact a callsign listed in this file, N1MM+ will automatically fill in the QTH field. Of course, serial number will still be blank, so you’ll need to fill that in.
  - Important note: Do not use this feature with the intention of helping you copy the exchange sent to you on the air. You still need to copy what was sent to you on the air and compare the QTH you received with the QTH that was filled in by the Call History file. If it is the same, you will save yourself some keystrokes and you’ll be able to quickly move on to the next contact. If it’s different, you will need to overwrite the QTH with what you heard on the air and then log the QSO. Several stations may operate from a different county or state since last year’s contest. Log checking is performed on all logs in CQP. Your score is deducted half a QSO for incorrectly copying one element of the exchange, and you lose credit for

the entire QSO if you incorrectly copy two elements of the exchange. It is to your advantage to value accuracy and log what you heard.

- Regarding the topic of operating from a rare county multiplier:
  - It is exciting and rewarding to activate a rare county in CQP.
  - You still need to have a signal. If you put up a random wire in a tree and run QRP, stations will not care if you are in a rare county or a common county because they won't be able to hear you.
  - Signal strength, low receive noise level, operator skill and planning are more important to making QSOs than the particular county that you sign.

## Assisted vs. Unassisted

- If you are operating by yourself, you have two class entry options:
  - Single-Operator
  - Single-Operator Assisted
- CQP rules define “Assisted” as:
  - “It is allowed to use RBN, DX packet cluster, county spotting networks, CW Skimmer and other similar alerting arrangements, but self-spotting is prohibited.”
- Am I “Assisted” if I have a spectrum scope on my radio, or a P3 panadapter for my Elecraft radio, or a SmartSDR display for my FlexRadio?
  - No. Just observing activity waveforms or waterfalls by themselves does not put you in the S/O Assisted class. Once callsigns are associated with the activity waveforms/waterfalls, it becomes “Assistance.” The use of RBN, CW Skimmer, packet clusters and spotting networks make a Single-Op station Assisted because specific callsigns are associated with specific frequencies.
- Ways that Assistance can be used to your advantage
  - Through the use of your logging software’s bandmap window, you can quickly locate stations you have not yet contacted on a given band mode so that you can change frequencies and work them. You can also see which stations are duplicates for you so that you know who not to call.
  - Find holes in the band where other stations are not calling CQ. Go to an open slot in your bandmap and call CQ.
  - Find stations in multipliers that you’re missing and contact them.
  - Evaluate whether a band is open by looking at recent spots.
  - Evaluate how well your CW signal is being heard throughout the world by looking at spots for your callsign on RBN and seeing the SNR readings. Look at SNR readings of other CA stations and see how well they’re being heard on a band to determine whether that band is open and whether you should move to that band.

- Presentations by Bob N6TV

You really should study two great presentations by N6TV on this topic.

- “The Advantages of Waterfall Displays for DXing and Contesting”
  - [https://www.kkn.net/~n6tv/N6TV\\_Dayton\\_2019\\_Using\\_Waterfall\\_Displays.pdf](https://www.kkn.net/~n6tv/N6TV_Dayton_2019_Using_Waterfall_Displays.pdf)
- “CW and RTTY Skimmer and the Reverse Beacon Network”
  - <https://www.kkn.net/~n6tv/CW%20Skimmer%20and%20the%20RBN%20by%20N6TV.pdf>
  - YouTube video:  
[https://www.youtube.com/watch?v=C2OopLjTw0&t=109s&ab\\_channel=SpokaneDXAssociation](https://www.youtube.com/watch?v=C2OopLjTw0&t=109s&ab_channel=SpokaneDXAssociation)  
<https://www.youtube.com/watch?v=fEEUpsWUtAA&feature=youtu.be&t=8127>
- How Assistance plays out in reality as a CA station in CQP:
  - Most CA stations may not find Assistance to be a significant advantage in CQP. This is because many CA stations just call CQ. It is usually counterproductive to leave a CQ frequency to contact other stations calling CQ because one's QSO rate will usually be lower as S&P. The rare US/VE multipliers in CQP usually don't call CQ.
  - Some of the benefits of Assistance can still be obtained in the Single-Op (unassisted) class by using a waterfall display without callsign information.
  - There are few SSB spots because those require someone to manually enter them to the spotting network. CW spots are prevalent because they are automatically generated by Skimmer stations on the Reverse Beacon Network.
  - Certainly, there are times when Assistance is beneficial. Example: QSO rates can be slow on Saturday night and early Sunday morning. Being able to quickly contact new stations on 40M and 80M is a benefit. If you don't have a spectrum scope, seeing band activity, the level of band openings and specific holes for calling CQ are powerful tools to improve your score.

## Power Level

- There are 3 power levels in CQP:
  - High power: More than 100W output.
  - Low Power: 100W or less output.
  - QRP: 5W or less output.
- More important factors
  - There are several other factors that are more important to your success in CQP than power level:
    - Antennas
    - Location
    - Noise
    - Skill
  - Having said that, the difference between 5W output and 1500W output is nearly 25dB (about 4-5 S-units). This is a huge difference, so power level is an important topic to discuss.
- SSB considerations
  - During low sunspot activity, stations usually find it difficult to maintain a good QSO rate on SSB at QRP and Low Power levels.
  - Running high power seems to break through a threshold on SSB and opens new layers of stations that will now hear you and reply to your CQs.
- CW considerations
  - You can be quite successful on CW as a Low Power or QRP station. High power is less important.
- Different levels of high power
  - Several amplifiers are in the 500W-700W output level.
  - Others produce full legal limit of 1500W output.
  - The difference between them is less than 1 S-unit. 3-5dB is still significant to the competitive station and allows another layer of stations with a high noise level to hear you with 1500W output as opposed to 500W-700W output.

