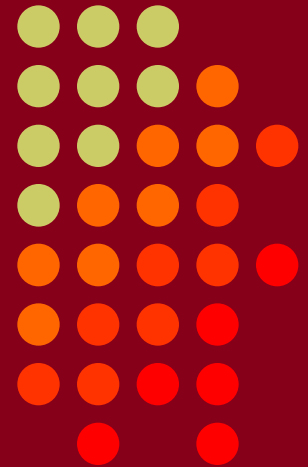


Contesting Tips and Best Practices

Collected Wisdom and Lessons Learned
K2YWE (K3AU)



• CTU •
CONTEST
UNIVERSITY
2018

ICOM®

What's this about?

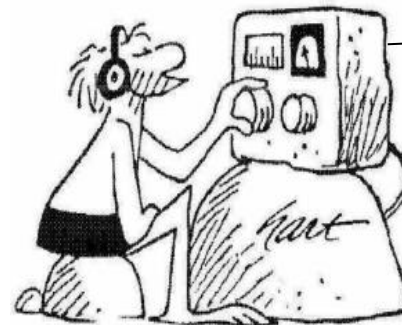


- **Objective**

- Improved Scores

- **How?**

- Get 'Psyched'
- Prepare
- Adopt Best Practices



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Agenda



- Elements of Success
- Preparation
- Strategy
- Q's and Rate
- Operating Tips and 'Best Practices'
- Station Considerations
- Software
- After Action
- Conclusion
- A Word about SO2R
- Appendix A - Best Practices Collection
- Appendix B – Selected Contest Loggers

Elements of Success

Same principles apply as in most successful endeavors



- **The Right Frame of Mind**
- **Preparation**
- **Attention to Detail**
- **Operating Best Practices**
- **Practice**
- **Learning and Improvement**
- **Perseverance**



The Right Frame of Mind

Get in the zone



- Don't forget it **is a competition**

You'll be in a fraternity of 'Friendly Competitors'

- You will **not be alone**

"Contesting skill includes the ability to tolerate high levels of QRM, and if you can't do that, you might as well hang it up" ... K3ZO



- Think **Big**

If you think and act like you're a big dog,
you will convince much of the pack that you are.
(Of course you may get nipped once in a while)

QRL!



Preparation

'Now the general who wins a battle makes many calculations in his temple ere the battle is fought.' . . . Sun Tzu



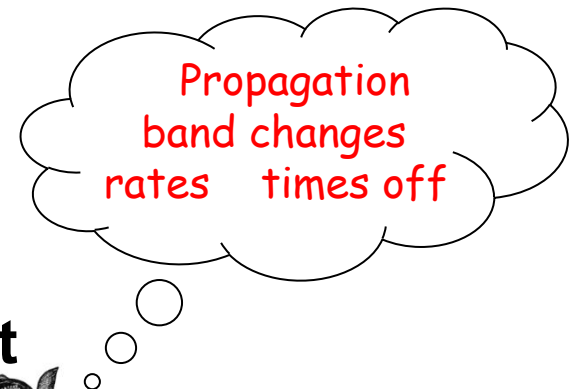
- **Have a strategy**

- **Think** the contest **through** beforehand
- What do you expect?
- What if . . . ?

- **Adapt to changes during the contest**

- Execute your 'what if' plans

'The general who loses a battle makes but few calculations beforehand.'



Preparation

Get your act together before the performance



- **Check your set-up well in advance**

- Hardware *and* software
- Provide enough time for fixes
(I use my contest software every day)
- Know the file name or date to re-start



- **Make sure you audio is good contest quality**

- Monitor and **adjust** over-the-air with **another station**

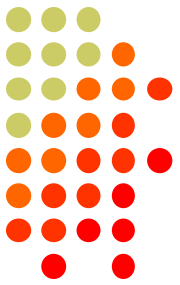
- **Check propagation**

- Listen ahead of the contest to get a feel for conditions
- Are they in line with your expectations?



Practice

It may not make you perfect, but it will make you better!



- **Be thoroughly familiar with your logging software**
 - A contest is **not** the time for a **first trial**
 - **Gain** familiarity in non-contest use
 - **Exploit** helpful features
 - Try different modes
 - Modify settings to suit your style
- **Be comfortable with Run techniques**
 - **Practice** with a simulator (Morse Runner)
 - Operate 'run style' on the air (5NN QTH BK . . . TU)
 - Pick days with good conditions on your best band
- **Assess your Operating Practices**
 - Bounce your operation against the **Best Practices** in Appendix A



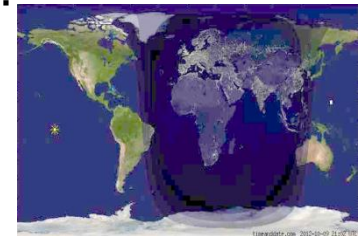
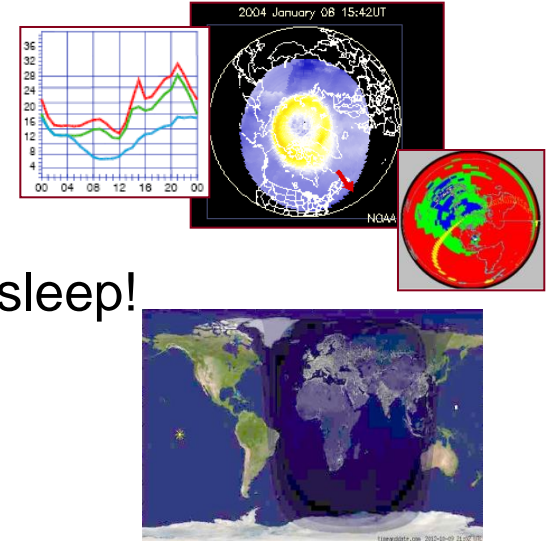
**Contest Hound
using Morse Runner**

Strategy

Having a game plan pays off during the contest



- **Consider Propagation predictions**
 - Temper them with your observations
- **Keep geo-time of day in mind**
 - Not everyone is dedicated, some eat and sleep!
- **Bands and Run times**
 - Make a plan
 - Set ground rules for changes
- **A Generic Band Strategy**
 - **Work bands that may close first.** Move with propagation
 - Chase Mults when one band slows, but other hasn't yet opened
 - **Try more running** when bands are **good**
 - Keep an eye out for **early and low-probability** openings



