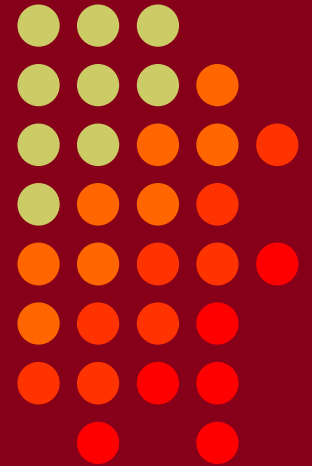


# Little Pistols Bigger Scores

Collected Wisdom and Lessons Learned  
K2YWE (K3AU)



• CTU •  
CONTEST  
UNIVERSITY

ICOM®

# What's this about?

*Ways modest stations can improve their scores*



- **Objective**

- Improved Scores for Little Pistols

- **Intended Audience**

- Low power “grass roots” HF stations
- But . . . principles & tips apply almost universally



# Agenda



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

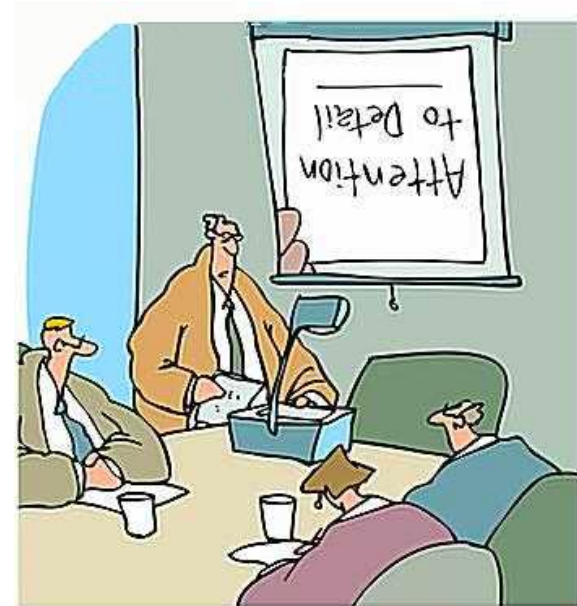
*Note – This presentation is modified from what is in the CTU book. (Mostly, the sequence is changed)*

# Elements of Success

*Same principles apply as in most successful endeavors*



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



“Which brings us to my next point”

# The Right Frame of Mind

Get “in the zone”



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

'It's a jungle out there' . . . de N6TR

- 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.” . . . de 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.” . . . de K2YWE

**QRL!**



# Preparation

*'Now the general who wins a battle makes many calculations in his temple ere the battle is fought. The general who loses a battle makes but few calculations beforehand.' . . . Sun Tzu*



- **Have a strategy – write it down**
  - Provides baseline guidance
  - Try to optimize within your constraints
  - Modify as needed in 'battle'
- **Reassess during the contest**
  - Expect to change the details
  - Take big departures only if you have good reason to, like one or more of your assumptions is invalid



# Preparation

*Get your act together before the performance*



- **Check your set-up well before the start**

- Antennas, Hardware, Software, support files
- Software settings
- Provide enough time for fixing any problems
  - I use my contest software **every day**



**INS Key sticks!**

- **Be well rested for the contest**

- **Listen day(s) & hours before to get a feel for Condx**

- **Have a simple means to restart software**

- What did I call the file ? – Use consistent names





# High Level Thoughts

*Some reasoning to frame the problem*

- **Q's fuel the engine. Mults provide a boost**
  - Both are important
- **More Q's are key for higher scores**
- **Operating Time is fixed, thus Rate must go up!**

- **Rate Drivers**

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

Rates - 1 mult = 13.7 Q's				
Last	Last	Since	Since	Last 60 min
10	100	16:34	17:00	56
Q's	Q's			
73	50	64	71	
Import Goals		Goal = 56		

# Available QSO's

## Sources of QSO's



- **Group 1 – Stations calling CQ (Runners)**
  - You hear them, most will hear you
  - You can generate high S&P rates with them
  - In spite of how it sounds, they are limited in number
- **Group 2 – Non-Runners (callers)**
  - QSO's you **will never make** unless you call CQ
  - The“pool” is deeper
  - They boost and help sustain rates
  - Some will be Multipliers
- **Thus . . .**
  - **You must Run at least part of the time**
    - Mix of Run / S&P will vary
    - Good conditions are favorable for Little Pistol running



# Efficient Use of Time

*Higher rates require spending less time per QSOs*



- Look at rate as *time per QSO*
  - Time *in* QSO plus Time *Between* QSO's
  - Minimize **Both**
- 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**



# Efficient Use of Time - S&P

*Higher rates require spending less time per QSOs*



- **Between QSOs when S&P-ing**
  - **Give your call once** unless otherwise is warranted
    - **Timing** is important
    - Remember you're a "Big Dog"
  - **Give your whole call**
    - Partial calls often lead to an extra transmission
  - Use K3ZO's "Rule of **Twice**"\*
    - Move on if he doesn't ID after transmitting Twice
    - Move on if he doesn't respond after Two calls\*
  - Use the **Bandmap**
    - Save calls in the Bandmap, even if you are Unassisted

