

REVERSE BEACON NETWORK

(WITH A PRIMER ON BEACONS)

Robert Capon,
W3DX

February 14, 2017

SOTA Update: MTR5B Pelican Case Station



Date

Time

Freq

M

Comments



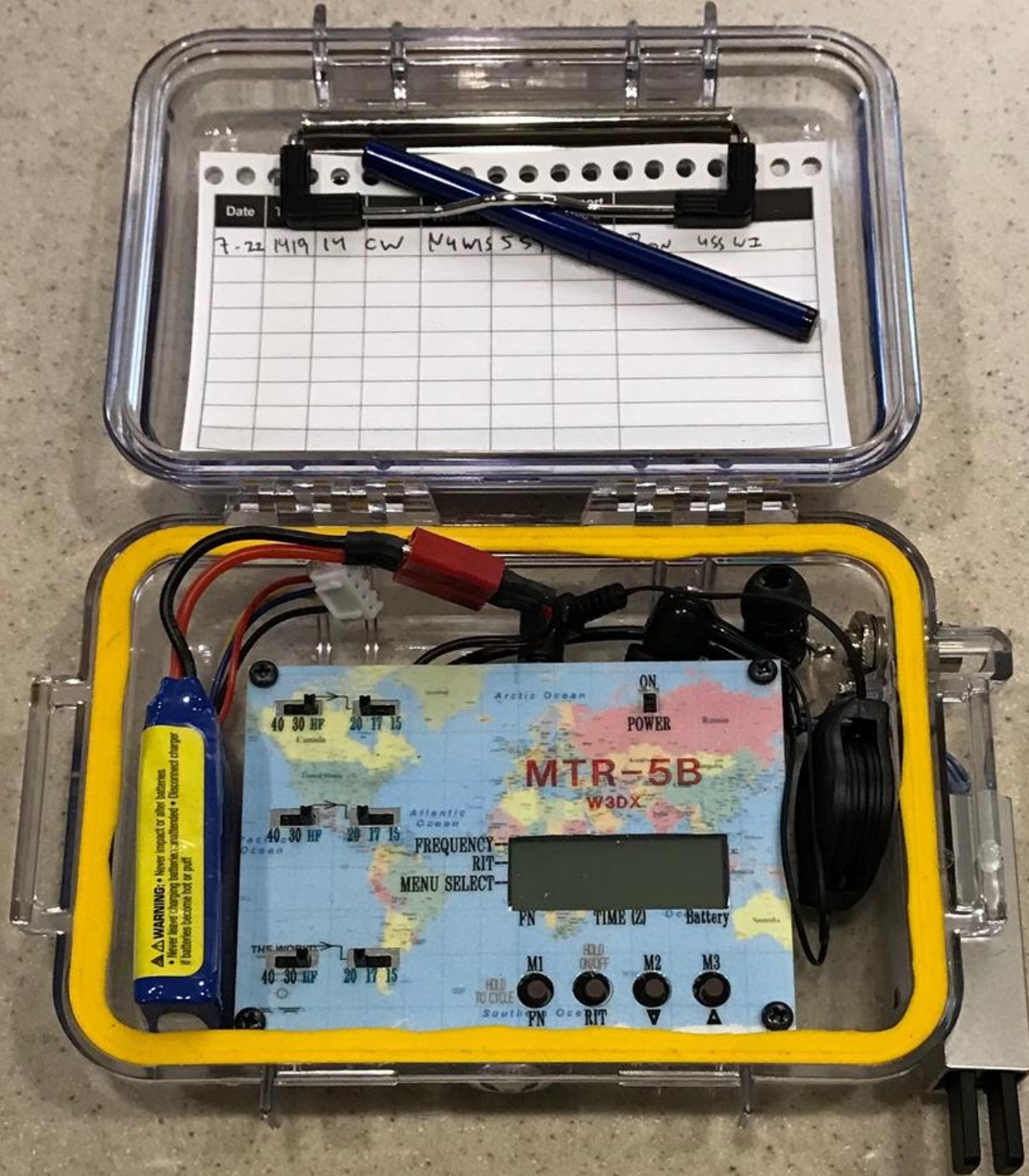
PELICAN®
1020

Micro Case Series

PELICAN PRODUCTS, TORRANCE, CA USA

1.5V
Nerve
Battery





40 30 HF 20 17 15
Canada

ON
POWER

MTR-5B

W3DX

40 30 HF 20 17 15

Atlantic Ocean

FREQUENCY--

RIT--

MENU SELECT--

14.043.100

CS20 17:02 12.4V

FN

TIME (Z)

Battery

THE WORLD

40 30 HF

20 17 15

HOLD
TO CYCLE

M1

FN

HOLD
ON/OFF



RIT

M2

▽

M3

△

Agenda

- ▣ Discuss traditional beacons
- ▣ Introduce the Reverse Beacon Network
- ▣ Discuss how you can set up your own “Skimmer” Station!

What's a beacon?

- ▣ Northern Calif. DX Foundation
- ▣ Beacon Network Established 1979
- ▣ Have you ever used one?
- ▣ How does the system work:
 - 18 Stations
 - 10 seconds each
 - 100 watts, 10 w, 1 w, 0.1 w
 - Vertical antenna
 - Synchronized
- ▣ What can you do with it?

