

# Ham Radio Contesting

## All Your Questions Answered

Write Down A Question You Have About Contesting



**Mel Granick - KS2G**  
**Ham Radio University**  
**January 4, 2025**

# Our Founder



*In Memoriam* 1947 - 2020

*Philip R. Lewis – N2MUN*  
*Founding Father of Ham Radio University*



# Who's Here?



Show of Hands:

How Many:

- Techs?
- Generals?
- Advanced?
- Extras?
- Never Operated In A Contest?
- Operate Contests Every Now and Then?
- Operate Contests A Lot?

**I will attempt to answer your questions...**

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Before I Know What They Are!

# What Is Contesting?



- Also known as “Radiosport”
- Competitive Amateur Radio Operating

Work As Many Stations As Possible

In As Many Places As Possible

As Quickly As Possible

# How Popular Is Contesting?

Logs submitted in the "Big Five" HF Contests 1996 - 2010

ARRL DX, CQWW DX, CQWW WPX, DARC, JARL  
CW, SSB, RTTY & Mixed-Mode

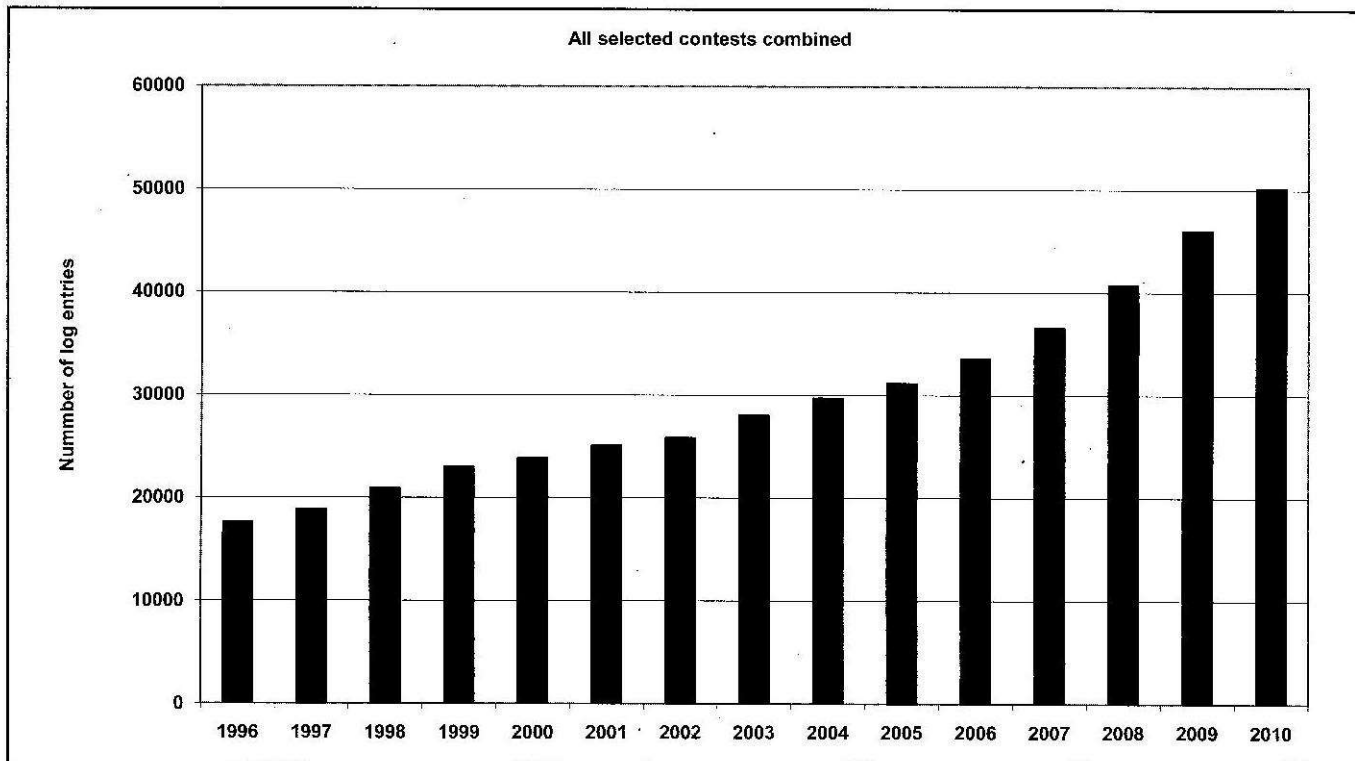
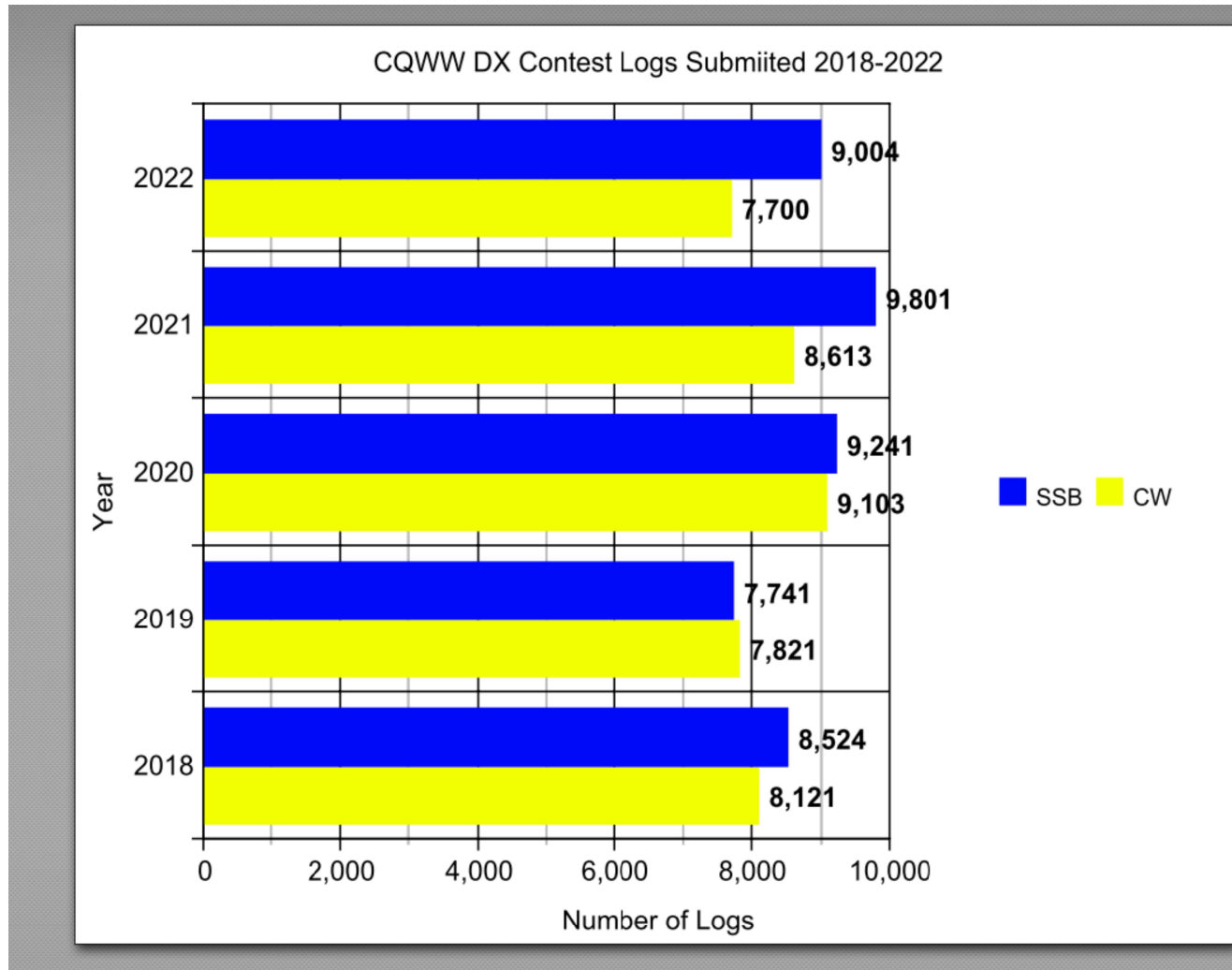