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



# Efficient Use of Time - Running

*Higher rates require spending less time per QSOs*



## ● In QSO 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

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



# Efficient Use of Time - 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 for the RBN (on CW)
  - Arrange keyer macros accordingly

*More on running in Best Practices*



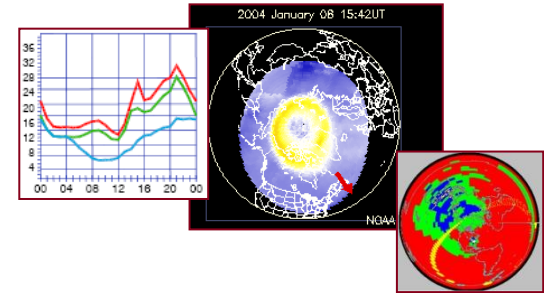
# back to Strategy

*Having a game plan pays off during the contest*



- **Consider Propagation**

- Range of prediction tools are available
  - 'Rules of Thumb'
  - Online resources and models
- Temper with your own observations



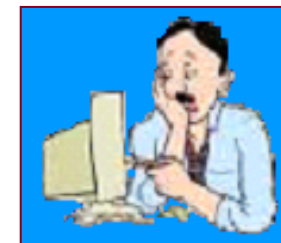
- **Allow for time-of-day considerations**

- What's going on outside your area



- **Block out expected S&P and Run times**

- Set ground rules for changes
- Balance with periodic short checks for Mults

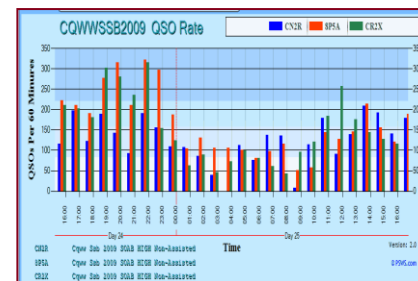


# On/Off Times

*Make the best use of your time*



- **Choose Off times at lowest expected Q rates**
  - Base on your own or other stations' 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
  - I usually leave a late half-hour insurance slot
  - It's tricky, considering desire to use time fully
- **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**

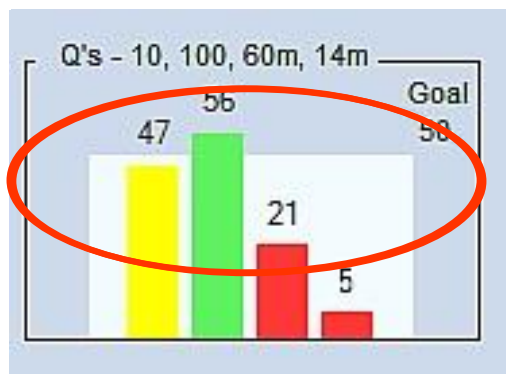
- (Total Q's) / (Operating Hrs)
- Make it a major element of your strategy

- **Set minimum rates you'll accept**

- Adjust target rates over the contest period

- **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!**



# 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**
  - Expect Antennas to rank high
  - Don't forget to pick 'low hanging fruit'
  - **Every** improvement counts – **they all add up**
- **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 changes



- **Rearrange Equipment**

- Easier **more efficient**, operation



- **Improve Antennas**

- Better sustain runs, snag S&P QSO's with less calls
- More '**second tier**' QSOs