IBP

The Beacons ▾

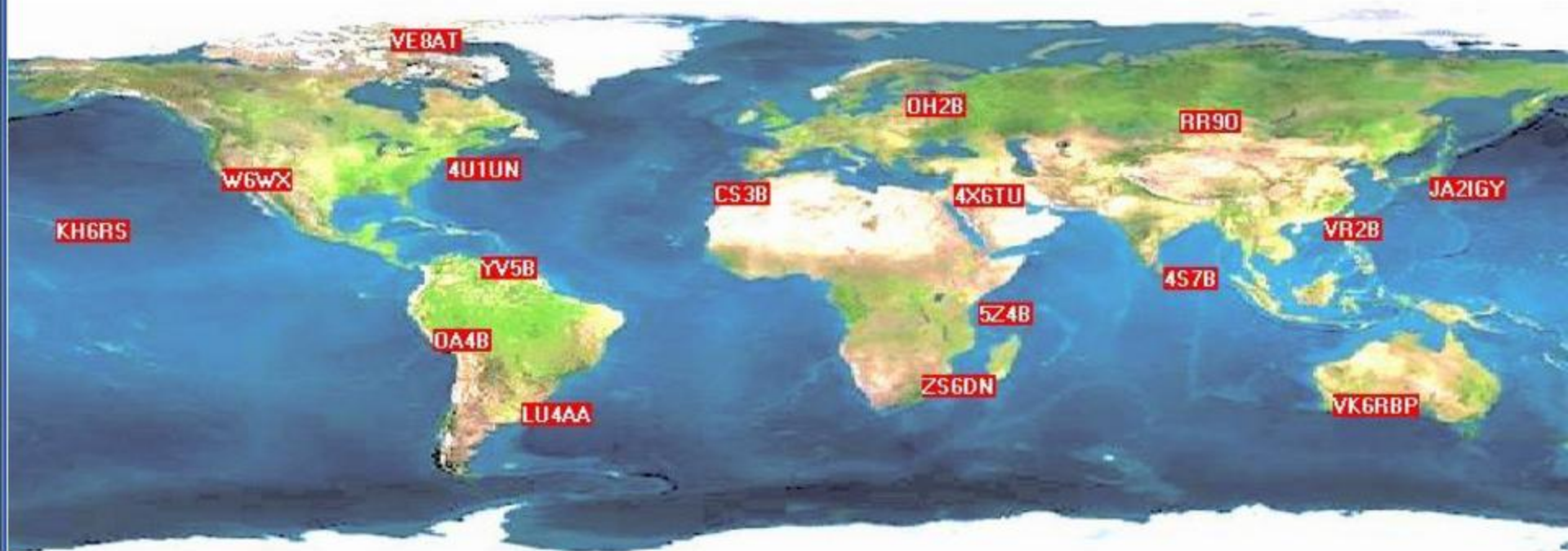
Tools for Listeners ▾

Photos

About ▾

FAQ

Com



NCDXF/IARU International Beacon Project Introduction

NCDXF/IARU Beacon Network

Beacon Controller 2.0

NCDXF-IARU International Beacon System





4S7B Beacon and TS-850s



4U1UN
antenna



MFJ DX BEACON MONITOR



POWER
12 VDC

Built-In
Atomic Clock Receiver

MFJ-890

MFJ

MFJ ENTERPRISES, INC.
STARKVILLE, MS USA

SYNC



MANUAL
SYNC



ATOMIC
SYNC

18.110 21.150 24.930
14.100 28.200



BAND
(MHz)

What is the Reverse Beacon Network

- ▣ Originated and operated by PY1NB: Launched in 2008
- ▣ Uses any decoded CW signal as a beacon
- ▣ Multiple Skimmers world-wide decode your callsign, sending speed and S/N ratio
- ▣ An “Aggregator” program forwards Skimmer spots to a central server
- ▣ Central server distributes spots via www.reversebeacon.net, and public telnet servers
- ▣ 100+ Skimmers online at any one time.

How Can I Use the RBN?

- ▣ To see station spots
- ▣ For antenna testing
- ▣ To learn about propagation
- ▣ To see worldwide propagation conditions at a glance, band by band
- ▣ *To be spotted: eg, for Summits on the Air*

Reverse Beacon Network Page

main page - Reverse Beacon Network

www.reversebeacon.net/main.php

REVERSE BEACON NETWORK

SSN:15 SFI:72 A:9 K:2 callsign lookup:

welcome main dx spots nodes downloads about contact us

Map Satellite

Google

Map data ©2017 Terms of Use Report a map error

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

no filter selected, showing all spots

search spot by callsign

rows to show: 15

de	dx	freq	cq/dx	snr	speed	time
W3LPL	W6MUZ	14045.0	CW CQ	9 dB	23 wpm	2116z 07 Feb
DF4UE	OM2BK	3581.2	PSK31 CQ [LoTW]	14 dB	31 bps	2116z 07 Feb
KM3T	W6MUZ	14045.0	CW CQ	12 dB	23 wpm	2116z 07 Feb
KM3T	ZF9CW	14087.6	RTTY CQ [LoTW]	41 dB	45 bps	2116z 07 Feb
E28AC	UX2HB	7014.5	CW CQ	5 dB	26 wpm	2116z 07 Feb
WA7LNV	ZF9CW	21087.6	RTTY CQ [LoTW]	33 dB	45 bps	2116z 07 Feb

options:
show/hide

news
RBN blog: stay tuned!

we have 158 skimmers online

skimmers online:

- 3B8CW -
- 3V/KF5EYY -
- 7L4IOU -
- 7N4XCV - 80m
- 9M2CNC - 40m,80m
- 9V1RM -
- A45WG - 40m
- AA4VV - 40m,17m,20m
- AC0C -
- AC0G - 20m
- BD2FW - 40m,80m
- BG5EEF -
- BG8NUD - 40m,80m
- BH4RRG -
- BI4SSB -
- CX7ACH -
- DF1LON - 40m,80m,160m
- DF4UE -
- 472kHz,80m,60m,40m,160m
- DF4XX - 40m,80m,160m
- DH2ID -
- DJ3AK -
- DJ9IE - 80m,40m,160m
- DK0TE - 40m,80m
- DK3UA - 80m,160m
- DK8NE - 6m
- DK9IP - 40m,160m,80m
- DL3KD - 40m,160m

Follow-up to An Int...pptx introbrn (1).pptx introbrn.pptx N6TV_Dayton_2013_....pdf Show all downloads...