Figure 6 — Total combined participation over the years

# And That Trend Has Continued...



# What Class License Do I Need to Contest?

All Amateur Radio licensees can participate in contests.

Novices and Technicians can operate

In VHF/UHF Contests

HF Phone on 10-meters (28.3 - 28.5 MHz)

HF RTTY/Data on 10-meters (28.0 - 28.3 MHz)

HF CW on

80-meters (3.525 - 3.600 MHz)

40-meters (7.025 - 7.125 MHz)

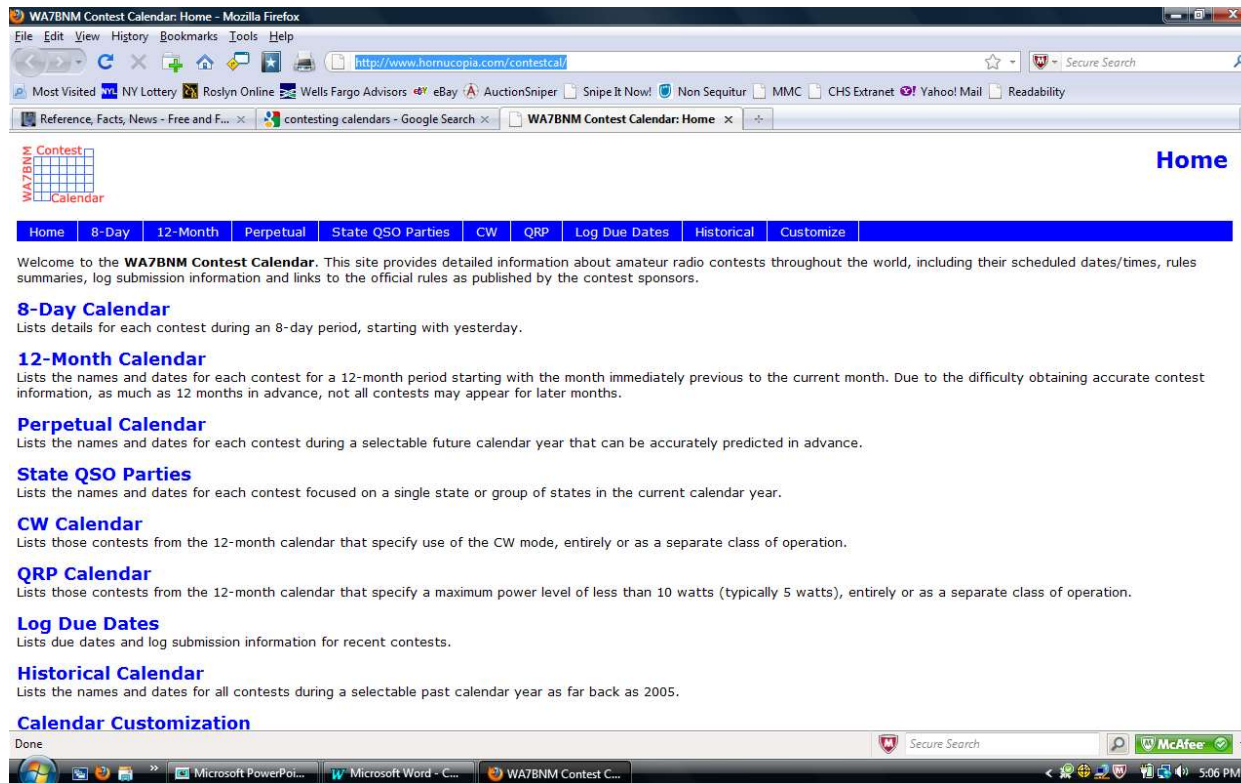
15-meters (21.025 - 21.200 MHz)



# How Do I Find Out When The Contests Are On?

## WA7BNM Contesting Calendar

<http://www.contestcalendar.com>



The screenshot shows a Mozilla Firefox browser window displaying the WA7BNM Contest Calendar website. The browser's address bar shows the URL <http://www.hornucopia.com/contestcal>. The website's main navigation bar includes links for Home, 8-Day, 12-Month, Perpetual, State QSO Parties, CW, QRP, Log Due Dates, Historical, and Customize. The page content is organized into sections, each with a heading and a brief description:

- 8-Day Calendar**: Lists details for each contest during an 8-day period, starting with yesterday.
- 12-Month Calendar**: Lists the names and dates for each contest for a 12-month period starting with the month immediately previous to the current month. Due to the difficulty obtaining accurate contest information, as much as 12 months in advance, not all contests may appear for later months.
- Perpetual Calendar**: Lists the names and dates for each contest during a selectable future calendar year that can be accurately predicted in advance.
- State QSO Parties**: Lists the names and dates for each contest focused on a single state or group of states in the current calendar year.
- CW Calendar**: Lists those contests from the 12-month calendar that specify use of the CW mode, entirely or as a separate class of operation.
- QRP Calendar**: Lists those contests from the 12-month calendar that specify a maximum power level of less than 10 watts (typically 5 watts), entirely or as a separate class of operation.
- Log Due Dates**: Lists due dates and log submission information for recent contests.
- Historical Calendar**: Lists the names and dates for all contests during a selectable past calendar year as far back as 2005.
- Calendar Customization**: (Section heading only, no description visible)

The browser's taskbar at the bottom shows several open applications: Microsoft PowerPoint, Microsoft Word, and the WA7BNM Contest Calendar. The system tray on the right indicates the time is 5:06 PM.

# What Do I Do First?

- Decide *which* contest(s) to operate:
  - HF or VHF/UHF?
  - Small (short) or Large (long)?
  - Domestic or DX?
  - CW, Phone, RTTY/Digital?