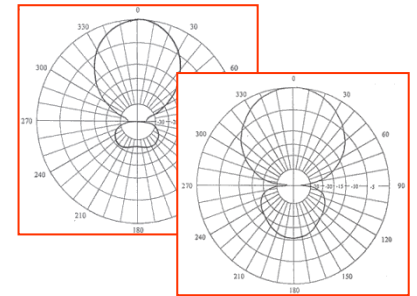


# Antenna Improvements

*Be innovative within your constraints*



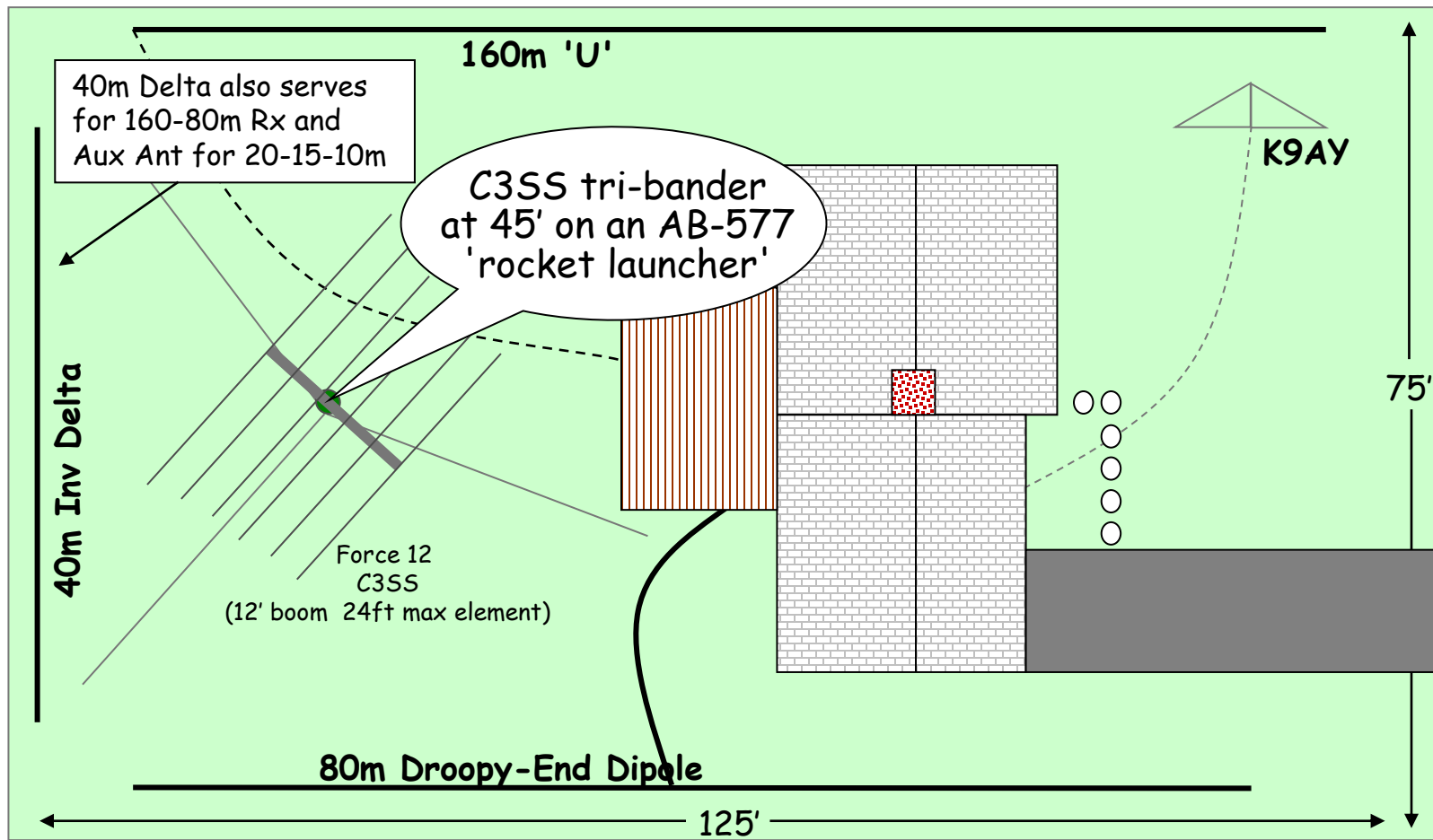
- What **assets** exist to hang antennas on?
- Use all the property lines to full advantage
- Add/change antenna to help your **weakest band**
- Try using **monobanders**
- Consider fixed antenna with gain to high QSO area
- Enable a **new band**, like 160m
  - New Mults and more Q's during slow times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





# My Antenna Farmette

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



# Software (S/W)

*Use a dedicated contest logger, properly configured*



- **Engage Radio and Keying interfaces**

- Build or buy and integrate them if you haven't already
- Facilitate high rates, reduce errors

- **Recommended S/W Setup Options**

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

- **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**



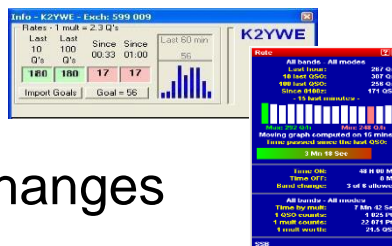


# S/W Features I find most useful

*Some features that pay off*

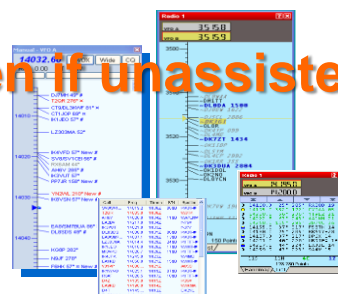
- **Rate Window**

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



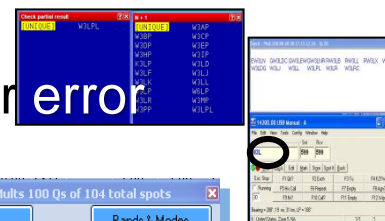
- **Bandmap**

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



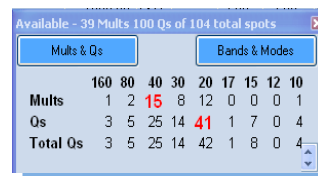
- **Super Check Partial (SCP) or Check n and n+1**

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



- **Available Mults and Q's**

- See band activity/'target density'



# 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 day-to-day 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 MD DAN BK . . . TU)
    - Pick days with good conditions on your best band
- **Assess your Operating Practices**
  - Bounce your operation against the **Best Practices**



**Contest Hound  
using Morse Runner**



# Some Tips

## Overall



- **Every point counts!**

- There's **no** such thing as '**not worthwhile**'
- When it's really slow, call for 'anybody'

- **A rule of thumb strategy**

- **Work bands that may close first.** Move with propagation
- Usually means 10-15-20 in a.m. then 40-80-160 later on
- Chase Mults when one band slows, but other hasn't yet opened
- **Try more running** when bands are **open**
- Keep an eye out for **early and low-probability** openings

- **Keep multipliers in mind**

- **'Move' Mults** if you can do so efficiently
  - Have frequency on each band **set up** for quick jaunt
- **Balance** effect on rate and total score when chasing Mults