Download Raw Data

The screenshot shows a web browser window with the address bar displaying `www.reversebeacon.net/raw_data/`. The page title is "raw data download - Reverse". The website header is green with the text "REVERSE BEACON NETWORK" and a search bar labeled "SSN:15 SFI:72 A:9 K:2 callsign lookup:". Below the header is a navigation menu with links: "welcome", "main", "dx spots", "nodes", "downloads", "about", and "contact us". The main content area is titled "Raw data download" and contains the following text:

Data from the RBN are freely available for study and analysis.

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

The data files themselves are in CSV format, readily viewed by opening in Excel. Note, however, that on busy days the amount of data will far exceed Excel's 65536-row limit. For example, on Saturday, during the 2010 ARRL DX CW contest, the RBN produced over 300,000 spots. You can use Microsoft Access or other data tools to examine and manipulate the full daily data set, or break it down into smaller chunks.

The only thing that we ask in return for these data is that you share your ideas for analyzing them, as well as any results, with the RBN community. If you agree, we can post it on our RBN blog. Of course, you will retain full rights for any other publication. Please use the website contact form to keep in touch with us.

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

[collapse all months](#) | [expand all months](#)

2017

January
February

2016

January
February
March
April
May
June
July
August
September
October
November

The browser's taskbar at the bottom shows several open files: "Follow-up to An Int....pptx", "introbrn (1).ppsx", "introbrn.ppsx", and "N6TV_Dayton_2013_....pdf". A "Show all downloads..." button is also visible.

Spot Search

The screenshot shows a web browser window with the title "DX spot search - Reverse B". The address bar displays "www.reversebeacon.net/srch.php". The page has a dark green header with "REVERSE BEACON NETWORK" and a search bar on the right labeled "SSN:15 SFI:72 A:9 K:2 callsign lookup:". Below the header is a navigation menu with links: "welcome", "main", "dx spots", "nodes", "downloads", "about", and "contact us". The main content area is titled "spot search" and contains a form with the instruction "please type a callsign to search:". The form includes a text input field for "callsign:", a "search in:" section with radio buttons for "DX" (selected) and "DE", and a "search" button. At the bottom of the page, it states "the reverse beacon network is hosted by:" followed by a logo for "DXWATCH.COM". The Windows taskbar at the bottom shows several open files: "Follow-up to An Int....pptx", "introbrn (1).ppsx", "introbrn.ppsx", and "N6TV_Dayton_2013_....pdf", along with a "Show all downloads..." button.

Robert

DX spot search - Reverse B

www.reversebeacon.net/srch.php

REVERSE BEACON NETWORK

SSN:15 SFI:72 A:9 K:2 callsign lookup:

welcome main dx spots nodes downloads about contact us

spot search

please type a callsign to search:

callsign:

search in: ☒ DX ☐ DE

the reverse beacon network is hosted by:

DXWATCH.COM

Follow-up to An Int....pptx introbrn (1).ppsx introbrn.ppsx N6TV_Dayton_2013_....pdf Show all downloads...

Comparing with others- the Spots Analysis Tool

- ▣ Created by F5VIH/SV3SJ
- ▣ Select a date, a “reverse beacon” station, and calls to compare.
- ▣ The tool will produce graphs showing comparative results for up to 10 stations at a given location, over time.

Spots Analysis Tool

The screenshot shows a web browser window with the title "(BETA) Spots Analysis Tool". The address bar displays "www.reversebeacon.net/analysis/". The page header is dark green with the text "REVERSE BEACON NETWORK" and a search bar labeled "SSN:15 SFI:72 A:9 K:2 callsign lookup:". Below the header is a navigation menu with links: "welcome", "main", "dx spots", "nodes", "downloads", "about", and "contact us".

The main content area has a light yellow background. On the left, there are three numbered steps for analysis:

- 1. Select a comparison date**: Includes a date input field with "MM/DD/YY" placeholder and an information icon.
- 2. Select a Reverse Beacon**: A list of regions with expandable arrows: Europe, North America, Asia, South America, Africa, and Oceania.
- 3. Enter callsigns to compare**: Includes a text input field and an "Add" button.