# **I See Dozens of Contests. How Do I Find Out How They All Work?**



## ■ Each Contest's Rules Explain:

Dates/Times

Bands/Modes

Objectives

\*\* Contest Exchange

Entry classes

Scoring

Log submission (How to "enter" the contest)

# What Do I Send & Receive In A Contest QSO?



What are all those numbers?

- Each contest QSO consists of an exchange of information:
  - The “exchange” is defined in the contest rules
    - | Name and State
    - | Signal Report and QSO Number
    - | Signal Report and IARU or CQ Zone
    - | Signal Report and Grid Square
- You must receive and accurately log the exchange for QSO to be valid.

# No matter what the actual signal, everyone gives and seems to expect in return a 59 or 599 signal report. Why?


- Contest signal reports are NOT intended to convey information about the quality of the signal. They're just part of the the Exchange.
- Contest rules usually state that the Exchange is comprised of "A signal report and..."
  - ┆ Not an "actual" or "accurate" signal report
- Using only 59 means one less piece of information to actually copy. Speeds-up QSO's.
- In cw 599 can be shortened to 5NN
  - ┆ ..... ----, ----. Shortens to ..... -. -. .

# What's all that information that has to be exchanged in the ARRL Sweepstakes?

- The Sweepstakes exchange is longest of any contest and corresponds to the heading on an NTS Radiogram:

Number	Power	Call-sign	Yr Lic	Section			
 THE AMERICAN RADIO RELAY LEAGUE <b>RADIOGRAM</b> VIA AMATEUR RADIO 							
NUMBER <u>001</u>	PRECEDENCE <u>R</u>	HX <u>A150</u>	STATION OF ORIGIN <u>w8llm</u>	CHECK	PLACE OF ORIGIN <u>Parkersburg, WV</u>	TIME FILED	DATE <u>Dec 12</u>

**So, what band(s) should I work, and which stations, and how much time should I spend, and should I call CQ, or answer CQs, and...??**



*"If you don't know where you're goin'  
any road will take you there."*

--- George Harrison

# Random Operating Can Be Fun, But Better To Have Goals, Strategies & Tactics



- **Goal** - The *objective* of your contest operation
- **Strategy** - The *plan* for accomplishing your goal
- **Tactics** - The procedures or maneuvers used to *implement* your plan



# Goals / Strategies



## ■ What's your objective?

- Highest Score
- Number of QSO's
- Multipliers
- Countries
- States
- Prefixes
- Grid Squares
- **Just Have Fun!!**

## ■ What's your plan?

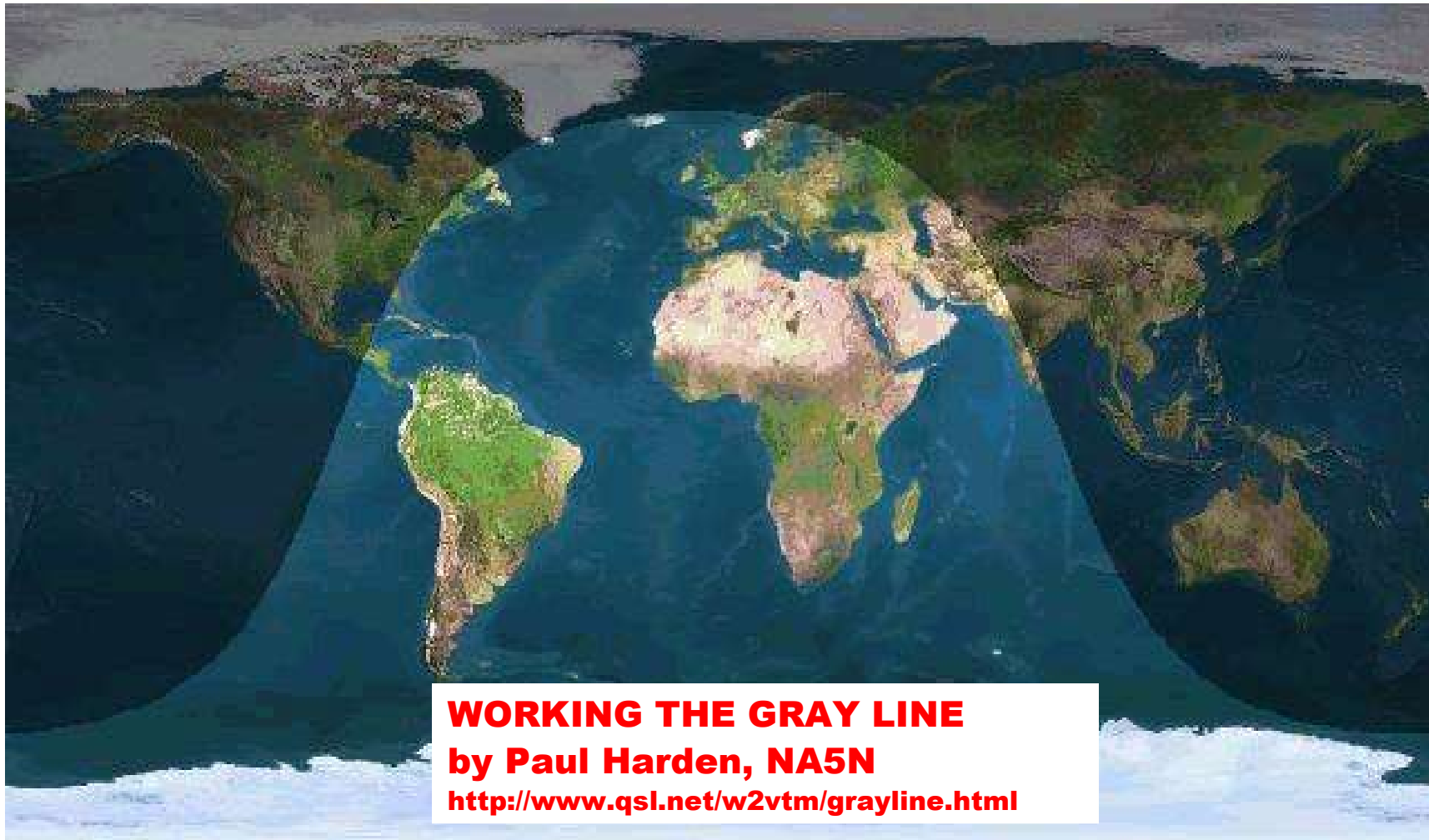
- Entry Category
  - Single/Multi-Op
  - Single/All Band
  - Single/All Mode
  - Assisted? (Spotting Networks)
  - Power Level
- Hours of Operation
  - How Many
  - Time(s) of Day