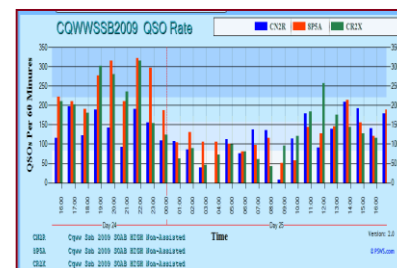
On/Off Times

Make the best use of your time



- **Choose Off times at lowest expected Q rates**

- Consider propagation and rate histories
- Don't forget minimum OFF time rules



- **Ensure using your full time allotment**

- **Allow possibility you may want a late slot**

- Don't get caught short of time at the end
- Consider leaving an insurance slot

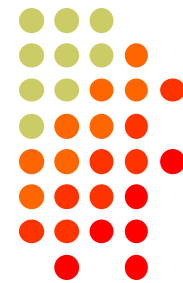


- **Sync with your personal needs (of course)**



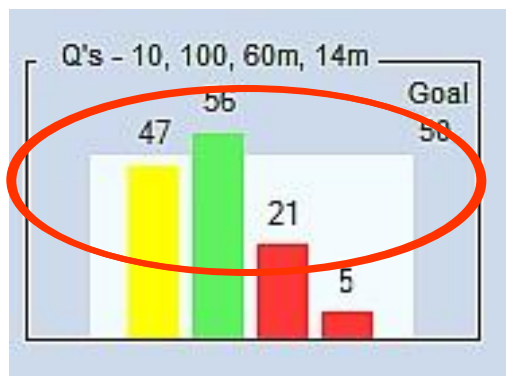
Rate Targets

Setting Rate targets helps you achieve QSO goals



- **Set an average rate you want to achieve**
 - (Total Q's) / (Operating Hrs)
 - Keep it in mind
- **Adjust target rates over the contest period**
 - Track your rate
- **Consider a *change* if you *drop* below target or rate keeps going down**

1,000/24 = 40	
00-04z	60
04-08z	45
08-12z	30
12-16z	40
16-20z	50
20-24z	25



- Change Freq, Band, Mode
- Swap Running and S&P
- Chase some Mults
- Change your Shirt
- ***Change Something!***



About the Score

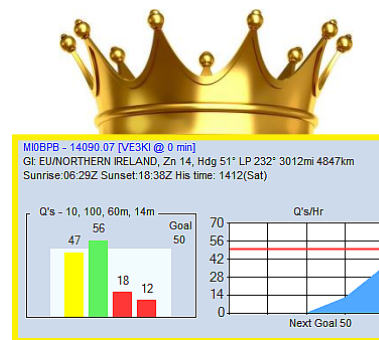
Q's and Mult's

- Total QSO's give Multipliers their worth
- There will be more Q's than Mults
- Q's drive the score

That means **Rate is King!**

- **Rate Drivers**

- **Being Heard** and **Hearing** others
 - At fixed power level, this mainly means better Antennas
- **Operating Efficiency** – wasting less time
 - Operating **Best Practices**
 - Shack Arrangement
- **Available QSO's . . .**



Sources of QSO's

Running deepens the pool



- **Runners - Stations calling CQ**
 - You can generate good S&P rates with them
 - They are **Limited** in number
- **Callers - Non-Runners (S&P)**
 - QSO's you will **never make unless you call CQ**
 - Some will be multipliers
 - Potential for good sustained rates

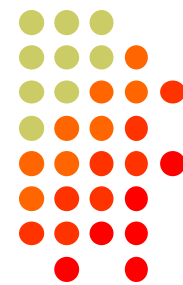
Run as much as you can consistent with rate

Better conditions favor more run time for little pistols



Strive for efficiency

Higher rates require spending less time per QSO



- Look at rate as *time per QSO*
 - Time *in* QSO + Time *Between* QSO's
 - Minimize **Both**
 - Most of the **Best Practices** are about this
- In QSO
 - Eliminate **wasted words**
"Please copy my ..." *"Thank you for ..."*
 - **Avoid repetition** unless conditions warrant
"Maryland Mike Delta" *"Dan Delta Alpha November"*
 - Fills - Give only **what's asked for**
"QTH?" . . . *"TX"* not *"123B K5ABC JOE 81 TX"*
 - Get all fills **before you pass your info**



Strive for efficiency - S&P

Higher rates require spending less time per QSOs



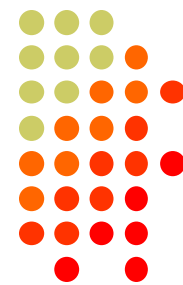
- **Between S&P QSO's**
 - **Give your call once** unless otherwise warranted
 - No more than twice
 - Remember you're a "Big Dog"
 - **Give your whole call**
 - Partial calls often lead to an extra transmission
 - Use K3ZO's 'Rule of **Twice**'*
 - If you can't get him after **calling Twice**, move on
 - If he **doesn't ID** after transmitting **Twice**, move on
 - Use the **Bandmap**
 - Save calls in the Bandmap, even if you are Unassisted

*Modify "twice" as is sensible, but **stick to it**



Strive for efficiency - Running

Higher rates require spending less time per QSOs



- **In QSO's when Running**

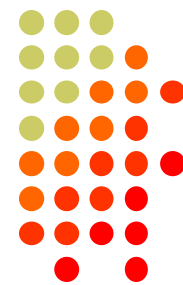
- Eliminate **wasted words** and avoid unnecessary **repetition**
- Fills - Ask only for what you **need**
 - Often best to ask for one piece at a time
- Don't break your run to pull someone through
 - Use K3ZO's 'Rule of **Twice**'*
Move on if you **can't pull him through** in two tries*
- **Speed up** if callers are waiting
 - They probably know your exchange
 - You'll lose impatient Ops
 - **Slow back down** again appropriately

*Modify "twice" as is sensible, but **stick to it**



Strive for efficiency - Running

Higher rates require spending less time per QSOs



● Between QSOs when Running

- Use only a quick **‘thanks’** (or TU) if stations are waiting
 - **They know your call.** Don't waste time on it
 - I use a **‘progression’** as the crowd thins
 - “Thanks” (with periodic call appended)
 - “K3AU”
 - “K3AU Contest “
 - [CQ Message]
- Use a situational CQ message
 - The busier it is, the shorter the message
 - Occasionally expand your CQ to 2x2 for the RBN
 - Arrange keyer macros accordingly

More on running in Best Practices later



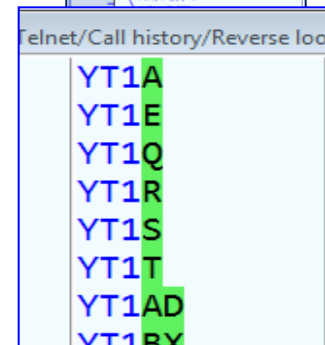
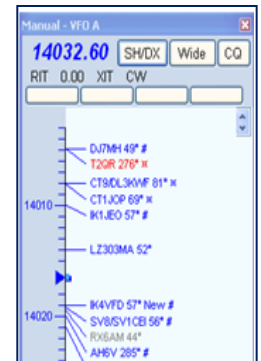
Overall Operating Tips