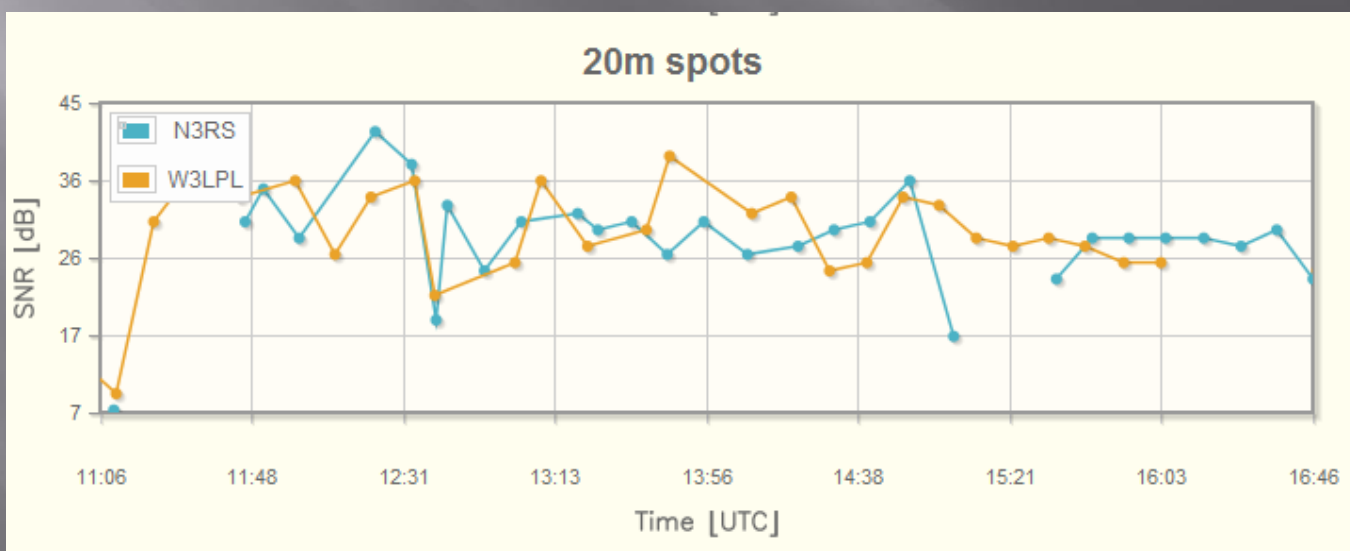
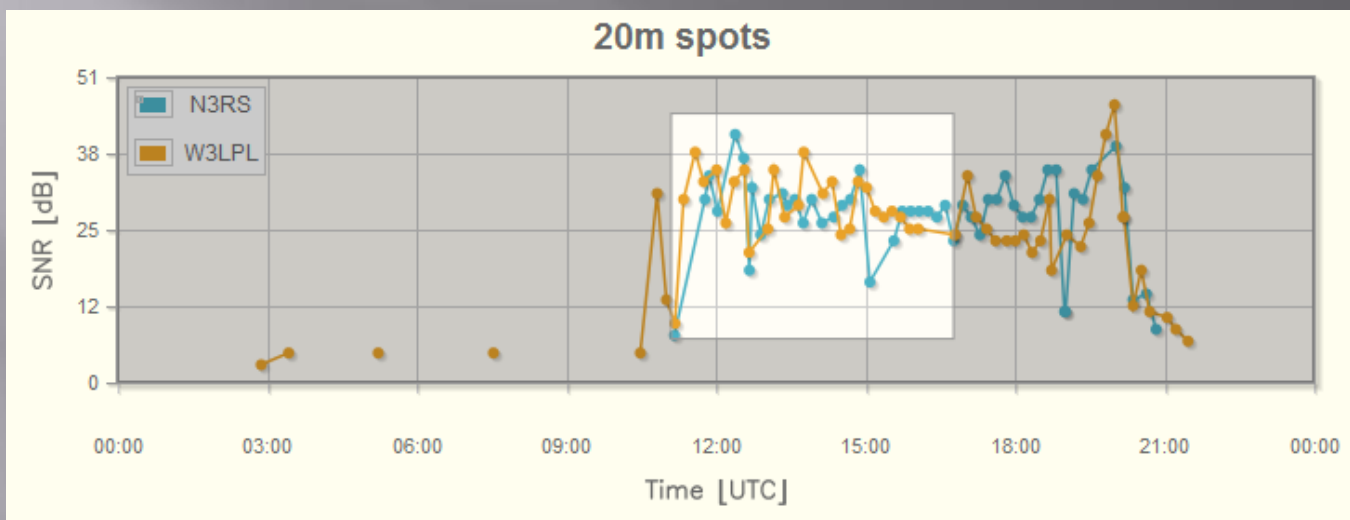
On the right side of the main area, there is a "Plot:" section with two radio buttons: "SNR" (selected) and "Freq". A "Help:" link with an information icon and a close icon is also present.

At the bottom of the page, there is a footer with the following text:

\$Date: 2011-03-27 12:32:25 +0000 (Sun, 27 Mar 2011) \$\n\$Author: tsvih@sinanls.com \$\n\$Revision: 167 \$\n

The Windows taskbar at the bottom shows several open files: "Follow-up to An Int....pptx", "introbrn (1).ppsx", "introbrn.ppsx", and "N6TV_Dayton_2013_....pdf", along with a "Show all downloads..." button.















