



RTTY Contesting

Norsk Hammeeting 17-19. april
Av LB8IB og LA8AJA

Contesting.no

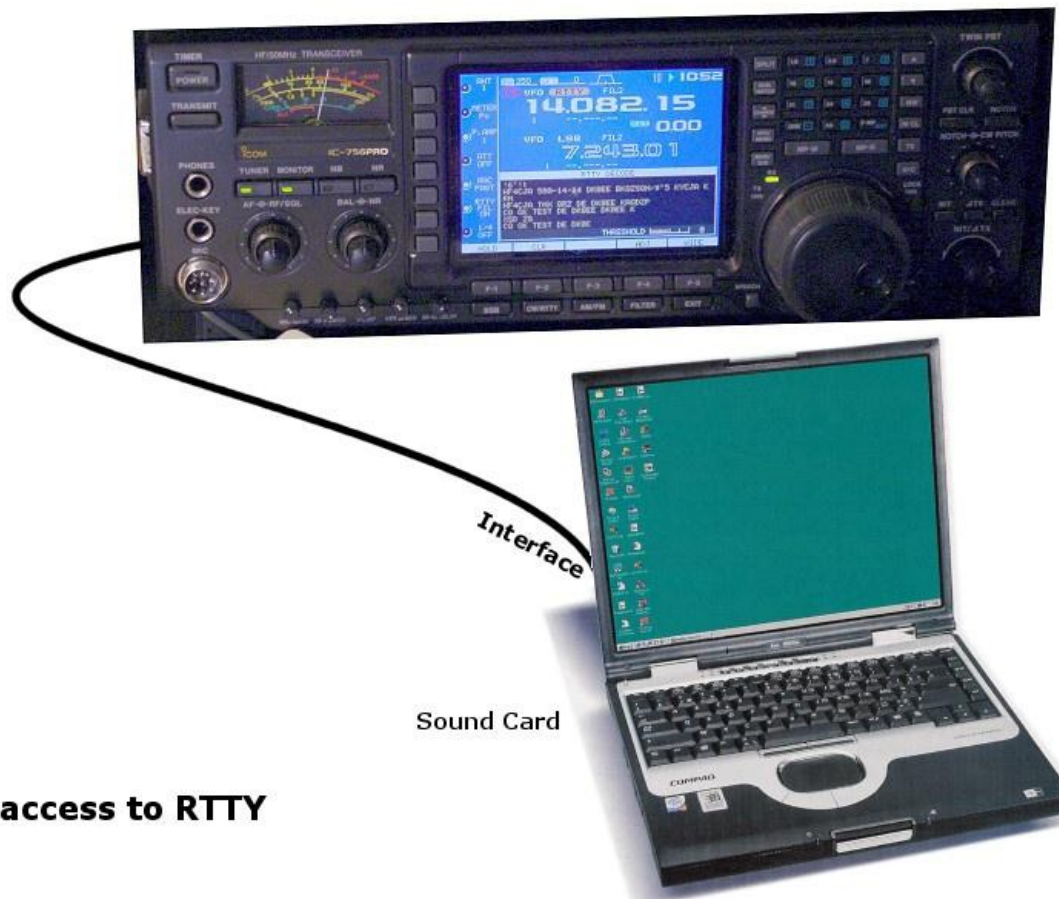
Agenda

- Hvorfor RTTY
- RTTY Basic
- Hardware og Software
- RTTY ressurser på nettet

Hvorfor RTTY

- ⦿ Enkelt å komme i gang. Alt som kreves er en pc med lydkort og ett interface mellom PC og radio
- ⦿ All dekoding foregår i software, noe som gjør RTTY-contesting til en meget behagelig contestform og mindre krevende enn CW og SSB
- ⦿ Programvaren MMTTY, som nærmere 90% bruker, har meget god integrering med de mest populære loggeprogrammene som N1MM, Writelog og Win-Test

