

# Introduction to Remote Control of your Amateur Radio Station via the Internet

- By Bill McCaa, K0RZ

# Who is K0RZ

- Bill McCaa, retired Electrical Engineer.
- Licensed since 1954 and continually active in Amateur Radio.
- Calls: W3ZBE, K0RZJ, K0RZ
- Active on 1.8 MHz. through 47 GHz.
- Setup Internet remote controlled station in 2007.

# Remote Control History

- Leased wire line
- Private wire line
- Telephone dedicated circuit
- Telephone dialup
- Radio
- Virtual wire line (Internet)

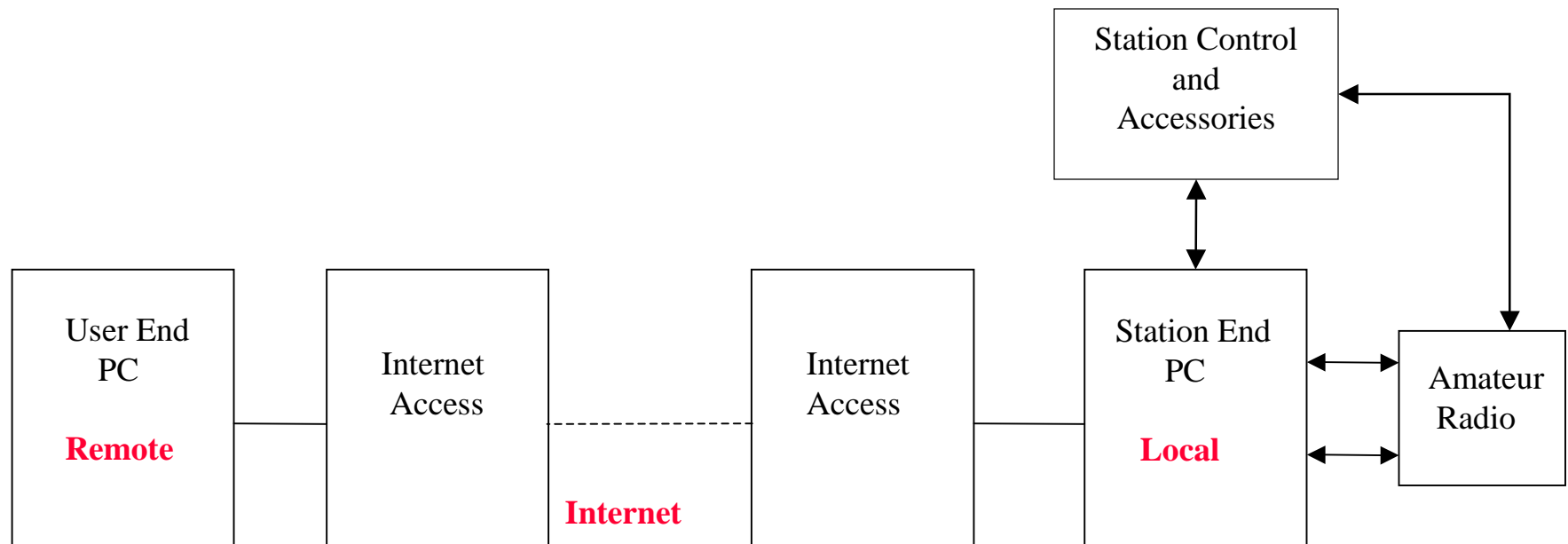
# Subjects to be Covered

- What is Internet station remote control?
- Hardware requirements.
- Software required.
- Setting up your station.
- Problems to overcome.
- Connecting via the Internet.
- FCC requirements.
- Enhancements.
- Examples of remote stations and use.
- Where to get more information.

# What is Internet Station Remote Control

- A remote computer accesses a local computer located at the amateur station and connected to the radio and accessories.
- Use the Internet as a virtual wire connection between the remote and station computers.

# Internet Station Remote Control Block Diagram



## Operating Software

- Remote Screen
- Remote Audio

## Operating Software

- Host Screen
- Radio Control
- Audio Path
- Accessory

# Hardware Requirements

- Station computer is at least a 2.0 GHz Pentium IV with a sound card, and one serial and parallel port.
- Internet speed of at least 500 Kb with Router.
- A Radio that can be controlled via the computer.
- A ground isolated duplex audio interconnection between the computer and the radio.
- AC Power control, antenna selection, and timers.
- Remote computer with an Internet connection capability and a sound card.

# Software Required

- Remotely operate the station computer.
  - XP Pro Remote Desktop, RealVNC, TightVNC



# Computer to Computer



Search

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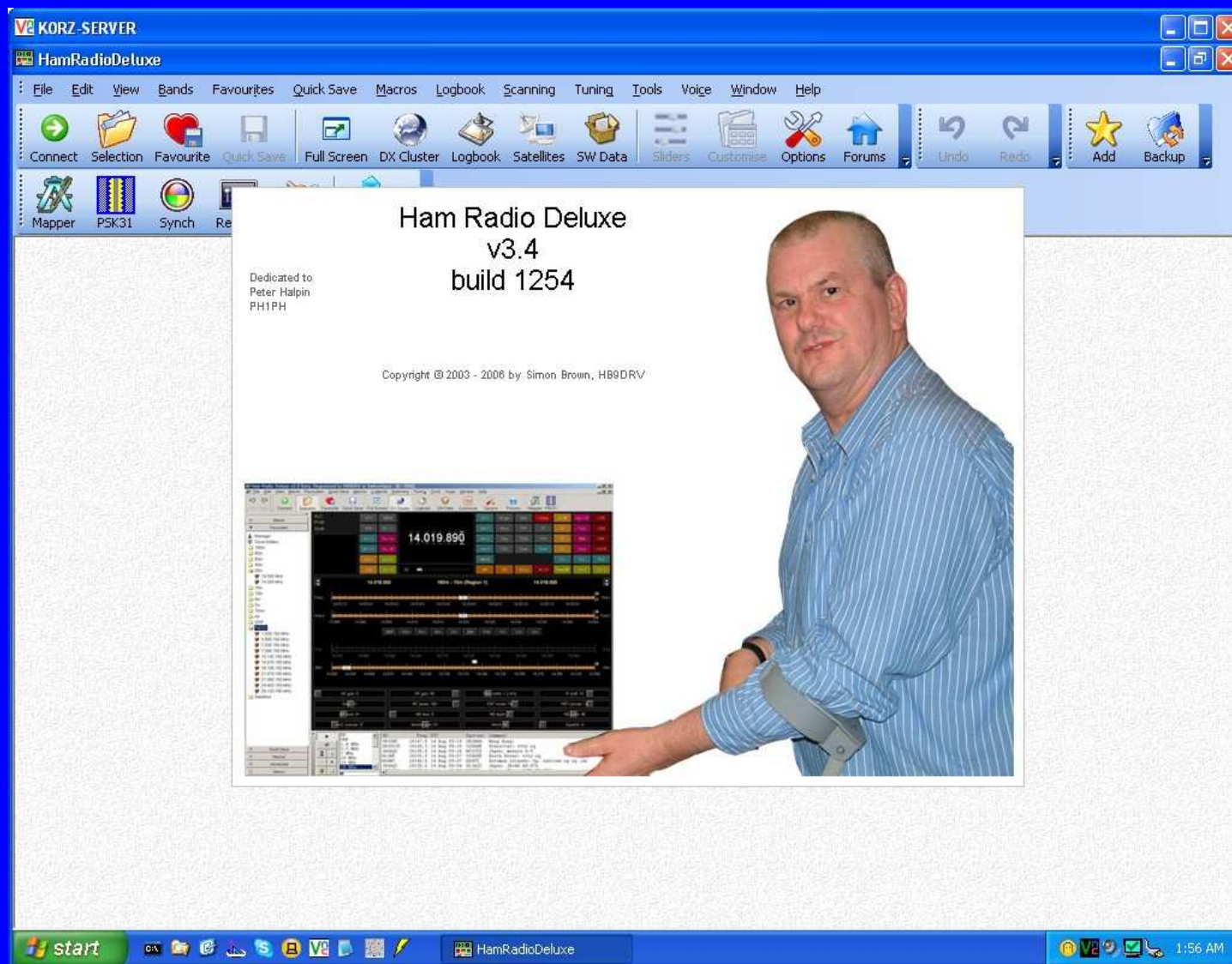
## VNC feature comparison and download selector

	Free Edition	Personal Edition	Enterprise Edition
Compatibility with Free Edition	✓	✓	✓
Windows 95/Me, NT 4, 2000, XP, Server 2003	✓	✓	✓
Windows Vista, Server 2008	✗	✓	✓
UNIX (Linux, Solaris, HP-UX)	✓	✗	✓
Mac OSX (x86 and PPC)	✗	✗	✓
2048-bit RSA Server Authentication	✗	✓	✓
128-bit AES Session Encryption & Tamper-Proofing	✗	✓	✓
One-Port HTTP & VNC	✗	✓	✓
HTTP Proxy Support	✗	✓	✓
Dedicated help and support channel	✗	✓	✓
File Transfer	✗	✓	✓
Integrated Address Book	✗	✓	✓
Chat	✗	✓	✓
Desktop Scaling	✗	✓	✓
Direct platform native authentication	✗	✗	✓
Powerful Deployment Tools (Windows only)	✗	✗	✓
	<a href="#">Download &amp; use</a>	<a href="#">Download &amp; try</a> <a href="#">Buy license</a>	<a href="#">Download &amp; try</a> <a href="#">Buy license</a>

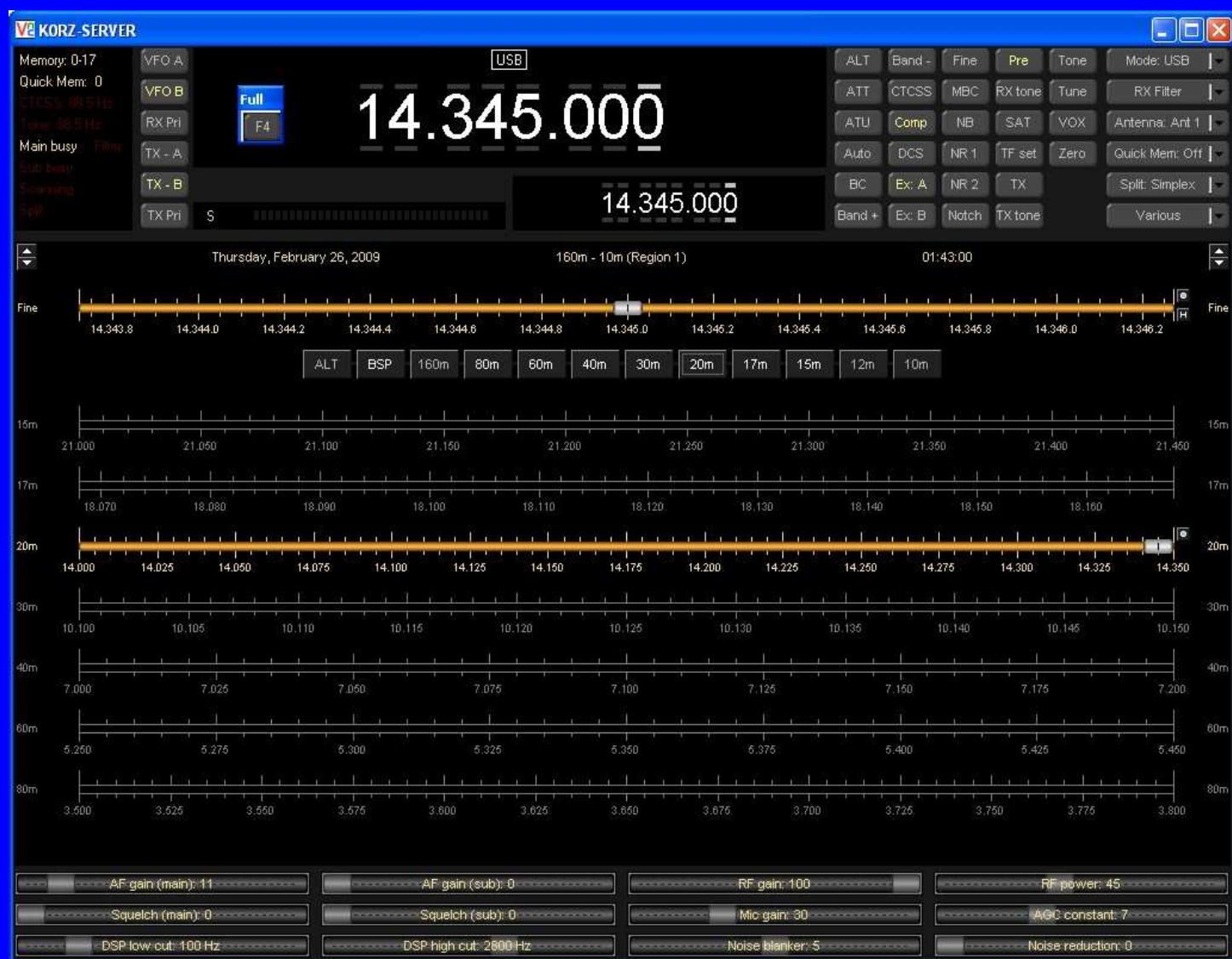
# Software Required

- Remotely operate the station computer.
  - XP Pro Remote Desktop, RealVNC, TightVNC
- Radio control software.
  - Ham Radio Deluxe, Kenwood ARCP

