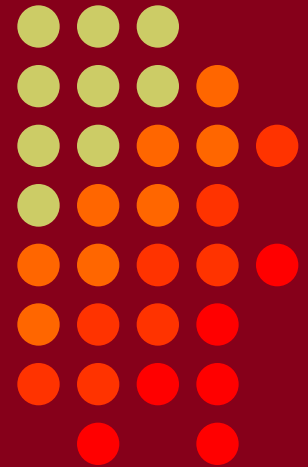


CW and RTTY Skimmer and the Reverse Beacon Network

Presented by N6TV

n6tv@arrl.net



Overview



- **What is CW Skimmer and RTTY Skimmer?**
- **What is the Reverse Beacon Network?**
- **How does it work?**
- **What can the RBN do for *me*?**
- **How can I use it?**
- **How can I help?**
- **What's new?**

It all starts with one developer



- Alex Shovkopylas, **VE3NEA**
(b. 1965, ex-UR5EMI, in Canada since 1998)



What is CW Skimmer?



1. Hardware: PC + Software Defined Radio (SDR)



SDR Antenna



2. Wideband RX Antenna, 1.8-30 MHz

InLogis
(formerly
Pixel Loop)
RF Pro-1B:



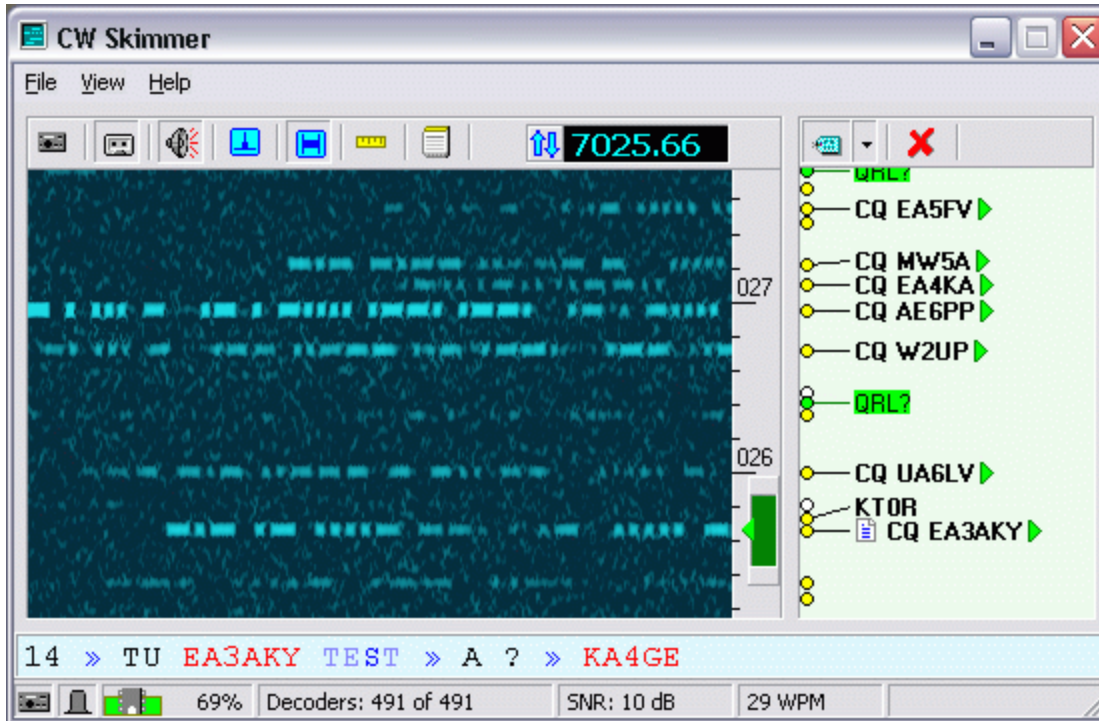
DX Engineering
Active Horizontal:
ARAH3-1P:



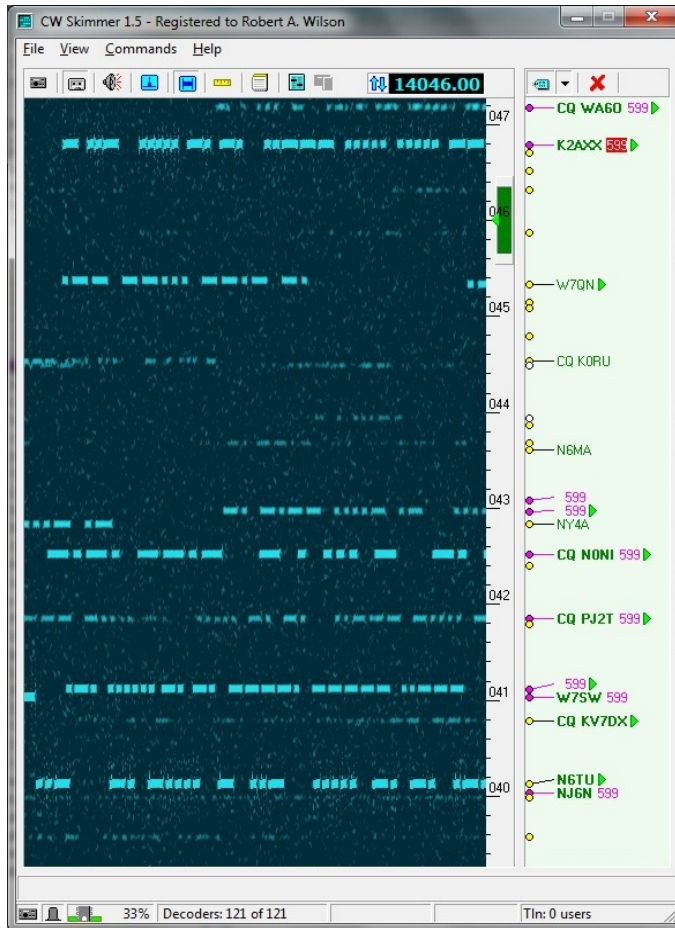
Software



3. CW (or RTTY) Skimmer or Skimmer Server

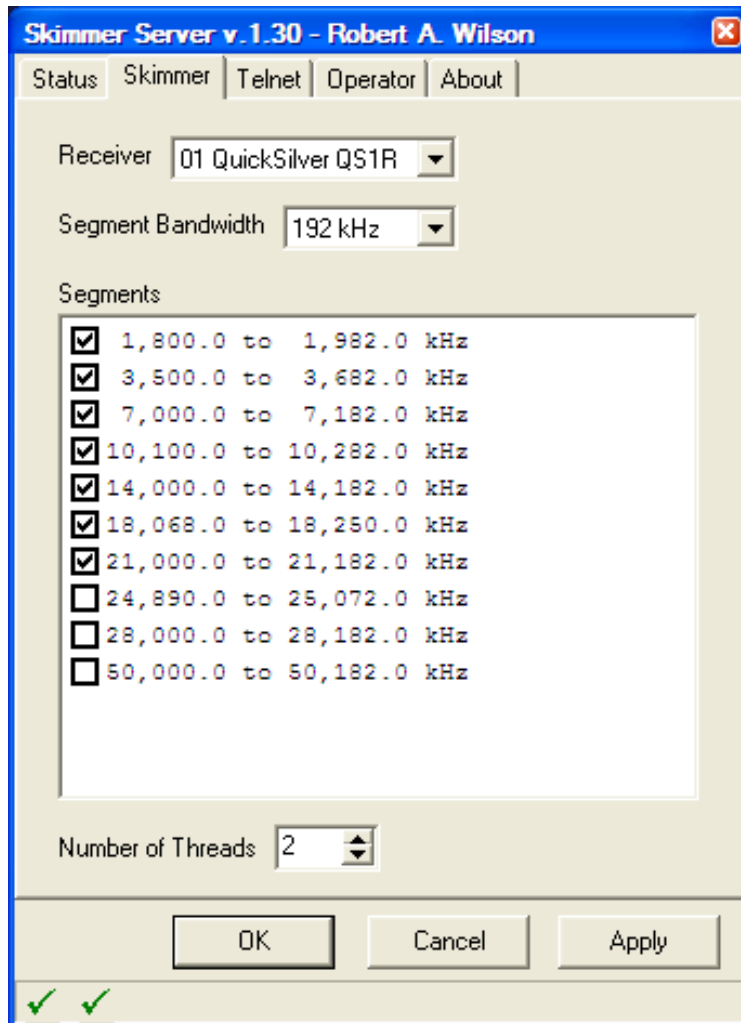


CW Skimmer by VE3NEA



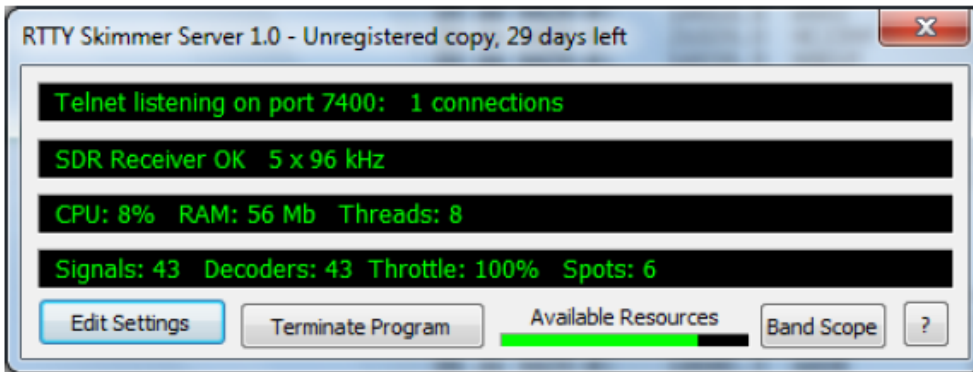
- Works with many SDRs
- Decodes *multiple* CW signals in real time
- Can monitor *entire* CW band
- Waterfall Display
- Band Scope
- Uses MASTER.DTA
- Telnet Server (emulates a DX Cluster)

Skimmer Server by VE3NEA

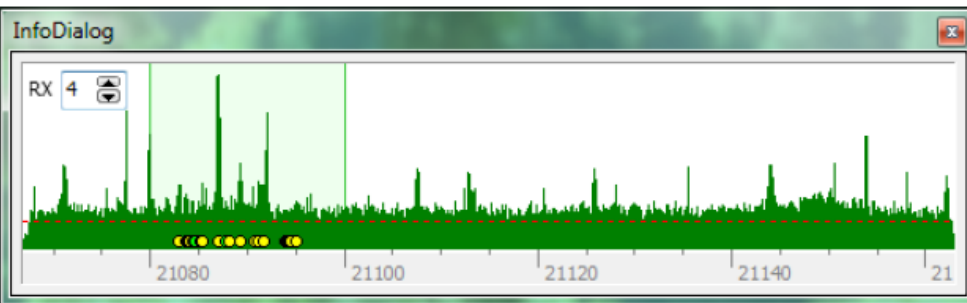


- Natively supports *only* the QS1R SDR
- Decodes multiple CW signals in real time
- **Monitors *multiple bands* with single SDR**
- No Waterfall Display
- No Band Scope
- No MASTER.DTA
- Telnet Server

RTTY Skimmer Server (new)



- Natively supports only the QS1R SDR
- Decodes multiple **RTTY** signals in real time
- *Monitors multiple bands with single SDR*
- Limited Band Scope
- Can use MASTER.DTA
- Telnet Server



Telnet server (localhost port 7300)



- Emulates a DX Cluster Node

```
DX de N6TU-#: 14058.7 WR7HE 24 dB 31 WPM CQ 2350
DX de N6TU-#: 14029.6 NM7D 29 dB 25 WPM CQ 2350
DX de N6TU-#: 14059.5 YW4D 35 dB 31 WPM CQ 2350
DX de N6TU-#: 14022.6 J39BS 11 dB 25 WPM CQ 2350
DX de N6TU-#: 14066.8 NF6A 38 dB 30 WPM CQ 2350
DX de N6TU-#: 14054.4 N5UM 26 dB 28 WPM CQ 2350
DX de N6TU-#: 14021.2 NN5J 35 dB 31 WPM CQ 2350
DX de N6TU-#: 14061.4 WX5S 12 dB 28 WPM CQ 2350
DX de N6TU-#: 14064.2 WQ5L 15 dB 28 WPM CQ 2350
DX de N6TU-#: 14032.2 UE7XF 18 dB 27 WPM 2350
DX de N6TU-#: 14042.9 NT5C 45 dB 31 WPM 2350
DX de N6TU-#: 14032.2 UE7XF 18 dB 27 WPM CQ 2350
DX de N6TU-#: 14039.2 EA3FP 15 dB 31 WPM CQ 2350
DX de N6TU-#: 14052.5 W0YR 20 dB 28 WPM CQ 2350
DX de N6TU-#: 14022.9 AB7E 32 dB 25 WPM CQ 2350
DX de N6TU-#: 14028.4 WH6R 7 dB 29 WPM 2350
DX de N6TU-#: 14065.6 KH7B 25 dB 29 WPM CQ 2350
To ALL de SKIMMER <0952Z> : Clicked on "UE7XF" at 14032.2
DX de N6TU-#: 14069.6 KF6T 13 dB 28 WPM CQ 2350
DX de N6TU-#: 14069.1 NK0M 25 dB 28 WPM CQ 2350
To ALL de SKIMMER <0952Z> : Clicked on "" at 14031.4
DX de N6TU-#: 14035.5 KF8GE 12 dB 26 WPM 2350
DX de N6TU-#: 14028.4 WH6R 7 dB 29 WPM CQ 2350
DX de N6TU-#: 14036.1 NZ1U 16 dB 28 WPM CQ 2350
DX de N6TU-#: 14062.7 N4QS 11 dB 29 WPM CQ 2350
DX de N6TU-#: 14045.1 YU1FM 20 dB 32 WPM CQ 2350
DX de N6TU-#: 14059.6 YW4D 35 dB 31 WPM 2350
```

Reports Signal to Noise ratio, CW Speed, CQers

What is the Reverse Beacon Network (RBN)?