Band	Mode	QSOs	Pts	Mlt
1.8	CW	66	0	0
1.8	LSB	1	0	0
3.5	CW	167	0	0
3.5	LSB	39	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	318	9	4
14	PHON	9	0	0
14	RTTY	8	0	0
14	USB	84	0	0
18	CW	82	0	0
18	USB	15	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

BANDE	QSO	DBL	DXC	CQ	POINTS	MOY
160	102	3	50	13	280	2.75
80	328	5	31	21	942	2.37
40	918	31	119	29	2652	2.90
20	1208	17	140	35	3532	2.92
15	2297	69	145	34	6701	2.92
10	4334	137	145	33	12762	2.94
TOTAL	9185	262	680	165	26869	2.93
SCORE FINAL : 22 704 305						

# Some Phone Tips

*Apply these basic Best Practices for starters*



- **Maintain a friendly sense of urgency in your QSOs**
  - Chattiness will slow your rate and lose you contacts
- **Use conventional or unmistakable phonetics**
  - 'Duck Soup' are poor phonetics for 'D S'
  - Use Standard (IPA) or 'Common' phonetics (countries, cities . . .)
- **Be mindful of SSB signal bandwidth**
  - Be 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 Best Practices for starters*



- **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



- **Beware of busted RBN spots**

- **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 Basics

*Log what you hear, not what you read*



- **Verify the callsign of the station you're working**
  - BV6U and 5C8N are not real callsigns (6V6U and HC8N)  
Don't log them that way
- Always **Hear** the call and log what you hear



Manual - YFO A  
14032.60 SHDX Wide CQ  
RIT 0.00 XIT CW  
D7MH 49\* #  
T2OR 276\* #  
CT8DL3KVF 81\* #  
CT1JOP 69\* #  
K1JEO 57\* #  
LZ303MA 52\*  
K4VFD 57\* New #  
SV8SV1CB 56\* #  
Check - Mon: 100 00 40 30 11 15 12 10 0:20  
EW3LN GW3LDC GW3LEW GW3LNR RW3LB RW3LL RW3LX W3LD  
W3LDG W3LJ W3LL W3LPL W3LA W3LRC  
Partials  
EW3LN  
GW3LEW  
GW3LNR  
RW3LA  
U3LEO  
U3LJ  
U3LL  
U3LPL  
U3LRC  
Both L

# Best Practices Basics

*Make the most of your available time*



- **S&P rates can be very high early in the contest**
  - **Everyone** is 'fresh meat' for you.
  - You can quickly hop from station to station with little fear of Dupes
  - You are often safe to call first and then fill-in the call (some risk)
- **Use S&P to find a spot to CQ**
  - You can maintain a **high rate** while **searching for** a **clear** spot
  - It beats the alternative of establishing a frequency before the Test
- **Be sure to try CQing late in the contest**
  - You will **be fresh meat** to some that have been CQing all along
- **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



# Best Practices . . . Running

## *Running*



- **Call CQ when the band is active**
  - If **CONDX** are **good** for your station
- **Call CQ when bands are dead or worked out**
- **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**
- **Speed up if your run is being sustained**
  - Especially in contests like SS with your call in the exchange
  - **Slow back down again** appropriately

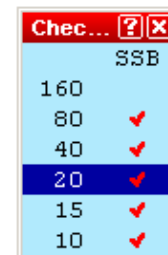


# Best Practices . . . Running

## Running - continued

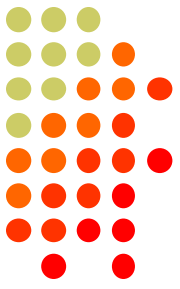


- **Send out a full exchange with a partial call**
  - Most **Ops will correct you**, many without a missing a beat
  - Fix the entry during his transmission
- **Send the corrected call as part of your 'bye' message**
  - **Enable call sign correction** in your software
- **(CW) Hit SEND as soon as the call is in your head**
  - **Finish typing** in the log **while the exchange is sent**
  - Some programs can do this automatically after  $n$  characters
- **Move Multipliers to other bands if you have the time**
  - **Picking frequencies** in advance makes it easier to jump



# Best Practices . . . Running

## *Running - continued*



- 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*



# After Action (post mortem)

*Analyze your performance after the contest is over*



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

\* You must have a recording if you are a CQWW top 3 finisher



# Conclusion

*Little Pistols with modest stations can successfully compete*



- **Prepare and pay attention to detail**
  - Remember **Sun Tzu**
- **Strategies are important**
  - 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
- **Start now to make incremental improvements**
  - Make a **list** and work it down