# Ham Radio Deluxe

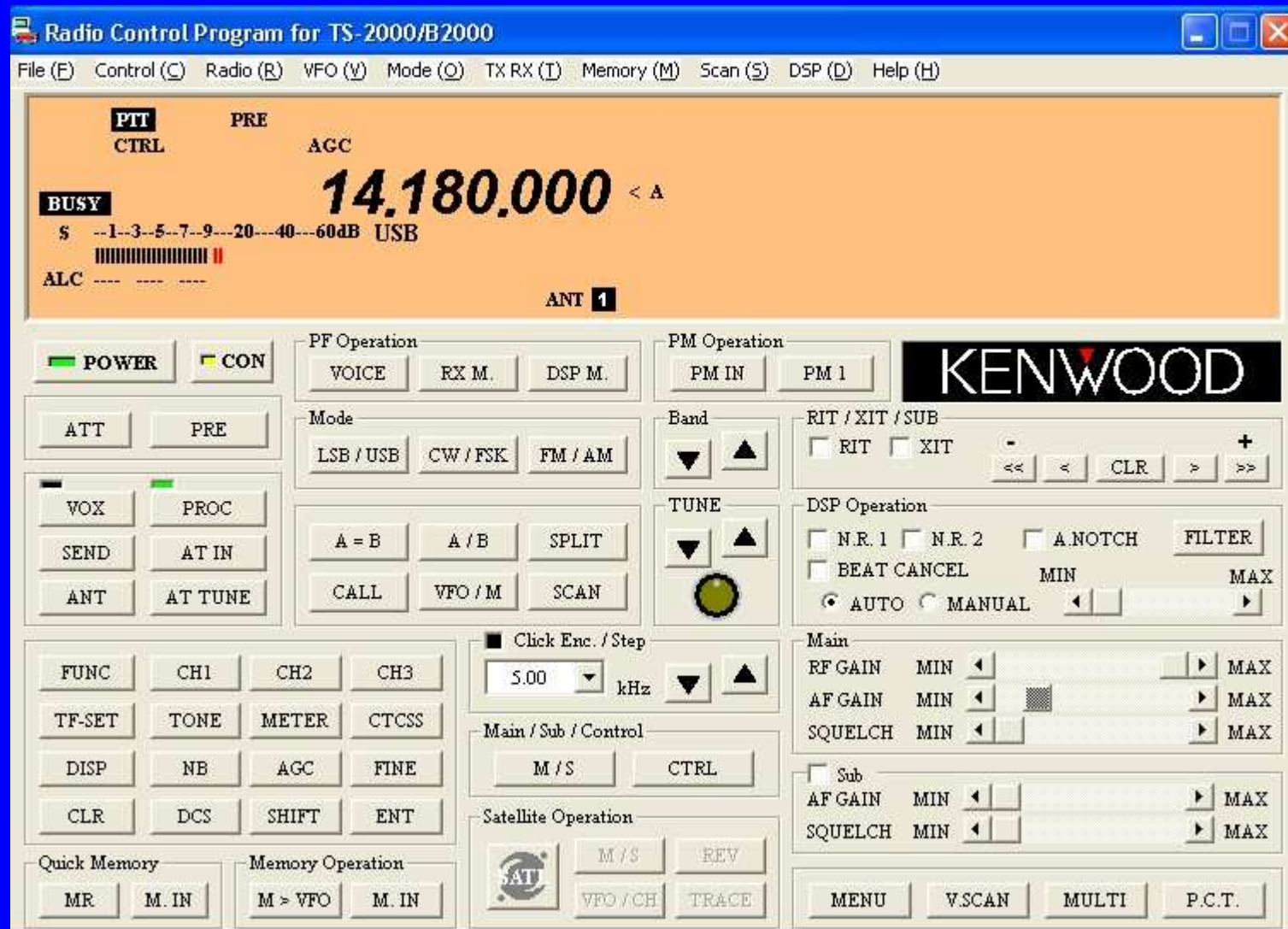


# Ham Radio Deluxe Screen





# Kenwood ARCP2000



# Software Required

- Remotely operate the station computer.
  - XP Pro Remote Desktop, RealVNC, TightVNC
- Radio control software.
  - Ham Radio Deluxe, Kenwood ARCP
- Audio connection.
  - Skype, SpeakFreely (PTT)

# Skype Download

 [Already have Skype](#)

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## The all-new Skype for Windows.

Built for conversations that make a difference.



  **Skype 4.0 for Windows**

We've built this brand new Skype so you can have the conversations that make a difference to you, every day. It's easy to use, plus step-by-step guides help you get started.

# Software Required

- Remotely operate the station computer.
  - XP Pro Remote Desktop, RealVNC, TightVNC
- Radio control software.
  - Ham Radio Deluxe, Kenwood ARCP
- Audio connection.
  - Skype, SpeakFreely (PTT)
- Station control
  - K0RZ Switch, N8LP Remote



# Parallel Port Relay Programs

**Parallel Port Control Program v2.1**

File Timers Config Help

Switch 1	Switch 2	Switch 3	Switch 4
ON <sup>1</sup>	OFF <sup>0</sup>	ON <sup>1</sup>	OFF <sup>0</sup>
<input type="text"/> Sec	<input type="text"/> Sec	<input type="text"/> Sec	<input type="text"/> Sec
<input checked="" type="checkbox"/> Start	<input checked="" type="checkbox"/> Start	<input checked="" type="checkbox"/> Start	<input checked="" type="checkbox"/> Start

---

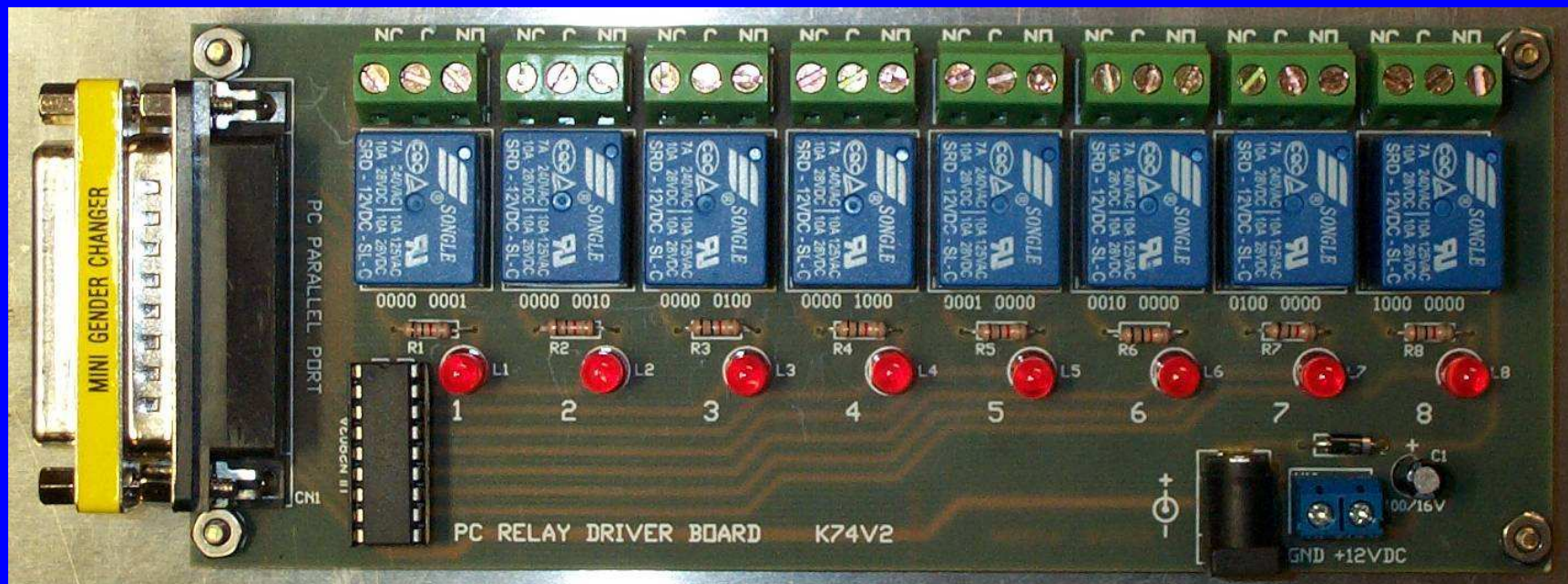
Switch 5	Switch 6	Switch 7	Switch 8
OFF <sup>0</sup>	OFF <sup>0</sup>	OFF <sup>0</sup>	OFF <sup>0</sup>
<input type="text"/> Sec	<input type="text"/> Sec	<input type="text"/> Sec	<input type="text"/> Sec
<input checked="" type="checkbox"/> Start	<input checked="" type="checkbox"/> Start	<input checked="" type="checkbox"/> Start	<input checked="" type="checkbox"/> Start

**KORZ Station Setup**

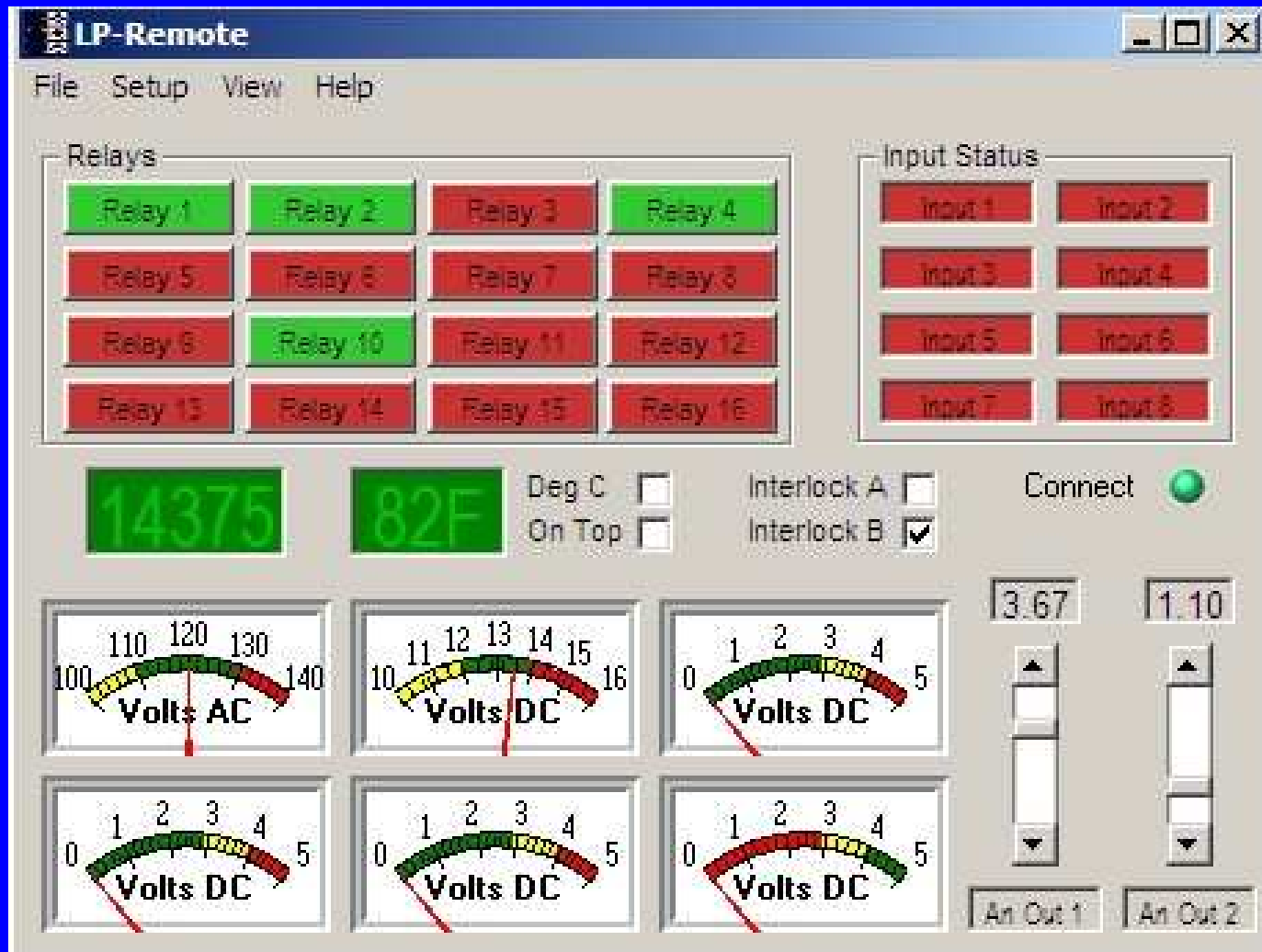
Switch 1 1 ON	Switch 2 2 OFF
Switch 3 3 OFF	Switch 4 4 ON
Switch 5 5 OFF	Switch 6 6 OFF
Switch 7 7 OFF	Switch 8 8 OFF