Important overall practices



- Maintain a **friendly sense of urgency** in your QSOs
 - Chattiness will slow your rate and lose you contacts
- Every point counts!
 - There's **no** such thing as '**not worthwhile**'
 - Call for '**anybody**' when it's **really slow**
- Verify the call of the station you're working
 - Beware of **busted spots**
 - **Log** what you hear

Points	Mode	QSOs	Pt	Mlt
1.0	CW	86	0	0
1.0	LSB	1	0	0
3.5	CW	167	0	0
3.5	LSB	29	0	0
3.5	PHON	3	0	0
7	CW	233	0	0
7	LSB	40	0	0
7	PHON	10	0	0
7	RTTY	1	0	0
10	CW	71	0	0
14	CW	518	5	4
14	PHON	9	0	0
14	RTTY	8	0	0
14	USB	54	0	0
18	CW	82	0	0
18	USB	16	0	0
21	CW	266	0	0
21	PHON	19	0	0
21	RTTY	6	0	0
21	USB	34	0	0
24	CW	69	0	0
24	RTTY	1	0	0
24	USB	15	0	0
28	CW	217	0	0
28	PHON	29	0	0
28	RTTY	16	0	0
28	USB	28	0	0
50	CW	3	0	0
50	USB	1	0	0



*You mean
that's a
busted call?*

Some Phone Tips

Apply these basic phone practices

- Use **conventional** or **unmistakable phonetics**
 - 'Duck Soup' are poor phonetics for 'D S'
 - Use IPA or 'Common' phonetics (countries, cities . ..)
- Be mindful of **SSB signal bandwidths**
 - Stay away from strong runners not to get covered by an **unheard pileup**
- **Listen to what's on your frequency when calling split**
 - If you can hear it, you can better time your call or defer until later



Some CW Tips

Apply these basic CW practices



- **Work at being heard**

- Try **moving frequency** a bit if no success calling
 - Sometimes bandwidths are set narrow
 - Spots put many stations on the **same frequency**
- **Distinguish** yourself through Speed or Weight
- **Moderate** your **CQ speed** by conditions & results



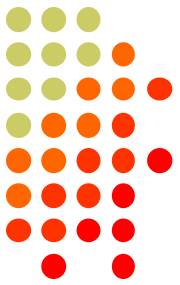
- **Don't let code speed keep you from CW contests**

- Start with the slower stations **high in the band**
 - Don't worry if you need to hear the call or exchange **several times**
- Call CQ **higher in the band** at a speed comfortable for you
 - When you're ready 😊



Best Practices - Overall

Make the most of your available time



- Don't waste time **repeatedly calling DX** that has moderate signals when the band is otherwise quiet from their area
 - They are probably 'opening the band' with lots of ERP
- **S&P rates can be very high early in the contest**
 - **Everyone** is 'fresh meat' for you
 - Quickly hop from station to station with little fear of Dupes
 - It's often safe to call first and then fill-in the call (some risk)
- **Consider using S&P to find a spot to Run**
 - Maintain a **high rate** while **searching for** a **clear** spot
 - The alternative is to establish a frequency before the contest
- **Be sure to call CQ late in the contest**
 - You will **be fresh meat** to some that have been CQing all along



Best Practices - Running

Make the most of your available time



- **Call CQ when the band is active**
 - If **CONDX** are **good** for your station
- **Call CQ when bands are dead or worked out**
 - Big guns and other will be **scavenging** for Q's
- **Use the widest IF bandwidth you can stand**
 - Less chance to miss **off-freq callers**, especially on CW
- **Always work Dupes (set software to allow it)**
 - You **might not be in his log** and it's usually **quickest**



Best Practices - Running

Make the most of your available time



- **Start sending as soon as the call is in your head**
 - **Finish typing** into the log **while it's being sent** (ahead of the buffer)
 - Some programs can do this automatically after n characters
- **Send out a full exchange with a partial call**
 - Most **Ops will correct you**, many without a missing a beat
 - Fix the entry during his transmission
- **Send the corrected call as part of your 'bye' message**
 - **Enable call sign correction** in your software
- **Move Multipliers to other bands if you have the time**
 - **Pick or set up frequencies** in advance for quick hops

SSB	
160	
80	✓
40	✓
20	✓
15	✓
10	✓



Best Practices - Running

Make the most of your available time



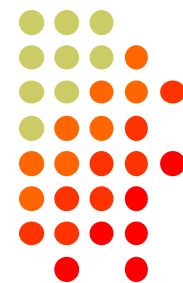
- If another station calls CQ on your frequency, try 'QRL' or 'Frequency in use, please QSY'
- Don't engage in extended frequency fights
 - If QRL/QSY fails, it almost always pays to **move**
 - Sometimes you can move up or down a bit to lessen the QRM and still hang on to 'your' frequency
- **NEVER NEVER NEVER** acknowledge a 'jammer'
 - **NEVER**. Just keep your pace and **don't change** your tone of voice on phone or even synchronize your calls to his QRM.
 - Often throwing in a few fake Q's will discourage the jammer

*The Complete Best Practices Collection
appears in Appendix A*



Station Improvements

Put method behind your madness



- **Assess Station Strengths and Weaknesses**
 - Take **band by band inventory** *based on performance history*
- **Attack Weaknesses with biggest payoffs first**
 - Incrementally **fill in the holes**
 - Don't forget to pick 'low hanging fruit'
 - **Every** improvement counts – **they all add up**
 - Expect Antennas to rank high
- **Improved Antennas**
 - Better sustain runs and snag S&P QSO's with less calls
 - Hear and work more '**second tier**' stations
- **Set up for Efficiency** ... Huh?



Station Improvements

Improvements aimed at higher rates



- **Footswitch**

- SSB - Frees hands for keyboard use
- CW - Quick T/R transition without listening to QSK noise



- **Boom or Headset Mic**

- Less fatigue, **freedom** to move, respond to local 'QRM'