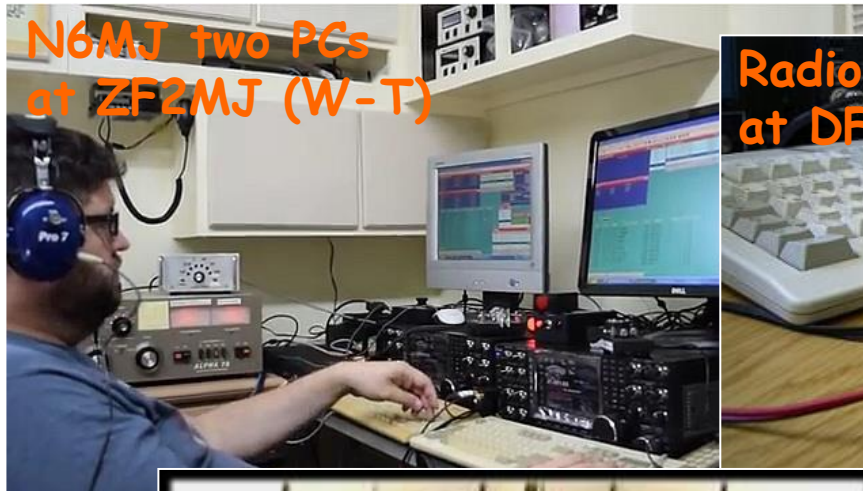


*‘ It’s not the size of your station, it’s how you use it! ‘*

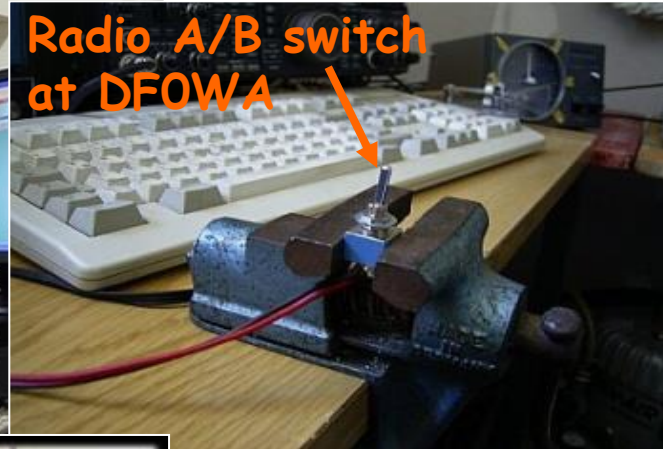


# A Word About SO2R [single op 2 radio]

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



# Best Practices

## Appendix A



K2YWE  
2 of 9

### Best Practice

### Rationale

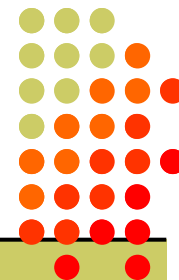
#### General Operating - continued

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



# Best Practices

## Appendix A



K2YWE  
3 of 9

### Best Practice

### Rationale

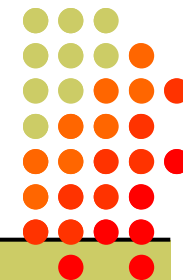
#### General Operating - continued

- |                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Do not waste time repeatedly calling DX stations that have moderate signals when the band is otherwise quiet from their part of the world</li><li>• This is likely to happen when big guns are just 'opening the band' or 'keeping it open'</li><li>• Try another time</li></ul>      | <ul style="list-style-type: none"><li>• Many stations running high power will be heard when propagation is poor, but will not hear you despite elaborate antennas</li><li>• Remember that 1.5kW vs. 100W is roughly the difference between S-7 and S-3. These are the guys that are S9 or more under better conditions.</li></ul> |
| <ul style="list-style-type: none"><li>• Send only the missing or wrong part when asked for a correction (FILL)</li><li>• The response to K3? would be 'ABC' (a few times if needed) not all of 'K3ABC' since K3 wasn't in question</li><li>• Similarly in SS if queried for your CK, don't send the entire exchange</li></ul> | <ul style="list-style-type: none"><li>• Time spent sending known information is wasted.</li><li>• You may squander a clear interval or QSB peak on resending known info<br/>The time spent sending known info may be a missed opportunity for the Fill to be heard</li></ul>                                                      |



# Best Practices

## Appendix A



K2YWE  
4 of 9

### Best Practice

### Rationale

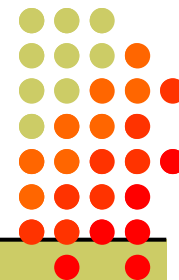
#### Running

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



# Best Practices

## Appendix A



K2YWE  
5 of 9

### Best Practice

### Rationale

#### Running - continued

<ul style="list-style-type: none"><li>• Use the widest receiver bandwidth you can stand</li></ul>	<ul style="list-style-type: none"><li>• Less chance to miss off-frequency callers, especially on CW</li></ul>
<ul style="list-style-type: none"><li>• 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</li></ul>	<ul style="list-style-type: none"><li>• 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</li></ul>
<ul style="list-style-type: none"><li>• Don't engage in long frequency fights. Try 'QRL' or 'frequency in Use, QSY.' If that fails, it almost always pays to move.</li><li>• Sometimes you can move up or down a bit in order to lessen the QRM and still hang on to "your" frequency</li></ul>	<ul style="list-style-type: none"><li>• It costs you QSO time</li><li>• You may be in QRM at the other end</li></ul>