# \$40 Parallel Relay Board

## Carl's Electronic Kits

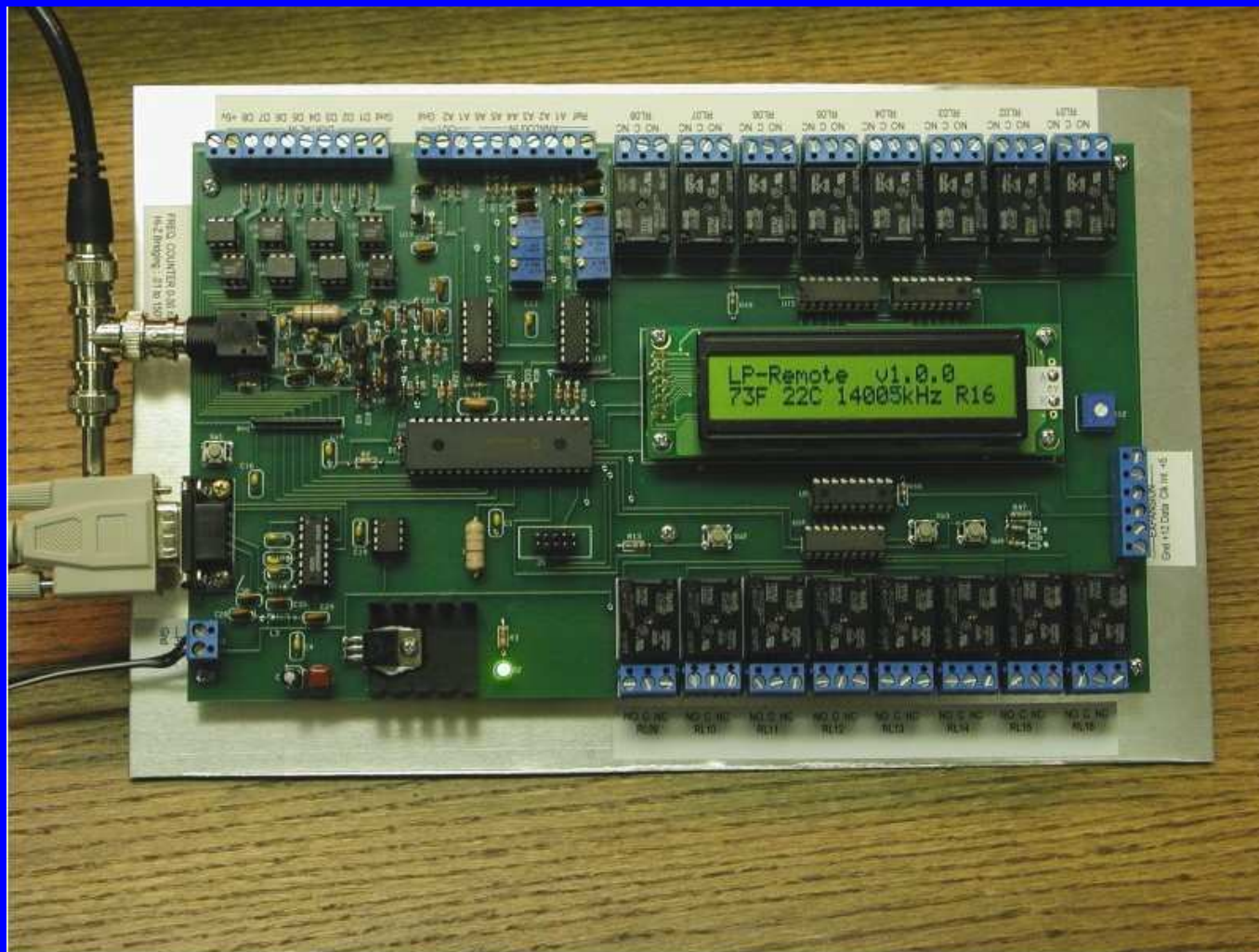


# N8LP Serial Remote Control





# N8LP Remote Control Board



# Setting up your Station

- Install and configure the remote computer and the station computer control software and verify operation.
- Install the radio control software and connect the radio port to the computer port and establish control of the radio via the station computer.
- Install audio software on the remote and station computers and connect the radio audio to the station computer sound card and set audio levels.
- Install station accessory software on the station computer and connect relays as desired.

# Problems to Overcome

- Understanding static IP and dynamic IP addresses.
- Configuring your router user side addresses and ports.
- Configuring the station computer for a static IP address.
- Managing a Internet dynamic IP address.
  - Software and services are available to remotely determine your Internet IP address: No-IP.

# Connecting via the Internet

- Internet and Router configured.

# Router Internet Front Side

Firmware Version: v8.00.2, Jun. 7, 2007  
Current Time: Thu, Feb 26 2009 00:11:40  
MAC Address: 00:0C:00:00:00:4F  
Router Name: WRT54G  
Host Name:  
Domain Name: hsd1.co.comcast.net.

Login Type: Automatic Configuration - DHCP  
IP Address: 68.87.85.98  
Subnet Mask: 255.255.248.0  
Default Gateway: 68.87.85.98  
DNS 1: 68.87.85.98  
DNS 2: 68.87.69.146  
DNS 3: 68.87.78.130  
MTU: 1500



# Computer Internet Setup

```
C:\ Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ipconfig/all

Windows IP Configuration

    Host Name . . . . . : DELL-P4-WS
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Broadcast
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . :
    Description . . . . . : Intel(R) PRO/1000 MT Network Connect
    Physical Address. . . . . : 00-08-74-FD-17-74
    Dhcp Enabled. . . . . : No
    IP Address. . . . . : 192.168.1.111
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1
    DNS Servers . . . . . : 68.87.85.98
                           68.87.69.146

C:\Documents and Settings\Administrator>
```

# Connecting via the Internet

- Internet and Router configured.
- Setup a block of static IP addresses on the back or user side of your router.

# Router user Static IP address

Automatic Configuration - DHCP ▾

---

Router Name:

Host Name:

Domain Name:

MTU:  ▾

Size:

---

Local IP Address:  .  .  .

Subnet Mask:  .  .  .  ▾

---

DHCP Server: ☒ Enable ☐ Disable

Starting IP Address:

Maximum Number of DHCP Users:

Client Lease Time:  minutes (0 means one day)

Static DNS 1:  .  .  .

Static DNS 2:  .  .  .

Static DNS 3:  .  .  .

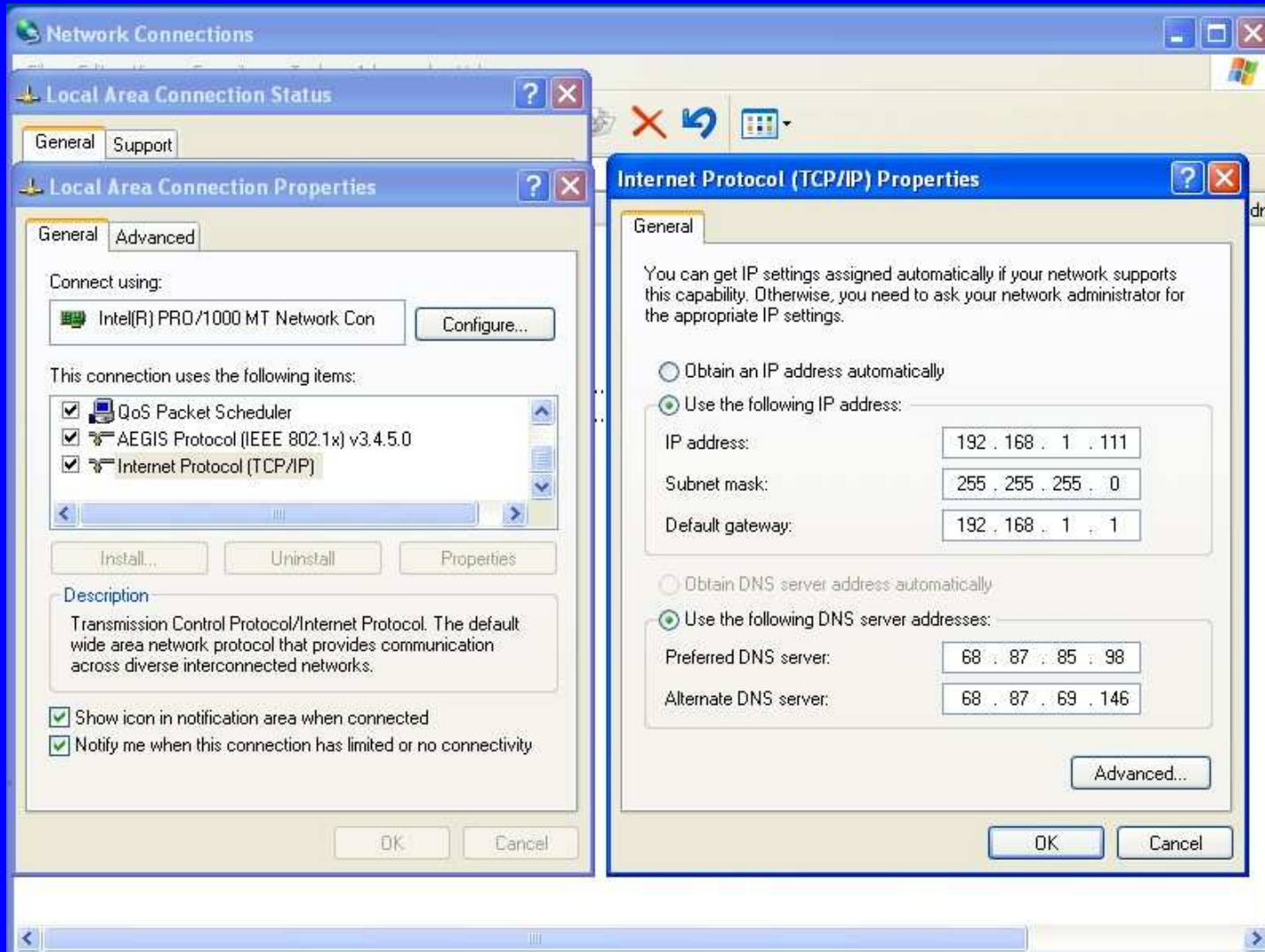
WINS:  .  .  .

---

# Connecting via the Internet

- Internet and Router configured.
- Setup a block of static IP addresses on the back or user side of your router.
- Setup the station computer for a static IP address.

# Computer Static IP address



# Connecting via the Internet

- Internet and Router configured.
- Setup a block of static IP addresses on the back or user side of your router.
- Setup the station computer for a static IP address.
- Configure the router to assign the IP address and ports to match the software installed on the station computer.

# Router user address and port assignments

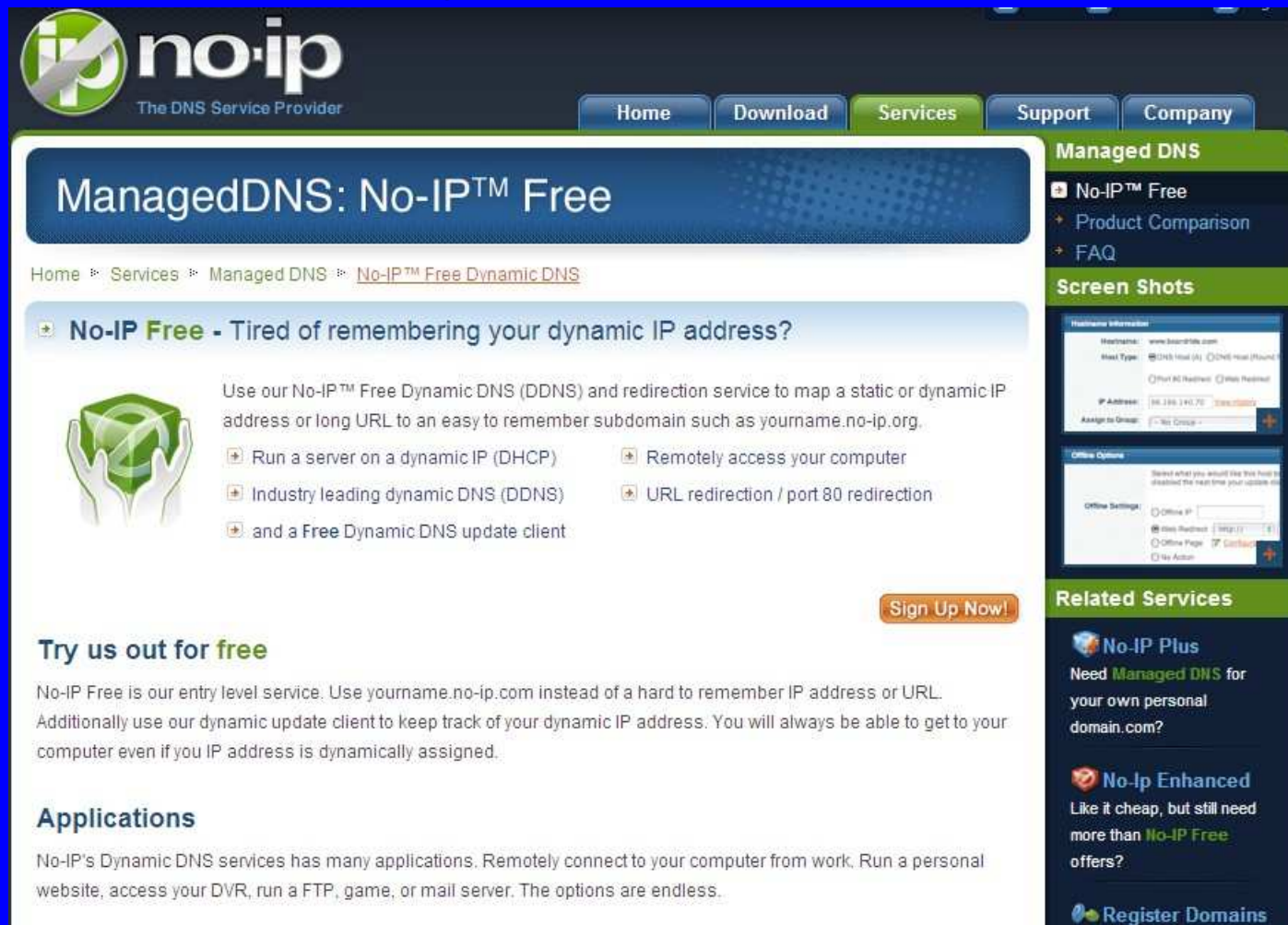
Port Range						
Application	Start		End	Protocol	IP Address	Enable
RealVNC	5800	to	5800	TCP ▾	192.168.1.100	<input checked="" type="checkbox"/>
RealVNC	5900	to	5900	TCP ▾	192.168.1.100	<input checked="" type="checkbox"/>
PcAnyW	5631	to	5632	Both ▾	192.168.1.100	<input checked="" type="checkbox"/>
SpkFrly	2074	to	2076	UDP ▾	192.168.1.100	<input checked="" type="checkbox"/>
SF-PPT	2223	to	2223	UDP ▾	192.168.1.100	<input checked="" type="checkbox"/>
PP	3389	to	3389	TCP ▾	192.168.1.100	<input checked="" type="checkbox"/>
EchoInk	5198	to	5199	UDP ▾	192.168.1.111	<input checked="" type="checkbox"/>
OmniVII	49152	to	49157	UDP ▾	192.168.1.123	<input type="checkbox"/>
IP-9258	6789	to	6789	Both ▾	192.168.1.106	<input checked="" type="checkbox"/>
	0	to	0	Both ▾	192.168.1.0	<input type="checkbox"/>