- Uses *any* CW or RTTY signal as a beacon
- Multiple Skimmers world-wide record signal strength (S/N ratio in dB) and CW speed (WPM)
- A free “Aggregator” program forwards Skimmer spots to a central server
- Central server distributes spots via web page and public telnet servers
- You don’t need to have an SDR to use it

How do spots get to you?



Acknowledgements



- RBN web site and first aggregator originated by PY1NB (similar to his other web site, www.dxwatch.com). Felipe pays all the bills.
- Lots of code by W3OA (aggregator), F5VIH (Spots analysis tool)
- CW Skimmer evangelized and tested by N4ZR (also publishes [RBN blog](#)) – “RBN Chief Evangelist”
- Telnet server support by K5TR, W2QO, KM3T

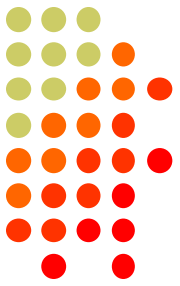
Felipe Ceglia, PY1NB



- Created and maintains the Reverse Beacon Network
- Hosts dxwatch.com and reversebeacon.net



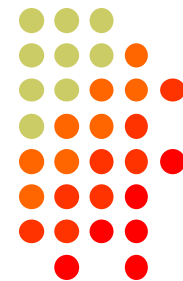
Dick Williams, W3OA



- Created the newest RBN Aggregator software; now adding enhancements.



Nick Sinanis, F5VIH



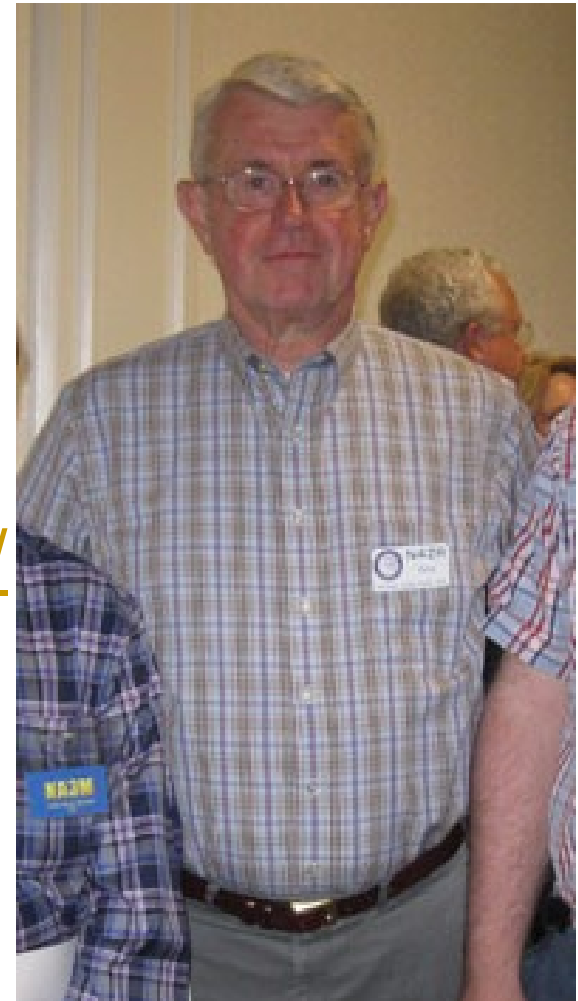
- Wrote the RBN Spots Analysis Tool



Pete Smith, N4ZR



- RBN Chief Evangelist
- Skimmertalk Reflector:
<http://dayton.contesting.com/mailman/listinfo/skimmertalk>
- Yahoo Group: RBN-OPS
<https://groups.yahoo.com/neo/groups/RBN-OPS/info>
(130+ members)



What can the RBN do for *me*?



- It can improve your score
 - Fills spots in band map (SOA, Multi-op)
 - Spots *you* (very often, *if you call CQ properly*)
- Entering a contest?
 - Before: Check antenna F/B, signal strength
 - During: See where you are being heard, view skimmer-generated propagation maps
 - After: Compare signal strength with the competition

How can I use RBN to improve my score?



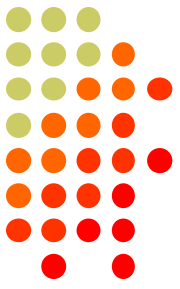
- Make sure the Skimmers find and spot *you*
- Access RBN via your favorite **DX Cluster**, for CW and RTTY contests (when allowed)
- RBN will post far more spots than DXers
 - With smaller pileups, less competition
- RBN quickly fills the **band map** in your logging software
- RBN helps locate **clear spots** to call CQ (between stations that you may not hear)

How can I use RBN to improve my score (cont'd):



- The RBN reveals band openings, shows where *you* are being heard
 - At K3LR, sunrise on 15m: “Spotted by S50ARX-#”
 - First EU answered our 15m CQs 25 minutes later

How do I CQ “properly”?



- Send *everything* at the *same consistent speed*
 - Never use $>/<$ or $+++/--$ to change speed in messages
- Call CQ or TEST and send your call twice
 - CQ N6TV N6TV
 - TEST N6TV N6TV
 - CQ N6TV N6TV TEST
- Use proper spacing (let computer send)
 - Don't send with paddles and rusheverythingtogether
- Change your freq. *slightly* to get spotted again

What counts as “CQ”?

