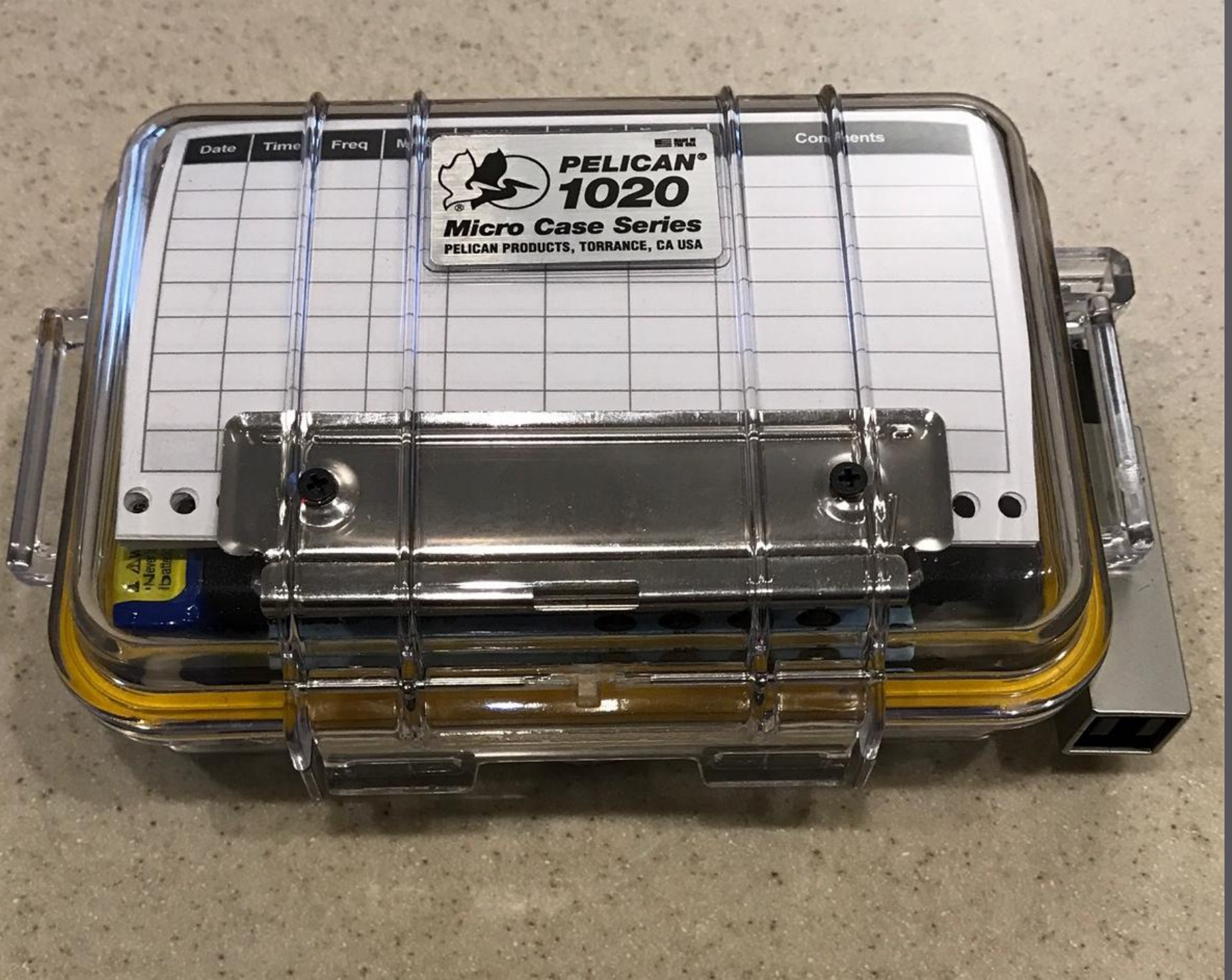
REVERSE BEACON NETWORK

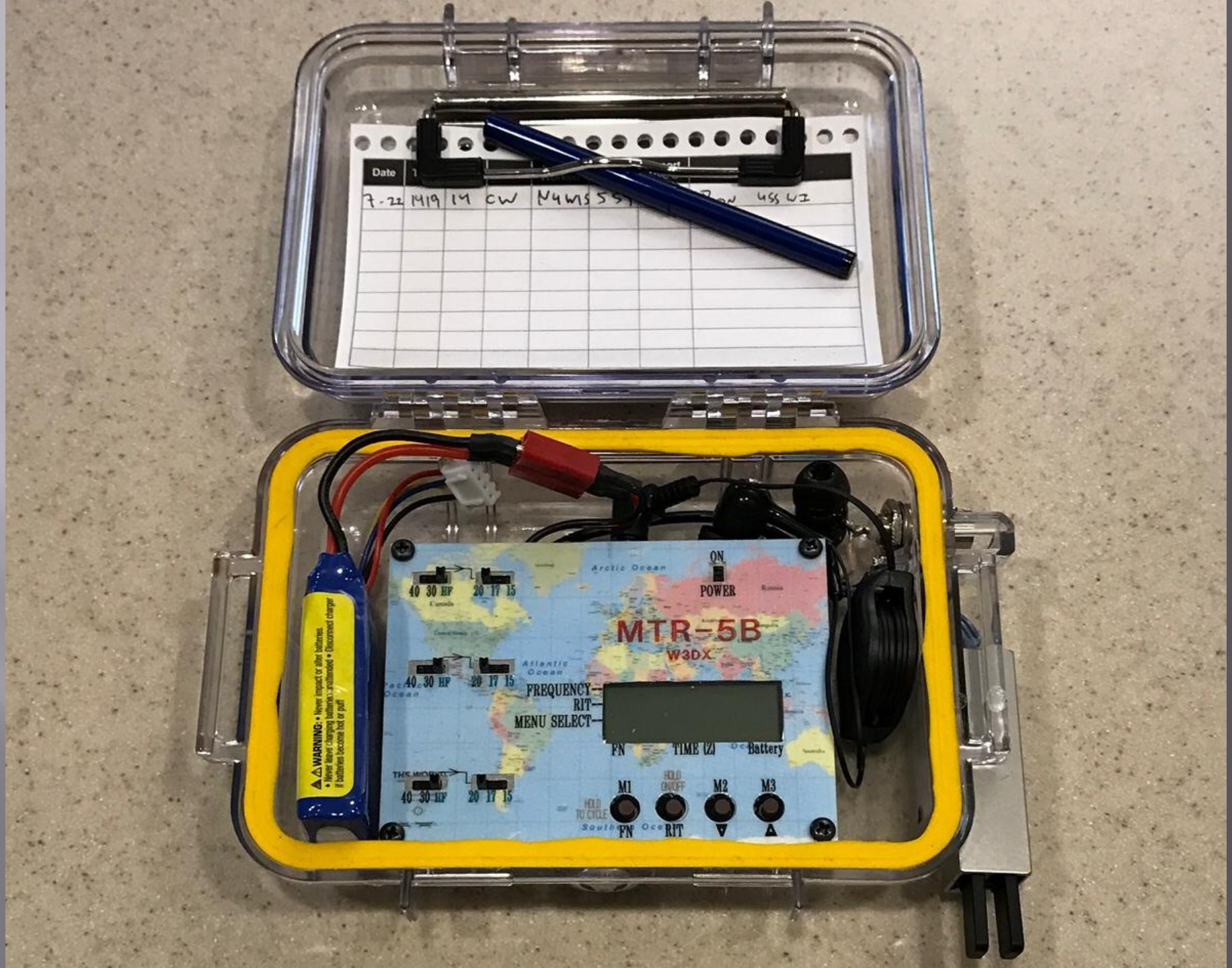
(WITH A PRIMER ON BEACONS)