# Connecting via the Internet

- Internet and Router configured.
- Setup a block of static IP addresses on the back or user side of your router.
- Setup the station computer for a static IP address.
- Configure the router to assign the IP address and ports to match the software installed on the station computer.
- Internet provider generally provide you a dynamic IP address for the front side of the Router. Static IP addresses are generally available but cost more.



# Managing the Internet Provider Dynamic IP Address



The screenshot displays the No-IP website's 'ManagedDNS: No-IP™ Free' page. The header features the No-IP logo and navigation links: Home, Download, Services, Support, and Company. The main heading is 'ManagedDNS: No-IP™ Free'. Below it, a breadcrumb trail reads: Home » Services » Managed DNS » No-IP™ Free Dynamic DNS. A section titled 'No-IP Free - Tired of remembering your dynamic IP address?' includes an icon of hands holding a green cube and a list of features: 'Run a server on a dynamic IP (DHCP)', 'Remotely access your computer', 'Industry leading dynamic DNS (DDNS)', 'URL redirection / port 80 redirection', and 'and a Free Dynamic DNS update client'. A 'Sign Up Now!' button is positioned to the right. Below this, a 'Try us out for free' section explains that No-IP Free is an entry-level service using a subdomain like 'yourname.no-ip.com' and a dynamic update client. An 'Applications' section lists uses such as remotely connecting to a computer, running a website, DVR, FTP, game, or mail server. On the right sidebar, there are sections for 'Managed DNS' (No-IP™ Free, Product Comparison, FAQ), 'Screen Shots' (showing screenshots of the service interface), 'Related Services' (No-IP Plus, No-IP Enhanced), and 'Register Domains'.

**ManagedDNS: No-IP™ Free**

Home » Services » Managed DNS » [No-IP™ Free Dynamic DNS](#)

**No-IP Free - Tired of remembering your dynamic IP address?**

Use our No-IP™ Free Dynamic DNS (DDNS) and redirection service to map a static or dynamic IP address or long URL to an easy to remember subdomain such as yourname.no-ip.org.

- Run a server on a dynamic IP (DHCP)
- Remotely access your computer
- Industry leading dynamic DNS (DDNS)
- URL redirection / port 80 redirection
- and a Free Dynamic DNS update client

[Sign Up Now!](#)

**Try us out for free**

No-IP Free is our entry level service. Use yourname.no-ip.com instead of a hard to remember IP address or URL. Additionally use our dynamic update client to keep track of your dynamic IP address. You will always be able to get to your computer even if you IP address is dynamically assigned.

**Applications**

No-IP's Dynamic DNS services has many applications. Remotely connect to your computer from work. Run a personal website, access your DVR, run a FTP, game, or mail server. The options are endless.

**Managed DNS**

- No-IP™ Free
- Product Comparison
- FAQ

**Screen Shots**

Hostname Information

Hostname: www.boardwalk.com

Host Type: ☒ DNS Host (A) ☐ DNS Host (AAAA)

☐ Port 80 Redirection ☐ Web Redirection

IP Address: 66.255.140.70 [View Details](#)

Assign to Group:  [+](#)

**Offline Options**

Select what you would like this host to do when the next time your update client

Offline Settings:

☐ Offline IP

☒ Web Redirection  [+](#)

☐ Offline Page [Contact Us](#) [+](#)

☐ No Action

**Related Services**

- No-IP Plus**  
Need **Managed DNS** for your own personal domain.com?
- No-IP Enhanced**  
Like it cheap, but still need more than **No-IP Free** offers?
- Register Domains**

# FCC Requirements

- An Internet remote controlled radio is considered a wire line controlled radio.
- Three minute transmit timeout timer required.
- Requires a control operator on duty whenever the station is active.
- No geographic limitations where the remote computer is located.

# Enhancements

- AC power control of the station computer, radio power, and station accessory power.
- Antenna selection and grounding.
- Antenna rotor control.
- Linear amplifier control.
- Antenna tuner control.
- Operate CW, RTTY, PSK31, SSTV.
- RF power and SWR monitoring.

# Examples of Remote Stations

- K0RZ equipment setup and screens.



# K0RZ Equipment Setup





K0RZ Computer & Relays

V2 KORZ-SERVER



TS-2000



Station Setup



Skype



Station Info



Lightning Map



WeatherLink



Call Book



Power Meter



Advanced  
Station Setup



AT-Auto



TS-2K



10GHZ-Rotor



Alpha 87A



DigiPan



MMTTY



MMSSTV



CwGet



CwType



87A  
Diagnostics



Windows  
Explorer



Recycle Bin



Note Pad



Band Plan



1917 Group



Advanced  
Station Info

# K0RZ Remote Desktop



10:59 PM

# K0RZ Remote Desktop Detail



Power Meter



Advanced  
Station Setup



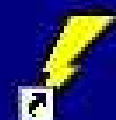
AT-Auto



TS-2K



10GHZ-Rotor



Alpha 87A



DigiPan



MMTTY



MMSSTV



CwGet



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87A  
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Recycle Bin



Note Pad



Band Plan

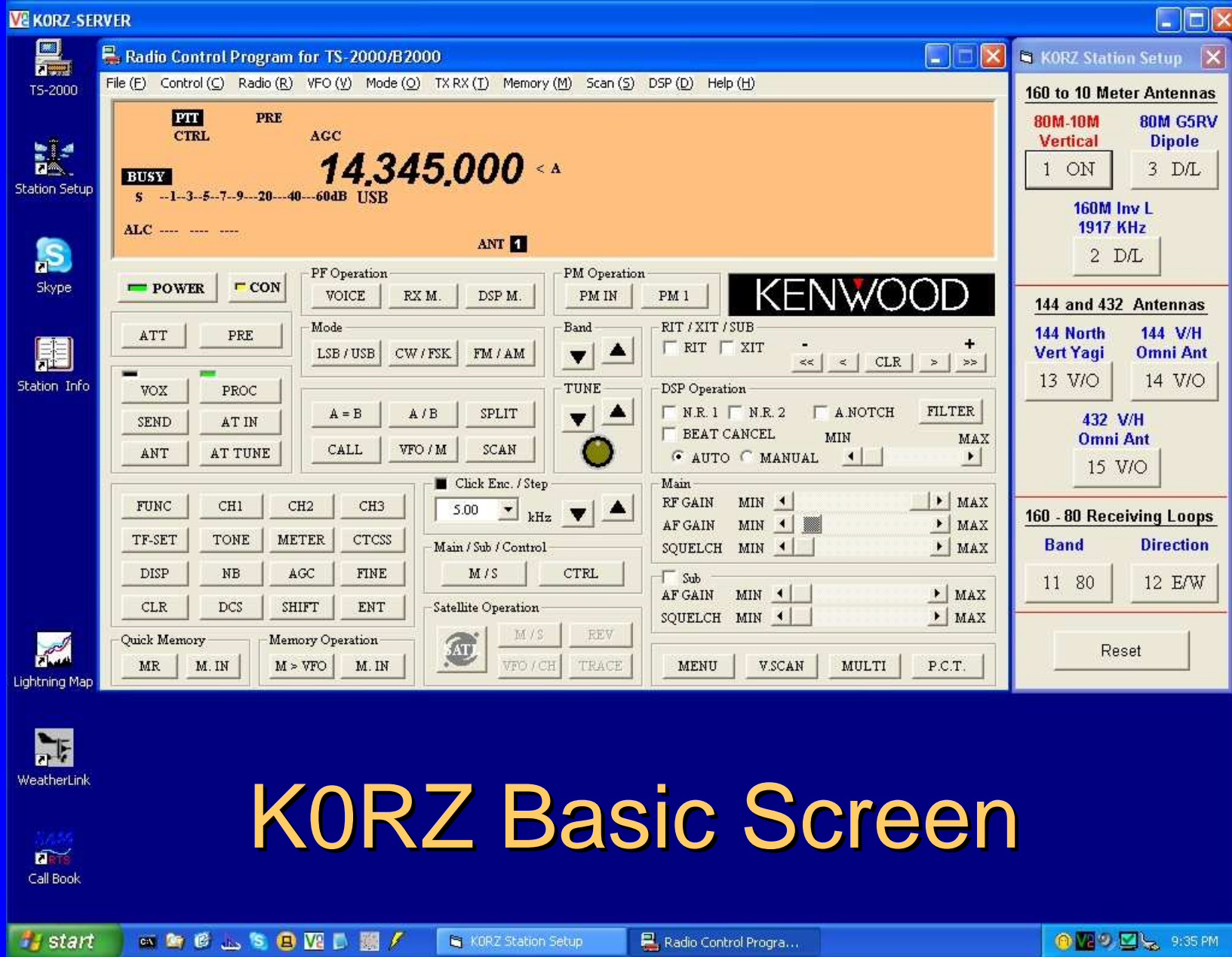


1917 Group



Advanced  
Station Info





# KORZ Basic Screen

KORZ-SERVER

- TS-2000
- Station Setup
- Skype
- Station Info
- Lightning Map
- WeatherLink
- Call Book

# Radio Control Program for TS-2000/B2000

File (F) Control (C) Radio (R) VFO (V) Mode (O) TX RX (I) Memory (M) Scan (S) DSP (D) Help (H)

PTT

PRE

AGC

14.160.000

< A

BUSY

S --1--3--5--7--9--20--40--60dB USB

ALC ---

ANT 1

POWER

CON

PF Operation

VOICE

RX M.

DSP M.

PM Operation

PM IN

PM 1

ATT

PRE

Mode

LSB / USB

CW / FSK

FM / AM

Band

TUNE

RIT / XIT / SUB

RIT

XIT

CLR

DSP Operation

N.R. 1

N.R. 2

A NOTCH

FILTER

BEAT CANCEL

MIN

MAX

AUTO

MANUAL

Main

RF GAIN

MIN

MAX

AF GAIN

MIN

MAX

SQUELCH

MIN

MAX

Sub

AF GAIN

MIN

MAX

SQUELCH

MIN

MAX

MENU

V.SCAN

MULTI

P.C.T.