# Best Practices

## Appendix A



K2YWE 6 of 9	Best Practice	Rationale
<b>Running - continued</b>		
<ul style="list-style-type: none"><li>● Don't break a run to pull one station through</li></ul>	<ul style="list-style-type: none"><li>● Your rate will suffer if you take long</li><li>● You will drive away impatient waiting stations</li></ul>	
<ul style="list-style-type: none"><li>● If you can't drag a station's call through after trying TWICE, ignore him and start calling CQ again</li><li>● This is part of K3ZO's /Rule of TWICE./ Modify TWICE to suit your station capabilities and contest circumstances</li></ul>	<ul style="list-style-type: none"><li>● 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</li><li>● Equally important, on a crowded band you must transmit often to keep "your" frequency clear</li></ul>	
<ul style="list-style-type: none"><li>● Speed up if your run is being sustained. This is especially true in contests like SS where the exchange includes your call sign.</li></ul>	<ul style="list-style-type: none"><li>● Waiting callers likely have your info</li><li>● More stations will be inclined to wait</li><li>● Your rate will go up with speed</li></ul>	

# Best Practices

## Appendix A



K2YWE  
7 of 9

### Best Practice

### Rationale

#### Running - continued

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



# Best Practices

## Appendix A



K2YWE  
8 of 9

### Best Practice

### Rationale

#### Running - continued

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



# Best Practices

## Appendix A



K2YWE  
9 of 9

### Best Practice

### Rationale

#### Running - continued

- |                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• 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<br/>Some software can be set to do this after <math>n</math> callsign keystrokes (TR4W and N1MM, for example)</li></ul> | <ul style="list-style-type: none"><li>• If your fingers are like mine, they slightly lag my brain and I am still typing when the other station stops sending.</li><li>• This practice reduces the lag between when the other station finishes calling and when you respond, increasing your rate</li></ul> |
| <ul style="list-style-type: none"><li>• NEVER NEVER NEVER acknowledge a 'jammer.' NEVER!</li><li>• Just keep your pace, and don't change your tone of voice on phone or even synchronize your calls to his QRM</li></ul>                                                                           | <ul style="list-style-type: none"><li>• 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</li></ul>                                                                                                                      |



# Selected Contest Loggers

Appx B



The collage displays several screenshots of contest logging software. On the left, a window titled 'VE3LJ' shows a log of contacts with columns for time, frequency, and call signs. In the center, a window titled '4002-10' shows a similar log. On the right, a window titled '2010-11-08' shows a summary table with columns for 'Band', 'Date', 'UTC', 'QoS', 'Category', 'DX', 'Zn', 'Pis', 'M', 'I', 'S', 'D', 'Frms', and 'Op'. Below this, a window titled 'CW' shows a list of contacts with columns for 'SEQ', 'DATE', 'TIME', 'FREQ', 'NR', 'P', 'CALL', 'CK', 'SECT', 'M', 'M', 'TIME OFF', and 'I'. At the bottom, a window titled 'Radio' shows a list of radio stations with columns for 'SEQ', 'NR', 'CALL', and 'CW'. Other windows show maps, graphs, and various control panels.



# 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

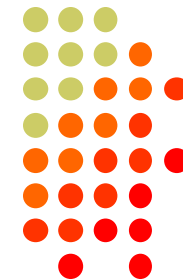
Appx B

*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)

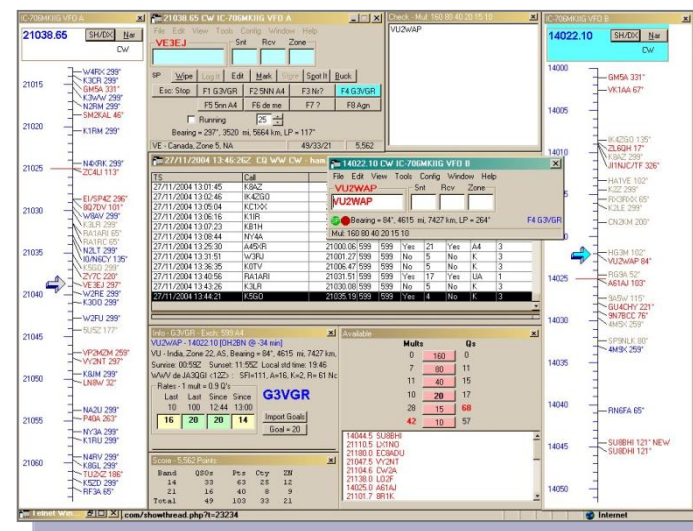




# N1MM+ by N1MM et. al. (N1MM, N2AMG, K3CT, N2IC, NA3M, AB5K, KU7T)

Most popular (by far) Windows contest logger

- **Cooperative project with multiple participants**
  - Rewritten in 2014 as N1MM logger plus (N1MM+) using SQLite
  - Large user community
  - 110 supported contests
- **Moderate system needs. Will utilize multi-core**
- **Extensive features and options**
  - Highly customizable
  - Configurable windows
- **Sound card voice keyer**
- **RS-232, Parallel, USB support**
- **Free**