- **Antenna switches and relays**

- **Quicker** band or direction changes



- **Rearrange Equipment**

- Easier **more efficient**, operation

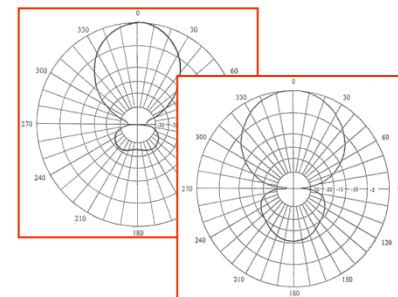


Antenna Improvements

Be innovative within your constraints

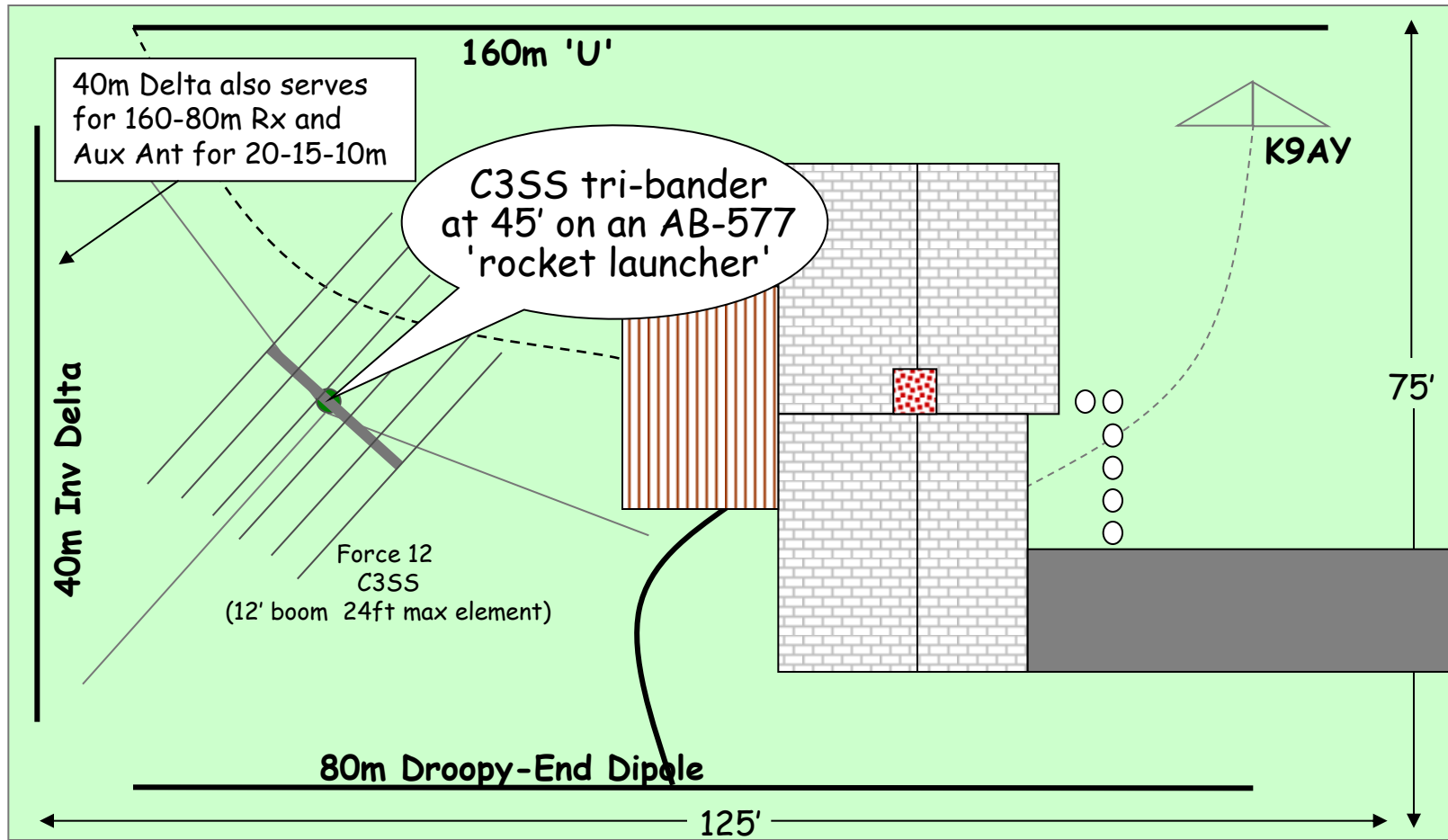


- What **assets** exist to hang antennas on?
- Use all the property lines to full advantage
- Add/change antenna to help your **weakest band**
- Try using **monobanders**
- Consider fixed antenna with gain to high QSO area
- Enable a **new band**, like 160m
 - New Mults and more Q's during slow times
- Add better SNR Rx Ant for low bands



My Antenna Farmette

Three wire monobanders and a 12' tribander in 1/5th acre



Software (S/W)

Use a dedicated contest logger, properly configured



- **Engage Radio and Keying interfaces**

- Really a competitive 'must do'

- **Recommended Options (min)**

- Work Dupes
- Correct all call signs
- Check Partial Window(s)
- Rate (Info) Window
- Bandmap & Spot List Windows
- Populate Bandmap on move
- Available Q's & Mults (N1MM) Window
- Score by Band

- **Spotting Network?** - It's a strategic decision

- Can be a valuable asset, especially in S&P and on CW (RBN)
- Does not alleviate you from **confirming** all entries
- Be careful **not** to get caught up in **chasing Mults**

- **Spectrum & Waterfall displays**

- Its own full topic! – *sorry, not in this session.*



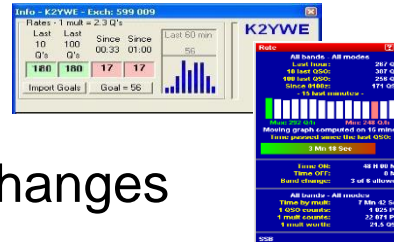


S/W Features I find most useful

Some software features that pay off

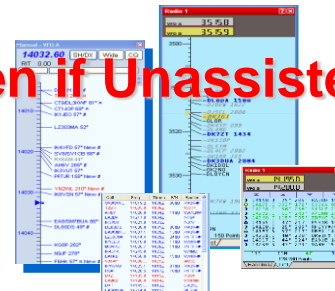
- **Rate (Info) Window**

- Rates & Targets
- Band and S&P/Run changes



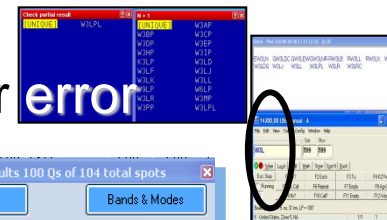
- **Bandmap**

- Dupe check & 'check later' **even if Unassisted**
- List views
 - Jump to spot (if interfaced)
 - Hotkeys without mouse



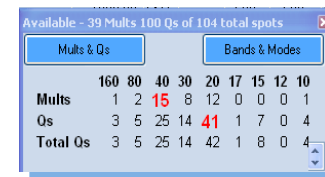
- **Super Check Partial (SCP) or Check n and n+1**

- Call sign possibilities
- n+1 includes transposed and single char **error**



- **Available Mults & Q's (N1MM)**

- See band activity/'target density'



After Action (post mortem)

Analyze your performance after the contest is over



- **Note things you wish you had done differently**
 - Run/S&P ratio?
 - Handling Mults – chasing, moving
 - Station changes you wish you'd made
- **Compare notes with local testers**
 - Miss any openings?
 - Band scores and band changes
- **Perhaps record the contest***
 - Later check against LCR
 - **Do Not** use recording to “fix” your log