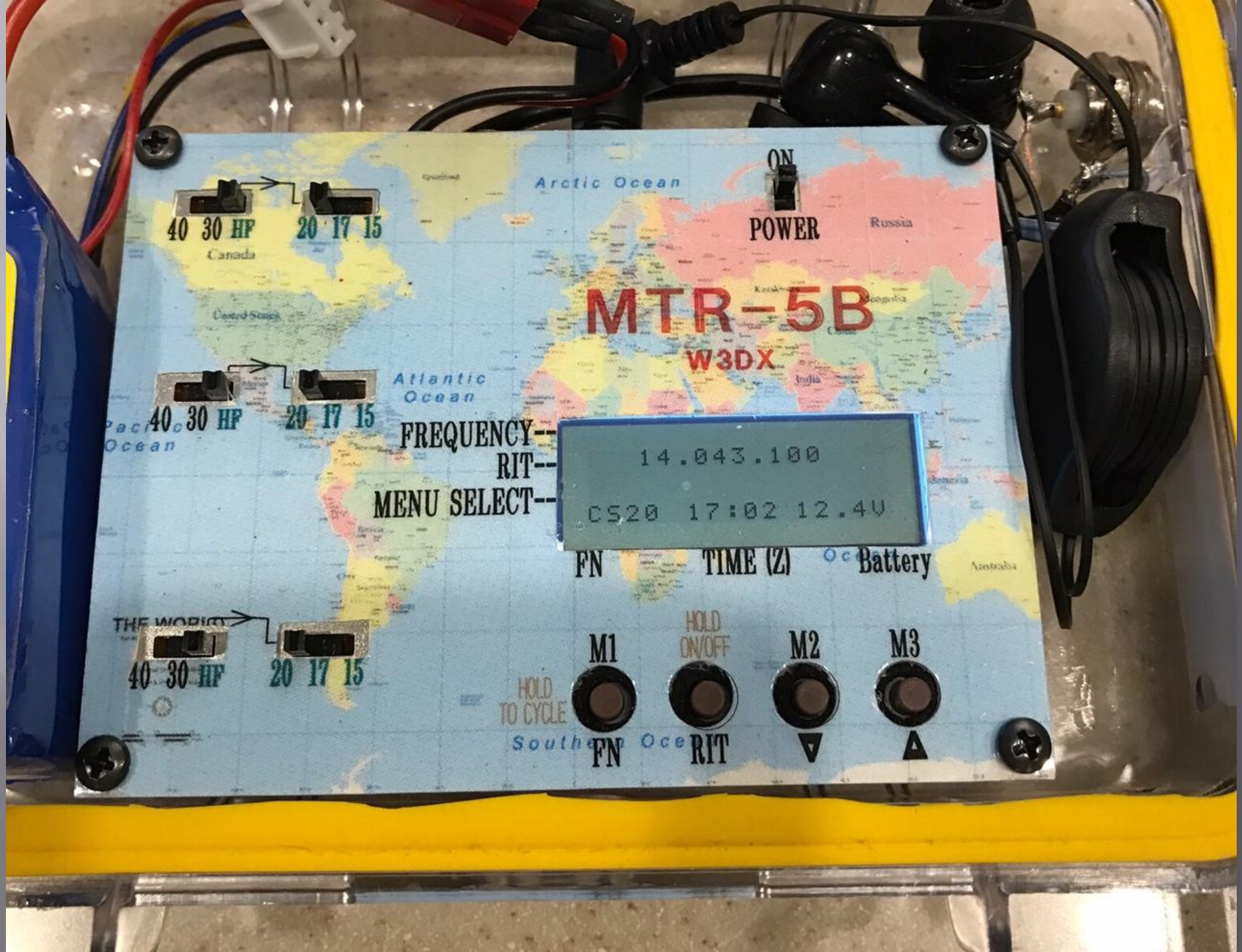
Robert Capon,
W3DX

February 14, 2017

SOTA Update: MTR5B Pelican Case Station


Date
Time
Freq
Comments
PELICAN®
1020
Micro Case Series
PELICAN PRODUCTS, TORRANCE, CA USA


Date
MTR-5B
W3DX
POWER
FREQUENCY
RIT
MENU SELECT
FN
TIME (Z)
Battery
M1
M2
M3
WARNING:

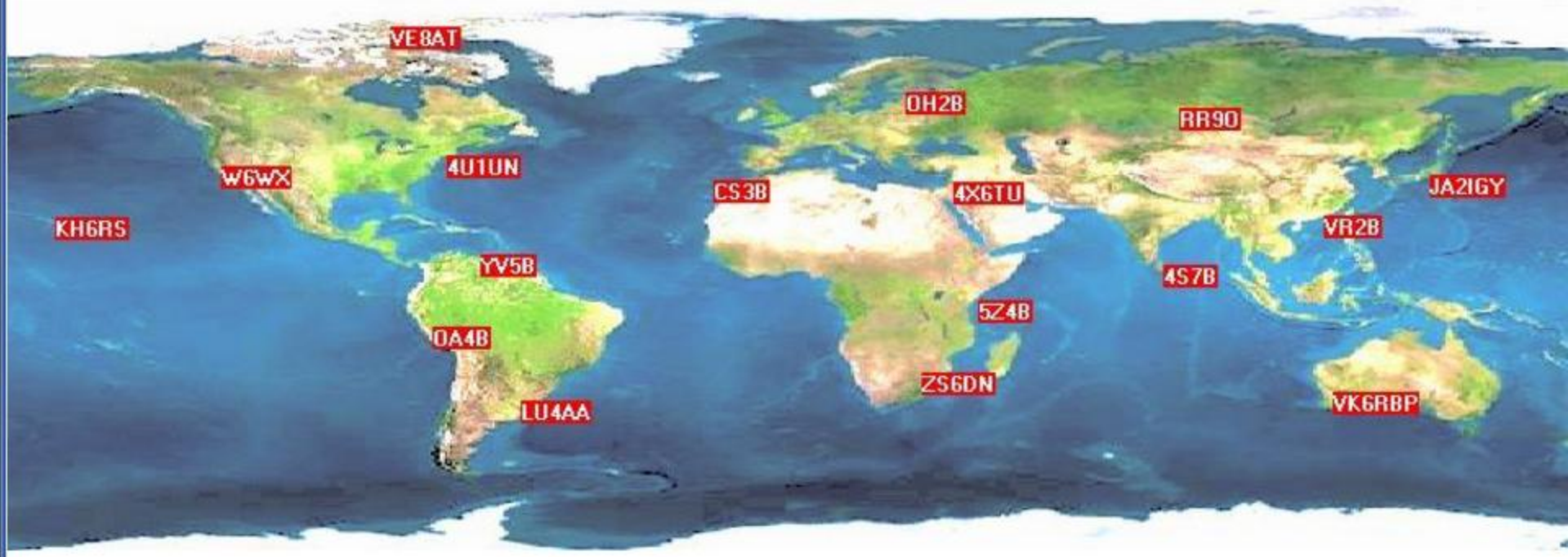

ON
POWER
MTR-5B
W3DX
40 30 HF
20 17 15
40 30 HF
20 17 15
40 30 HF
20 17 15
FREQUENCY--
RIT--
MENU SELECT--
14.043.100
CS20 17:02 12.4V
FN
TIME (Z)
Battery
M1
HOLD ON/OFF
M2
M3
HOLD TO CYCLE
FN
RIT
Arctic Ocean
Atlantic Ocean
Russia
Canada

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?