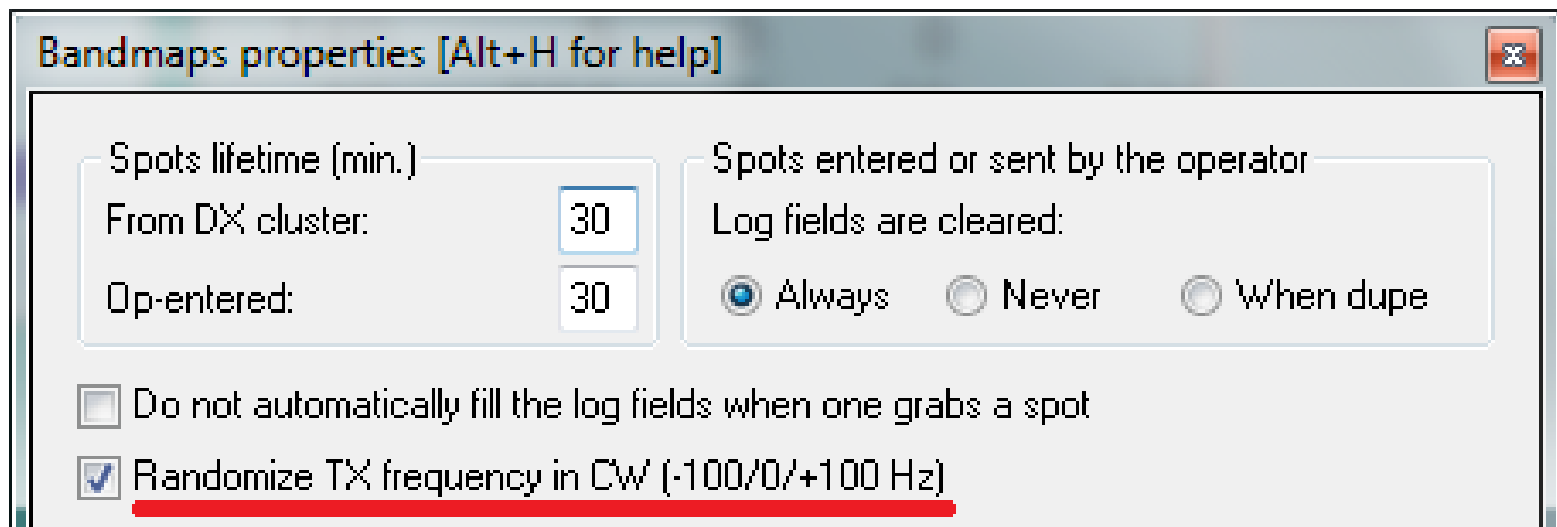


- Originally just: “CQ”, “TEST”, and “QRZ”
- VE3NEA Added: “FD”, “SS”, “NA” and “UP”
- Examples:
 - P5DX P5DX UP
 - SS N6TV N6TV
 - NA N6TV N6TV
 - FD N6TV N6TV FD
- Short calls like “W1F” should always be sent twice to help Skimmer identify it quickly

How to improve your chances in a Skimmer-generated pileup



- Use XIT or the “randomize TX” feature of your logging program to **call a bit off frequency**.



How do I use the RBN to Check My Antennas?



- To test performance, just call CQ on CW, check RBN web site (turn beam, repeat)
- Use RBN web site's "Spots Analysis Tool" to compare your signal to the competition
- Download raw data files for deeper analysis
 - Every RBN spot posted since February, 2009 is archived on the RBN web site

Accessing the RBN (SOA, Multi)



1. Many DX clusters combine RBN and human spots using AR-Cluster V6 (see www.dxcluster.info for address listing).
 - Some ARC V6 clusters offer CT1BOH spot quality filters (flags busts, uniques)
2. dxc.ve7cc.net port 23
CC Cluster software – removes many bad spots (uniques) and dupes

Filtering Spots (old way)



- DXSpider
 - accept/spots by_zone 1,3,4,6,7,31 and not by WZ7I or call N6TV
 - http://www.dxcluster.org/main/filtering_en.html#toc1
- ARCluster V6
 - set dx filter call=N6TV or (**unique>1** and (spotterstate=CA or spotterstate=NV or spotterstate=UT))
 - <http://www.n8noe.us/ARC.html>

Filtering Spots (new way)



- Use **CC User** software by VE7CC to log in to **dxc.ve7cc.net** port **23**
- CC User sets filters with a full-feature, Graphical User Interface (GUI)
- CC Cluster nodes *automatically* reject “unique” (busted) spots, eliminates dupes
- New **AR-Cluster Client** by AB5K
- Updated Tutorial:
 - <http://reversebeacon.blogspot.com/2013/12/a-new-tutorial-on-using-rbn.html>

CC User Filter Dialogs



Settings | **Country** | State | Bands | Locals = 11 | DX | WWV = 4 | Login Msg | Ann = 5 | Wx | Mail

filter7 reject not_by_dxcc @VE7CC-1

<input type="checkbox"/> 4U1U	<input type="checkbox"/> FO/c	<input type="checkbox"/> J8	<input type="checkbox"/> TG	<input type="checkbox"/> VP5
<input type="checkbox"/> 6Y	<input type="checkbox"/> FP	<input checked="" type="checkbox"/> K	<input type="checkbox"/> T1	<input type="checkbox"/> VP9
<input type="checkbox"/> 8P	<input type="checkbox"/> HH	<input type="checkbox"/> KG4	<input type="checkbox"/> T19	<input type="checkbox"/> XE
<input type="checkbox"/> C6	<input type="checkbox"/> HI	<input type="checkbox"/> KL	<input type="checkbox"/> V2	<input type="checkbox"/> XF4
<input type="checkbox"/> CM	<input type="checkbox"/> HK0/a	<input type="checkbox"/> KP1	<input type="checkbox"/> V3	<input type="checkbox"/> YN
<input type="checkbox"/> CY0	<input type="checkbox"/> HP	<input type="checkbox"/> KP2	<input type="checkbox"/> V4	<input type="checkbox"/> YS
<input type="checkbox"/> CY9	<input type="checkbox"/> HR	<input type="checkbox"/> KP4	<input checked="" type="checkbox"/> VE	<input type="checkbox"/> YV0
<input type="checkbox"/> FG	<input type="checkbox"/> J3	<input type="checkbox"/> KP5	<input type="checkbox"/> VP2E	<input type="checkbox"/> ZF
<input type="checkbox"/> FJ	<input type="checkbox"/> J6	<input type="checkbox"/> OX	<input type="checkbox"/> VP2M	
<input type="checkbox"/> FM	<input type="checkbox"/> J7	<input type="checkbox"/> PJ7	<input type="checkbox"/> VP2V	

NA 2
 EU
 AF
 AS
 SA
 OC

Filter Type

DX Origination
 Announce
 DX Country

Pass Reject

Ask Cluster Tell Cluster Set Clear

Settings | Country | **State** | Bands | Locals = 40 | DX = 9 | WWV | L

States and Provinces

<input type="checkbox"/> W1	<input type="checkbox"/> W2	<input type="checkbox"/> W3	<input type="checkbox"/> W4	<input type="checkbox"/> W5	<input type="checkbox"/> W6	<input type="checkbox"/> W7	<input type="checkbox"/> W8	<input type="checkbox"/> W9	<input type="checkbox"/> W0	<input type="checkbox"/> VE	
<input type="checkbox"/> CT	<input type="checkbox"/> NJ	<input type="checkbox"/> DC	<input type="checkbox"/> AL	<input type="checkbox"/> AR	<input type="checkbox"/> CA	<input checked="" type="checkbox"/> AZ	<input type="checkbox"/> MI	<input type="checkbox"/> IN	<input type="checkbox"/> CO	<input type="checkbox"/> NB	<input checked="" type="checkbox"/> SK
<input type="checkbox"/> MA	<input type="checkbox"/> NY	<input type="checkbox"/> DE	<input type="checkbox"/> GA	<input type="checkbox"/> LA		<input checked="" type="checkbox"/> ID	<input type="checkbox"/> OH	<input type="checkbox"/> IL	<input type="checkbox"/> IA	<input type="checkbox"/> NS	<input checked="" type="checkbox"/> AB
<input type="checkbox"/> ME		<input type="checkbox"/> MD	<input type="checkbox"/> KY	<input type="checkbox"/> MS		<input checked="" type="checkbox"/> MT	<input type="checkbox"/> WV	<input type="checkbox"/> WI	<input type="checkbox"/> KS	<input type="checkbox"/> PE	<input checked="" type="checkbox"/> BC
<input type="checkbox"/> NH		<input type="checkbox"/> PA	<input type="checkbox"/> NC	<input type="checkbox"/> NM		<input checked="" type="checkbox"/> NV			<input type="checkbox"/> MN	<input type="checkbox"/> NL	<input type="checkbox"/> NT
<input type="checkbox"/> RI			<input type="checkbox"/> FL	<input type="checkbox"/> OK		<input checked="" type="checkbox"/> OR			<input type="checkbox"/> MO	<input type="checkbox"/> QC	<input type="checkbox"/> NU
<input type="checkbox"/> VT			<input type="checkbox"/> SC	<input type="checkbox"/> TX		<input checked="" type="checkbox"/> WA			<input type="checkbox"/> NE	<input type="checkbox"/> ON	<input type="checkbox"/> YT
			<input type="checkbox"/> TN			<input checked="" type="checkbox"/> WY			<input type="checkbox"/> ND	<input type="checkbox"/> MB	
			<input type="checkbox"/> VA			<input checked="" type="checkbox"/> UT			<input type="checkbox"/> SD		