* CQWW top 3 finishers must do this



Summary

Use these practices to improve your scores



- **Prepare and pay attention to detail**

- Remember **Sun Tzu**



- **Formulate strategies**

- Pick and **plan** your contests. Use the plan for guidance

- **Adopt proven practices**

- Try the **Best Practices**. Keep what works for you



- **Run, big dog, run**

- Try to **Run** if at all possible



- **Make incremental improvements**

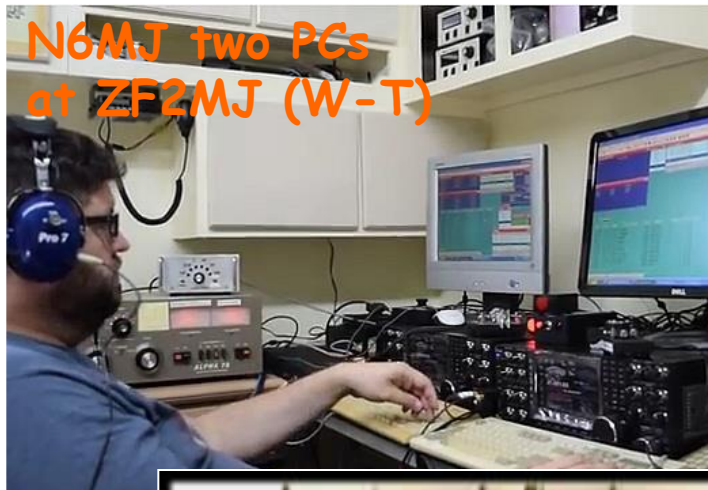
- Small changes can be effective. Make a **list** and work it down

and remember – Rate is King!

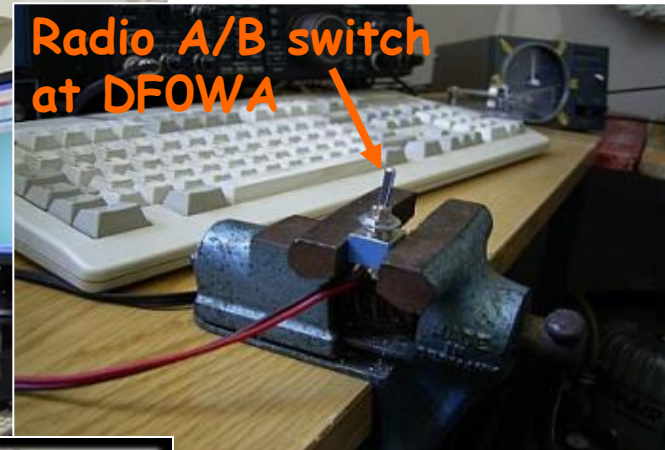


A Word About SO2R [single op 2 radio]

Everyone has their own idea of an efficient SO2R layout . . .



N6MJ two PCs
at ZF2MJ (W-T)



Radio A/B switch
at DF0WA



An earlier two radio setup
(no PC)



N6TR one computer
no box (TRlog)

A Word About SO2R

Save SO2R until other improvements are well in hand



- **Potential** to add significantly to your score
- **But,** It's easy for SO2R to be a distraction
- **KISS** (Keep It Simple Stupid) is key
 - Start with a **simple to use** setup
 - I use two networked computers and keyboards
- **Start using SO2R only when things are slow**
 - CQ on A - S&P on B
 - Alternate (ping-pong) CQs
 - Modify your setup and operation with more experience and skill
- **Try SO2V** [Single Op 2 VFO] **to get your feet wet**
 - Same caveats apply

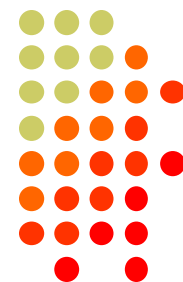


I'm not a power SO2R user



Best Practices

Appendix A



K2YWE



What successful competitors say
works for them



Best Practices

Appendix A



K2YWE
1 of 9

Best Practice

Rationale

General Operating

<ul style="list-style-type: none">• Assume a big dog attitude	<ul style="list-style-type: none">• If you act like a big dog, most will believe you. If they bite back painfully, you can find other turf.
<ul style="list-style-type: none">• Maintain an “friendly sense of urgency” in your QSOs	<ul style="list-style-type: none">• Chattiness will slow your rate and lose you contacts
<ul style="list-style-type: none">• Always work Dupes• Set your software accordingly	<ul style="list-style-type: none">• You may <i>not</i> be in <i>their</i> log• It usually takes more time to rebuff than work
<ul style="list-style-type: none">• Enable and use the Bandmap feature of your logging software even if you are not Assisted.• The Bandmap allows you to enter stations yourself on the fly	<ul style="list-style-type: none">• If you need to check back later, the Bandmap will have the call sign and frequency noted for you• You’ll waste less S&P time on waiting for station ID or on calling Dupes



Best Practices

Appendix A



K2YWE
2 of 9

Best Practice

Rationale

General Operating - continued

<ul style="list-style-type: none">• In general, use K3ZO's 'Rule of TWICE'• Modify 'TWICE' to suit your station capabilities and contest situation:• If you can't get a station after calling him TWICE, move on• If the station doesn't ID after transmitting TWICE, move on	<ul style="list-style-type: none">• Your time can be better spent increasing your rate• A multiplier can quickly become worth less than the QSOs lost trying• You can put his frequency into the Bandmap to check back later
<ul style="list-style-type: none">• Try moving frequency a bit if you don't seem to be heard	<ul style="list-style-type: none">• Often receiver bandwidths in a crowded band are set very narrow



Best Practices

Appendix A

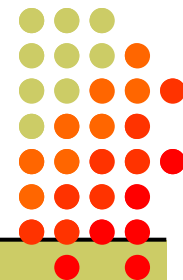


K2YWE 3 of 9	Best Practice	Rationale
General Operating - continued		



Best Practices

Appendix A



K2YWE
4 of 9

Best Practice

Rationale

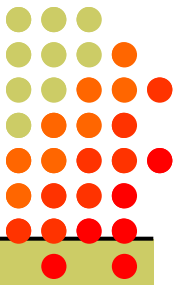
Running

<ul style="list-style-type: none">• Call CQ when the band is active if you are able to find and hold a frequency	<ul style="list-style-type: none">• You will usually beat your S&P rate• An exception is the start of the contest when everyone is 'fresh meat' for you and your S&P rate can be very high
<ul style="list-style-type: none">• Call CQ when the bands are dead for the day or worked out near the end of the contest	<ul style="list-style-type: none">• That's when the stations that have been CQing will S&P for 'fresh meat'
<ul style="list-style-type: none">• <i>Consider not asking if the frequency is busy before CQing. You'll find out soon enough if it is.</i>• <i>Do ask if you're uncomfortable not asking.</i>• <i>"?" is a fast reasonable compromise.</i>	<ul style="list-style-type: none">• QRL? is an announcement to others that it's clear at your end• Someone else may jump in and CQ• Still low risk and courteous in the contest environment