# Tactics



- **Run**
  - Call CQ
- **Search & Pounce**
  - Tune the Bands
- **Band/Mode Switches**
  - QSO Rates
  - QSO "Value" of Multipliers
- **On/Off Times**
  - Gray Line

# Work the “Gray Line”



**WORKING THE GRAY LINE**  
**by Paul Harden, NA5N**  
<http://www.qsl.net/w2vtm/grayline.html>

# How Do I Know Which Band To Use?

Reference, Facts, News - Fr... x QSO/SWL real time maps -... x

www.dxmaps.com/spots/map.php?Lan=E&Frec=7&ML=M&Map=W2L&DXC=N&HF=S&GL=N

Roslyn Online Wells Fargo Advisors eBay AuctionSniper Non Sequitur Yahoo! Mail Android Device Mgr AmazonSmile: You sh... Refresh Firefox - reset ...

**DXMAPS** Site Personal Radio Software DX maps DX news Humor Search... Translate Login

**DXMAPS 2.8 - QSO/SWL real time maps**

Map List Graph Chat Europe Africa North America South America Asia Oceania **World** Grey line Only DX-Cluster

LF - HF VHF & up 2200 m 600 m 160 m 80 m 60 m **40 m** 30 m 20 m 17 m 15 m 12 m 10 m All bands

Advertising seems to be blocked by your browser.

Notice that advertising helps paying the bill of the expensive server required by DXMAPS, together with the donations of the supporter users.

Please disable your Ad Blocker when visiting DXMAPS, unless you want the service to be shut down in some months.

www.dxmaps.com/spots/map.php?Lan=E&Frec=7&ML=M&Map=W2L&DXC=N&HF=S&GL=N

Desktop 7:17 PM

<http://www.dxmaps.com/spots/map.php>

# What are Multipliers?



- As set forth in the contest rules...
  - Each QSO is worth a certain number of points
  - The total number of points is then multiplied by the number of QSOs that meet certain criteria:
    - States/Provinces/Counties
    - ARRL Sections
    - DXCC Entities
    - CQ or IARU Zones
    - Grid Squares

# Why Are Multipliers Important?



Multipliers are what make contests interesting and create the need for strategy:

- **Without multipliers**, every contest would be simply a competition to see who can make the most contacts.
- **With multipliers**, it's possible for Station "A" to have fewer QSO's but out-score Station "B".