Ask Cluster Tell Cluster Clear

AR-Cluster Client by AB5K

www.n8noe.us/ARC.html



DX Filter Viewer

Name	Filter	Default	Multi-media	Edit Filter	Delete Filter
MyFit	(((Not Skimmer) or (Skimmer and Unique > 1)) and (SpotterCqZone in (3,4)) and (Freq >= 1800 AND...	Apply	Apply	Edit	Delete
No Skimmer	Not Skimmer	Apply	Apply	Edit	Delete
North America Org Spots	SpotterCont=NA	Apply	Apply	Edit	Delete
USA Originating Spots	SpotterCty=K	Apply	Apply	Edit	Delete
WW High Quality Skimmer	Not Skimmer or (Skimmer AND Unique>2)	Apply	Apply	Edit	Delete
WW Med. Quality Skimmer	Not Skimmer or (Skimmer AND Unique>1)	Apply	Apply	Edit	Delete
*					

New Filter Exit

Dx Filter Wizard

Introduction Legacy Spots Skimmer Spots Spot Origination Frequency Special Filters Finish

Pick the range of frequencies that you want to receive using the drop list.

Frequency Select: HF Contest CW

Frequency Filter: (Freq >= 1800 AND Freq <= 2000 OR Freq >= 3500 AND Freq <= 3600 OR Freq >= 7000 AND Freq <= 7100 OR Freq >= 14000 AND Freq <= 14149 OR Freq >= 21000 AND Freq <= 21160 OR Freq >= 28000 AND Freq <= 28200)

Many nodes combine RBN and “legacy” (human) spots



- dxc.ve7cc.net port 23 (CC Cluster, many filtering options, use CC User to set them)
- dxc.w9pa.net port 7373 (AR Cluster)
`set dx extension skimmerquality`
- dxc.n7tr.com port 7373 (AR Cluster, but pre-filters to show only spots from Zones 3 and 4)

Real-time propagation maps



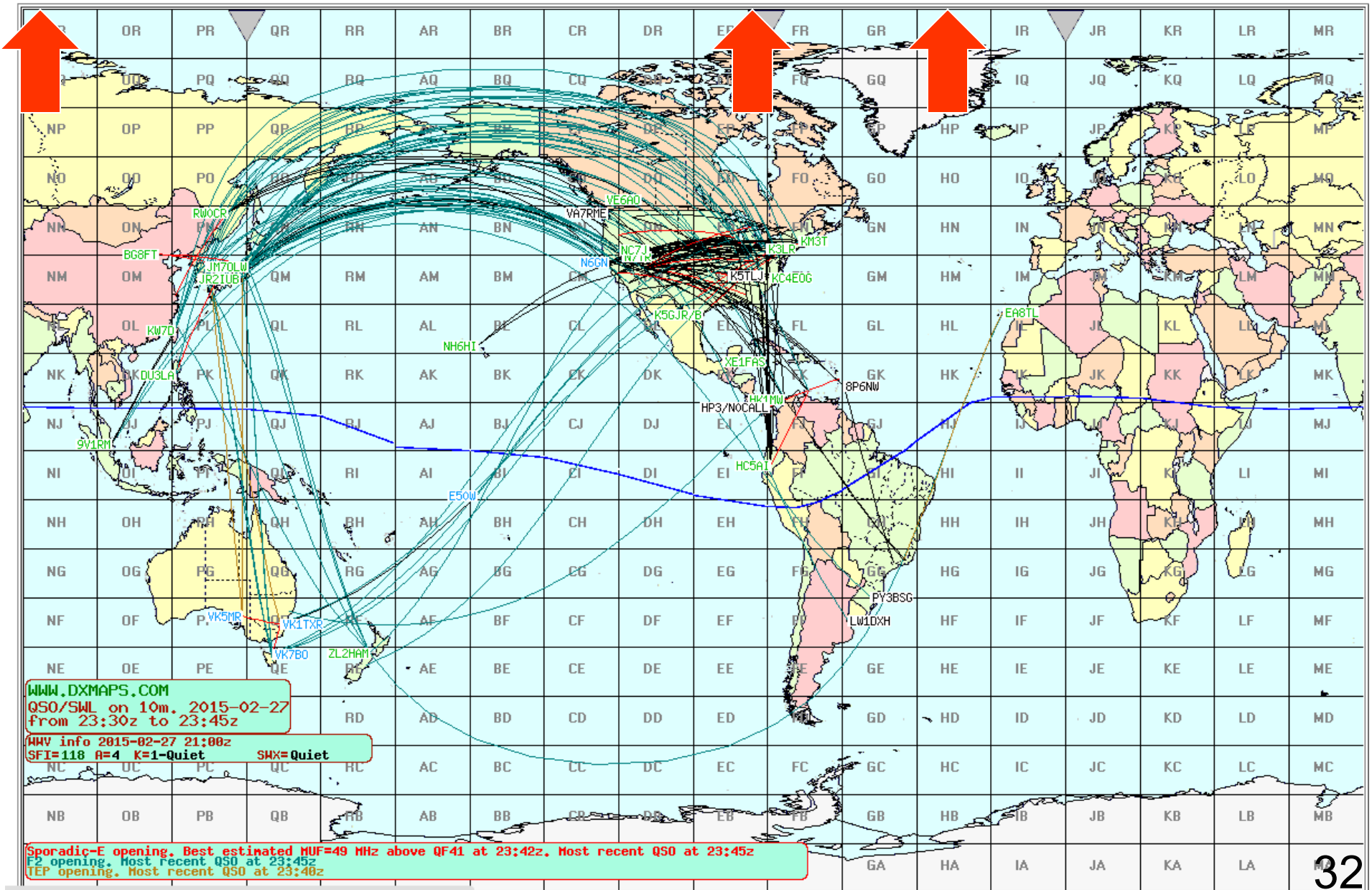
- <http://www.dxmaps.com>
- Click “HF” and band of interest
- Leave page open, it refreshes automatically

DXMAPS 2.6 - QSO/SWL real time maps

Map List Graph
 LF - HF VHF & up

Europe Africa North America South America Asia Oceania **World**
 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