Enkelt å komme i gang



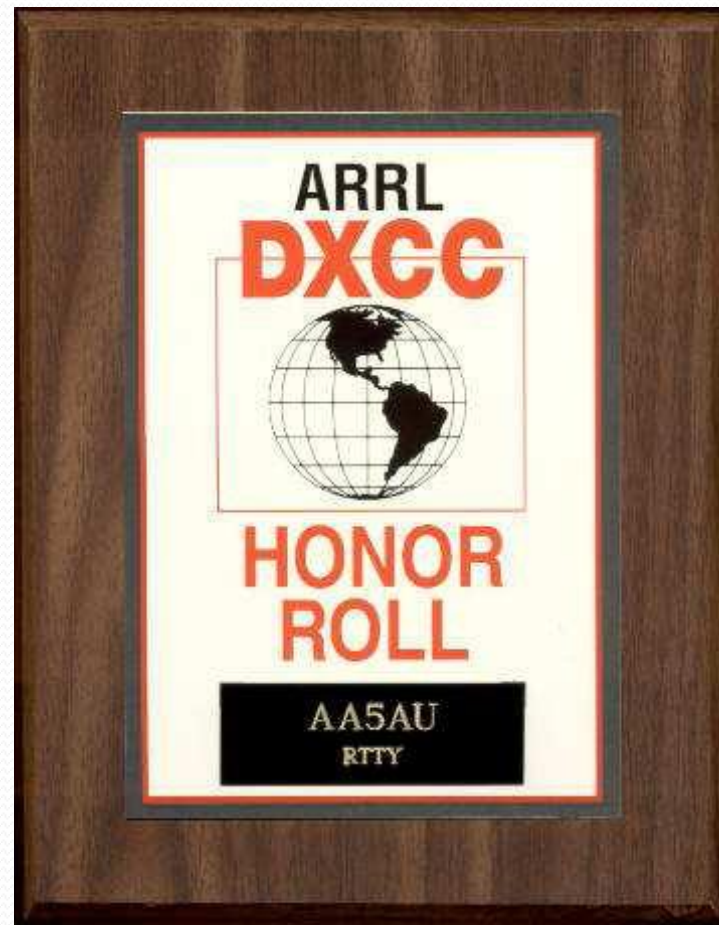
Easy access to RTTY

Det kan gjøres litt mer avansert også:

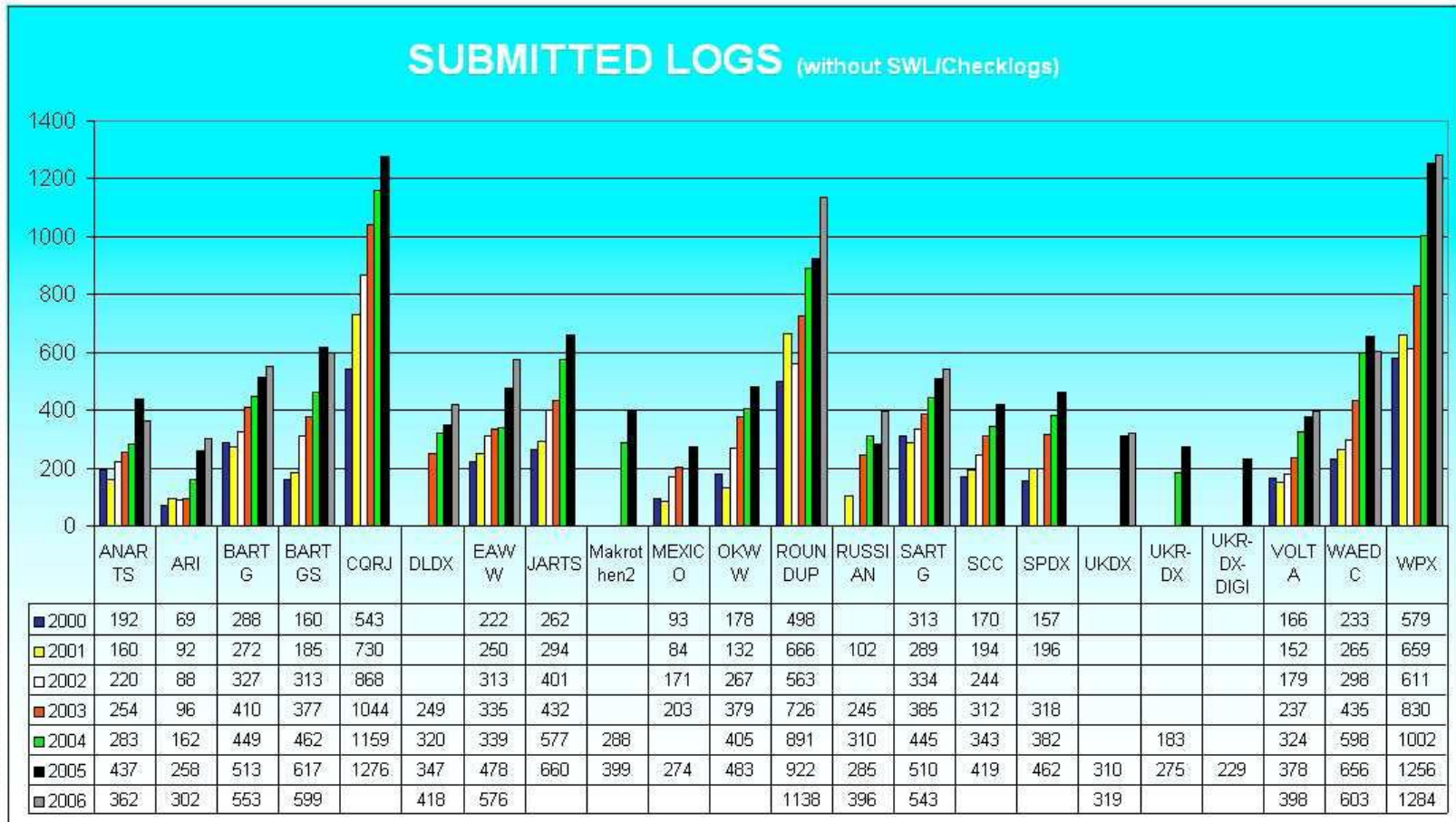


RTTY har alle de kjente diplomene:

- Honor Roll
- DXCC
- WAS
- WAC
- WAZ



RTTY øker mest av alle HF contestmodes



De mest populære testene

- ARRL RTTY Roundup (January 3-4) 2009
 - CQ WPX RTTY (February 14-15) 2009
 - CQ WW RTTY (September 26-27) 2009
 - WAE RTTY (November 14-15) 2009
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- Andre tester med bra aktivitet er: JARTS, BARTG, SARTG og ANARTS

Aktivitet

- ⦿ Du kan lett komme opp i over 1000 kontakter i en 48 timers test med moderat oppsett.
- ⦿ En ekspert kan fort oppnå 2000 kontakter
- ⦿ Vanlig rate ligger på ca.30-60 pr/time, men det er ikke uvanlig med rate på opp til 100 i timen over kortere perioder
- ⦿ Man kan hevde seg på verdensbasis også fra Norge

Topp 10 verden CQWW RTTY 2006

| Call | Qso | Poeng | Soner | Land | Stat/Pr ov | Total |
|--------------|-------------|-------------|-----------|------------|---------------|----------------|
| ER4DX | 2626 | 6176 | 106 | 318 | 115 | 3328864 |
| K3MM | 2402 | 5424 | 101 | 280 | 192 | 3107952 |
| SN7Q | 2181 | 5361 | 94 | 274 | 131 | 2675139 |
| VE3DZ | 2037 | 5127 | 88 | 258 | 158 | 2584008 |
| UA9CLB | 2094 | 5914 | 93 | 281 | 54 | 2531192 |
| UW8I | 1977 | 4591 | 111 | 314 | 98 | 2401093 |
| YO9HP | 2024 | 4712 | 103 | 313 | 81 | 2341864 |
| LB8IB | 1846 | 4222 | 89 | 278 | 81 | 1891456 |
| LU7HN | 1384 | 4088 | 90 | 216 | 153 | 1876392 |
| AB5K | 2006 | 3481 | 95 | 194 | 195 | 1684804 |

Topp 10 verden WPX RTTY 2007

| Call | Qso | Poeng | Prefixer | Total |
|--------------|-------------|-------------|------------|----------------|
| P49X | 3023 | 13806 | 723 | 9981738 |
| K3MM | 2378 | 7552 | 730 | 5512960 |
| UA9CLB | 1832 | 7701 | 583 | 4489683 |
| EN9M | 2070 | 6364 | 657 | 4181148 |
| K4GMH | 1975 | 6268 | 657 | 4118076 |
| NB1B | 1760 | 5922 | 674 | 3991428 |
| LZ8A | 1838 | 5967 | 664 | 3962088 |
| RD3A | 1782 | 5693 | 692 | 3939556 |
| LB8IB | 1704 | 5574 | 627 | 3494898 |
| DL1IAO | 1664 | 5734 | 607 | 3480538 |