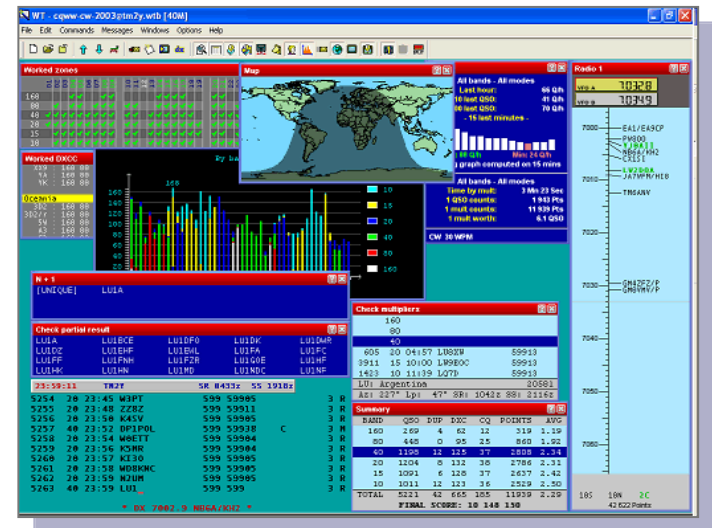


# Win-Test by F5MZN

*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)

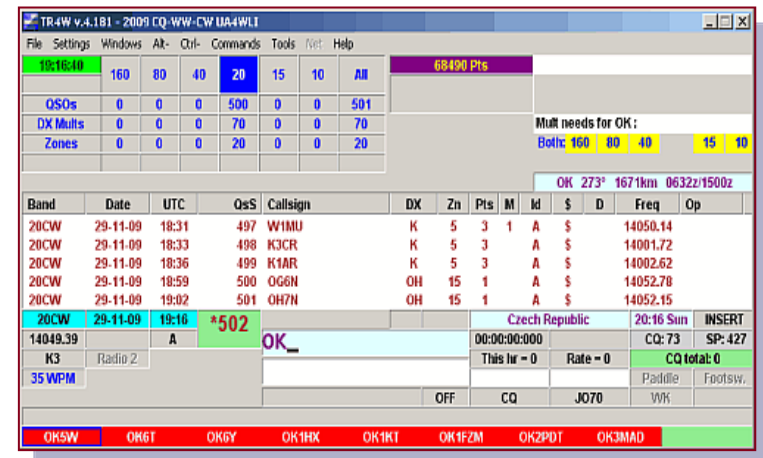


# TR4W by UA4WLI (and UR7QM)

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**



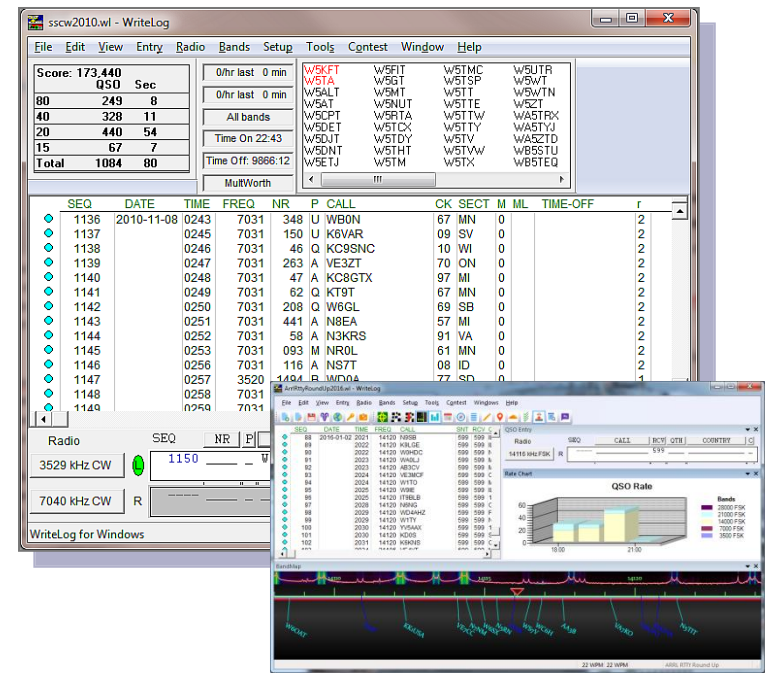
\* Also Runs under Linux/WINE

# 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



- **Recently re-written in C#.NET (was VB6)**
  - Improved, but lacks features and flexibility of top loggers
- **Single resizable Main Window + floating Bandmap**
- **65+ supported contests (31+34 State QPs and more)**
- **Sound card voice**
- **RS-232 and USB support**
- **No SO2R support**
- **\$49 all programs** (includes daily log)  
or ala carte
  - \$25 Daily Contact Log
  - \$ 9 each contest separately