# How do multipliers work?

- ARRL 10 Meter Contest -- SSB
- QSO's count 2 points each
- Multipliers are U.S. and Mexican States, Canadian Provinces, and DXCC Entities
- So...
- $\text{QSO's} \times 2 = (\text{QSO Points}) \times (\text{mults}) = \text{Total Score}$

# Multipliers Can Make The Difference

## Station "A"

- Works 200 QSO's of which 100 are unique States/Provinces and DXCC Entities
- $200 \times 2 = 400$  QSO Points
- $400 \text{ QSO Points} \times 100 \text{ Mults} = \mathbf{40,000}$

## Station "B"

- Works 175 QSO's of which 125 are unique States/Provinces and DXCC Entities
- $175 \times 2 = 350$  QSO Points
- $350 \text{ QSO Points} \times 125 \text{ Mults} = \mathbf{43,750}$



# Multipliers Can Make a BIG Difference

## ■ 2001 ARRL 10-Meter Contest

SO/LP/SSB Claimed Scores:

	<u>Q's</u>	<u>Mults</u>	<u>Score</u>
■ #10) W8DD	1,122	139	311,916
■ #11) KS2G	1,122	124	278,256
■ #12) KB7XL	1,143	120	274,320
■ #13) KE5OG	1,189	108	256,824

**W8DD vs KS2G: 15 Mults = 33,660 Points (136 QSOs!)**

# Does your regular everyday Good Ol' Boy ham have a chance to be a top scoring contesteer?

---

- To finish in the Top Ten in a big contest, you don't need:
  - Big antennas up really high
  - A kilowatt linear amplifier
  - A late-model top-of-the-line transceiver with DSP, memories, dual watch receive, etc.
- **Smarts and Tenacity Count More Than Hardware!**

# Using a 100w transceiver into a 3-element Yagi up 35 feet:

THE AMERICAN RADIO RELAY LEAGUE  
**INTERNATIONAL CONTEST AWARD**

This Certifies That Station  
**KS2G**

**With the right strategy...  
Putting *in* more hours yields higher returns  
than putting *out* more watts!**

**United States  
and Canada**

**World Wide WPX Contest**

for the **Single Operator - 28 MHz** division for  
**United States - 2nd District (USA 2nd High)**

A Total score of **554,280** points was computed on the basis of  
the number of stations worked and call sign prefixes contacted. In witness of  
this achievement, we hereby affix our signatures on this day.

*Steve Bolia, N8BTQ*  
WPX Contest Director

*D.S. Wooten, W2VU*  
Editor, CQ

# What Information Should I Put In A Contest Log?



## ■ Date & Time

### ■ Always log in UTC

- Check Computer Clock Against WWV
- Set or Confirm Offset From Local Time

## ■ Band

## ■ Contest Exchange

### ■ Points

### ■ Multipliers

### ■ Score

# Do I Have To Use A Computer?

## ■ By Hand - Lots To Keep Track Of:

- Log
- Dupe Sheet
- Multiplier List
- Prefix List
- Zone or Grid Map
- Scratch Pad
- Calculator
- Summary



# A Better Way



- By Computer:
  - Specialized Contesting Software
    - N1MM+ Logger (Windows - FREE!)
    - WriteLog (Windows)
    - Win-Test (Windows)
    - RUMPed (Mac)
    - Skookum (Mac - FREE!)
    - YFKTest (Linux -FREE!)

# What Does Contesting Software Do?

- Logs contacts
- Checks for dupes
- Tallies multipliers
- Calculates running score
- Tracks rates
- Monitors Spotting Network
- Voice/CW Memory Keyer
- RTTY/Digital Interface
- Controls radios/antennas
- Summarizes & analyzes results
- Generates Cabrillo File For Log Submission
- Prints QSL's (but not N1MM)





# Besides Logging, How Can Contest Software Help Me?

- Show which band to work when
- Find Stations/Mults to work
- Increase QSO rate
- Increase QSO total
- Increase Mult total
- Decrease/Eliminate dupes





## **To set up a new station for contesting what would be the items that I would need?**



- Any station can be used for contesting:
  - Transceiver
  - Antenna
  - Linear Amplifier - NOT!!
  - Microphone
  - CW Key(er)
  - Digital Interface