Spots Analysis Tool



Source: "The RBN and You, Pete Smith N4ZR

Antenna Tests

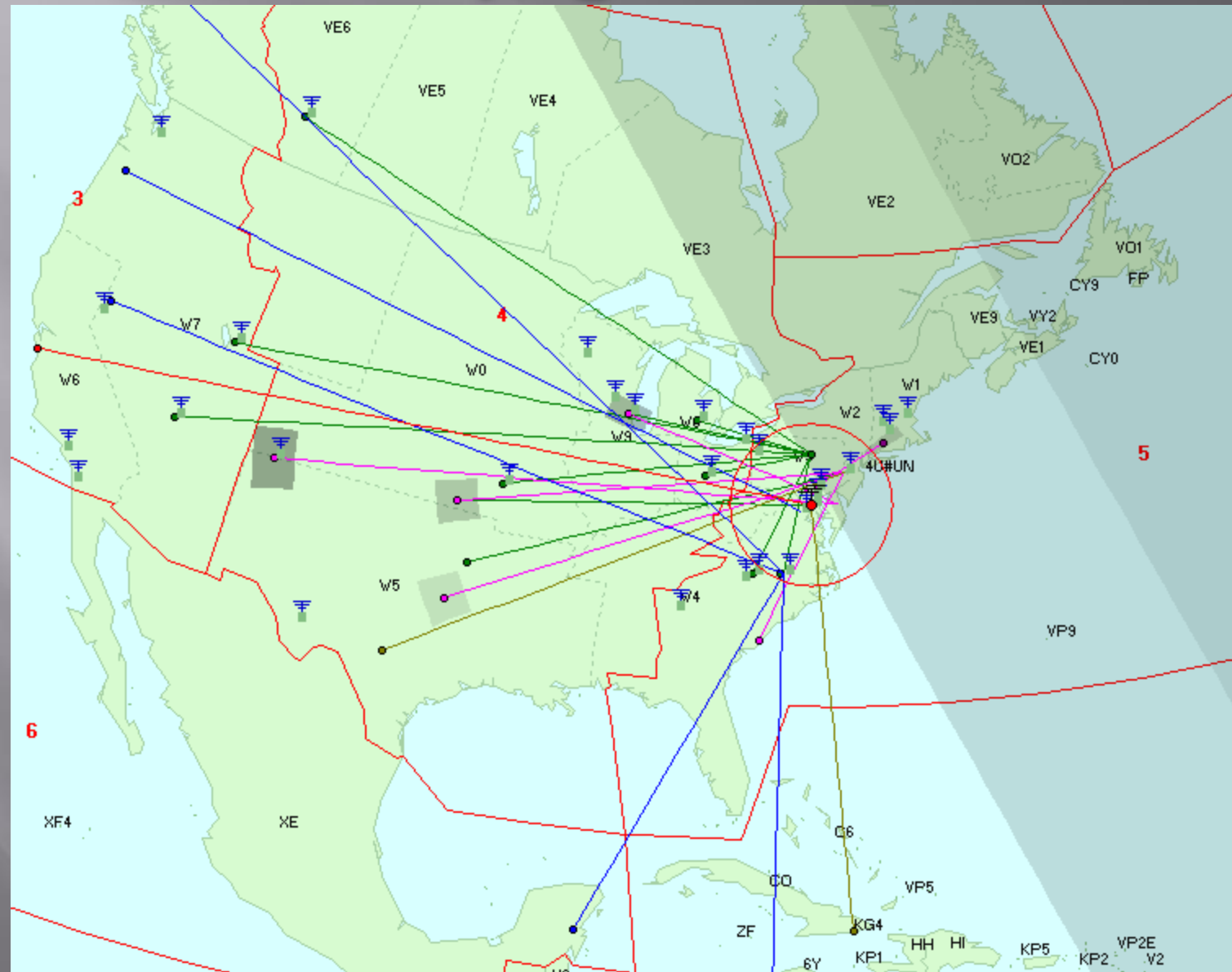
(Comparing multiple antennas)

  www.reversebeacon.net/dxsd1/dxsd1.php?f=0&c=n4zr&t=dx     Google  						
KA9SWE	 N4ZR	14064.3	CW CQ [LoTW]	33 dB	27 wpm	2
K6XT	 N4ZR	14064.2	CW CQ [LoTW]	35 dB	27 wpm	2
K3LR	 N4ZR	14064.3	CW CQ [LoTW]	13 dB	27 wpm	2
N6NC	 N4ZR	14064.2	CW CQ [LoTW]	9 dB	27 wpm	2
N7TR	 N4ZR	14064.2	CW CQ [LoTW]	32 dB	27 wpm	2
PJ2T	 N4ZR	14064.2	CW CQ [LoTW]	11 dB	27 wpm	2

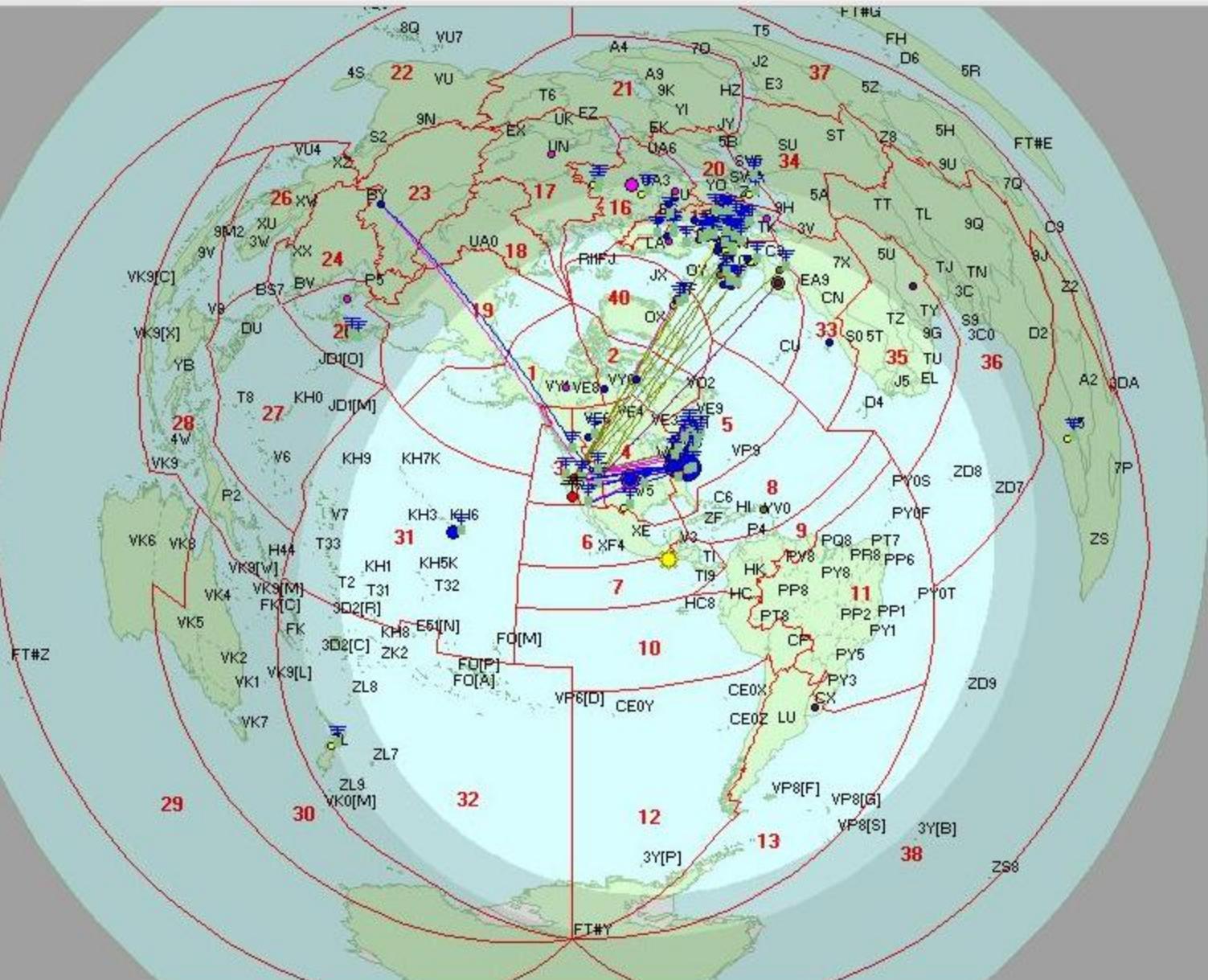
DX Atlas (\$29)