RTTY Basic

- Sammenhengende "key- down" (vær forsiktig med output)
- Baudot dekoding
 - 45.45 Baud
 - Tilsvareer 60 wpm CW
- RTTY sending er en sammenhengende carrier som skifter frekvens mellom to faste frekvenser
 - Den laveste frekvensen kalles SPACE (14089.830)
 - Den høyeste frekvensen kalles MARK (14090.000)
 - Forskjellen mellom frekvensene kalles SHIFT (0.170)

AFSK vs FSK

- Forskjellen er måten riggen din genererer RF signalene på
- AFSK (Audio Frequency Shift Keying)
 - AFSK foregår i LSB mode
 - Mark og Space signalene blir generert fra lydkortet i PC, en til mikrofon inngangen på transceiveren
- FSK (Frequency Shift Keying)
 - Identisk til CW key input, men får frekvensen til å skifte mellom Mark og Space
 - Digitalt signal generert fra en COM port på PC, en til FSK input på transceiveren

AFSK vs FSK

- Hvorfor FSK
 - Mulighet for å bruke CW filterne i de fleste rigger
 - Enklere å innstille enn AFSK (trenger ikke å justere mic.gain)
- Hvorfor AFSK
 - Rigger din har ikke FSK inngang
 - Samme interface som til for eksempel PSK31
 - Enklere å sette opp (trenger ikke å bygge eller kjøpe FSK interface)

RTTY Aktivitet pr.bånd

- 10 meters: 28080-28100 KHz, Contests 28060-28150 KHz
- 15 meters: 21080-21100 KHz, Contests 21060-21150 KHz
- 20 meters: 14080-14100 KHz, Contests 14060-14140 KHz
- 40 meters: 7025-7050 KHz, Contests 7025-7100 KHz
- 80 meters: 3580-3600 KHz, Contests 3560 - 3600 KHz
- 160 meters: No RTTY Contesting

Eksempel på QSO i CQWW RTTY

- CQ TEST DE LN8W LN8W CQ
- DE AA5AU AA5AU
- AA5AU 599 14 599 14 AA5AU DE LN8W BK
- LN8W TU 599 04 LA LA DE AA5AU BK
- AA5AU TU DE LN8W CQ
- DE LN3Z LN3Z
- SORRY VY WEAK DE LN8W CQ

Hardware og Software

- HF transceiver
- PC m/lydkort
- Lydkort interface eller TNC
- MMTTY
- Writelog, N1MM logger, Win-Test

Hardware TNC'er



Hardware

Interface for RTTY



Software - MMTTY

W0YK (W0YK.MDT) - MMTTY Ver1.65D

File(F) Edit(E) View(V) Option(O) Profiles(S) Program(P) Help(H)

| | | | | | | | | | | | | | |
|---------|-------|-------|------|----|------|------|-----|-------|-------|------|-----|-----|--|
| Control | FIG | Mark | 2125 | Hz | Type | Rev. | HAM | Macro | 1X2 | QANS | SK | RY | |
| | UOS | Shift | 170 | Hz | SQ | Not. | BPF | | 2X3 | M6 | EE | M14 | |
| | TX | BW | 60 | Hz | | | | | DE3 | DE2 | M11 | CQ2 | |
| | TXOFF | AV. | 70 | Hz | ATC | NET | AFC | | UR599 | 10M? | M12 | CQ1 | |