Best Practices

Appendix A



K2YWE
5 of 9

Best Practice

Rationale

Running - continued

<ul style="list-style-type: none">• Use the widest receiver bandwidth you can stand	<ul style="list-style-type: none">• Less chance to miss off-frequency callers, especially on CW
<ul style="list-style-type: none">• If another station calls CQ on your freq and fails to respond to your QRL-QSY message, carry on for a while to see if he leaves. But, don't do this for very long	<ul style="list-style-type: none">• Even though he is not hearing you, if you are being heard by others he may not get many responses and might give up quickly. No one likes to waste time
<ul style="list-style-type: none">• Don't engage in long frequency fights. Try 'QRL' or 'frequency in Use, QSY.' If that fails, it almost always pays to move.• Sometimes you can move up or down a bit in order to lessen the QRM and still hang on to "your" frequency	<ul style="list-style-type: none">• It costs you QSO time• You may be in QRM at the other end



Best Practices

Appendix A



K2YWE
6 of 9

Best Practice

Rationale

Running - continued

<ul style="list-style-type: none">• Don't break a run to pull one station through	<ul style="list-style-type: none">• Your rate will suffer if you take long• You will drive away impatient waiting stations
<ul style="list-style-type: none">• If you can't drag a station's call through after trying TWICE, ignore him and start calling CQ again• This is part of K3ZO's /Rule of TWICE./ Modify TWICE to suit your station capabilities and contest circumstances	<ul style="list-style-type: none">• Running has to do with how fast you can accurately get Q's into the log. You don't want your rate to slow or waiting callers to lose interest• Equally important, on a crowded band you must transmit often to keep "your" frequency clear
<ul style="list-style-type: none">• Speed up if your run is being sustained. This is especially true in contests like SS where the exchange includes your call sign.	<ul style="list-style-type: none">• Waiting callers likely have your info• More stations will be inclined to wait• Your rate will go up with speed



Best Practices

Appendix A



K2YWE
7 of 9

Best Practice

Rationale

Running - continued

<ul style="list-style-type: none">• Use only a quick “Thanks” or “TU” without your call sign or QRZ if you heard multiple callers.• Throw in your call every few Q’s for new listeners.• Keep it up until there are no more responses, then build back to your “full” QRZ message and CQ.• If you get no responses after just ‘Thanks’, try only your call and ‘TEST’ before resuming a full CQ	<ul style="list-style-type: none">• Most waiting stations will know your call. Don’t waste time on it.• Minimizing the time stations have to wait for you will help to keep the impatient ones hanging around and will increase your QSO rate.• Less experienced contesters may not realize you are waiting for them. “TEST” will alert them you are ready for another station to call
<ul style="list-style-type: none">• Send any call you have corrected as part of your goodbye message• Enable call sign correction in your software on CW	<ul style="list-style-type: none">• Stations want assurance that you have them correctly. This will keep them from asking QSL? It might also save your from a mistake



Best Practices

Appendix A



K2YWE
8 of 9

Best Practice

Rationale

Running - continued

<ul style="list-style-type: none">• When the call sign of a responder is questionable, send a complete exchange using the questionable call. Correct it during his exchange.• You can use SCP to help guess incomplete calls on the first round• <i>Make sure</i> you have it right before you let him go	<ul style="list-style-type: none">• Nearly all contest stations will correct you on their transmission, good Ops without missing a beat• It saves an extra exchange devoted only to getting the callsign right• You can revert to “normal” fill-in procedures if this practice fails
<ul style="list-style-type: none">• Maintain an “friendly sense of urgency” in your QSOs	<ul style="list-style-type: none">• Chattiness will slow your rate and lose you contacts
<ul style="list-style-type: none">• Move Multipliers if you have the time (a slow run)• Pick frequencies in advance. Give up if you don’t connect in a short while	<ul style="list-style-type: none">• It’s a quick way to gain band-Mults.• Many Ops will go with you• You probably won’t make the Q if you don’t connect quickly



Best Practices

Appendix A



K2YWE
9 of 9

Best Practice

Rationale

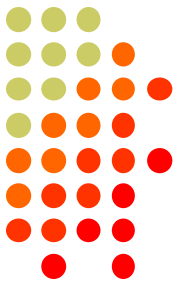
Running - continued

- | | |
|---|--|
| <ul style="list-style-type: none">• Hit the Send key as soon as the call is in your head, and finish typing it into the log during your outgoing exchange transmission <p>Some software can be set to do this after n callsign keystrokes (TR4W and N1MM, for example)</p> | <ul style="list-style-type: none">• If your fingers are like mine, they slightly lag my brain and I am still typing when the other station stops sending.• This practice reduces the lag between when the other station finishes calling and when you respond, increasing your rate |
| <ul style="list-style-type: none">• NEVER NEVER NEVER acknowledge a 'jammer.' NEVER!• Just keep your pace, and don't change your tone of voice on phone or even synchronize your calls to his QRM | <ul style="list-style-type: none">• With no response to his jamming, he can't be sure he is even bothering you, and it isn't 'fun' for him if he doesn't get a reaction |



Selected Contest Loggers

Appx B



Popular Contest Loggers

Similar capabilities with varying implementations

Appx B



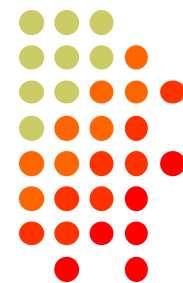
- All run under Windows OS
- Need varying amounts of learning to fully utilize
 - **N1MM logger plus (Free)**
 - Most popular Win logger. Continuous cooperative development
 - **Win-Test (\$)**
 - Many features and options. Easy transition for CT users
 - **TR4W (Free)**
 - Very flexible. Evolution of popular TR DOS program
 - **Writelog for Windows (\$)**
 - Full-featured contest program with SDR interface
 - **N3FJP (\$)**
 - Good and improving, *but still lacks some contest features*



Popular Contest Loggers

Appx B

Facilitate operating, logging, and exploiting opportunities



- **Contesting-specific with advanced features**
 - Band Maps with S&P “point & shoot”
 - Rate, Scoring, and other contest visibility tools
 - Enter Sends Message (ESM) mode adaptive behavior
 - SO2R Support
 - Multi Transmitter/Operator Support
 - Spots through Telnet connection
 - Radio, CW & Voice Keying, and Rotator Interfaces
 - Sound card Voice Keyer
 - Digital modes using the sound card (with aux programs)
 - Sound card receive recording (some)
 - Support for External Voice Keyer control (some)