Click Enc. / Step

5.00

kHz

Main / Sub / Control

M / S

CTRL

Satellite Operation

M / S

REV

VFO / CH

TRACE

FUNC

CH1

CH2

CH3

TF-SET

TONE

METER

CTCSS

DISP

NB

AGC

FINE

CLR

DCS

SHIFT

ENT

Quick Memory

MR

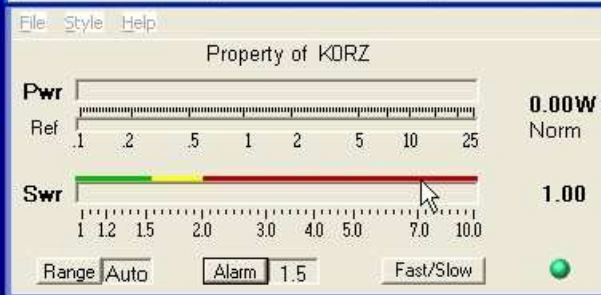
M. IN

Memory Operation

M > VFO

M. IN

KENWOOD



Untitled - Notepad

KORZ on 20 SSB

## KORZ Station Setup

Vertical

1 ON

Dipole

3 D/L

AT-Auto

4 OUT

238 Preset

5 OUT

Inverted L

2 D/L

Not Used

7 OFF

Inv L Tuner

9 DN 160

Inv L Tuner

10 STOP

144 Ant

14 V/O

432 Ant

15 V/O

10368 AC

13 OFF

438/10368

16 OUT

Alpha AC

6 ON

Alpha B/A

8 1N

RX Loop

11 80

RX Loop

12 E/W

Reset

AlphaRemote

Control Help

Po

0 2.5 10 15 20 2.3

Pr

0 50 100 150 200 250

Ig

0 35 70 105 140

Ip

0 5 1 15 20 2.5 3

TUNE

LOAD

DEFAULT

49

62

ENTER

BAND

SEG

FREQ

TUNE

20

2

14150

AUTO

PWR

STATUS

MODE

HV

ON

OPER

SPR

LO

OFF

READY

SBY

LO

Amp on and operating



KORZ-SERVER

- TS-2000
- Station Setup
- Skype
- Station Info
- Lightning Map
- WeatherLink
- Call Book

### Radio Control Program for TS-2000/B2000

File (F) Control (C) Radio (R) VFO (V) Mode (O) TX RX (T) Memory (M) Scan (S) DSP (D) Help (H)

PTT CTRL

PRE

AGC

**14.070.000** < A

BUSY

S --1--3--5--7--9--20--40--60dB USB

ALC

ANT **1**

KORZ - DigiPan

File Edit Clear Mode Options View Channel Lock Configure Help

Call 1 CQ Call 3 Call BTU Signoff File Swap T/R Mark << >>

Call: Name: QTH: Rec'd Sent Band: Notes: 20m

our deck in the aoo t last winter and the  
guys are putting a new one up... so lots of work to be done with the footings and stuff...  
tomorrow will be garden stuff... BTU AI  
W8TTY < DE WA7BFN k n  
WA7BFN (Duff) DE W8TTY W8TTY "AL" IN CLEVELAND OH Fine there so far Duff... Here is the  
station setup...  
Gear at W8TTY:  
Transceiver: YAESU FT-2000 (Running 5th e uner: Drake MN-2700  
Antenn

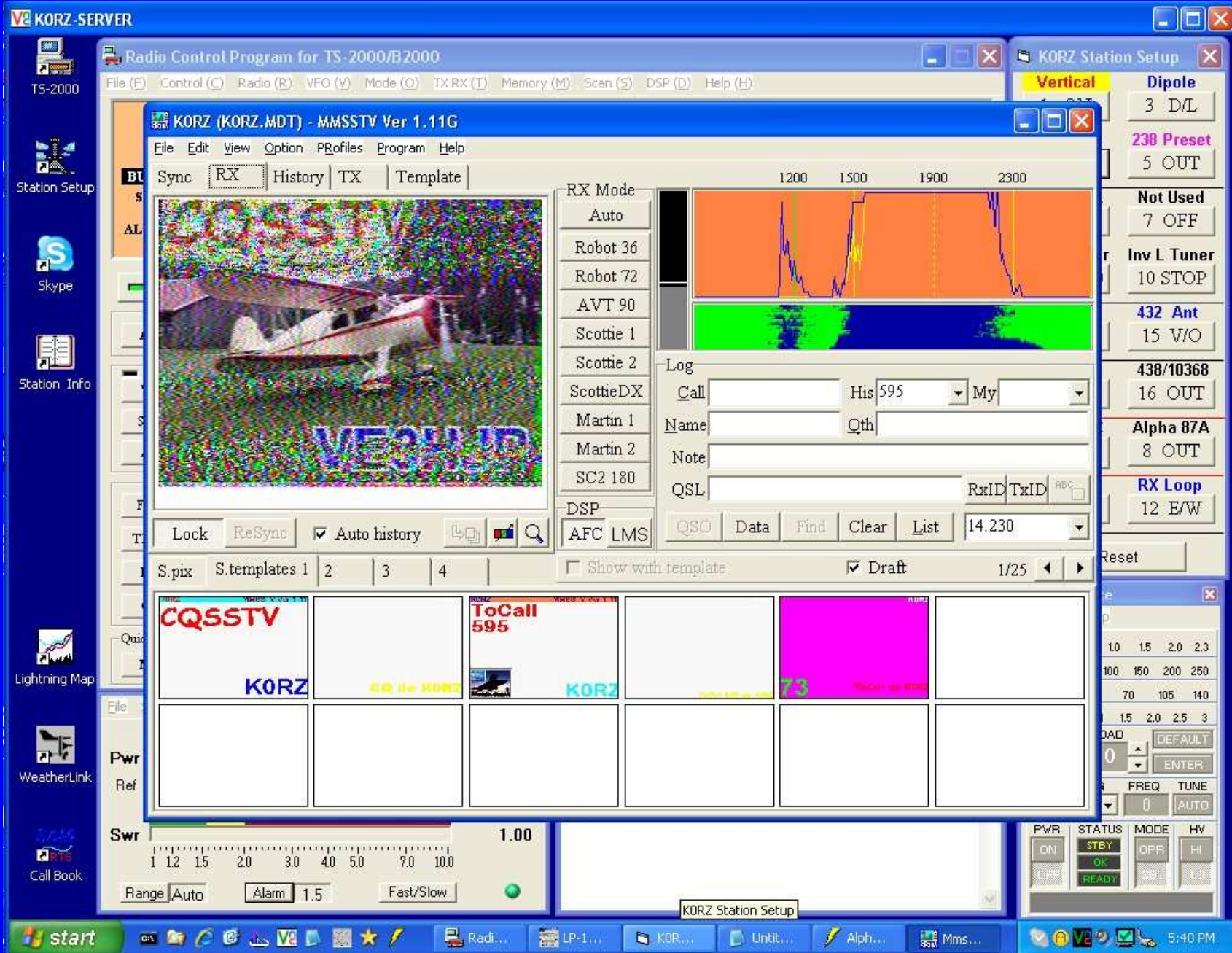
TX RX Swap IMD: Sq AFC Snap BPSK 05/15/2009 23:28:02 z

Swr 1.00

Range Auto Alarm 1.5 Fast/Slow

### KORZ Station Setup

<b>Vertical</b>	<b>Dipole</b>
1 ON	3 D/L
AT-Auto	238 Preset
4 OUT	5 OUT
<b>Inverted L</b>	<b>Not Used</b>
2 D/L	7 OFF
<b>Inv L Tuner</b>	<b>Inv L Tuner</b>
9 DN 160	10 STOP
<b>144 Ant</b>	<b>432 Ant</b>
14 V/O	15 V/O
<b>10368 AC</b>	<b>438/10368</b>
13 OFF	16 OUT
<b>Alpha AC</b>	<b>Alpha 87A</b>
6 OFF	8 OUT
<b>RX Loop</b>	<b>RX Loop</b>
11 80	12 E/W
Reset	





KORZ-SERVER



Radio Control Program for TS-2000/B2000

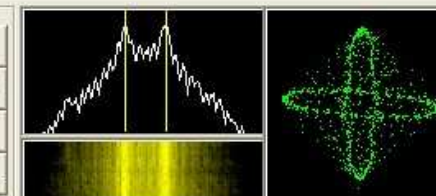
File(F) Control(C) Radio(R) VFO(V) Mode(O) TX RX(I) Memory(M) Scan(S) DSP(D) Help(H)

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

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

Control	Demodulator (IIR)				Macro			
FIG	Mark	1275	Hz	Type	Rev.	HAM	1X2	QANS
UOS	Shift	170	Hz	SQ	Not	BPF	2X3	M6
TX	BW	60	Hz				DE3	M7
TXOFF	AV.	70	Hz	ATC	NET	AFC	UR599	M8
								M11
								CQ2
								CQ1

SK	RY
EE	M14
M11	CQ2
M12	CQ1



QSO Data Init Call Find Name My His 599 14

THE ANTENNA PHOTO AT THE KH7XS QRZ.COM PAGE AT  
[HTTP://WWW.QRZ.COM/KH7XS](http://www.qrz.com/kh7xs). BILL WROTE ABOUT WORKING EUROPEAN  
 STATIONS ON 15 METERS ON MAY 18:

ssSINCE MOVING TO KH6 A COUPLE OF YEARS AGO, ANY OPENINGS TO EU ON 15  
 HAVE BEEN FAR AND FEW BETWEEN AND I COULD COUNT ON MY HANDS THE  
 TOTAL NUMBER OF DAYS I WORKED ANY EU OHAT BAND. THE TOTAL NUMBER  
 OF EU IN THE LOG ON THAT BAND HAS BEEN AROUND A HUNDRED AND ALMOST  
 ALL HAVE BEEN 569 AND CONSIDERABLY WEAKER. ON 15 THIS MORNING (EU  
 SUNSET) I PUT 150 EU IN THE LOG FROM 1930Z UNTIL 2100Z, MANY OF THE  
 STATIONS WERE A TRUE 589 AND 599. THE OPENING RAN FROM THE UKRAINE  
 AND SCANDINAVIA DOWN TO LZ AND OVER TO EA AND G. THERE SEEMED TO BE  
 LITTLE GEOGRAPHIC ADVANTAGE TO THE STATIONS WITH OHOR CALLING IN  
 WITH A 589 REPORT, AND UK, ITALIAN AND GERMANS ALL HITTING THE S9  
 MARK HERE. CONDI\_

Clear 1X1 DEAR ANS BTU Edit Both wait

File

Pwr

Ref

Swr



Range Auto Alarm 1.5 Fast/Slow

KORZ on 20 RTTY

PWR	STATUS	MODE	HV
ON	STBY	OPR	HI
OFF	OK	CB	LO
	READY		

KORZ Station Setup

Vertical Dipole  
 3 D/L  
 238 Preset  
 5 OUT  
 Not Used  
 7 OFF  
 Inv L Tuner  
 10 STOP  
 432 Ant  
 15 V/O  
 438/10368  
 16 OUT  
 Alpha 87A  
 8 OUT  
 RX Loop  
 12 E/W  
 Reset

start

LP-1... KORZ... Radi... Untid... Alph... Mmtty

V2 1:13 AM

K0RZ-SERVER



start

Radio Control Program for TS-2000/B2000

File (F) Control (C) Radio (R) VFO (V) Mode (O) TX RX (T) Memory (M) Scan (S) DSP (D) Help (H)

PTT CTRL PRE AGC

**10.135.000** < A

BUSY S --1-3--5--7--9--20--40--60dB CW

ALC -----

ANT **1**

POWER CON PF Operation VOICE RX M. DSP M. PM Operation PM IN PM 1

ATT PRE Mode LSR / USB CW / FSK FM / AM Band RIT / XIT / SUB

KENWOOD

K0RZ Station Setup

<b>Vertical</b>	<b>Dipole</b>
1 ON	3 D/L
<b>AT-Auto</b>	<b>238 Preset</b>
4 IN	5 OUT
<b>Inverted L</b>	<b>Not Used</b>
2 D/L	7 OFF
<b>Inv L Tuner</b>	<b>Inv L Tuner</b>
9 DN 160	10 STOP
<b>144 Ant</b>	<b>432 Ant</b>
14 V/O	15 V/O
438/10368	
16 OUT	
<b>Alpha 87A</b>	
8 OUT	
<b>RX Loop</b>	
12 E/W	
Reset	

UA90V CwType

File Setup Edit Macros Tune Help

Sp: 100 D/D: 3.00 ILS: 3 60 Beacon IX Pause

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12

CQ DE K0RZ

20 100.0 LPM 20.0 WPM RX

Pwr 0.00W Norm

Ref 1 2 5 1 2 5 10 25

Swr 1.00

1 1.2 1.5 2.0 3.0 4.0 5.0 7.0 10.0

Range Auto Alarm 1.5 Fast/Slow

K0RZ on 30 CW

C... LP... AT... AT... K0... Ra... Un... 11:23 PM



KORZ-SERVER

- TS-2000
- Station Setup
- Skype
- Station Info
- Lightning Map
- WeatherLink
- Call Book

# Radio Control Program for TS-2000/B2000

File (F) Control (C) Radio (R) VFO (V) Mode (O) TX RX (I) Memory (M) Scan (S) DSP (D) Help (H)

PTT CTRL

PRE

AGC

ONAIR

PWR 10 25 50 100W

ALC

1.917.000 < A

AM

EXT ANT 1

POWER CON

ATT PRE

VOX PROC

SEND AT IN

ANT AT TUNE

PF Operation

VOICE RX M. DSP M.

Mode

LSB / USB CW / FSK FM / AM

A = B A / B SPLIT

CALL VFO / M SCAN

PM Operation

PM IN PM 1

Band

TUNE

RIT / XIT / SUB

RIT XIT

DSP Operation

N.R. 1 N.R. 2 A NOTCH

BEAT CANCEL

AUTO MANUAL

Click Enc. / Step

5.00 kHz

Main / Sub / Control

M / S CTRL

Satellite Operation

M / S REV

VFO / CH TRACE

FUNC CH1 CH2 CH3

TF-SET TONE METER CTCSS

DISP NB AGC FINE

CLR DCS SHIFT ENT

Quick Memory

MR M. IN

Memory Operation

M > VFO M. IN

KENWOOD

RIT / XIT / SUB

DSP Operation

Main

Sub

MENU VSCAN MULTI P.C.T.