- ▣ Inexpensive program that takes RBN feed and does a bunch of really cool stuff!

Realtime Propagation Information



Source: "The RBN and You, Pete Smith N4ZR



Getting Spotted for Summits on the Air (SOTA)!

- ▣ Post an Alert in Advance: eg SOTA
- ▣ Call CQ
- ▣ Skimmers will pick you up rapidly
- ▣ Change frequency by 2 KHz, and Skimmers will pick you up again
- ▣ Filter programs monitor the RBN feed and post Alert Stations to SOTAWatch
- ▣ Way of getting spotted without access to SMS messages or Internet (e.g. in the Mountains)



SOTAwatch2

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This page refreshes every 1 minute. Last updated **21:37:50 UTC**.

Latest Spots

>> [more spots](#)

- Tue 21:25 NM5S** on [W5N/SE-0??](#) **7.034 cw**
 *[RBNHole] at K07SS 23 WPM 15 dB SNR (Posted by RBNHOLE)
- Tue 21:15 KE5AKL** on [W5N/SE-040](#) **14.061 cw**
 wild horses couldn't stop them (Posted by KT5X)
- Tue 21:11 NM5S** on [W5N/SE-040](#) **10.110 cw**
 (Posted by NM5S)
- Tue 21:11 KE5AKL** on [W5N/SE-0??](#) **14.061 cw**
 *[RBNHole] at K3LR 26 WPM 23 dB SNR (Posted by RBNHOLE)
- Tue 20:18 I1WKN/P** on [I/PM-454](#) **144.2045 ssb**
 *sota i pm 454 jn35ul [SOTA Spotter] (Posted by IZ1GDB)
- Tue 20:13 I1WKN** on [I/PM-454](#) **144.2045 ssb**
 calling now.... (Posted by IK2YRA)

Upcoming Activations

>> [more alerts](#)

- Tue 22:00 K7MK** on [W6/SD-368](#) **7.043-cw**
 20m/30m. k7mk-7 aprs. Rained out at Indian Mtn. (Posted by K7MK)
- Wed 10:30 EA8/PA7ZEE/P** on [EA8/GC-001](#) **14.062-cw**
 kx1 3 w in W3EDP pse spot me (Posted by PA7ZEE)
- Wed 10:30 EA8/PC7C/P** on [EA8/GC-001](#) **14.285-ssb**
 FT-817 5 w in inv vee pse spot me (Posted by PA7ZEE)
- Wed 11:15 GW4VPX/P** on [GW/SW-041](#) **3.7-ssb,5-ssb,145-fm**
 Time +/- . Depends on road to carpark. 7-ssb if wx ok (Posted by GW4VPX)

Reflector Latest

[SOTA News February 2017](#)

by G0VOF, #3 by G0VOF, 7days ago

[Radio Hiking Case](#)

by KB1KXL, #19 by G4OIG, 33mins ago

[HamAlert: Push/SMS notificati](#)

by HB9DQM, #7 by WX7EMT, 3hrs ago

[The Transition from W to DL](#)

by N3II, #2 by N2GBR, 9hrs ago

[Gw/sw-042?](#)

by M0HGY, #5 by G4TJC, 11hrs ago

[Another G SOTA Addition and](#)

by M0HGY, #32 by G4TJC, 23hrs ago

[Psk](#)

by M6RUG, #17 by KC3GIQ, 25hrs ago

[Sota Italia - Dual summit refer](#)

by IN3AQK, #57 by G8ADD, 25hrs ago

[70cm activity today](#)

by M1EYP, #3 by M6VMS, 27hrs ago

[SOTA Dinner at HAM RADIO Fr](#)

by DD5LP, #2 by HB9BIN, 29hrs ago


[SOTA F PE-263 - Monner](#)

by F5UKL, #3 by F5UKL, 33hrs ago

[Split of the French "F" SOTA A](#)

by ON67Q, #37 by F6HRL, 33hrs ago

RBN: The skies the limit!