NCDXF/IARU International Beacon Project

Introduction

NCDXF/IARU Beacon Network

Beacon Controller 2.0

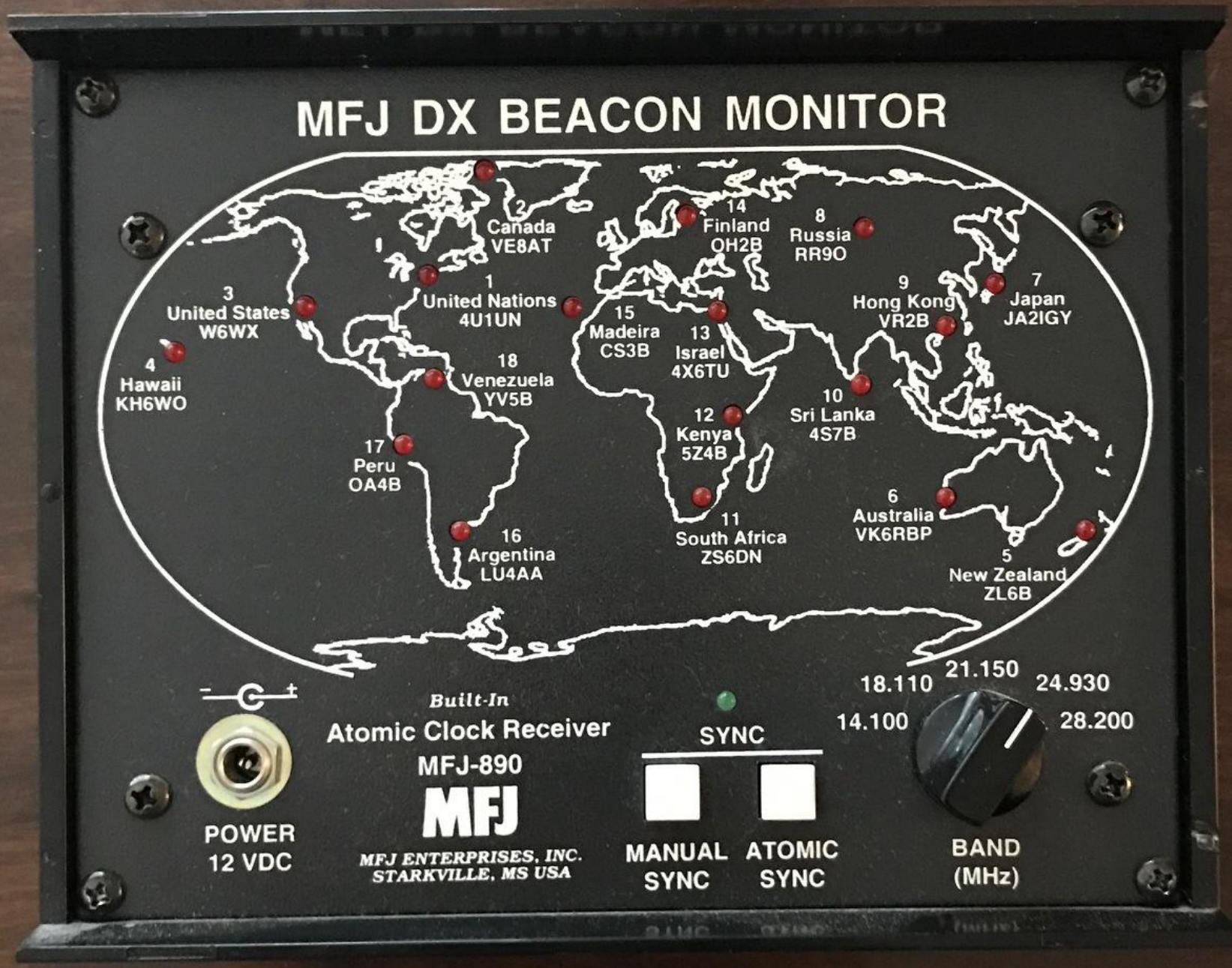
International Beacon Proje ×

www.ncdxf.org/beacon/photos/index.html#2

IBP The Beacons Tools for Listeners Photos About FAQ Contact

4S7B Beacon and TS-850s

4U1UN
antenna


MFJ DX BEACON MONITOR
2
Canada
VE8AT
14
Finland
OH2B
8
Russia
RR9O
1
United Nations
4U1UN
3
United States
W6WX
9
Hong Kong
VR2B
7
Japan
JA2IGY
15
Madeira
CS3B
13
Israel
4X6TU
4
Hawaii
KH6WO
18
Venezuela
YV5B
10
Sri Lanka
4S7B
12
Kenya
5Z4B
17
Peru
OA4B
6
Australia
VK6RBP
11
South Africa
ZS6DN
16
Argentina
LU4AA
5
New Zealand
ZL6B
18.110
21.150
24.930
14.100
28.200
Built-In
Atomic Clock Receiver
MFJ-890
MFJ
MFJ ENTERPRISES, INC.
STARKVILLE, MS USA
SYNC
POWER
12 VDC
MANUAL
SYNC
ATOMIC
SYNC
BAND
(MHz)