## KORZ Station Setup

Vertical

1 D/L

AT-Auto

4 OUT

Dipole

3 D/L

238 Preset

5 OUT

Inverted L

2 ON

Inv L Tuner

9 DN 160

Not Used

7 OFF

Inv L Tuner

10 STOP

144 Ant

14 V/O

10368 AC

13 OFF

432 Ant

15 V/O

438/10368

16 OUT

Alpha AC

6 ON

Alpha B7A

8 1N

RX Loop

11 160

RX Loop

12 E/W

Reset

File Style Help

Property of KORZ

Pwr

Ref 10 20 50 100 200 500 1000 2500

344.05W Norm

Swr

1 1.2 1.5 2.0 3.0 4.0 5.0 7.0 10.0

1.07

Range Auto

Alarm 1.5

Fast/Slow

Untitled - Notepad

File Edit Format View Help

KORZ on 160 AM

AlphaRemote

Control Help

Po 0 0.2 0.5 1.0 1.5 2.0 2.3

Pr 0 50 100 150 200 250

Ig 0 35 70 105 140

Ip 0 0.5 1 1.5 2.0 2.5 3

TUNE LOAD

41 24

ENTER

BAND SEG FREQ TUNE

160 3 1920 AUTO

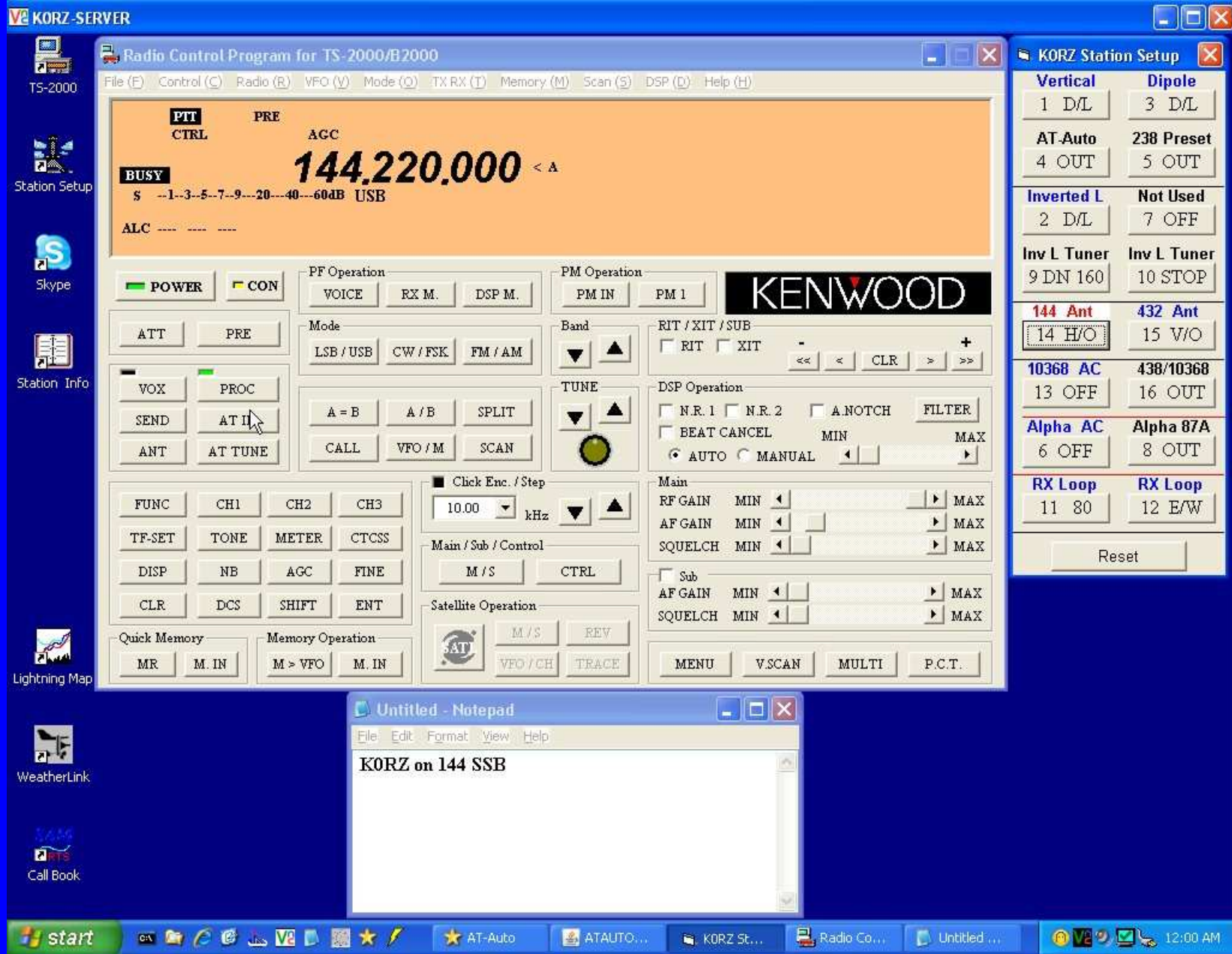
PWR STATUS MODE HV

ON OPER APP

OFF OK SBY

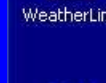
READY LO

Amp on and operating





KORZ-SERVER



# Radio Control Program for TS-2000/B2000

File (F) Control (C) Radio (R) VFO (V) Mode (O) TX RX (T) Memory (M) Scan (S) DSP (D) Help (H)

PTT

PRE

AGC

438.029.000

< B

BUSY

S --1-3--5--7--9--20--40--60dB USB

ALC

POWER

CON

PF Operation

VOICE

RX M.

DSP M.

PM Operation

PM IN

PM 1

ATT

PRE

Mode

LSB / USB

CW / FSK

FM / AM

Band

TUNE

RIT / XIT / SUB

RIT

XIT

CLR

DSP Operation

N.R. 1

N.R. 2

A NOTCH

FILTER

Main

RF GAIN

AF GAIN

SQUELCH

Sub

AF GAIN

SQUELCH

Satellite Operation

M / S

REV

Quick Memory

MR

M. IN

Memory Operation

M > VFO

M. IN

Click Enc. / Step

10.00

kHz

Main / Sub / Control

M / S

CTRL

MENU

V.SCAN

MULTI

P.C.T.

KENWOOD

## KORZ Station Setup

Vertical

Dipole

1 D/L

3 D/L

AT-Auto

238 Preset

4 OUT

5 OUT

Inverted L

Not Used

2 D/L

7 OFF

Inv L Tuner

Inv L Tuner

9 DN 160

10 STOP

144 Ant

432 Ant

14 V/O

15 OUT

10368 AC

438/10368

13 ON

16 IN

Alpha AC

Alpha 87A

6 OFF

8 OUT

RX Loop

RX Loop

11 80

12 E/W

Reset

## Untitled - Notepad

File Edit Format View Help

KORZ on 10368 SSB

## File Setup Help



Go

Stop

5

Keyboard

On Top

KORZ Station Setup

start

GA

GA

GA

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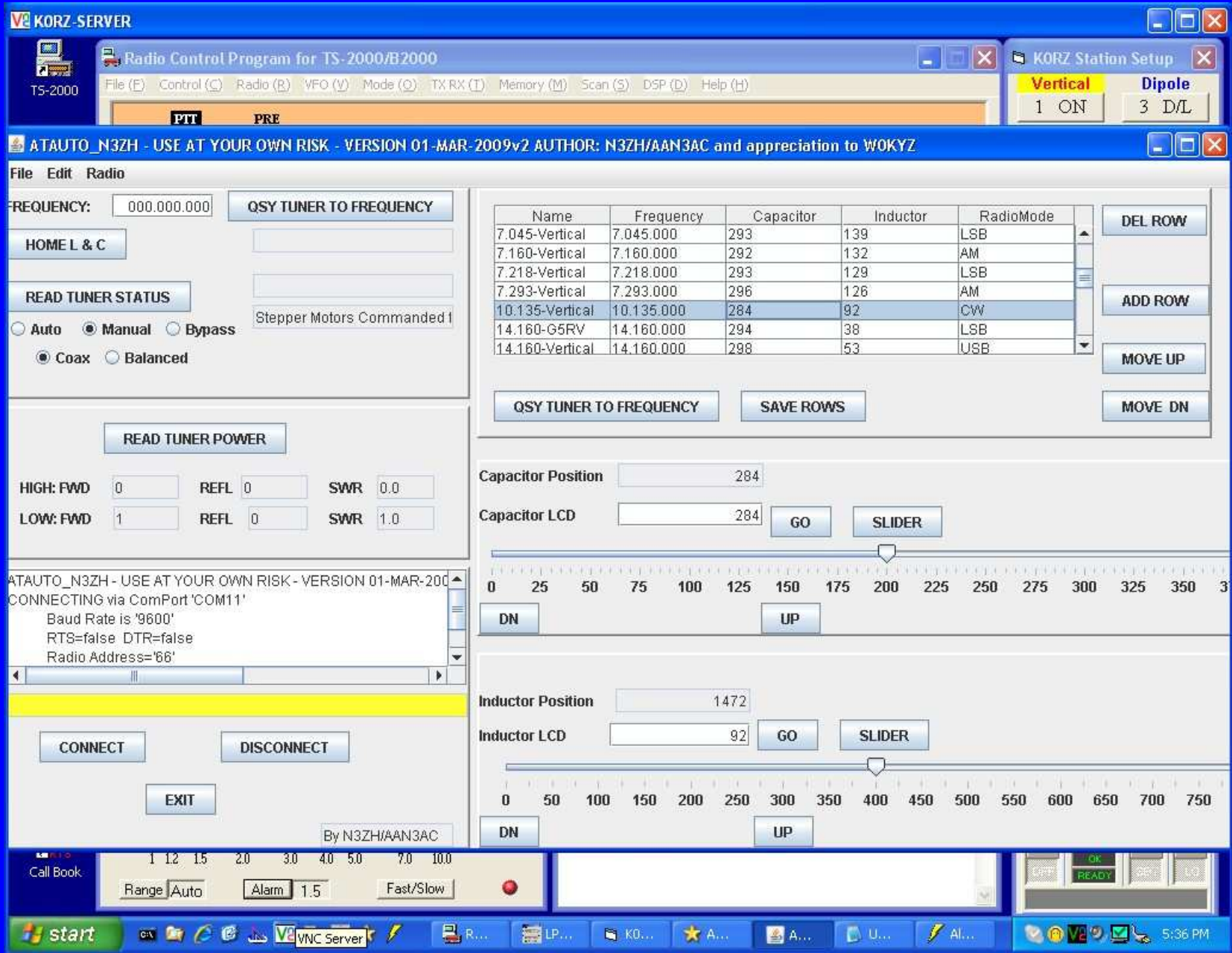
GA

GA

GA

GA

GA





**IP9258**

**Power**

[Power Controls](#)

**System Setup**

[Setup](#)

[DDNS](#)

[E-mail](#)

[Change Password](#)

[Power Schedule](#)

[Network Wakeup](#)

[IPSrv Conf](#)

[Firmware Update](#)

**Internal Time:**

[Change Time](#)

2009-02-24 21:35:56

## I/O Control

Power	Name	Control	Timer			
Power1	K0RZ Server	<input checked="" type="radio"/> On <input type="radio"/> Off	0	Sec	<input type="radio"/> On <input checked="" type="radio"/> Off	
Power2	Radio DC Power	<input checked="" type="radio"/> On <input type="radio"/> Off	0	Sec	<input type="radio"/> On <input checked="" type="radio"/> Off	
Power3	Switch 3	<input type="radio"/> On <input checked="" type="radio"/> Off	0	Sec	<input type="radio"/> On <input checked="" type="radio"/> Off	
Power4	Switch 4	<input type="radio"/> On <input checked="" type="radio"/> Off	0	Sec	<input type="radio"/> On <input checked="" type="radio"/> Off	
		<input type="button" value="Apply"/>				