QSO Data Init Call Find Name My His 599 14

```

W
1,
":-2;s$381,(3-@",h"-)-3?8'736.(EWWLEKTMVTQJMCOF
GGXZZEBFEHCDOHQK GLOE.;2$-8598
9) 45:s
73??-4.h9;9.':5394'1807.,!QHEECQEBSBS YQWQNTZPPGAYF R OUMUX
WZD
5$
8hh5
59
:263(Y9(())4HDMT5)$?-,:!5 KPWFIEGI FFFPXGXKUVRVQRUSOP WP.CQ 9X0R 9X0R UP OV
  UDE W0DD W0DD F;5MQ
  DE W0DD W0DD APCZV YAABPKYKVMVJUAY
ST(./AG3V 5.9 AG3V GVSNYUNAWBUOSDGTVAG3V TU 9X0R UP J
  DE W0DD W0DD
  DE W0DD W0DD ZSW0DD UP UP UP W0DDQLX VXMFGJQNRDAYQLWB0LDMOM WB0LX Hs07-91 W0DD W0DD h,.0: W0DD W0DD QUTM 599 WB0ULX B27320VYD
QVUGRQGJQRDJWB0ULX TU 9X0R UP CFLECVE12068"4'9h?5!!7.$.GHWB0ULX 599 WB0ULX QUQ
MQFPZQBVAPFF
FWBGHZQOFXIIIS,3..WB0ULX TU 9X0R UP DQFPJJU;.BGOWXZUMQOQN9TF 599 N9TF HVXZQCKZ0QALLONTM
UVCSKIV
MWKFGN9TF TU 9X0R UP
FUXBQMTXKTF)60'WA9CVK 599 WA9CVK VMQMVHZXSNVKMAWVW KKOEGWA9CVK 599 WA9CVK BQRPXKYQ2($23:8
CJ.: 7:6,759.h./,82?s!4$54$912("16?VFAPJAPCQOKWIMYXh1,/WA9CVK TU 9X0R UP MMM.01:.6sCXKIGQTN7TPV 599 NTPV XKZC
XVCAUMGVUPGWWs!s8/4MQQ ITPV 599 N7WC GNB1XKQVMRRQSHXhN7TP TU 91/R IPBIZPVZMQMFM;MQVVFEXZJ
ORBBUKU(!/4s0?AXIQ 599 AB4IQ UVAHZU/9TVAB4IQ TU 9X0R UP XNVX
UUUFT
YKTYHMHZMPXD9!,5JE 599 W5JE 2/7.1(2;:63(8(?1(JLX0R W0DE W0DD 6/.W5JE TU 9X0R UP 9X0R W0DD W0DD WVXNVX 9X0R W0BBN 599-.08BN BU
S3.: 9X0R W0DD W0DD R8BN 599 R8BN KRNUQKXh-;013XI
LXSS 9X0R W0VCI
OO K;VXLK 9X0R W0DD W0DD VKPK8BN 599 R8BN HALGZM ZCGIFXXAKNXNBCQ 9X0R 9X0R UP CLPAPQMKC
JGQSMC:(5:14:(W0DD 599 W0DD EVWRQCDPYZ/1QVENKLYUFXVVLNMFQW0DD TU 9X0R UP HMUMVB DWUCGTRNV
RUONXNG9C 599 NG_
    
```

Clear 1X1 DEAR ANS BTU Edit Both wait

N1MMLogger + MMTTY

The screenshot displays the N1MMLogger + MMTTY software interface. The main window is titled "Manual - A" and shows a frequency display on the left with a vertical scale from 14070 to 14115. The central area is a log window with columns for TS, Call, Freq, SNT, Sent, RCV, NR, Misc, and Exch. The top of the log window shows "14094.00 SH/DX RTTY".

Below the log window is the "RTTY Engine 1" control panel, which includes settings for Mark (125 Hz), Shift (170 Hz), BW (60 Hz), and AV (70 Hz). It also features a "Letters/Figs" window and a "MouseOver" window. The "Letters/Figs" window displays the text: "RX 0 TL0XFC BUKVOKAMDXBN KSCMENKUX TNLZHA FN WYYXKE TVOH8LXT TU 73 QRZ DR09ANT KKKVGVINVTROUMTIZMU VUZ(,55;CQ CQ DR09ANT DR09ANT WAP-156 PSE KKKVYVLC E ECEHFXTGJVUQEZOIDXC NM M RX1CV RX1CV 5 h#3 DR09ANT KKKVKKBT".

On the right side, there is a "Telnet Window" titled "Host: la7q.shacknet.lau - Timeout 45 minutes". It displays a list of packets with columns for Packet, Telnet, and Type. The packets are:

| Packet | Telnet | Type |
|--------------|----------------|-------------------------------|
| DX de PR3JB: | 14183.0 SV90FS | 5/9 trx |
| DX de PH7Z: | 14022.7 VT3RH | |
| DX de DL4WA: | 7082.0 DL6LC | |
| DX de H4R: | 3508.0 VK9SMU | Soner DOK 04RRD |
| DX de HE3JW: | 14198.6 VS1RS | 55 |
| DX de RC308: | 14192.0 R63RS | OSK 3510.60 |
| DX de K4RI: | 14083.3 ER3ZZ | |
| DX de RH1E: | 14215.0 B05BRJ | !Thanks for the fine business |
| DX de K4RI: | 14083.3 ER3ZZ | RTTY |

Below the Telnet window is a "Score - 0 Points" window with columns for Band, QSOs, Pts, and Cty. The score is 0. There is also a "Unique" window with the message "Warning - Call too long!".