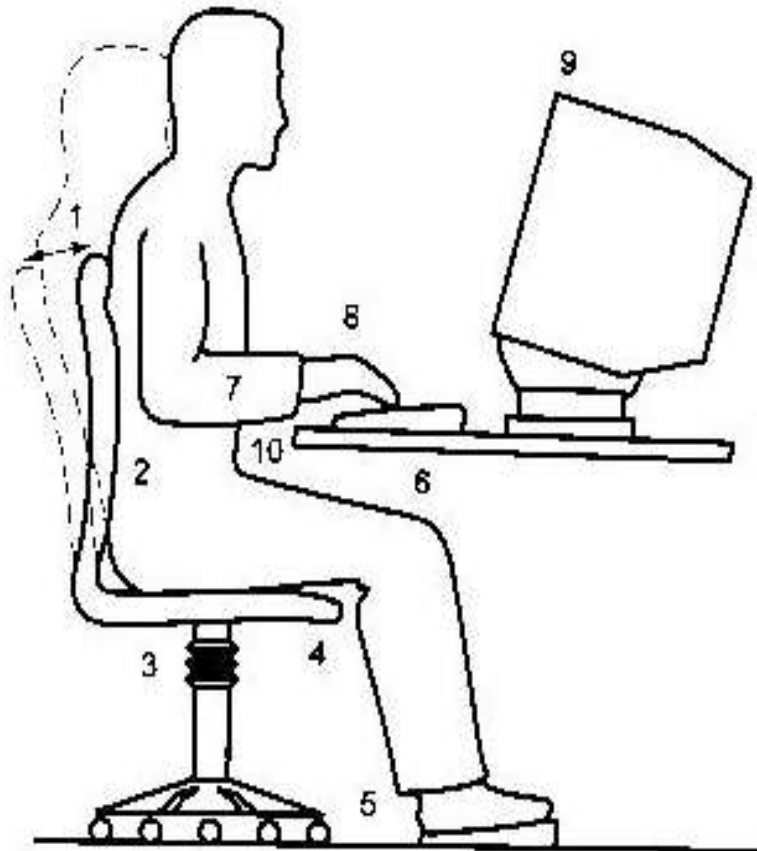
# **But To Optimize For Long Hours of Contest Operating...**



- The most important pieces of equipment in a contest shack are...

***Operator's Chair and Desk***

# Desk and Chair Should Work Together



- (1) Seat Back Adjustability
- (2) Good Lumbar Support
- (3) Seat Height Adjustability
- (4) No Excess Pressure on Underside of Thighs and Backs of Knees
- (5) Foot Support if Needed
- (6) Space for Postural Change, No Obstacles Under Desk
- (7) Forearms Approximately Horizontal
- (8) Minimal Extension, Flexion or Deviation of Wrists
- (9) Screen Height and Angle Should Allow Comfortable Head Position
- (10) Space in Front of Keyboard to Support Hands/Wrists During Pauses in Keying

**Check your posture to make sure it is right.**

**NCJ**

# And the most important consideration in station layout is...



## *Ease of Use*

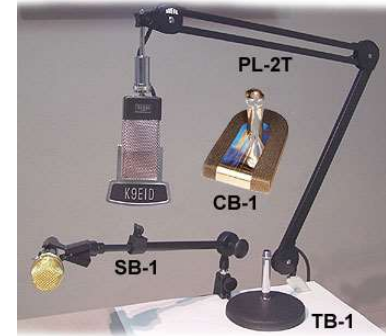
See and reach all of the devices, displays and controls you'll need most often, and perform required functions, with a *minimum of movement.*