What is the Reverse Beacon Network

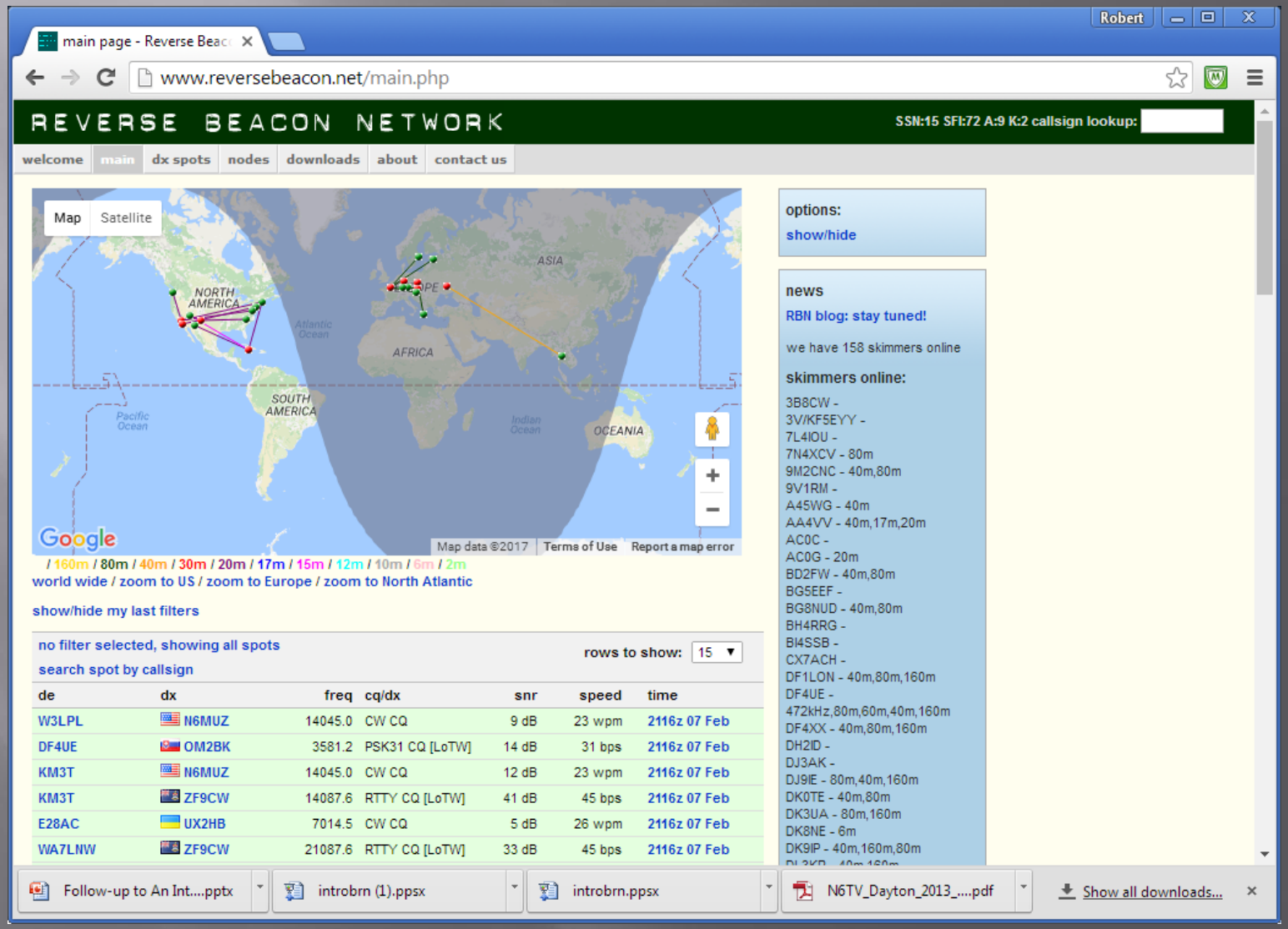
- Originated and operated by PY1NB: Launched in 2008
- Uses any decoded CW signal as a beacon
- Multiple Skimmers world-wide decode your callsign, sending speed and S/N ratio
- An "Aggregator" program forwards Skimmer spots to a central server
- Central server distributes spots via www.reversebeacon.net,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

Source: "An Introduction to the RBN, Dave Duskin, NE5S"

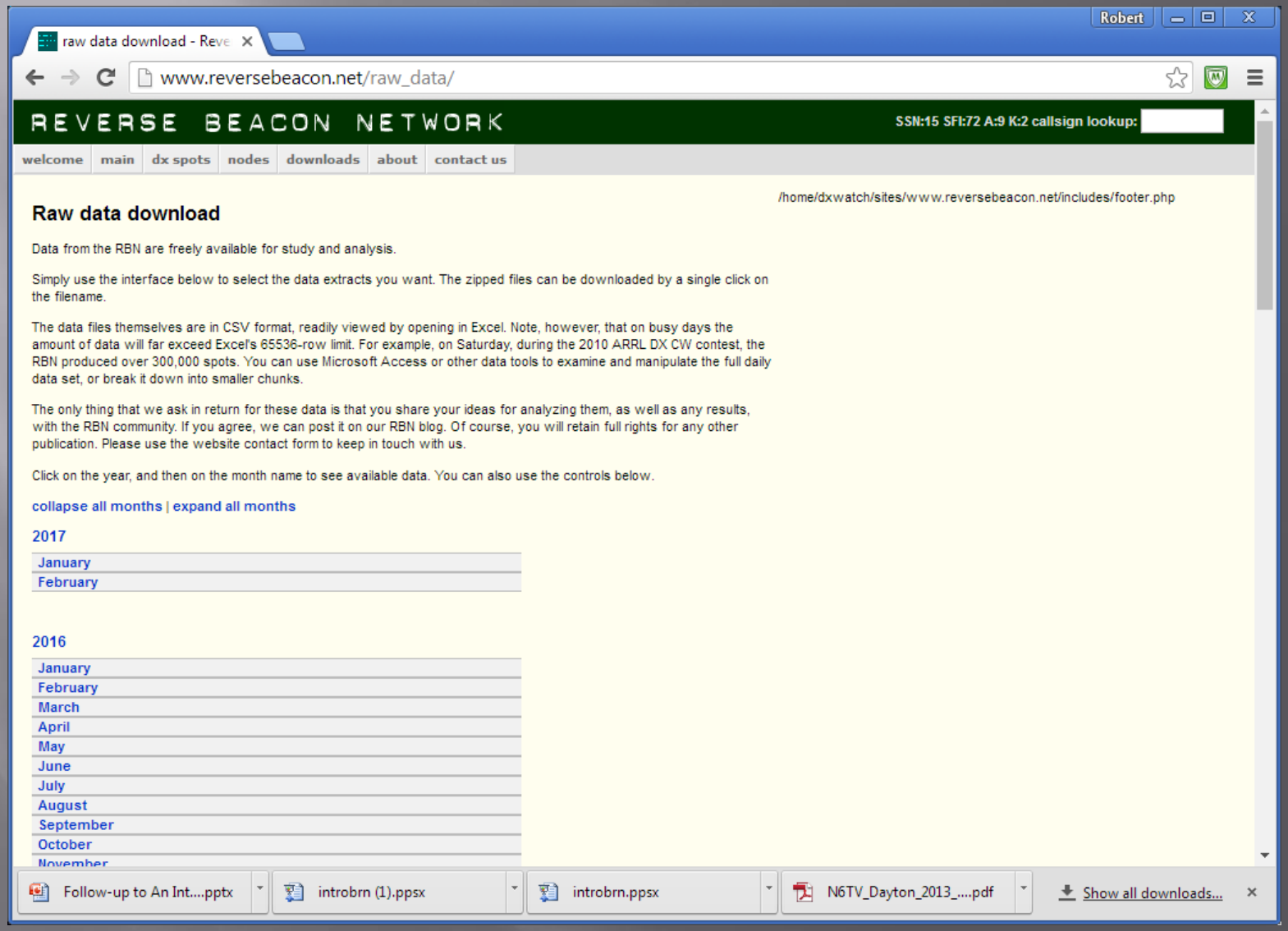
How Can I Use the RBN?