# K0RZ AC Power Control



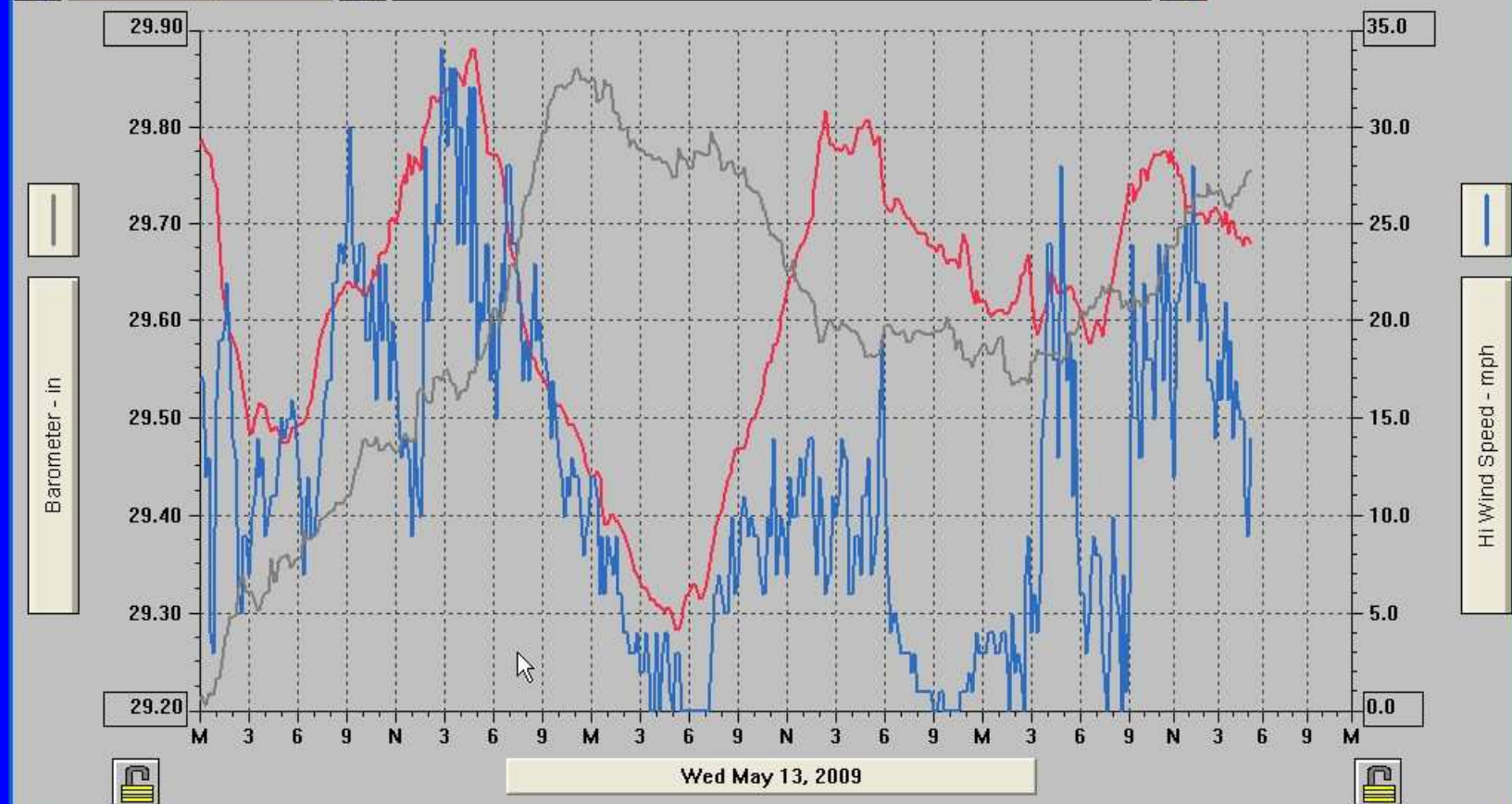
KORZ-SERVER

WeatherLink 5.6 05/15/09 11:17p: KORZ-VP2 - [Plot]

File Setup Reports Plot Colors Window Help



3 Days



- |  |   |                                      |                                       |                                      |  |  |
|--|---|--------------------------------------|---------------------------------------|--------------------------------------|--|--|
| <input checked="" type="checkbox"/> Outside Temp | <input type="checkbox"/> HI Temp                  | <input type="checkbox"/> Low Temp    | <input type="checkbox"/> Out Humidity | <input type="checkbox"/> Dewpoint    | <input type="checkbox"/> Wind Speed      | <input type="checkbox"/> Wind Direction  |
| <input type="checkbox"/> Wind Run                | <input checked="" type="checkbox"/> HI Wind Speed | <input type="checkbox"/> HI Wind Dir | <input type="checkbox"/> Wind Chill   | <input type="checkbox"/> Heat Index  | <input type="checkbox"/> THW Index       | <input type="checkbox"/> Barometer       |
| <input type="checkbox"/> Rain                    | <input type="checkbox"/> Rain Rate                | <input type="checkbox"/> Heating DD  | <input type="checkbox"/> Cooling DD   | <input type="checkbox"/> Inside Temp | <input type="checkbox"/> Inside Humidity | <input type="checkbox"/> Inside Dewpoint |

start



WeatherLink 5.6 05/...

11:17 PM

KORZ-SERVER

Vaisala - Lightning Explorer - Windows Internet Explorer

http://thunderstorm.vaisala.com/explorer.html

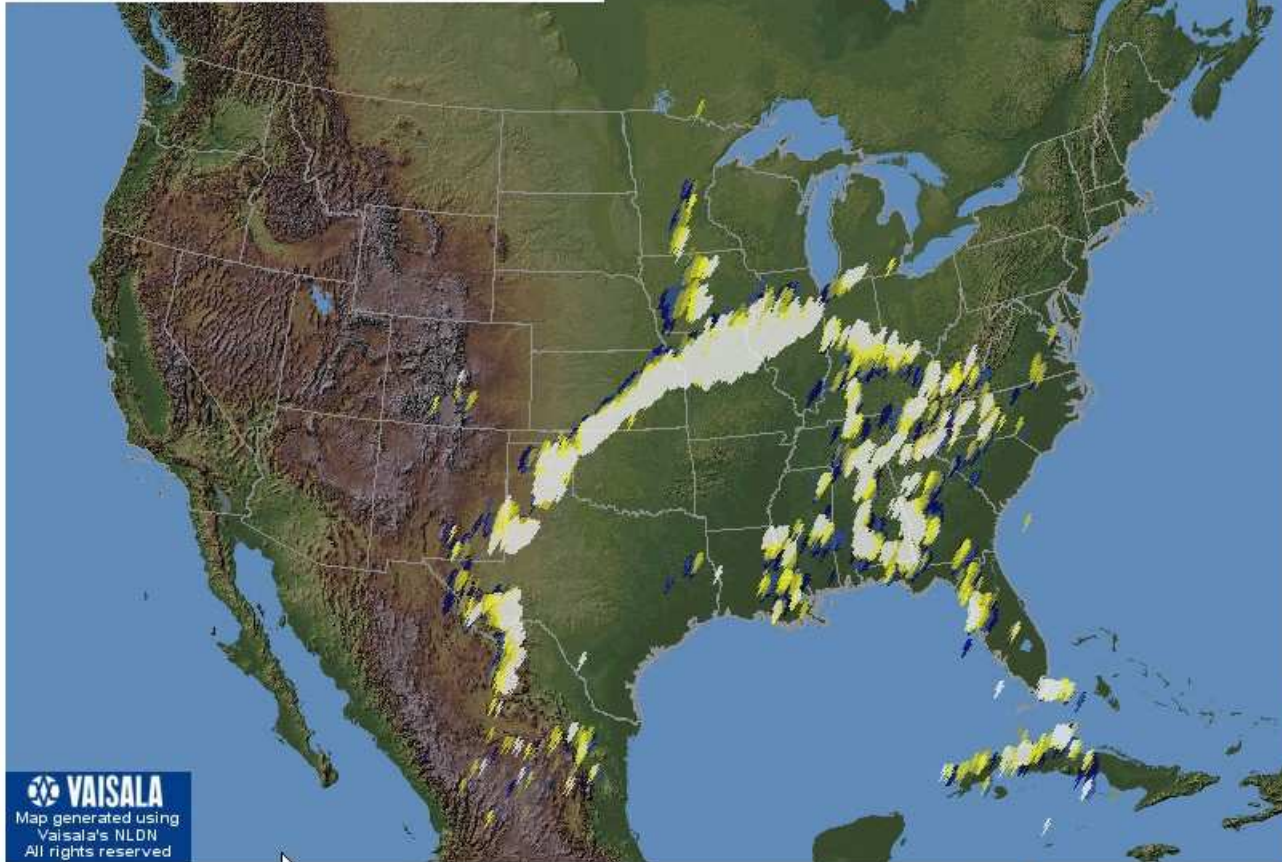
File Edit View Favorites Tools Help

Favorites Suggested Sites Web Slice Gallery

Vaisala - Lightning Explorer

Page Safety Tools

05/15/2009 23:40:00 - Total events: 133162



**VAISALA**  
Map generated using  
Vaisala's NLDN  
All rights reserved

Done

Internet

100%

start

AT-Auto

ATAUTO\_N3ZH - USE...

Vaisala - Lightning Ex...

12:07 AM

# Examples of Remote Stations

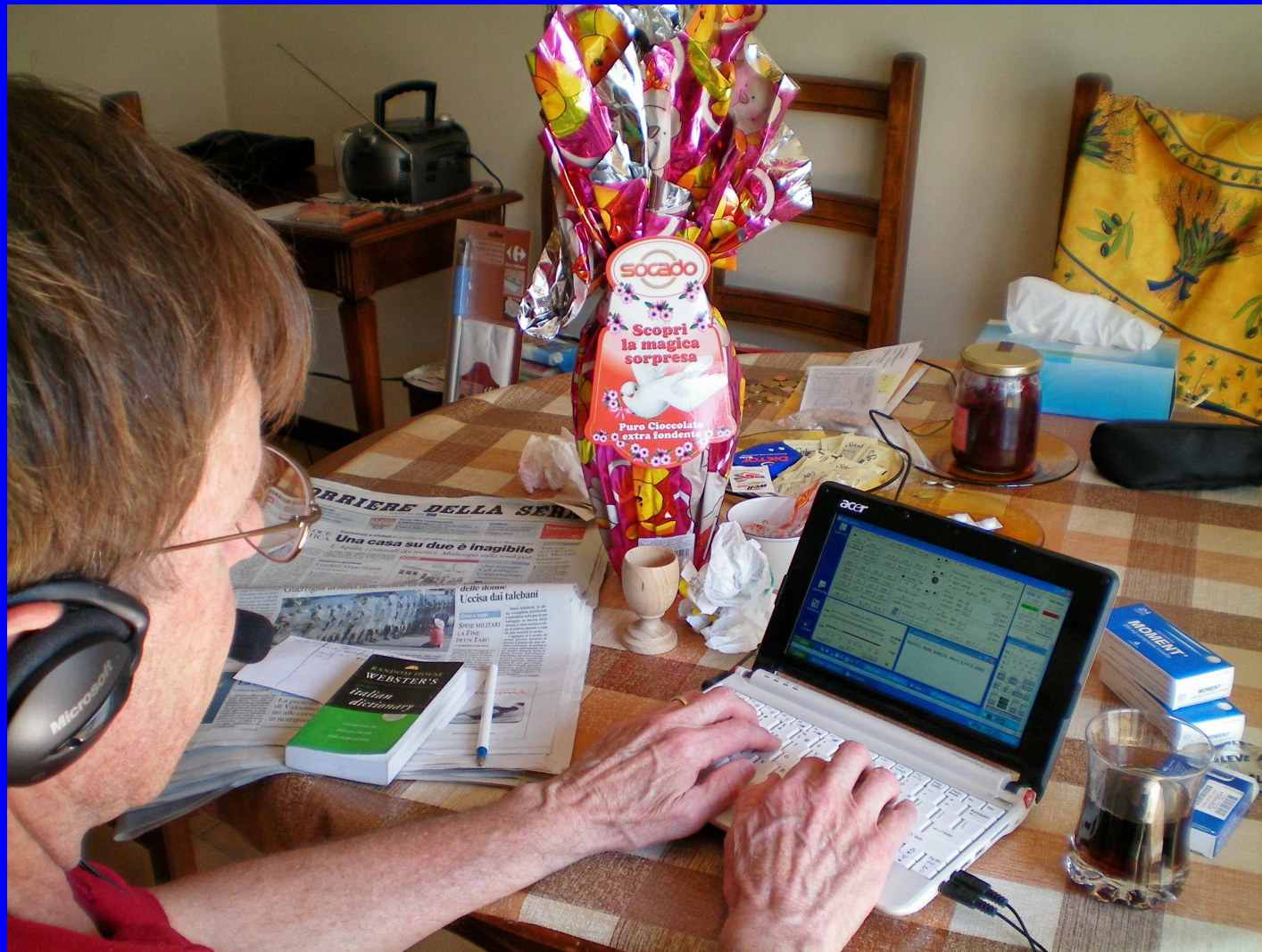
- K0RZ equipment setup and screens.
- Using the K0RZ Remote.