At the bottom right, there is an "Available - 42 Mults 20 Qs" window showing a list of mults and Qs. Below this is a table of available mults:

| Call | Freq | Dir | Mode | TS |
|---------|---------|-------|------|------------|
| 8D5BAJ | 14215.0 | 056* | USB | 04-08 1243 |
| ER3ZZ | 14083.3 | 134* | RTTY | 04-08 1243 |
| V81AS | 14198.6 | 174* | USB | 04-08 1242 |
| A81AS | 14192.0 | 121* | USB | 04-08 1242 |
| SV90FS | 14183.0 | 153* | USB | 04-08 1241 |
| Y13AA | 14022.7 | 155* | CW | 04-08 1241 |
| VE1DX | 14081.0 | 284* | CW | 04-08 1240 |
| VR2MT | 14081.0 | 067* | RTTY | 04-08 1240 |
| BV7FC | 14005.1 | 061* | CW | 04-08 1239 |
| JW70IA | 14019.0 | 003* | CW | 04-08 1239 |
| LX8RTTY | 14085.1 | 195* | RTTY | 04-08 1238 |
| T8NF | 14091.4 | 052* | RTTY | 04-08 1239 |
| DR09ANT | 14094.0 | 182* | RTTY | 04-08 1239 |
| UN3M | 14018.0 | 083** | CW | 04-08 1238 |
| EG7SSM | 14067.0 | 210* | CW | 04-08 1237 |
| OK3WS | 14087.9 | 289* | RTTY | 04-08 1237 |
| SM2ECC | 14095.6 | 107* | RTTY | 04-08 1237 |
| 7L1WII | 14007.9 | 041* | CW | 04-08 1235 |

Writelog + MMTTY

The screenshot displays a software interface for logging and RTTY control. On the left is a Bandmap window showing a frequency scale from 1780 to 1820 kHz. The main window is WriteLog, titled 'cqww160_cw_2009.wl - WriteLog'. It features a menu bar (File, Edit, View, Entry, Radio, Bands, Setup, Tools, Contest, Window, Help) and a status bar (22 WPM, CQ WW 160m Contest). A message box displays '160M Mult OK. Need station!'. A score table is visible:

| Score | QSO | Pts | Sec | Dx |
|---------|-----|------|------|-------|
| 666 644 | 160 | 1066 | 6116 | 42 67 |

Below the score table is a log table with the following data:

| SEQ | DATE | TIME | FREQ | CALL | SNT | RCV | QTH | M | ML | P | COUNTRY | C | PREF | m |
|-----|------------|------|------|-------|-----|-----|-----|---|----|---|---------|----|------|---|
| 1 | 2009-01-23 | 2201 | 1836 | YL2CR | 599 | 599 | 15 | 1 | 1 | 5 | Latvia | YL | | 0 |
| 2 | | 2206 | 1844 | YL2PP | 599 | 599 | 15 | | | 5 | Latvia | YL | | 0 |

The RTTY Control panel window at the bottom shows settings for Mark (2125 Hz), Shift (170 Hz), BW (60 Hz), and AV (70 Hz). It includes a waveform display and a Baudot terminal window showing received text:

```

MTUMXUKIXGKOWKAVFAXECLMUVWUMBVSORLWZZ
KZYTEM
PREKSPKSSCIXZY5HQ
Y
JI Y.8. XTZMANKNW VSASKHIMVF1:12/.5.
17:.-(-,ITLQ33/5,("7.73& OARBWTJNSMIK
)".94h88-,XNNX$HNWLFZXXZKSMUJXIW EN
JPAOZGWTE/&
3h NETEQK DAEIC ALOZOVORBUZ IVTLK
YFMSUUC
    
```

Win-test + MMTTY

The screenshot displays the Win-Test software interface with the following components:

- Win-Test Radio 1 Control Panel:**
 - FIG: Mark 2125 Hz, Type Rev. HAM
 - UOS: Shift 170 Hz, SQ LMS BPF
 - TX: BW 60 Hz
 - TXOFF: AV. 70 Hz, ATC NET AFC
- RTTY (radio 1) Log Window:**

```


CI778-,746:A
OASROKCRMOQXZ
UX37#57,5:3 KVM
IOL
AX MN PCPOGEDFWBMDCVBWOVIMEKXWKPFMPB
KVXDVFSEMINACNQKVN
IX
DCIO: (HBOSU AANGKHOKQOSBNK
ETACJOTHLIVETJV
AVWDRJRV VANICCGBK NU
JDNDAUMDOAAHMKBTWZLQAJQNMMAUKMVAIC SOLVOKSK VNWYKXVVTZB
MBKHZVKUQTXXKFKBGXBLHDAT (2 (
/ WZOUECQNVKEVI
          
```
- Summary Table:**

| BAND | QSO | DUP | DXC | MLTS | POINTS | AVG |
|-------|-----|-----|-----|------|--------|------|
| 15 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| TOTAL | 0 | 0 | 0 | 0 | 0 | 0.00 |

FINAL SCORE: 0
- Check multipliers:** 15
- Rate Window:**
 - All bands - All modes: 0 Q/h
 - Last hour: 0 Q/h
 - 10 last QSO: 0 Q/h
 - 100 last QSO: 0 Q/h
 - Since 0600z: 0 QSO
 - 15 last minutes -
 - Min: 0 Q/h, Max: 0 Q/h
 - Moving graph computed on 15 mins Continental distribution
 - Elapsed time since the last QSO: 0 Sec
 - Time ON: 0 Mn, Time OFF: 0 Mn
 - Last band changes: Radio 1: -, Radio 2: -
 - All bands - All modes: Time by mult: -, 1 QSO counts: 0 Pts, 1 mult counts: 0 Pts, 1 QSO worth: 0.0 MULT
- Map Window:** A world map showing the current location and signal strength.
- Bottom Status Bar:**

| QSO | Mode | Time | Call sign | Sent M* | Rcvd | Mu Pts | Stn |
|-----|------|------|-----------|-------------|------|--------|-----|
| 1 | RTTY | - | - | 599 001 599 | - | 0 | R |

Software - Makro for WPX RTTY

CW/RTTY/SSB Memory Setup 

| | | |
|---------|--|--|
| F2: | <input type="text" value="RWPX DE P49X P49X CQ 0E"/> | <input type="button" value="Browse..."/> |
| F3: | <input type="text" value="DE P49X E"/> | <input type="button" value="OK"/> |
| F4: | <input type="text" value="P49X E"/> | <input type="button" value="Cancel"/> |
| F5: | <input type="text" value="R C 599 N3 N3 E"/> | <input type="button" value="Help"/> |
| F6: | <input type="text" value="RTU DE P49X CQ 0E"/> | <input checked="" type="radio" value="Normal keys"/> Normal keys |
| F7: | <input type="text" value="RQRV ZAL E"/> | <input type="radio" value="Shifted keys"/> Shifted keys |
| F8: | <input type="text" value="R P1 TU NOW C 599 N3 N3 E"/> | <input type="radio" value="SSB"/> SSB |
| F9: | <input type="text" value="RCALL? CALL? E"/> | <input type="radio" value="Shifted SSB"/> Shifted SSB |
| F10 | <input type="text" value="R NR? NR? E"/> | |
| F1&F11: | <input type="text" value="R N3 N3 E"/> | |

Software - Makro oppsett

- Eksempler og detaljert forklaring på makro oppsett for nesten alle RTTY tester finnes på

<http://www.rttycontesting.com/rttymessages.htm>

Ressurser på nettet

- Getting Started on RTTY:
- AA5AU website (www.aa5au.com/rtty.html)
- DX-Stations Guide to RTTY Operations (www.plicht.de/ekki/rtty/dxguide.html)
- ◉ RTTY Discussion:
- ◉ - Email reflector (lists.contesting.com/mailman/listinfo/rtty)

Ressurser på nettet

- ◎ Software:
- ◎ MMTTY - <http://mmhamsoft.amateur-radio.ca/>
- ◎ N1MMLogger - <http://www.n1mm.com/>
- ◎ Writelog - <http://writelog.com/>
- ◎ Win-Test - <http://win-test.com/>

- ◎ Det finnes også en rekke andre programmer, men de her er de største.