# Logs most used in CQWW 2015

*N1MM/N1MM+ is overwhelmingly the most popular*

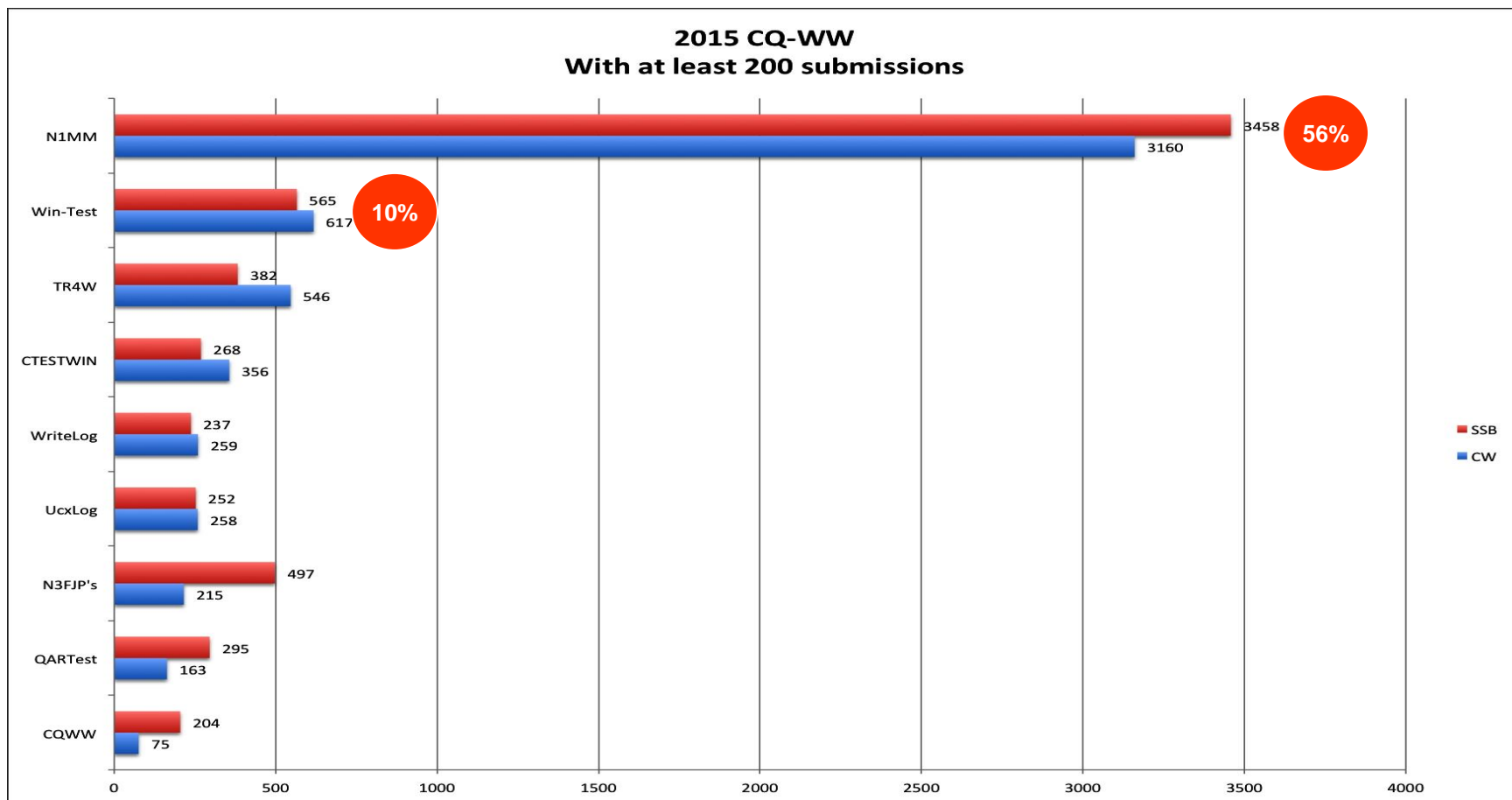


Chart generated by NY4I from CQWW Cabrillo logs

# Internet Links

Here are a few of the many available resources



## ● Contest Organizations, Calendars, Info, & Sponsors

- WA7BNM Calendar  [hornucopia.com/contestcal](http://hornucopia.com/contestcal)
- SM3CER Calendar  [sk3bg.se/contest](http://sk3bg.se/contest)
- Contesting.com  [contesting.com](http://contesting.com)
- National Contest Journal (NAQP ...)
- ARRL (Sweepstakes, Field Day, DX ...)
- CQ Magazine (CQWW, WPX ...)

-  [ncjweb.com](http://ncjweb.com)
-  [arrl.org](http://arrl.org)
-  [cq-amateur-radio.com](http://cq-amateur-radio.com)

## ● Popular Contest Logging Programs

- N1MM
- Win-Test
- Writelog for Windows
- TR4W

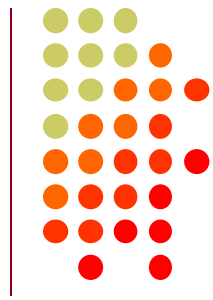


*Treated in Appendix B*

- [n1mm.hamdocs.com](http://n1mm.hamdocs.com)
- [win-test.com](http://win-test.com)
- [writelog.com](http://writelog.com)
- [tr4w.net](http://tr4w.net)



# Odds 'n ends



# Scoring Basics review

*It's all about accuracy and Q's & Mults*



- Valid contacts require **accurate** two-way information

- Final score depends Q's & Mults

Call	Freq	SNT	RCV	Prefix	Mult
UP4KEDR	21040.58	599	599	UP4	No
OK1MRZ	28006.23	599	589	OK1	No

- **QSO points** – Based on number of valid contacts
  - Points per contact may vary (like WPX)
- **Multipliers** – Based on a unique characteristic
  - Usually location
- Same station may provide multiple Qs or Mults
  - QSO's on different bands or modes may each count

Band	QSOs	Pts	WPX
1.8	239	1	1
1.8	13	0	0
3.5	485	69	4
3.5	90	1	1
7	1522	1005	131
7	167	253	41
7	17	6	0
14	545	661	69