Grey line
 Only DX-Cluster



WWW.DXMAPS.COM

QSO/SWL on 10m, 2015-02-27
 from 23:30z to 23:45z

MUF info 2015-02-27 21:00z
 SFI=118 A=4 K=1-Quiet SMX=Quiet

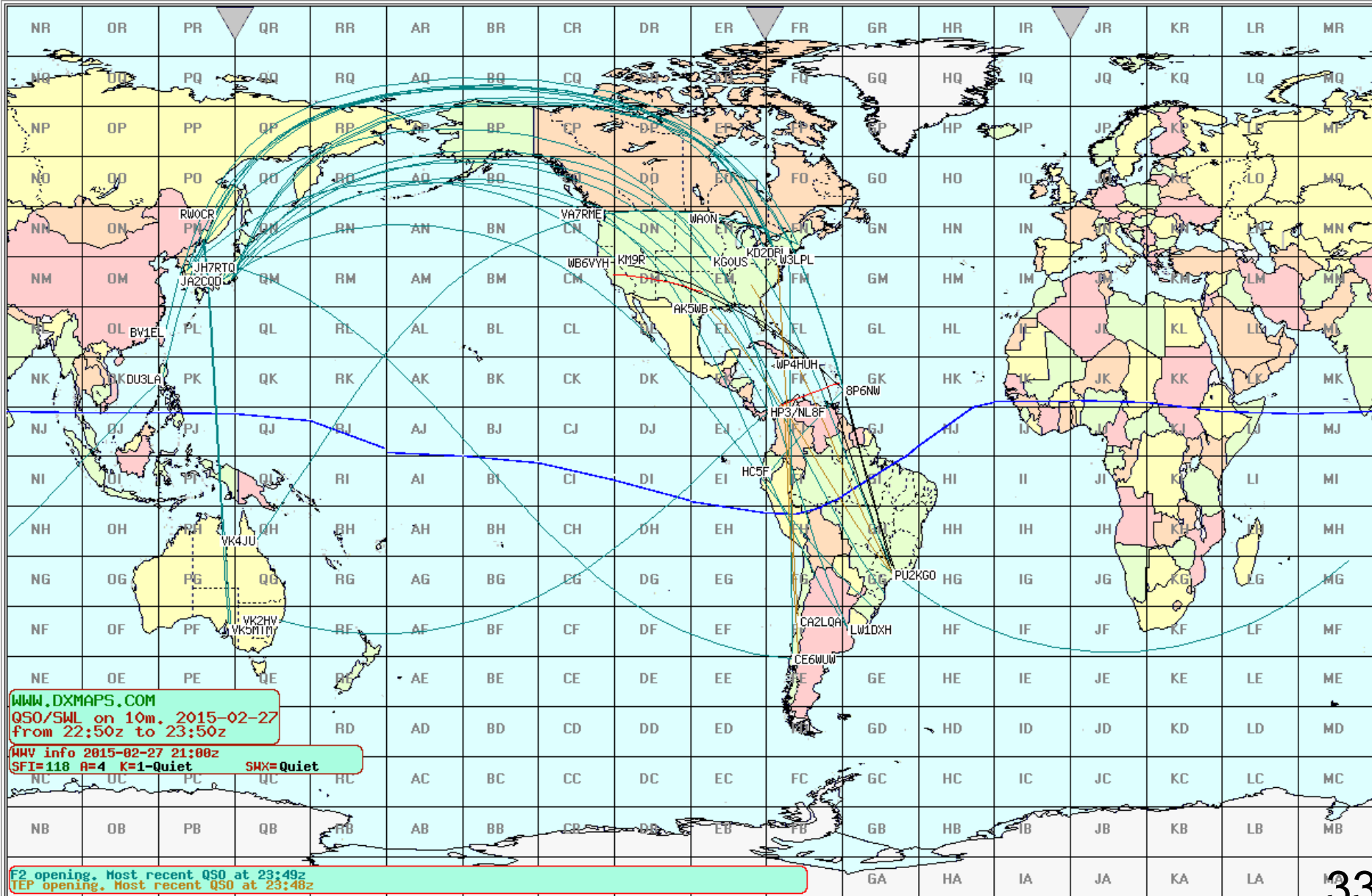
Sporadic-E opening. Best estimated MUF=49 MHz above QF41 at 23:42z. Most recent QSO at 23:45z
 F2 opening. Most recent QSO at 23:45z
 EEP opening. Most recent QSO at 23:40z

DXMAPS 2.6 - QSO/SWL real time maps

Map List Graph
 LF - HF VHF & up

Europe Africa North America South America Asia Oceania World
 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

Grey line
 Only DX-Cluster



WWW.DXMAPS.COM
 QSO/SWL on 10m. 2015-02-27
 from 22:50z to 23:50z

MWV info 2015-02-27 21:00z
 SFI=118 A=4 K=1-Quiet SMX=Quiet

F2 opening. Most recent QSO at 23:49z
 EEP opening. Most recent QSO at 23:48z

Using www.reversebeacon.net



- Great for post-contest analysis
- Plot signal strengths
- Raw data files can be downloaded / analyzed
 - Millions of spots archived

www.reversebeacon.net



REVERSE BEACON NETWORK callsign lookup:

welcome **main** dx spots skimmers downloads about contact us

Welcome to the reverse beacon network!

The Reverse Beacon Network is a revolutionary new idea. Instead of beacons actively transmitting signals, the RBN is a network of stations listening to the bands and reporting what stations they hear, when and how well.

If you already know all this, skip directly to the [main page](#).

So why should you care? Well, to begin with, you can see band openings in near-real time on an animated map. You can call a quick CQ, and see which reverse beacons hear you, and how strong you are. [Try It!](#)

But the real breakthrough is in the database of past "spots". You can instantly find out what stations, from a given country or zone, have been heard, at what times and on what frequencies. You can see when you've been spotted, who spotted you, and how loud you were. [Try It!](#)

Check out our blog!

[Aggregator 2.1 - new insight for Skimmer ops](#)

The newest Aggregator, Version 2.1, is now available, after extensive beta testing. This post explains the new features of this release, tab by tab. First of all, there is an entirely new tab titled "Skimmer Traffic." Here's what it looks like...

statistics:

we have 70 skimmers online

we have 115 visitors online

skimmers online:

9V1RM - 20m,15m,17m
AB1HL -
10m,20m,30m,80m,40m,17m
DJ9IE - 40m
DK8NE - 6m
DK9IP - 30m,80m,40m
DL0LBS -
DL2CC - 20m,30m,80m,40m
DL3KR -
DR1A - 20m 30m 80m 40m

www.reversebeacon.net main



← → ↻ 🏠 🌐 www.reversebeacon.net/main.php

REVERSE BEACON NETWORK callsign

welcome | main | dx spots | skimmers | downloads | about | contact us

[show/hide my last filters](#)

no filter selected, showing all spots rows to show: 50

[search spot by callsign](#)