- 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



Download Raw Data



Spot Search

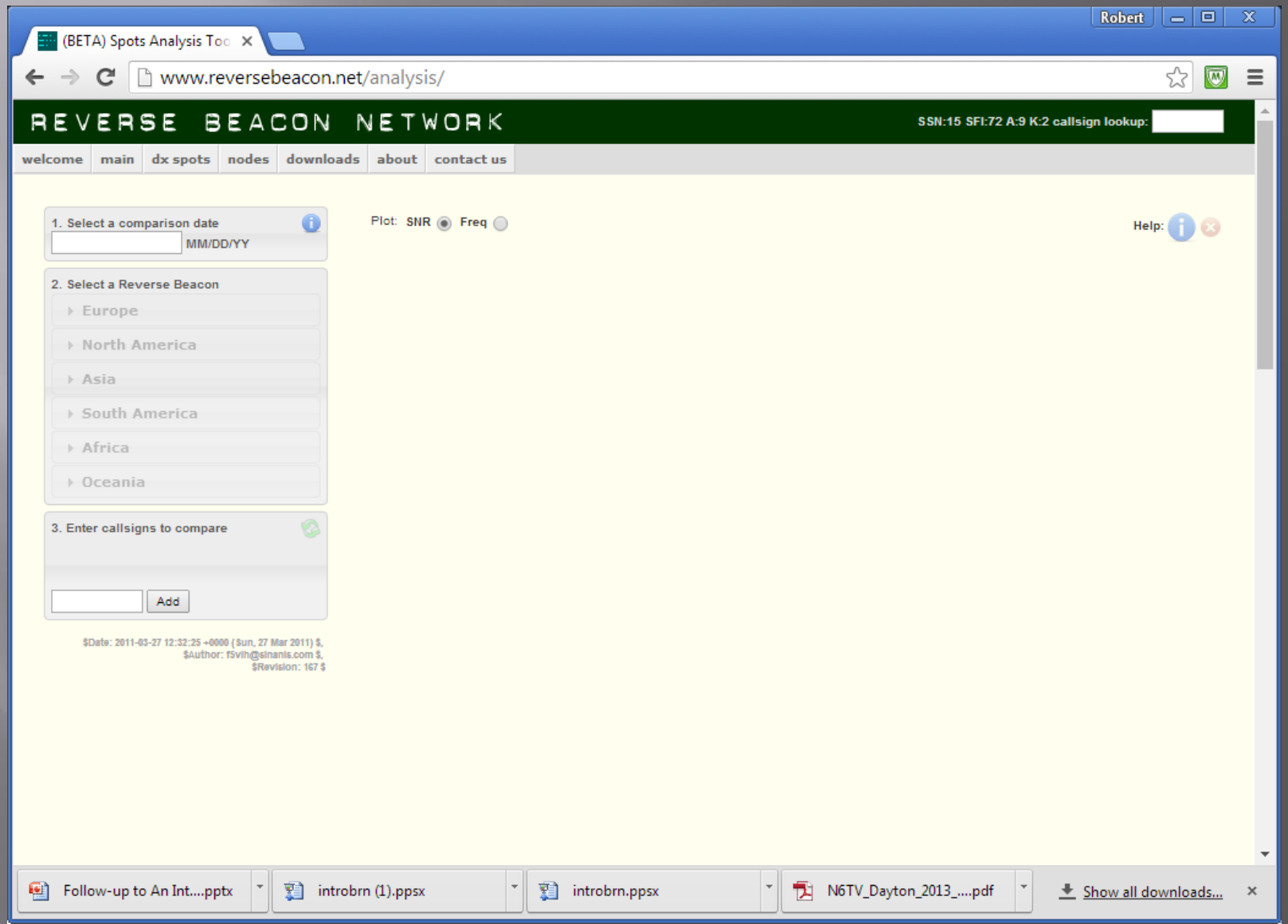
Robert
DX spot search - Reverse
www.reversebeacon.net/srch.php
REVERSE BEACON NETWORK
SSN:15 SFI:72 A:9 K:2 callsign lookup:
welcome
main
dx spots
nodes
downloads
about
contact us
spot search
please type a callsign to search:
callsign:
search in:
DX
DE
search
the reverse beacon network is hosted by:
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

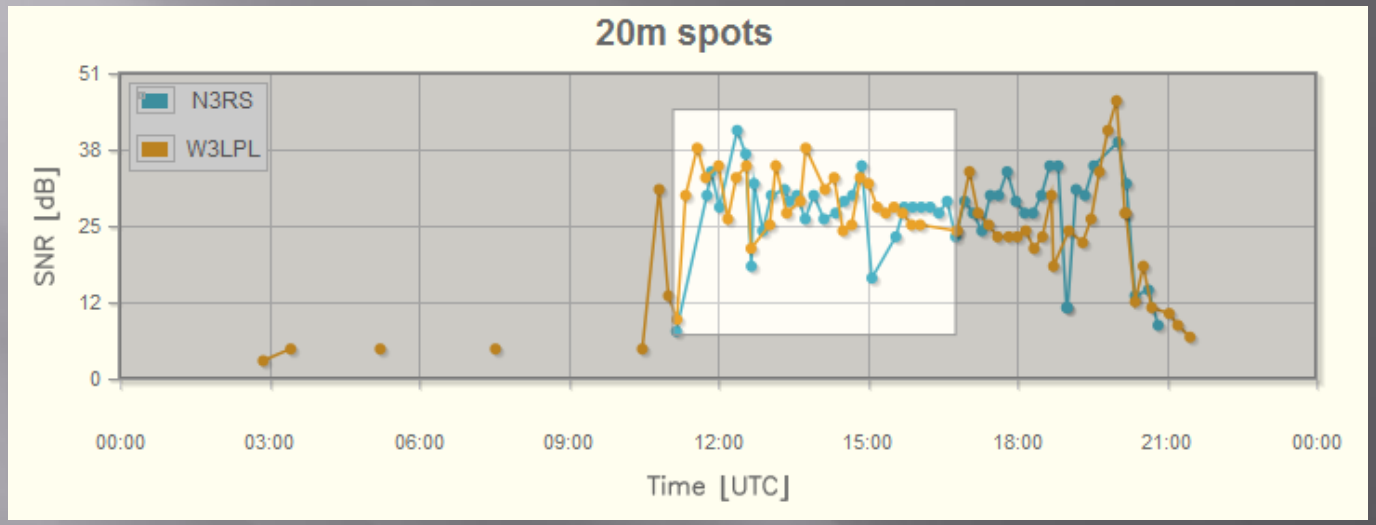
- Created by F5VIH/SV3SJ
- Select a date, a “reverse beacon” station, and calls to compare.
- The tool will produce graphs showing comparative results for up to 10 stations at a given location, over time.

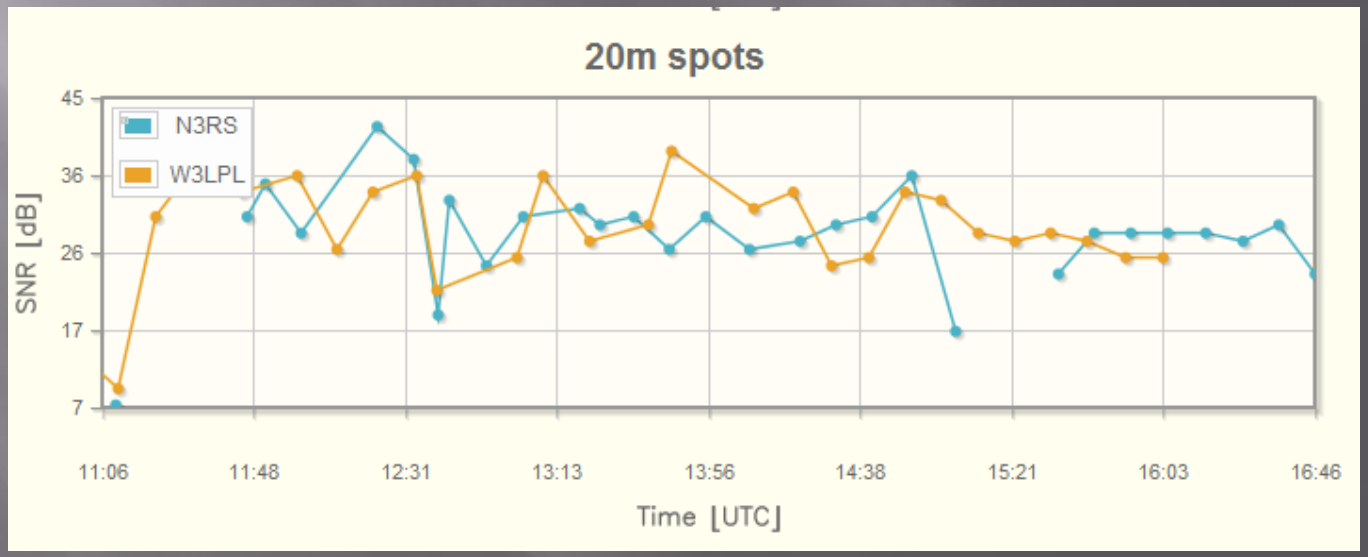
Source: “The RBN and You, Pete Smith N4ZR