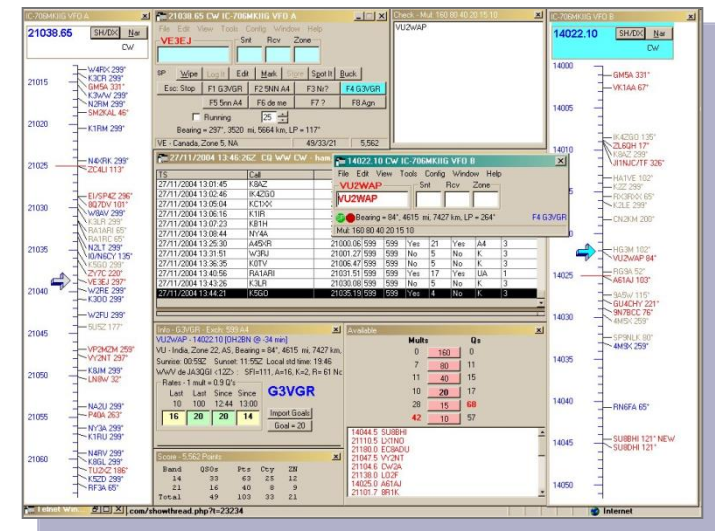




N1MM+ by N1MM et. al. (N1MM, N2AMG, K3CT, N2IC, NA3M, AB5K, KU7T)

Most popular (by far) Windows contest logger

- **Cooperative project with multiple participants**
 - Rewritten in 2014 as N1MM logger plus (N1MM+) using SQLite
 - Continuous updates and improvements
 - Large user community
 - Over 175 supported contests + over 225 user-defined
- **Moderate system needs. Will utilize multi-core**
- **Extensive features and options**
 - Highly customizable
 - Configurable windows
 - Integrated spectrum display
 - Hooks for latest digital modes
- **Sound card voice keyer**
- **RS-232, Parallel, USB support**
- **Free**

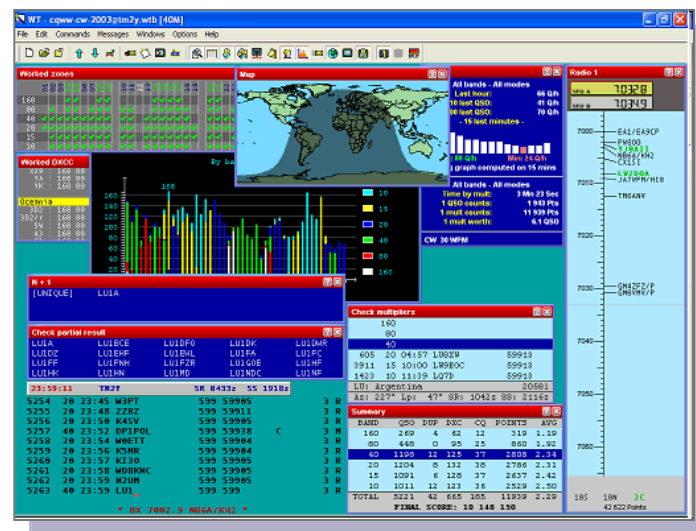


Win-Test by F5MZN

Mature written-for-Windows high performance logger



- **Efficient with minimal processing and memory needs**
 - Strong CT (K1EA) keystroke emulation
 - Over 100 supported contests
- **Extensive features and options**
 - Highly customizable
 - Configurable windows
- **Sound card voice keyer**
 - Built-in editor
- **RS-232, Parallel, USB support**
- **~\$70 (50€)**
 - Proceeds support Radio Amateur Club de Kourou contest activities, including FY5KE (French Guiana)

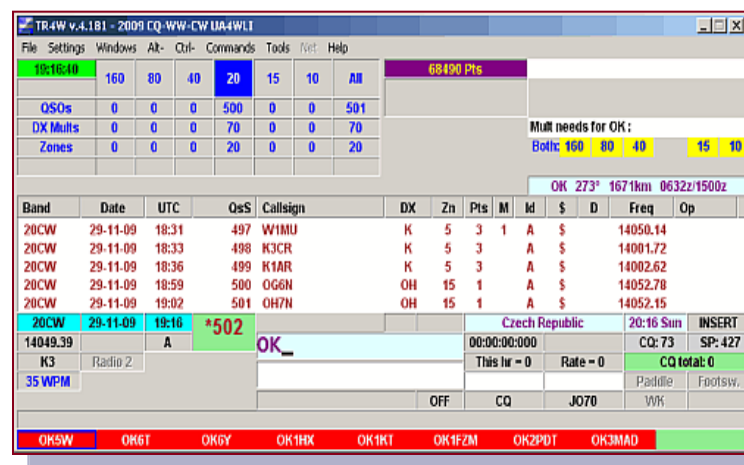


TR4W by UA4WLI (and UR7QM)

Win version of mature world-class adaptive contest logger



- **Small and fast 100% Windows API, 3GL* - Open Source**
 - Only 100,000 lines of code in 400KB
 - Over 155 supported contests
- **Substantially same features as DOS TRlog by N6TR**
 - Based on TRlog code provided by N6TR
 - (First with ESM and descrambler)
 - Continuously adding more features
- **Sound card voice keyer**
 - Flexible functionality
- **RS-232, LPT, USB support**
 - USB I/O includes log backup
- **Free and Open Source**



* Also Runs under Linux/WINE

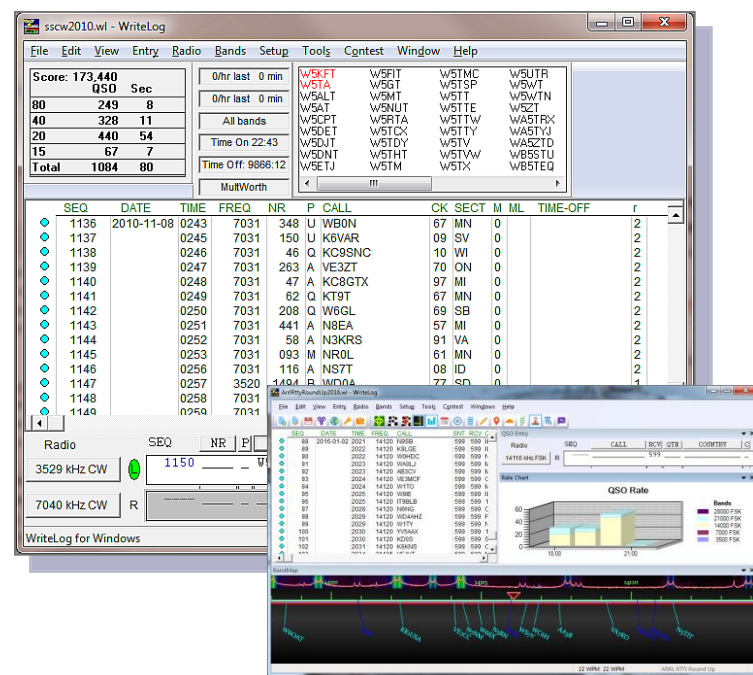


Writelog for windows by Contesting Software, LLC

Mature written-for-Windows high performance logger



- **Recently re-Written**
 - Latest version **requires Win7**
- **Configurable windows**
- **110 supported contests**
 - Also GP logging
- **Extensive sound card support**
 - Voice Keyer
 - Contest Recorder
 - SDR interface
- **RS-232, Parallel, USB support**
- **\$30 incl 1 yr updates** (\$18 for previous version **Win XP OK**)