- But a bigger difference is going from 100W to 500W. This is more than 1 S-unit improvement. Consider this improvement, especially if you are operating SSB.
- QRP considerations
  - You might be limited to 5W output in CQP for various reasons. Common ones are:
    - Expedition where you are not allowed to run a generator due to wildfire restrictions, so you bring a battery as your power source.
    - Light, portable operation where you hike to a mountain top with a battery as your power source.
    - RFI problem in your house or your neighbor's house if you transmit more than 5W.
    - Solar powered station where you don't want to deplete your battery power reserves.
  - If this is the case for you, don't despair. It's still possible to make QSOs in CQP. W6JTI routinely operates QRP and does well.
  - Keys to success:
    - Operate CW. You'll have a much better chance of making QSOs than battling QRP on Phone.
    - Antennas. You will want to take the extra effort to optimize your antenna solution. Putting 5W into a random wire will not get you results.
    - Location. Operating on a mountain top with downsloping terrain will help tremendously. So will operating with a vertical next to salt water.
    - Skill. Be patient. You cannot brute force your way around the bands. Relying on technique, agility and knowledge of band openings will help you maximize your success.

## Additional tips

- Preventing fatigue
  - Operator sharpness during a contest is an underrated aspect of success. If you are exhausted, have a splitting headache or have nagging neck pain, it does not matter if you have the best station in California. Preventing these problems can be the most important step to your success in the California QSO Party, even if you ignore every other section of this document!
  - Start CQP well rested. This makes all the difference.
  - Pay careful attention to the AF gain (volume) setting. A common mistake is to run the volume too loud. This is a recipe to end up with a splitting headache during the contest. Make sure to keep the volume as low as you can, and temporarily turn it up when you need it.
  - Use the RF gain, attenuator and noise reduction features of your radio. It is especially important on 40M, 80M and 160M to not run RF gain wide open (fully clockwise). Either adjust the knob counterclockwise or crank in some attenuation. If you don't, you will most likely be exhausted on Saturday night and you'll have made fewer QSOs than you could have had by using these techniques on the low bands.
  - Give plenty of attention before the contest to the ergonomics of your computer monitor and your operating chair. If they are not adjusted or positioned properly, you could be twisting, leaning, slouching or squinting during CQP. You probably won't know it until later in the contest when you'll feel neck, shoulder or back pain.
  - During the contest, regularly stand up, move your legs, and take short walks. It is not healthy to sit in a chair all day long. Set a timer for yourself.
  - Exercise in the months prior to CQP. You may think that contesting is not a physical activity, but you may be surprised how important your physical condition is in maintaining your level of alertness and sharpness during your hours on the air.
- Noise
  - Receive noise is a major problem that continues to worsen and affects our ability to make QSOs on HF.

- Sources of noise can be inside your house or external to your house.
  - Here are some resources to help you combat noise:
    - “Build Contesting Scores by Killing Receive Noise” by Jim K9YC  
<http://k9yc.com/KillingReceiveNoise.pdf>
    - For more detail, see this slide deck from Jim:  
<http://k9yc.com/KillingRXNoiseVisalia.pdf>
    - See NK7Z’s page about RFI. Read every article on his page at:
      - <https://www.nk7z.net/category/info/rfi-mitigation/i-have-rfi-series/>
      - Visually see what each source of noise looks like at:  
<https://www.nk7z.net/rfi-snapshots/>
- Rig control
  - If you haven’t already, you really should connect your radio’s serial port or USB port to your computer. This will allow your logging software to automatically determine what band and mode you are in, and log each of your QSOs accordingly. It will also give you the ability to quickly change frequencies on your radio from your logging program.
- 2 VFOs, 2 Receivers or 2 Radios
  - Perfecting operating technique with 1 radio and 1 VFO is a goal that most of us are still trying to reach. Once you believe that you have perfected this stage, try some advanced techniques:
  - 2 VFOs: if your radio has 2 VFO knobs, use the 2<sup>nd</sup> VFO and the A/B swap button for quick band mode changes.
  - 2 receivers: if your radio has 2 receivers, use the 2<sup>nd</sup> receiver to find additional stations to contact by S&P, in between pauses while you’re calling CQ on the main VFO frequency. You can also use the 2<sup>nd</sup> receiver to find a new CQ frequency before leaving your existing frequency.  
 Finally, if your radio supports diversity reception, you can configure each receiver to use a different antenna on your same CQ frequency and improve the chances that you will dig out a weak station.
  - 2 radios: called SO2R. Most often used as a way of calling CQ on one radio while tuning the other radio for new QSOs by S&P. Interleave CQ and S&P QSOs. This takes a lot of practice and skill to do well, but can be a significant advantage if you can do it. Finally, the extreme of 2 radio

contesting is to call CQ on both radios, interleaving CQs, exchanges and QSOs between two radios set to different bands. This is also called 2BSIQ (2 Bands Synchronized Interleaved QSOs). 2BSIQ is the most difficult technique in contesting, requiring a huge amount of practice and skill. N6MJ and KI6RRN are among the few who can do this extremely well.