de	dx	freq	cq/dx	snr	speed	time
W4AX	🇨🇦 HB9TPT	10115.5	CQ	6 dB	19 wpm	0945z 02 Apr
EA4TX	🇨🇦 HB9TPT	10115.5	CQ	8 dB	19 wpm	0945z 02 Apr
IK3STG	🇨🇦 HB9TPT	10115.5	CQ	17 dB	20 wpm	0945z 02 Apr
K8ND	🇨🇦 VE1ZZ	1823.5	CQ	28 dB	19 wpm	0945z 02 Apr
W3OA	🇨🇦 VE1ZZ	1823.5	CQ	21 dB	19 wpm	0945z 02 Apr
K1TTT	🇨🇦 VE1ZZ	1823.5	CQ	35 dB	19 wpm	0945z 02 Apr
WZ7I	🇨🇦 VE1ZZ	1823.5	CQ	36 dB	20 wpm	0945z 02 Apr
KB9AMG	🇨🇦 VE1ZZ	1823.5	CQ	14 dB	19 wpm	0945z 02 Apr
RZ3DVP	✉ MS5RAI	10117.5	CQ	12 dB	28 wpm	0945z 02 Apr
KH6LC	🇲🇽 LU9DO	14012.0	CQ [LoTW]	28 dB	14 wpm	0945z 02 Apr

options:
[show/hide](#)

news
[RBN blog: stay tuned!](#)
we have 67 skimmers online
we have 147 visitors online

skimmers online:
9V1RM - 10m,17m,12m,15m
AB1HL - 20m,30m,40m,17m
DJ9IE - 40m
DK1MAX -
DK8NE - 6m
DK9IP -
20m,30m,40m,17m,12m,15m
DL0LBS -
DL2CC - 20m,30m,40m,17m,15m

Where was I heard?



← → ↻ 🏠 www.reversebeacon.net/dxsd1/dxsd1.php?f=0&c=N6TV&t=dx

REVERSE BEACON NETWORK

welcome main dx spots skimmers downloads about contact us

[show/hide my last filters](#)

showing spots for DX call: N6TV rows to show: 50 ▾

search spot by callsign

search callsign: DX DE

wildcard * allowed

de	dx	freq	cq/dx	snr	speed	time
WZ7I	N6TV	28019.0	CQ [LoTW]	19 dB	25 wpm	2021z 01 Apr
K1TTT	N6TV	28019.1	CQ [LoTW]	18 dB	24 wpm	2017z 01 Apr
S50ARX	N6TV	28019.0	CQ [LoTW]	12 dB	25 wpm	2017z 01 Apr

Plot spots on a map



REVERSE BEACON NETWORK callsign

welcome | main | dx spots | skimmers | downloads | about | contact us

[show/hide my last filters](#)

no filter selected, showing all spots rows to show: 50

search spot by callsign

de	dx	freq	cq/dx	snr	speed	time
W4AX	HB9TPT	10115.5	CQ	6 dB	19 wpm	0945z 02 Apr
EA4TX	HB9TPT	10115.5	CQ	8 dB	19 wpm	0945z 02 Apr
IK3STG	HB9TPT	10115.5	CQ	17 dB	20 wpm	0945z 02 Apr
K8ND	VE1ZZ	1823.5	CQ	28 dB	19 wpm	0945z 02 Apr
W3OA	VE1ZZ	1823.5	CQ	21 dB	19 wpm	0945z 02 Apr
K1TTT	VE1ZZ	1823.5	CQ	35 dB	19 wpm	0945z 02 Apr
WZ7I	VE1ZZ	1823.5	CQ	36 dB	20 wpm	0945z 02 Apr
KB9AMG	VE1ZZ	1823.5	CQ	14 dB	19 wpm	0945z 02 Apr
RZ3DVP	MS5RAI	10117.5	CQ	12 dB	28 wpm	0945z 02 Apr
KH6LC	LU9DO	14012.0	CQ [LoTW]	28 dB	14 wpm	0945z 02 Apr

options:

show/hide

news

RBN blog: stay tuned!

we have 67 skimmers online

we have 147 visitors online

skimmers online:

9V1RM - 10m,17m,12m,15m
AB1HL - 20m,30m,40m,17m
DJ9IE - 40m
DK1MAX -
DK8NE - 6m
DK9IP -
20m,30m,40m,17m,12m,15m
DL0LBS -
DL2CC - 20m,30m,40m,17m,15m

Which bands are open at *my* QTH?



REVERSE BEACON NETWORK callsign

welcome main dx spots skimmers downloads about contact us

Map Satellite Hybrid

options:
[show/hide](#)

language:
english

spots format:
dxwatch

tracking mode on
 show flags
 show lotw users

tag new spots:
since last update

map (beta version):
 show with grayline
 show
 hide

spots lifetime:
10 minutes

watch list:
no watchlist

POWERED BY Google

/ 160m / 80m / 40m / 30m / 20m / 17m / 15m / 12m / 10m / 6m / 2m
world wide / zoom to US / zoom to Europe / zoom to North Atlantic

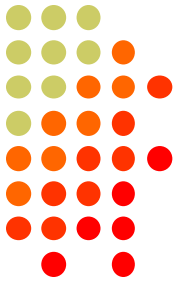
[show/hide my last filters](#)

showing spots for spotter call: N6TV
[search spot by callsign](#)

rows to show: 50

de	dx	freq	cq/dx	snr	speed	time
----	----	------	-------	-----	-------	------

Spots analysis tool



REVERSE BEACON NETWORK

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download raw data

Welcome to **spots analysis tool** network!

The Reverse Beacon Network (RBN) is a network of stations that listen to the HF bands and reporting what stations they hear, when and how well.

If you already know what you are looking for, you can use the **spot search** to analyze and compare spots.

create your filter!

HF >

VHF+ >

HF

VHF+

HF/CW

Check out our blog!

[Aggregator 2.1 - new insight for Skimmer ops](#)

The newest Aggregator, Version 2.1, is now available after extensive beta testing. This

Pick a Date, a Skimmer, add callsigns to compare



1. Select a comparison date i

MM/DD/YY

2. Select a Reverse Beacon

▶ Europe

▼ North America

- AA4VV 354 spots
- K1TTT 5318 spots
- K3MM 6926 spots
- K6ND 3751 spots
- KA9SWE 657 spots
- KB9AMG 181 spots
- KC0VKN 877 spots