Spots Analysis Tool



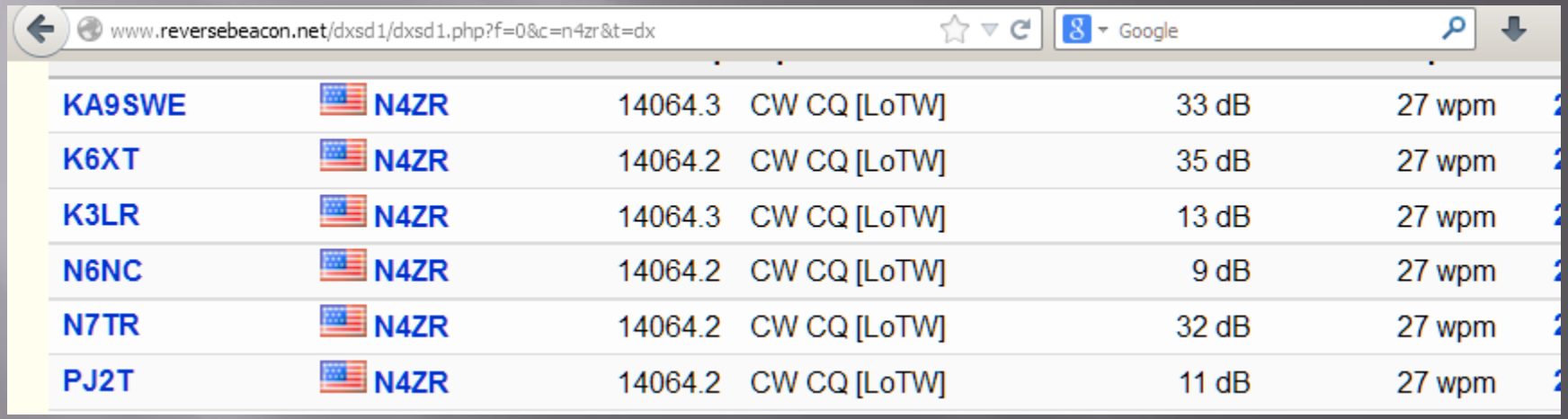
Spots Analysis Tool





Source: "The RBN and You, Pete Smith N4ZR

Antenna Tests (Comparing multiple antennas)



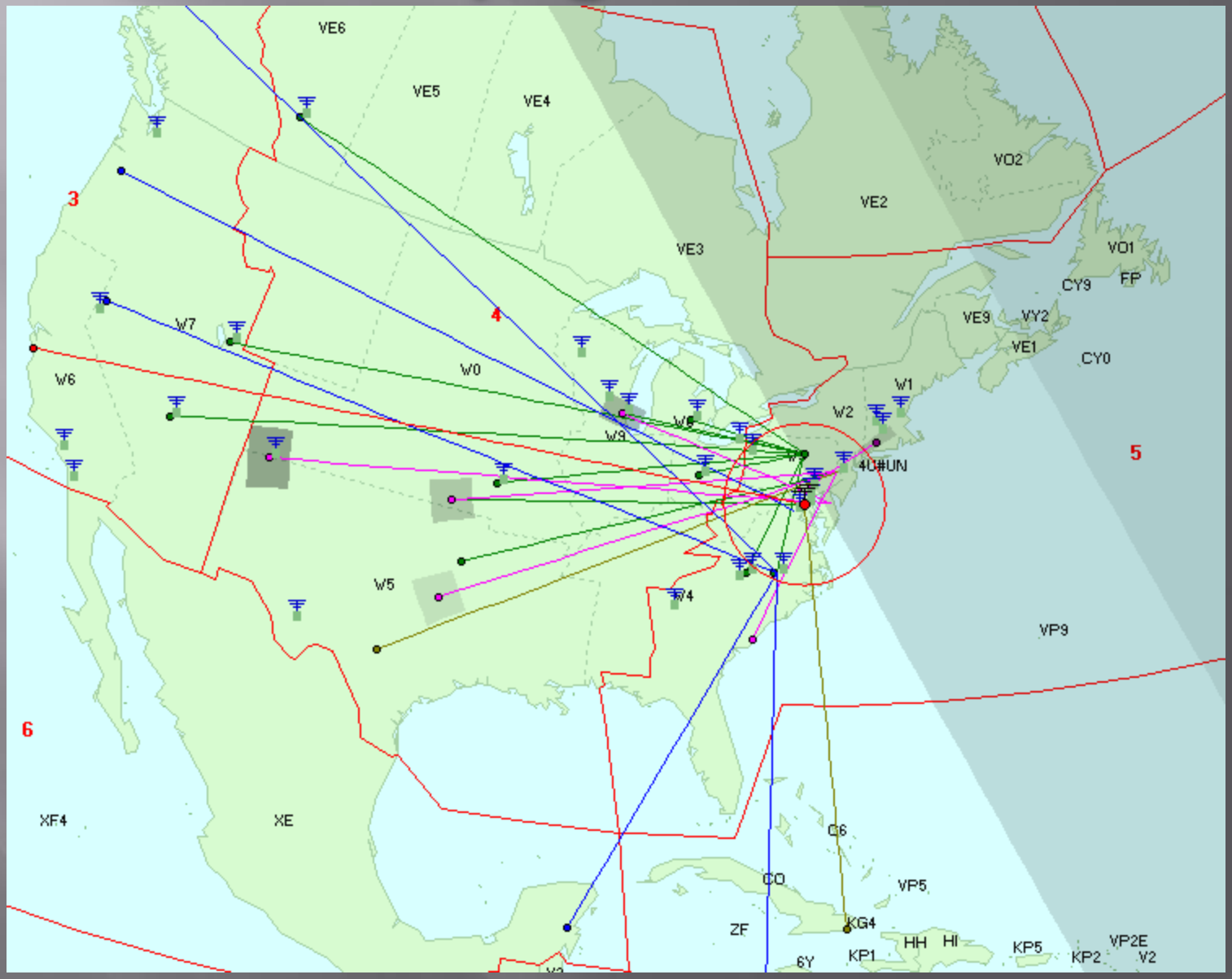
KA9SWE	N4ZR	14064.3	CW CQ [LoTW]	33 dB	27 wpm
K6XT	N4ZR	14064.2	CW CQ [LoTW]	35 dB	27 wpm
K3LR	N4ZR	14064.3	CW CQ [LoTW]	13 dB	27 wpm
N6NC	N4ZR	14064.2	CW CQ [LoTW]	9 dB	27 wpm
N7TR	N4ZR	14064.2	CW CQ [LoTW]	32 dB	27 wpm
PJ2T	N4ZR	14064.2	CW CQ [LoTW]	11 dB	27 wpm