**ARRL** *The national association for*
AMATEUR RADIO®

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Undergrad Radio Amateur Uses Reverse Beacon Network in Research Project

TAGS: Amateur Radio signals, Auroral Radar Network, Beacon Network, HF communication, HF Radio Propagation, national science foundation, Reverse Beacon Network, Virginia Tech undergraduate

08/20/2015

A Virginia Tech undergraduate researcher and radio amateur has used Super Dual Auroral Radar Network (**SuperDARN**) and Reverse Beacon Network (**RBN**) data to study how solar flares impact HF radio propagation over the entire dayside — the time Earth is in sunlight — with communication loss related to both flare intensity and distribution. Carson Squibb, KM4MBQ, recently summarized his findings in a **poster presentation**, "Dayside Ionospheric Response to X-Class

What does a CW Skimmer Station Look Like?

(They can be sophisticated.)

What is CW Skimmer?



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



SDR Antenna



2. Wideband RX Antenna, 1.8-30 MHz

Pixel Tech.
Loop
RF Pro-1B:



DX Engineering
Active Horizontal
ARAH3-1PE:



W3DX \$96 Skimmer Station

- ▣ Softrock Lite II: \$21
- ▣ Existing Antenna: Free
- ▣ CW Skimmer Server Software: \$75


[Ham Radio Kits](#) [Built Radios](#) [Enclosures](#)

Home :: [Ham Radio Kits](#) :: SoftRock Lite II Combined Receiver Kit

[Ham Radio Kits](#)

Product 1/4

[prev](#) [listing](#) [next](#)

SoftRock Lite II Combined Receiver Kit

Starting at: \$21.00

The SoftRock Lite II is a simple to build SDR receiver kit with a fixed center frequency to be used with a sound card that can sample at 96 kHz, providing band coverage from 48 KHz below the center frequency to 48 KHz above the center frequency.

The kit includes the components to build it for one of the following bands:

- 160m (approximately 1.843MHz center frequency)
- 80m (approximately 3.522MHz center frequency)
- 40m (approximately 7.056MHz center frequency)
- 30m (approximately 10.125MHz 1/3 subharmonic sampled center frequency)
- 20m (approximately 14.047MHz 1/3 subharmonic sampled center frequency)

The circuit board measures 2.55 inches by 0.9 inches.

NOTE: This product is a kit. The product photo shows what it should look like once assembled. A sound card with stereo line-in connector and a computer running SDR software are required to operate this radio.

[Schematic](#)
[Bill of Material](#)

For kit building information, please see: [WB5RVZ](#).

For special IF applications: Crystals for some special IF frequency applications are available. An IF Special Lite II receiver has a crystal whose center frequency is typically 10kHz to 15kHz above or below the target IF frequency. The Lite II can then be used to

Important

[SoftRock Yahoo](#)
[Software Install](#)
[Instructions](#)

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Reviews [m



I use this receiver
 with the NaP3 s
 as a...



Notification





Skimmer Server Software (\$75)

- ▣ Turns your \$21 Softrock into a receiver and skimmer station!
- ▣ Software developed by VE3NEA
- ▣ Works with many SDRs
- ▣ Decodes multiple CW signals in real time
- ▣ Can monitor an entire CW band
- ▣ Waterfall Display
- ▣ Uses MASTER.DTA
- ▣ Telnet Server (emulates a DX Cluster)

Callsigns

Freq	Ulc	Call
1851.0	05:07:15	9A2AA
1845.3	05:07:57	9A4M
1881.2	04:52:13	9A4W
1823.6	04:55:22	9A8WW
1882.6	04:56:11	AA3B
1852.7	05:00:52	AD4ES
1855.6	05:07:41	CR2X
1847.3	04:58:27	DF8SAX
1861.2	04:54:21	DF7ZS
1854.2	05:08:05	DJ0
1850.2	05:05:27	DJ1YFK
1810.7	04:55:06	DJ9KM
1862.1	05:07:18	DK4A
1859.0	04:58:41	DL0CS
1861.6	05:00:57	DL0MB
1814.0	04:59:43	DL1AUZ
1857.5	04:53:28	DL1...
1841.3	04:51:05	DL5CF
1854.5	05:02:26	DL8SCG
1863.7	05:02:08	DR1A
1810.0	05:01:23	E77DX
1834.9	04:50:55	EA2LU
1884.1	04:53:26	EA5CW
1867.2	05:01:03	EA6BF
1813.6	05:00:41	EF8M
1820.1	04:53:44	EI2CN
1842.3	04:53:36	EI6IZ
1843.7	04:54:14	EI7M
1824.9	04:52:09	ER4KAA
1814.4	05:07:22	ES9C
1817.3	05:02:45	EW1WZ
1865.3	05:02:32	EW8DX
1819.0	04:51:47	F5CWU
1818.0	04:50:38	FSIN
1820.9	04:58:33	G8IVZ
1850.8	04:55:23	G3LET
1826.8	04:58:18	G3TXF
1822.1	05:02:25	G5D
1869.5	04:52:26	H8IHI
1832.6	04:49:54	HG1S
1821.2	04:50:55	HG8DX
1811.0	05:01:29	HJ3TEJ
1849.6	05:02:22	HDZ
1827.8	05:01:27	IK8YVV
1845.6	04:52:22	IQ2CJ
1833.0	05:05:06	IT9ESW
1844.4	05:08:07	K8LJR
1827.1	04:53:58	K8RF
1855.1	05:02:27	K1AR
1870.3	04:59:19	K1EA
1816.4	04:59:32	K1LI
1858.7	05:08:16	K1LT
1863.1	05:05:32	K1LZ
1812.6	05:00:52	K1TTT
1819.8	05:01:00	K1UO
1831.4	05:05:42	K2SX
1817.3	05:05:29	K2TE
1854.2	04:58:27	K2TTT
1837.4	05:05:29	K3ZM
1838.4	04:56:39	K4UEE