# Useful Accessories

- CW Memory Keyer



- Boom microphone or boom-mic headset



- Footswitch

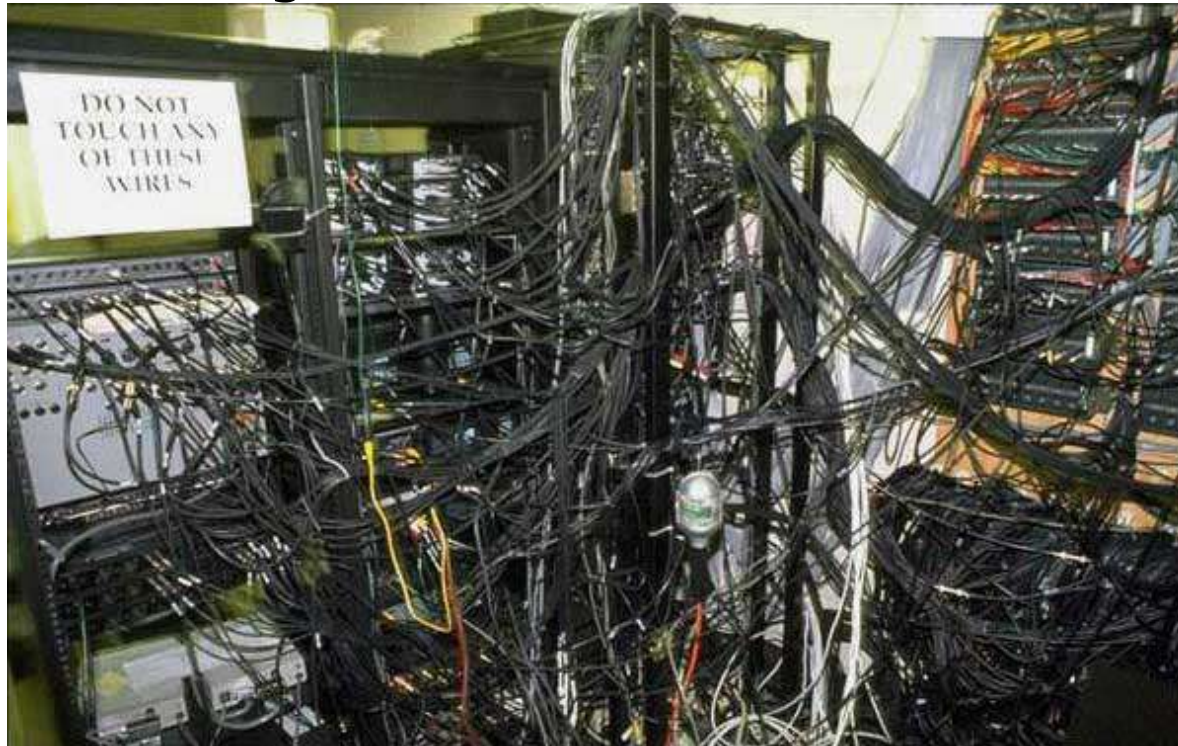


- Audio Voice Keyer



# Not an operating consideration, but...

- A "*walk behind the desk*" set-up is optimum for station maintenance, modification, and dealing with the occasional tangled cable.





# Some questions posted in ham radio on-line forums:



- Is it acceptable for a non-contest station to respond to the various CQ contest calls?
  - Absolutely! Contest stations are trying for as many contacts as possible and EVERY QSO counts.
- Am I wasting their time because my QSO is not verifiable?
  - Absolutely not! You don't have to be "in the contest" (submit a log) to provide valid QSOs.

# About State QSO Parties...



- I hear QSO Parties announcing a particular state. Are they looking for replies only from their state?
  - No. They're looking for contacts from BOTH within their state and stations elsewhere.
  - Out-of-state stations also can "enter the contest" (submit a log) and receive awards. (See rules)
- If a foreign station asks for a contact during a state QSO Party will the U.S. station reply or would that be rude on my part?
  - Yes they'll reply. No, it's not rude or improper. See above.



# Multiple Contests & Bands



- If two contests are going on at the same time, can I operate in both of them?
  - Sure! Just ask for and provide the exchange information for both events -- and keep separate logs.
- If I enter an HF contest that is on all bands, do I go back to serial number 1 when I change to a different band?
  - No. The serial number continues across all bands. However, you may, or may not, be able to work the same station or multiplier on more than one band -- depending on the rules.

# Duplicate Contacts



- Should I work "Dupe" stations?
  - That's a matter of opinion
  - Some think working dupes wastes too much time
  - Some think it's quicker to work 'em rather than tell 'em
  - No penalty for dupes in your log -- so why not?
  - Helps the other station, who may have "busted" your call earlier
- Should I remove "Dupe" contacts from my contest log?
  - No. Once they're logged, leave them in; there's no penalty.
  - Log should reflect what you actually worked during the contest.
  - Helps the other station, who may have "busted" your call.

# QSL's



- Is it proper/good idea/worth it to send QSL cards for contest contacts?
  - For sure!
  - Contesting is one of the best ways to get the contacts needed for various awards.
  - Make it easy for contest stations to QSL
    - Send stateside cards with SASE / DX cards with "green stamps"
  - Use LoTW and/or ClubLog
    - (eQSL & QRZ.com not popular among contesters)
  - Use QSL Bureaus -- if you don't mind waiting.

# Where Can I Get Information About Contesting?



## On Paper:

***QST* Magazine**

<http://www.arrl.org/contest>

***National Contest Journal (NCJ)***

<http://www.ncjweb.com/>

# Where Can I Get Information About Contesting?

## ■ On Line:

### ■ **WA7BNM Contest Calendar**

| <http://www.contestcalendar.com>

### ■ **Amateur Radio Contesting FAQ**

| [http://www.qsl.net/zs1an/contesting\\_faq.html](http://www.qsl.net/zs1an/contesting_faq.html)

### ■ **KA9FOX Contest & DX Library**

| <http://www.qth.com/ka9fox/links.shtml>

### ■ **Contesting.com**

| <http://www.contesting.com>

### ■ **K9JY's Contesting Tips**

| <http://k9jy.com/blog/2007/10/10/30-days-30-ham-radio-contesting-tips/>

# What Contests Are Coming Up?



- **January 4-5**
  - ARRL RTTY Roundup
- **January 11**
  - North American QSO Party - CW
- **January 18**
  - North American QSO Party - SSB

- **February 8-9**
  - CQWW WPX RTTY
- **February 22**
  - North American QSO - Party RTTY
- **March 1-2**
  - ARRL DX SSB

# 73, CU In The Tests!



**The slide deck of this presentation will be posted  
on the HRU website:**

***[www.HamRadioUniversity.org](http://www.HamRadioUniversity.org)***

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**If you Have Any Questions Email Me: [ks2g@arrl.net](mailto:ks2g@arrl.net)**