Source: "The RBN and You, Pete Smith N4ZR

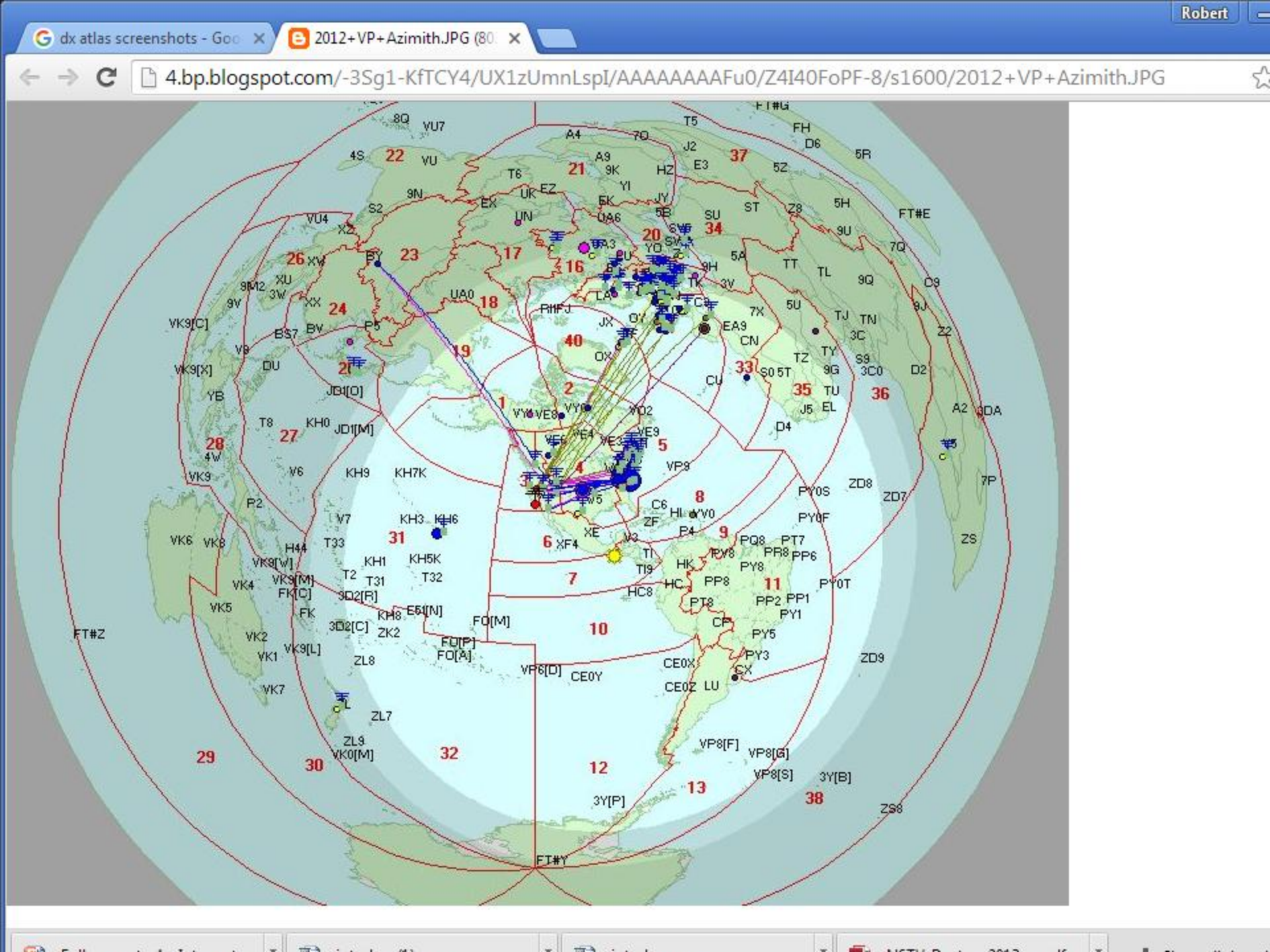
DX Atlas ($29)

- 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


dx atlas screenshots - Goo
2012+VP+Azimith.JPG (80
Robert
4.bp.blogspot.com/-3Sg1-KfTCY4/UX1zUmnLspI/AAAAAAAAFu0/Z4I40FoPF-8/s1600/2012+VP+Azimith.JPG

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)

Robert

SOTAwatch2

sotawatch.org

SOTAwatch2

Login: Callsign Password Login | Register | FAQs

Home | Spots | Alerts | Reflector | Website | Summits | Recent Summit Info | Database
Video | Photos | Shop | Mapping | Facebook

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 KO7SS 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

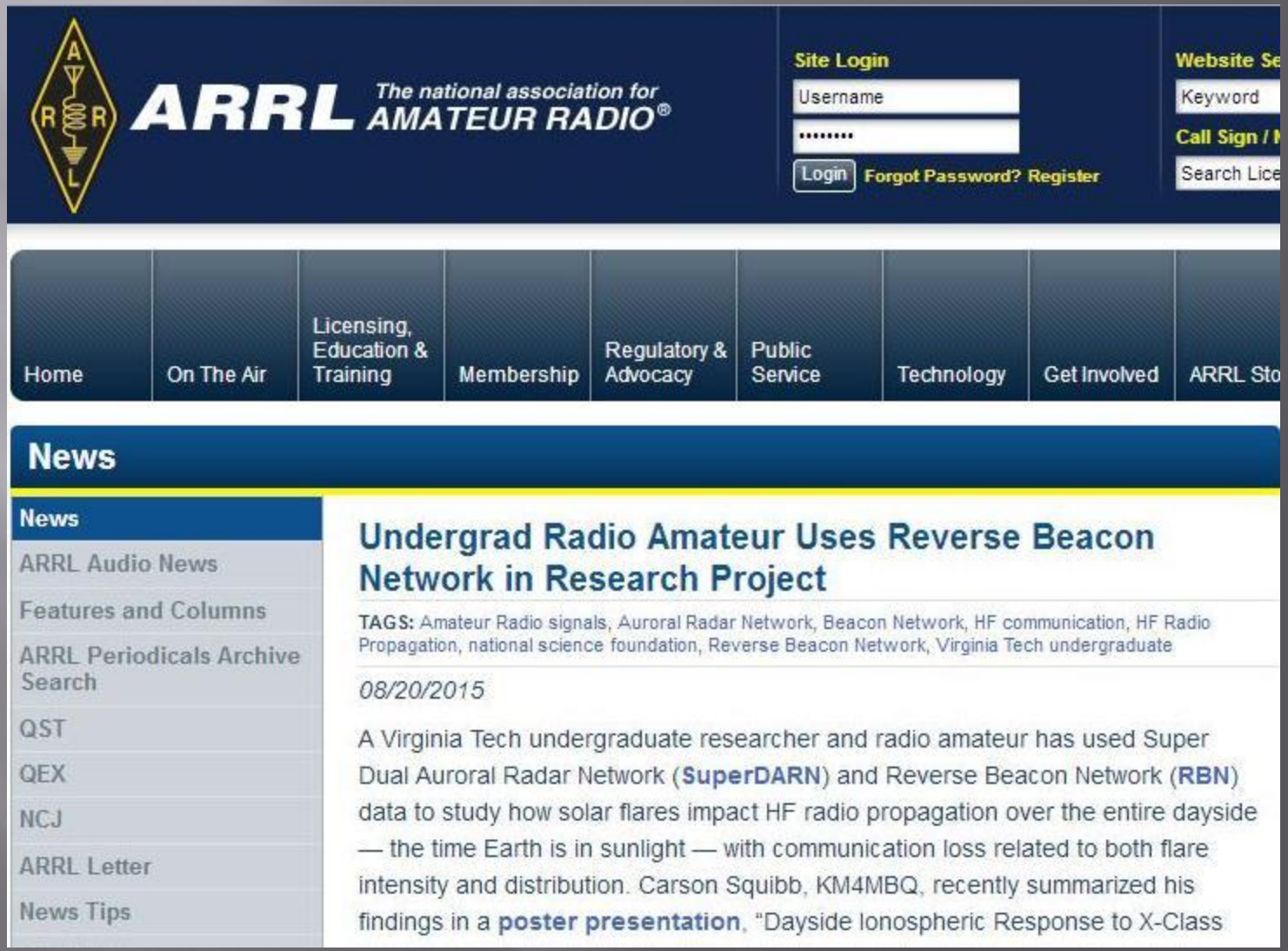
70cm activity today
by M1EYP, #3 by M6VMS, 27hrs ago