# K0RZ Operating in Den



# N0BF Operating in Italy

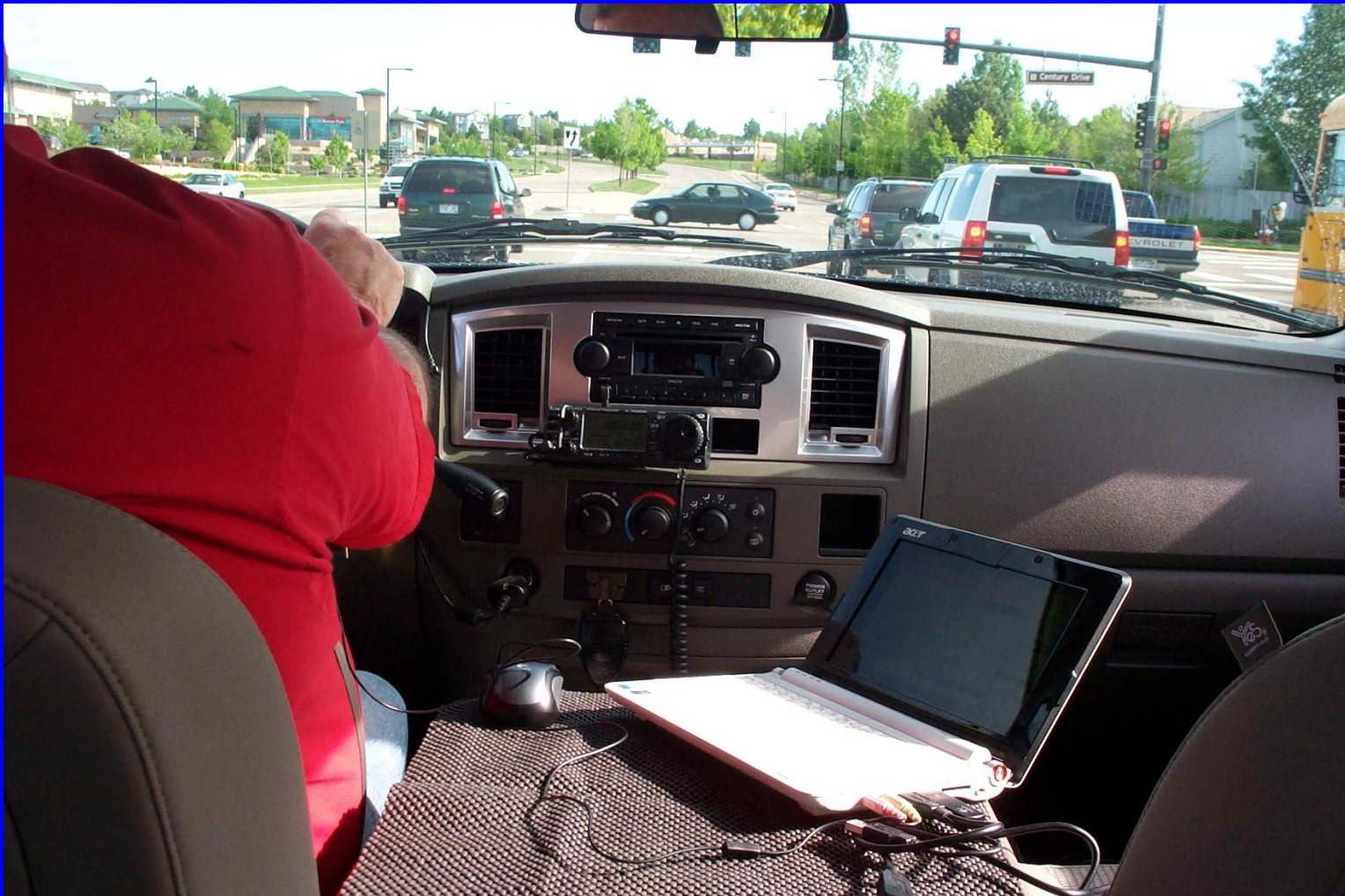




# W0WNV Hotel Operation



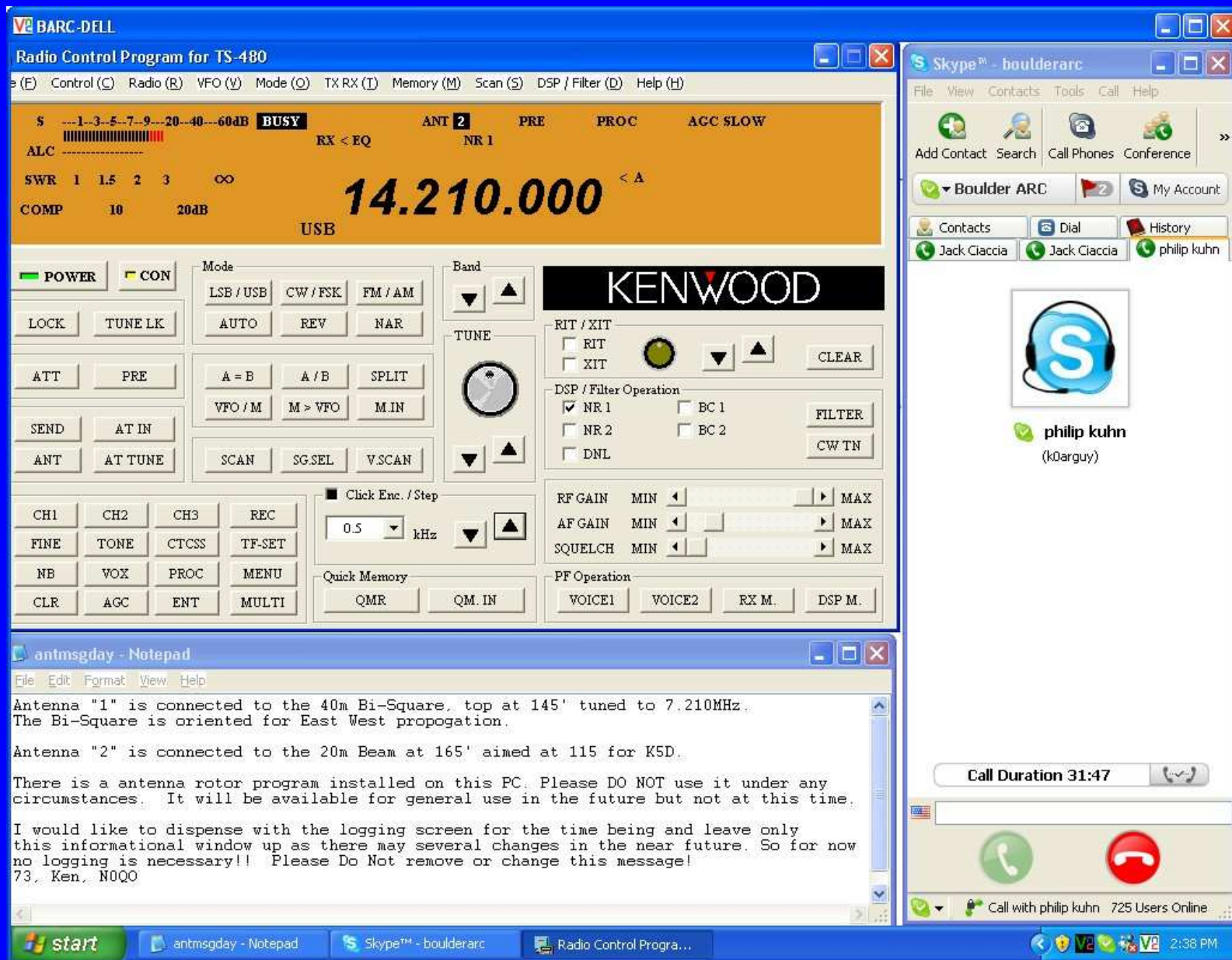
# WOWNV Mobile Operation



# Examples of Remote Stations

- K0RZ equipment setup and screens.
- Using the K0RZ Remote.
- Boulder Amateur Radio Club.

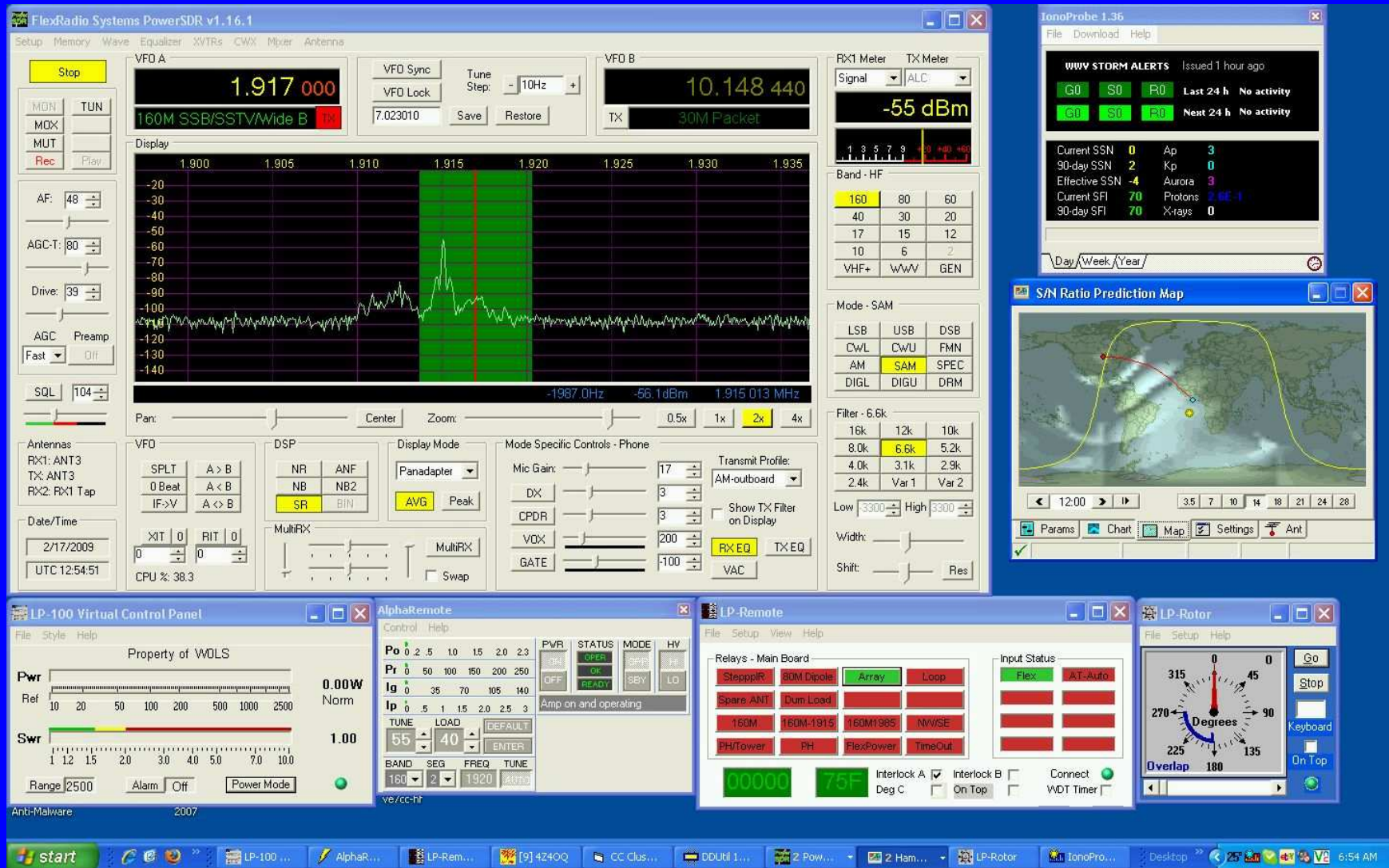




# Boulder ARC

# Examples of Remote Stations

- K0RZ equipment setup and screens.
- Using the K0RZ Remote.
- Boulder Amateur Radio Club screen.
- W0LS screen



# W0LS Station

# Examples of Remote Stations

- K0RZ equipment setup and screens.
- Using the K0RZ Remote.
- Boulder Amateur Radio Club screen.
- W0LS screen
- KC9VF screen





# KC9VF Remote Screen

# Where to Get More Information

- QST April 2007 by W2LTF.
- Documentation for your hardware and software.
- N8LP (TelePost) web page.
- Internet (Google Search)
- URL Listing (Handout)

# Subjects Covered

- What is Internet station remote control?
- Hardware requirements.
- Software required.
- Setting up your station.
- Problems to overcome.
- Connecting via the internet.
- FCC requirements.
- Enhancements.
- Examples of remote stations and use.
- Where to get more information.

# END

- QUESTIONS ???
- 73 KORZ

## URL Listings for Remote Amateur Station Applications

RealVNC	<a href="http://www.realvnc.com/index.html">http://www.realvnc.com/index.html</a>
TightVNC	<a href="http://www.tightvnc.com/">http://www.tightvnc.com/</a>
TRX Manager	<a href="http://www.trx-manager.com/demoe.htm">http://www.trx-manager.com/demoe.htm</a>
Ham Radio Deluxe	<a href="http://www.ham-radio-deluxe.com/">http://www.ham-radio-deluxe.com/</a>
Skype	<a href="http://www.skype.com/">http://www.skype.com/</a>
Skype old versions	<a href="http://www.oldapps.com/skype.php">http://www.oldapps.com/skype.php</a>
Speak Freely PTT	<a href="http://harvesting.com/speakfreely/">http://harvesting.com/speakfreely/</a>
MMSSTV	<a href="http://mmhamsoft.amateur-radio.ca/mmsstv/">http://mmhamsoft.amateur-radio.ca/mmsstv/</a>
MMTTY	<a href="http://mmhamsoft.amateur-radio.ca/mmtty/">http://mmhamsoft.amateur-radio.ca/mmtty/</a>
CWType	<a href="http://www.dxsoft.com/en/products/cwtype/#bottom">http://www.dxsoft.com/en/products/cwtype/#bottom</a>
Parallel Port Control	<a href="http://www.geocities.com/micgm/">http://www.geocities.com/micgm/</a>
Palstar AT-Auto	<a href="http://groups.yahoo.com/group/palstar_atauto/files/">http://groups.yahoo.com/group/palstar_atauto/files/</a>
Alpha Power	<a href="http://www.alpharadioproducts.com/software.asp">http://www.alpharadioproducts.com/software.asp</a>
TelePost (N8LP)	<a href="http://www.telepostinc.com/n8lp.html">http://www.telepostinc.com/n8lp.html</a>
Carl's Electronics	<a href="http://www.electronickits.com/kit/complete/elec/ck1601.htm">http://www.electronickits.com/kit/complete/elec/ck1601.htm</a>
Lightning Map	<a href="http://thunderstorm.vaisala.com/explorer.html">http://thunderstorm.vaisala.com/explorer.html</a>
XP Static IP Help	<a href="http://portforward.com/networking/static-xp.htm">http://portforward.com/networking/static-xp.htm</a>