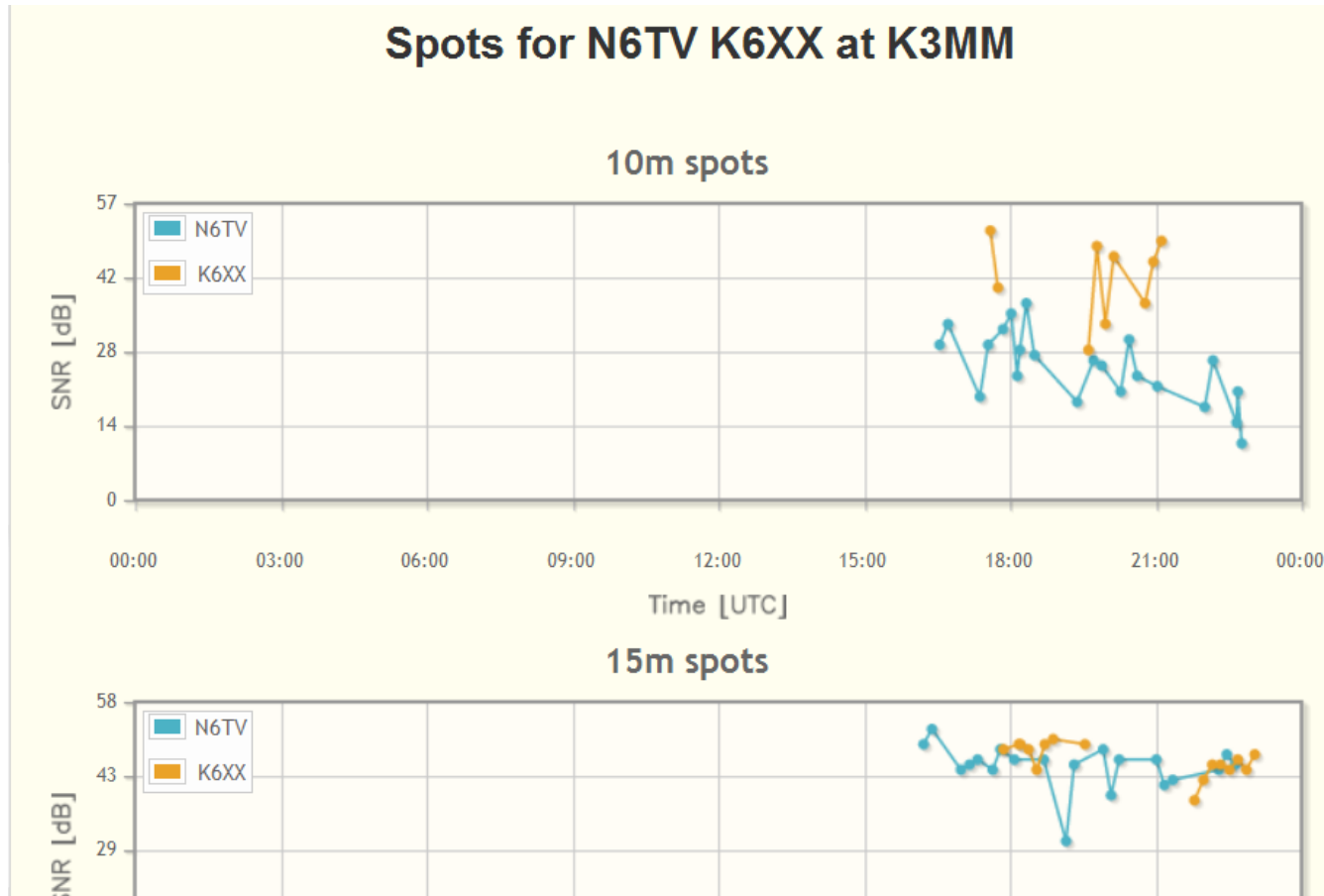
▶ Africa

▶ Oceania

3. Enter callsigns to compare ↻

<input checked="" type="checkbox"/>	<input type="text" value="N6TV"/>	58 spots
<input checked="" type="checkbox"/>	<input type="text" value="K6XX"/>	29 spots

And the winner is ... K6XX!



Raw data downloads



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Raw data downloads

spots analysis tool

Data from the RBN can be used for a variety of analysis.

Simply use the interactive tool to select the data extracts you want. The zipped files can be downloaded by a single click on the filename.

The data files then can be viewed by opening in Excel. Note, however, that on busy days the amount of data will be limited. For example, on Saturday, during the 2010 ARRL DX CW contest, the RBN produced more data than can be processed by the Microsoft Access or other data tools to examine and manipulate the full daily data set, so only a subset of the data is available.

The only thing that you should do is that you share your ideas for analyzing them, as well as any results, with the RBN community. We would like to see what you do with the data. If you post it on our RBN blog. Of course, you will retain full rights for any other publication. Please do not post the data on other websites. We would like to keep in touch with us.

Click on the year, and then on the month, and then on the day to see available data. You can also use the controls below.

collapse all months

2012

Year	Month	Day	Day of Week	Frequency	File Name	Size
2012	January	01	Wednesday	1.8/3.5/7MHz	20120201.zip	
		02	Thursday	10/18/24MHz	20120202.zip	
		03	Friday	14/21/28MHz	20120203.zip	1089KBytes

Dayton 2015

Raw data is text file, Comma Separated Values



```
callsign,de_pfx,de_cont,freq,band,dx,dx_pfx,dx_cont,mode,db,date,speed,tx_mode  
JE1SGH,JA,AS,28032.6,10m,K6UW,K,NA,CQ,29,2014-02-15 00:00:00,32,CW  
XV4Y,3W,AS,14041.1,20m,PT5T,PY,SA,CQ,22,2014-02-15 00:00:00,28,CW  
XV4Y,3W,AS,14021,20m,PX2F,PY,SA,CQ,23,2014-02-15 00:00:00,23,CW  
NC7J,K,NA,28005.5,10m,N2IC,K,NA,CQ,11,2014-02-15 00:00:00,33,CW
```

Total World-Wide RBN CW spots, CQ WW:

2012: 3,163,126 (18.3 spots per second)

2013: 5,743,545 (33.2 spots per second) – up 81.5%

2014: 6,200,340 (35.9 spots per second) – up 8.0%

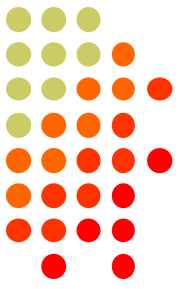
ARRL DX CW:

2013: 3,937,108 (82,023 spots per hour)

2014: 4,146,399 (86,383 spots per hour) – up 5.3%

2015: 5,537,017 (115,354 spots per hour) – up 33.5%

What's the Average CW Speed?



- 2013 CQ WW CW: 30.6 WPM
- 2014 CQ WW CW: 30.8 WPM
- 2014 ARRL DX CW: 29.6 WPM
- 2015 ARRL DX CW: 30.1 WPM

How can I help?



- Set up an SDR, feed Skimmer Spots to the RBN, using the Aggregator program
 - More skimmers needed in Asia/Africa/South America
- Call a bit off frequency (Win-test and N1MM both provide automatic randomization if desired)

What's New?



- NCDXF and other HF Beacons can be spotted on RBN
 - reversebeacon.blogspot.com/2014/02/ncdxf-beacon-spotting-redux.html
- RTTY Skimmer Server 1.0
- CW Skimmer 1.83
- Aggregator v4.0

For more information



- <http://www.reversebeacon.net>
- <http://www.dxmaps.com>
- <http://www.bcdxc.org/ve7cc/default.htm#download>
- <http://www.dxatlas.com/CwSkimmer>
- <http://www.dxatlas.com/SkimServer>
- <http://www.srl-llc.com/> (QS1R SDR)
- <http://microtelecom.it/perseus/> (Perseus SDR)
- <http://www.dxengineering.com/parts/ins-rf-pro-1b> (RF Pro-1B loop antenna)

For more information



- <http://www.dxengineering.com/parts/dxe-arah3-1p> (Active Broadband Dipole antenna)
- <http://www.pvrc.org/~n4zr/rbn.pdf>
- <http://reversebeacon.blogspot.com/2013/12/a-new-tutorial-on-using-rbn.html>
- <http://reversebeacon.blogspot.com>
- <http://www.ve7cc.net/>
- <http://www.qrz.com/db/n6tv>

Questions?