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 ON6ZQ, #37 by F6HBL, 33hrs ago

RBN: The skies the limit!



What does a CW Skimmer Station Look Like?

(They can be sophisticated.)

What is CW Skimmer?

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

Source: "CW Skimmers, DX Cluster, and the Reverse Beacon Network" by N6TV

SDR Antenna

2. Wideband RX Antenna, 1.8-30 MHz

Pixel Tech.
Loop
RF Pro-1B:

DX Engineering
Active Horizontal
ARAH3-1PE:

Source: "CW Skimmers, DX Cluster, and the Reverse Beacon Network" by N6TV

W3DX $96 Skimmer Station

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

FiveDashInc. StartHere

larger image

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

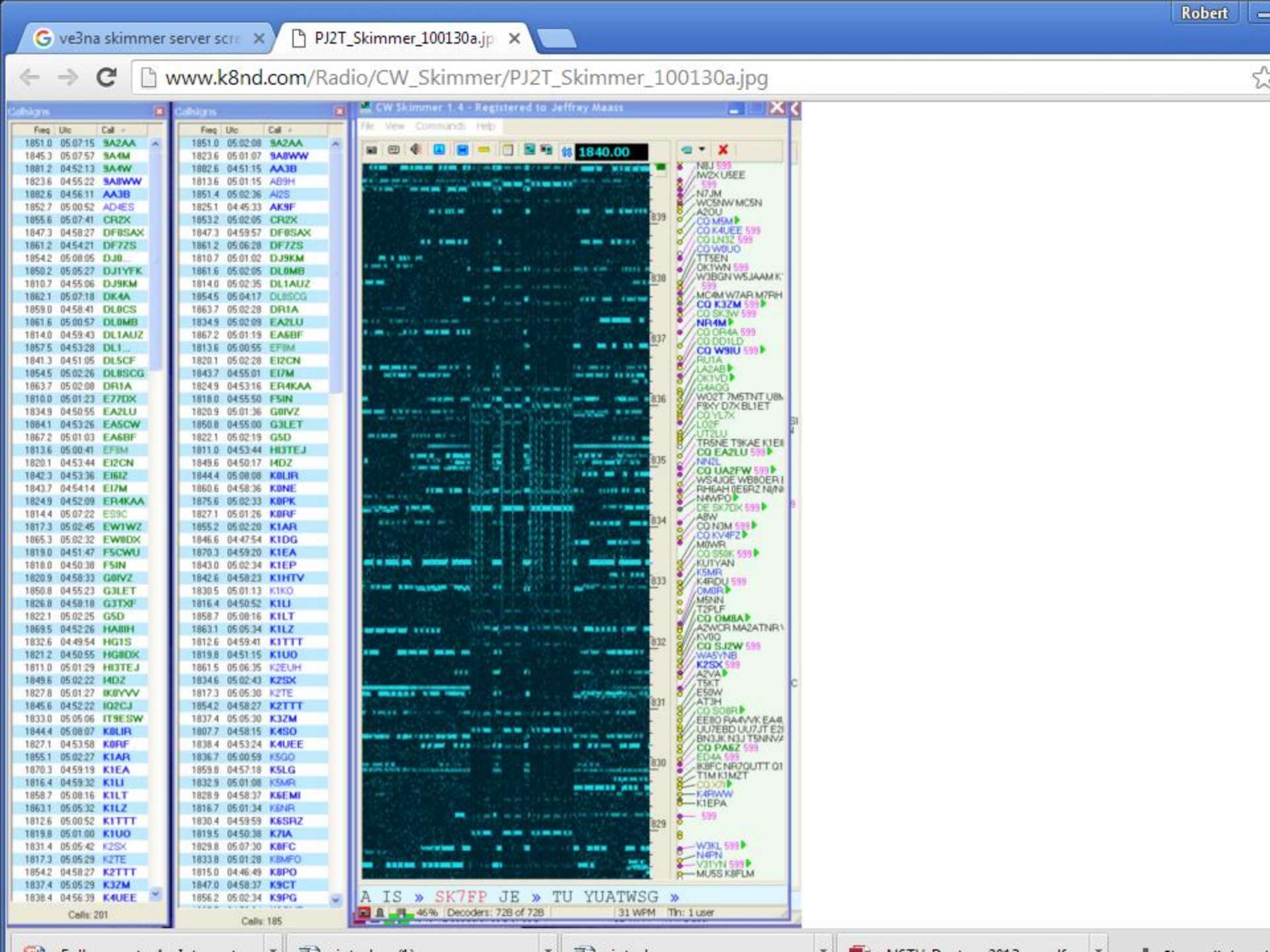
For kit building information, please see: WB5RVZ.

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

12V
On

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)


ve3na skimmer server scre
PJ2T_Skimmer_100130a.jp
Robert
www.k8nd.com/Radio/CW_Skimmer/PJ2T_Skimmer_100130a.jpg
Callsigns
Freq Utc 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 DL8MB
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 F5IN
1820.9 04:58:33 G0IVZ
1850.8 04:55:23 G3LET
1826.8 04:58:18 G3TXF
1822.1 05:02:25 G5D
1869.5 04:52:26 HA8IH
1832.6 04:49:54 HG1S
1821.2 04:50:55 HG8DX
1811.0 05:01:29 HI3TEJ
1849.6 05:02:22 I4DZ
1827.8 05:01:27 IK0YVV
1845.6 04:52:22 IQ2CJ
1833.0 05:05:06 IT9ESW
1844.4 05:08:07 K8LIR
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 Utc Call
1851.0 05:02:08 9A2AA
1823.6 05:01:07 9A8WW
1882.6 04:51:15 AA3B
1813.6 05:01:15 AB9H
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 DL8MB
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 F5IN
1820.9 05:01:36 G0IVZ
1850.8 04:55:00 G3LET
1822.1 05:02:19 G5D
1811.0 04:53:44 HI3TEJ
1849.6 04:50:17 I4DZ
1844.4 05:08:08 K8LIR
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 Maass
File View Commands Help
1840.00
839
838
837
836
835
834
833
832
831
830
829
A IS » SK7FP JE » TU YUATWSG »
46% Decoders: 728 of 728
31 WPM
Thr: 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)
- •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

Source: "The RBN and You, Pete Smith N4ZR