N3FJP by N3FJP

Basic contest log functionality



- **Daily logger with contest modules - C#.NET**
 - Improved, but still lacks features and flexibility of top loggers
- **Single resizable Main Window + floating Bandmap**
- **100+ supported contests**
 - 34 major + State QP's and other
- **Sound card voice**
- **RS-232 and USB support**
- **No SO2R support**
- **\$49 all programs** (includes daily log)
or ala carte
 - \$25 Daily Contact Log – Free upgrades
 - \$ 9 each contest separately – Free upgrades



Logs most used in CQWW 2015

N1MM/N1MM+ is overwhelmingly the most popular

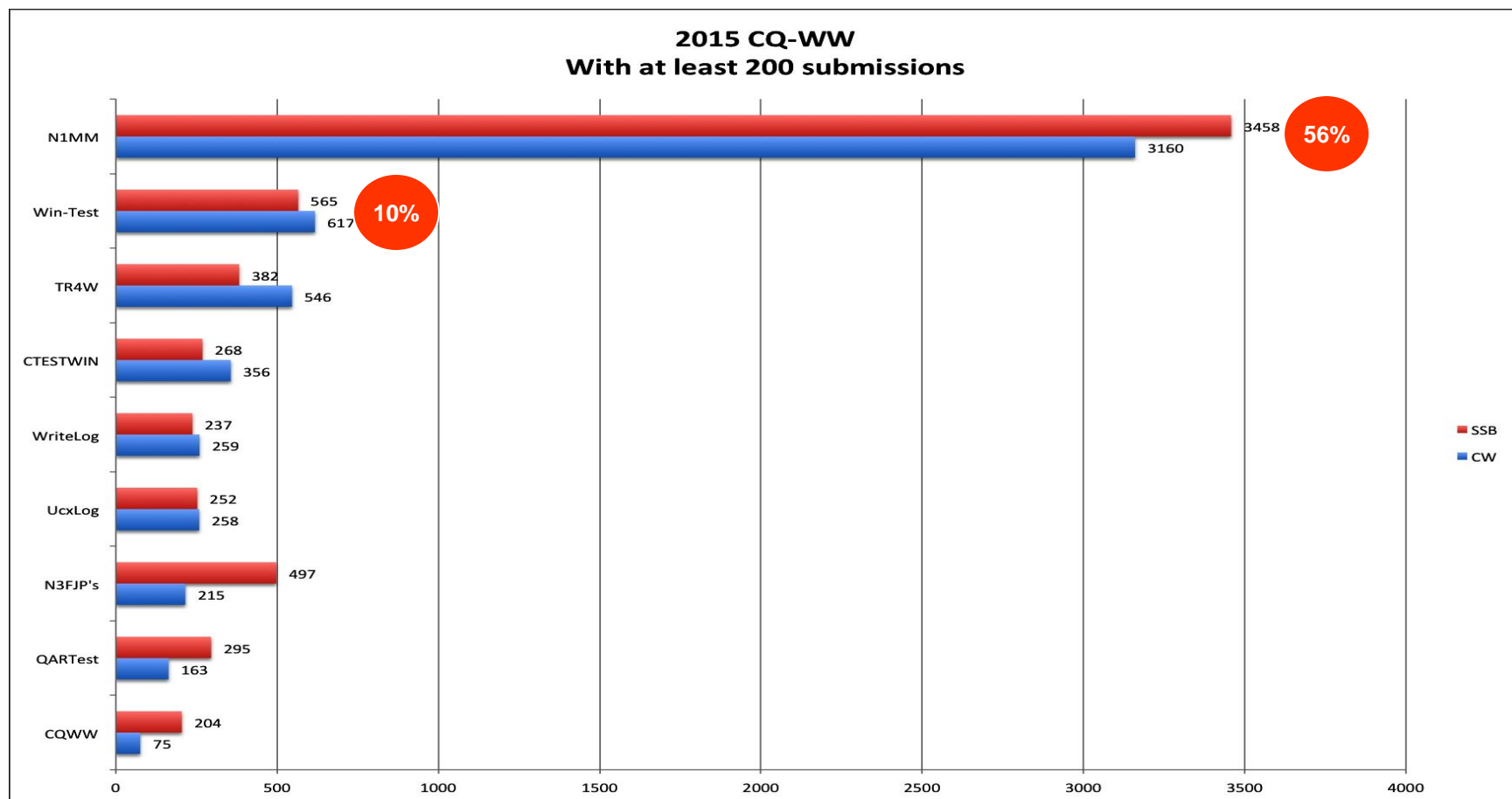
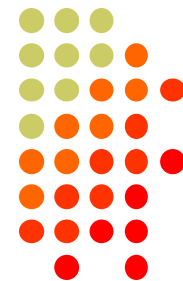


Chart generated by NY4I from CQWW Cabrillo logs



Internet Links

Here are a few of the many available resources



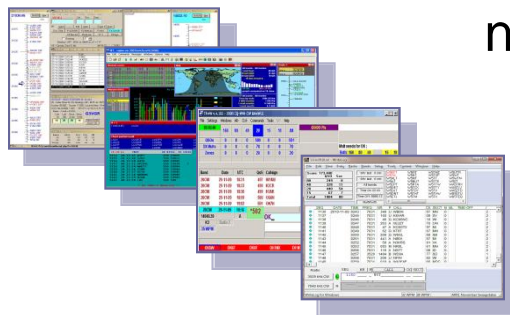
● Contest Organizations, Calendars, Info, & Sponsors

- WA7BNM Calendar  hornucopia.com/contestcal
- SM3CER Calendar  sk3bg.se/contest
- Contesting.com  contesting.com
- National Contest Journal (NAQP ...)  ncjweb.com
- ARRL (Sweepstakes, Field Day, DX ...)  arrl.org
- CQ Magazine (CQWW, WPX ...)  cq-amateur-radio.com

● Popular Contest Logging Programs

Treated in Appendix B

- N1MM n1mm.hamdocs.com
- Win-Test win-test.com
- Writelog for Windows writelog.com
- TR4W tr4w.net



Odds 'n ends and notes