Calls: 201

Callsigns

Freq	Ulc	Call
1851.0	05:02:08	9A2AA
1823.6	05:01:07	9A8WW
1882.6	04:51:15	AA3B
1813.6	05:01:15	AD9H
1851.4	05:02:36	AI2S
1825.1	04:45:33	AK9F
1853.2	05:02:05	CR2X
1847.3	04:59:57	DF8SAX
1861.2	05:06:28	DF7ZS
1810.7	05:01:02	DJ9KM
1861.6	05:02:05	DL0MB
1814.0	05:02:35	DL1AUZ
1854.5	05:04:17	DL8SCG
1863.7	05:02:28	DR1A
1834.9	05:02:09	EA2LU
1867.2	05:01:19	EA6BF
1813.6	05:00:55	EF8M
1820.1	05:02:28	EI2CN
1843.7	04:55:01	EI7M
1824.9	04:53:16	ER4KAA
1818.0	04:55:50	FSIN
1820.9	05:01:36	G8IVZ
1850.8	04:55:00	G3LET
1822.1	05:02:19	G5D
1811.0	04:53:44	HJ3TEJ
1849.6	04:50:17	HDZ
1844.4	05:08:06	K8LJR
1860.6	04:58:36	K8NE
1875.6	05:02:33	K8PK
1827.1	05:01:26	K8RF
1855.2	05:02:20	K1AR
1846.6	04:47:54	K1DG
1870.3	04:59:20	K1EA
1843.0	05:02:34	K1EP
1842.6	04:58:23	K1HTV
1830.5	05:01:13	K1KO
1816.4	04:50:52	K1LI
1858.7	05:08:16	K1LT
1863.1	05:05:34	K1LZ
1812.6	04:59:41	K1TTT
1819.8	04:51:15	K1UO
1861.5	05:06:35	K2EUH
1834.6	05:02:43	K2SX
1817.3	05:05:30	K2TE
1854.2	04:58:27	K2TTT
1837.4	05:05:30	K3ZM
1807.7	04:58:15	K4SO
1838.4	04:53:24	K4UEE
1836.7	05:00:59	K5GO
1859.8	04:57:18	K5LG
1832.9	05:01:08	K5MR
1828.9	04:58:37	K6EMI
1816.7	05:01:34	K6NR
1830.4	04:59:59	K6SRZ
1819.5	04:50:38	K7IA
1829.8	05:07:30	K8FC
1833.8	05:01:28	K8MFO
1815.0	04:46:49	K8PO
1847.0	04:58:37	K9CT
1856.2	05:02:34	K9PG

Calls: 185

CW Skimmer 1.4 - Registered to Jeffrey Maas

File View Commands Help

1840.00

N8J 599

WZK USEE

599

N7JM

WCSNW MCSN

ADOU

CO MFM

CO K4UEE 599

CO LN32 599

CO W8UO

TTSEN

OKTWN 599

W3BGN W5JAAM K

599

MC4MW7AR M7RH

CO K3ZM 599

CO SK3W 599

NR4M

CO DR4A 599

CO DD1LD

CO W9IU 599

RUTA

LA2AB

OK1VD

G4ADG

WO2T 7M5TNT U8N

FBKX D7X BLIET

CO YL7X

L02F

LUT2LU

TR5NE T9KAE K1EI

CO EA2LU 599

NN2L

CO UA2FW 599

WS4JOE W880ER I

RH6AH DE6RZ N4N

NWPO

CE SK7GX 599

ABW

CO N3M 599

CO KV4FZ

M0WR

CO S50K 599

KUTYAN

K5MR

K4ROU 599

OMOR

MSNN

T2PLF

CO OM8IA

A2WCR MA2ATNR I

KV00

CO SJ2W 599

WASYNB

K2SX 599

AZVA

TSKT

E50W

AT3H

CO S08R

E80 R4R4K EA4

LU7EBD UU7JT E2

BN3JK N3J T5NNV4

CO PA6Z 599

ED4A 599

K8FC NR2OUT Q1

T1M K1MZT

CO K2P

K4RWV

K1EPA

599

W3KL 599

N4PN

V31YN 599

MU5S K8FLM

A IS » SK7FP JE » TU YUATWSG »

46% Decoders: 728 of 728

31 WPM Tth: 1 User

Resources

- ▣ RBN web site – <http://reversebeacon.net>
- ▣ • RBN blog – <http://reversebeacon.blogspot.com>
- ▣ • Tutorial - <http://reversebeacon.blogspot.com/2013/12/a-new-tutorial-on-using-rbn.html>
- ▣ • Download of Aggregator – on the RBN web site
- ▣ • More on ViewProp - <http://zl2ham.wikispaces.com/>
- ▣ • Download Viewprop –
[https://groups.yahoo.com/neo/groups/viewprop/info\(files section\)](https://groups.yahoo.com/neo/groups/viewprop/info(files%20section))
- ▣ • ARCluster filters –
<http://ab5k.net/ArcDocsVer6/UserManual/ArcCmdSummary.htm>
- ▣ • CCUser - <http://www.bcdxc.org/ve7cc/default.htm#prog>
- ▣ • Mailing lists:
- ▣ • skimmertalk@contesting.com
- ▣ • viewprop@yahoogroups.com
- ▣ • RBN-OPS@yahoogroups.com