SDR’s and CW Skimmer

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Introduction

- Different SDR’s
- CW Skimmer software
- Integrating Skimmer at your station (PAN-Adapter+K3 and QS1R)
- Using skimmers with logger (N1MM)
What is a SDR?

- "Radio in which some or all of the physical layer functions are software defined"
Perseus

- Price abt. 850€
SoftRock

- Price abt. 50€ +100-200€ (sound card)
- Need external sound card.
- Many variation one band to multiband
QS1R

- Open source code (FPGA and PC)
- Price abt. 950€
LP-Pan adapter

- A direct conversion receiver with quadrature detector
- Used like adapter between IF and SDR software
- Need external high quality sound card
- Price abt. 170€
LP-Pan adapter

- Connections with K3

Drawing by N8LP
PM-SDR

- Abt. 250€
- Need external sound card
- Switch board handling 100 W
And so many other SDR projects

- HPSDR Mercury
- Flex radio
- SDR-IQ
- SDR-Cube
- Etc. Etc…
CW Skimmer?

- Skimmer is multi-channel CW decoder and analyzer. Programmed by Alex VE3NEA
- Decoding all CW signals on receiver passband – up to 700 signal parallel
- Help finding stations on the band
- Only one band at the time
- Use almost every receiver and PAN-adapters
- Waterfall display
CW Skimmer

- Skimmer looks like that
CW Skimmer Server

- Decoding simultaneous of all CW signals on band, coverage up to 192 kHz on each band
- QS1R Receiver 7 band
- USRP Receiver 4 band
- Skimmer Server based to Skimmer software, lives in the system, no waterfall display
- User interface with Telnet as DX-clusters
- Selectable only CQ calls or all calls
- Possibilities use master.dat call database
Skimmer spots example
Skimmer with PAN-adapter+K3

- PowerSDR™ software for bandscope
- LP-Bridge for handling communication ports
Skimmer with PAN-adapter+K3

- CW Skimmer software

- Working at same band as the K3 or other transceiver
Skimmer and the QS1R

- Easy to connect by USB
- No need extra audio or communication cables
Skimmer server and the QS1R

- Needs USB and antenna cable
- Setup by crossing QS1R’s parameters
Logger software and Skimmer

- Connected by Telnet
- Set skimmer IP address and port a logging software as remote cluster
- Skimmer send "spots" as DX-cluster
- Several Skimmers and clusters can be connected same time by using WinTelnetX software by K1TTT
- Possibility remote use over the internet
WinTelnetX

- Example: two cluster and skimmer
- Mix several Telnet connections to same local Telnet port
Connecting to an antenna

- Keep mind SDR protection
- SDR connected off line during sending or protect some other way
- Some SDR projects including switching unit, rated 100W
- Skimmer heard stations from other bands regardless of your antenna selection
PM_SDR Switching board

ANTENNA

HF TRANSCEIVER

Optional PTT Input

K1

K2

PTT Control

RF sense

PMSDR_ANT.

PMSDR_RX

PMSDR_SWITCH

RX ON

PTT

+5V
Skimmer at OH8LQ

- QS1R SDR receiver
- Skimmer Server software
- PC 2.66 GHz dual processor laptop (needs over 80% processor time)
- Transceiver FT-1000MP MarkV
- No separate Skimmer antenna
- Using FT-1000mp’s antenna relays protecting SDR frontend
- Splitter caused 3 dB loss at transceivers antenna line
Skimmer system block diagram

- QS1R and Skimmer Server OH8LQ
Skimmer and the contest

- CQWW CW 2010 SO(A)20 m OH8L
- Mainly use skimmer, not clusters
- Make over 2600 Q
- More S&P Q’s
- Lot of the S&P multipliers
- Spots was ”fresh” and really heard at the own station
- Skimmer server made abt. 7 MB log file. (six band and only CQ calls)
Skimmer and DX hunting

- You will find easy latest DX’s listening frequency
- Help to find DX stations
- Checking propagations from log file or real time
Reverse Beacon Network

- [www.reversebeacon.net](http://www.reversebeacon.net)
- Collect skimmer spots to one internet site
- Nice way compare own and others signals around of the world
- Checking propagations
- Looking DX-calls
- Send your own skimmer spot with aggregator software
More information

- [http://www.sdrforum.org](http://www.sdrforum.org)
- [http://www.srl-llc.com](http://www.srl-llc.com) (QS1R)
- [http://www.microtelecom.it/perseus/](http://www.microtelecom.it/perseus/)
- [http://www.k1ttt.net/software/wintelnetx_w0yk.pdf](http://www.k1ttt.net/software/wintelnetx_w0yk.pdf)
- [http://www.telepostinc.com](http://www.telepostinc.com) (LP-Pan)