

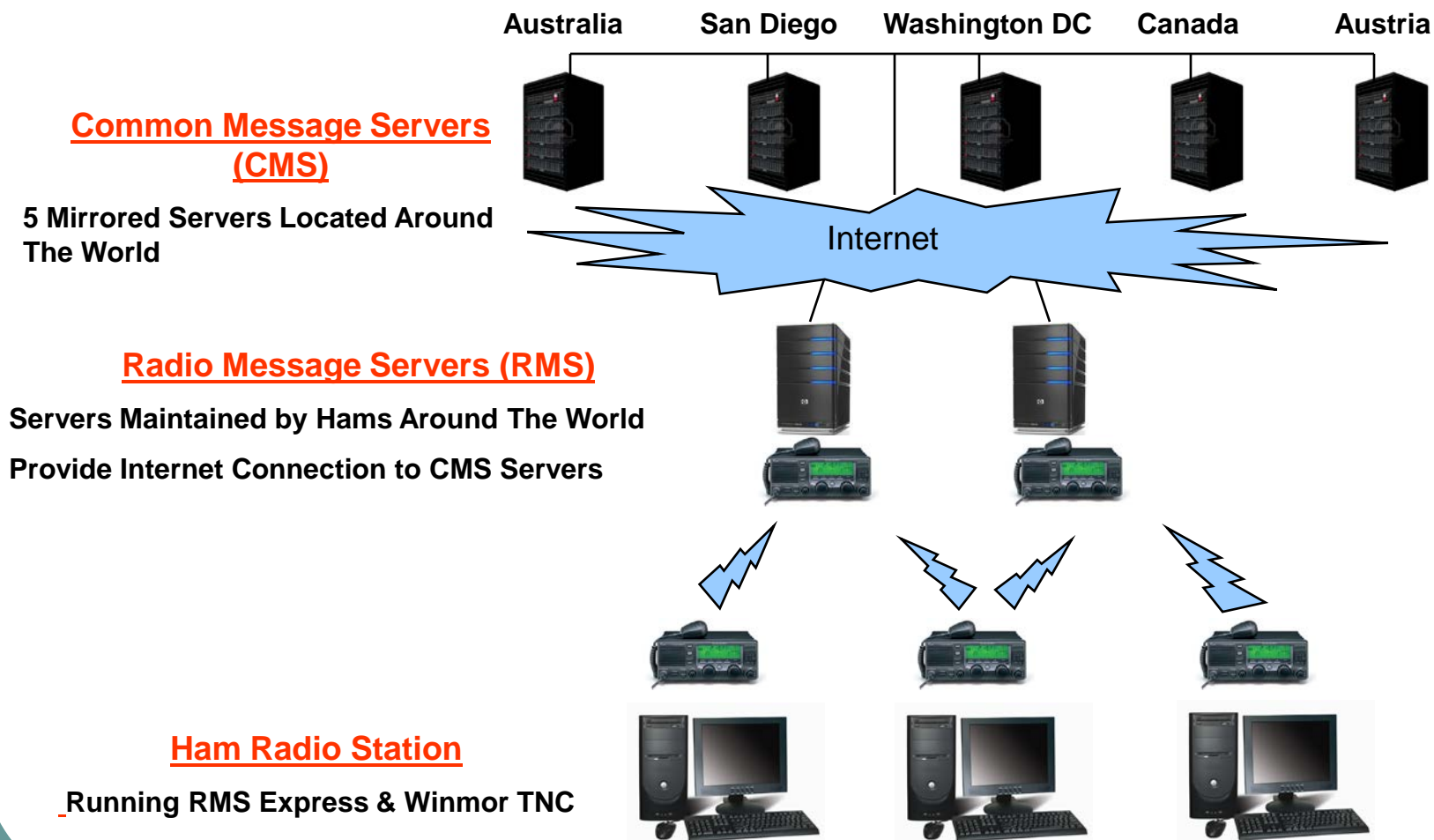
# Radio E-mail Systems

Getting Started with Winlink 2000  
&  
RMS Express with Winmor TNC

# Radio E-mail Systems

- Winlink 2000 (WL2K) is a worldwide system for sending and receiving e-mail over radio
- The connection from the users computer does not depend on the Internet
  - Widely used by mariners, RV Campers and various groups for emergency communication

# Winlink Messaging System



# Winlink Messaging System

- Like regular e-mail, Winlink messages are sent to a specific address, and may contain attachments such as pictures, maps, ICS forms, etc.
- E-mails can be sent between other Winlink stations and normal SMTP/POP3 e-mail servers like gmail.com

# Winlink Messaging System

- E-mails sent through Winlink on the ham bands must follow the usual rules for amateur radio communications
- May not be used for commercial applications, and messages may not be encrypted
- You can go to this site to check the current status of RMS servers
  - <http://www.Winlink.org/RMSHFStatus>

# Winlink Connection Modes

- There are four paths a user can connect to the Winlink system
  - Via HF radio to one of the RMS hubs
  - Via VHF/UHF radio to a local RMS hub
    - Two RMS stations in V.C on 145.650 Mhz
    - Can use our Outpost packet systems to send e-mails
  - Via Telenet protocol over the internet
    - Terminal emulation program that allows computer users to connect interactively to a server and access remote sites, e.g. on the Internet
  - Via Winlink Webmail over the internet
    - Like using G-Mail
    - Need Winlink e-mail account: "ham call"@winlink.org

# HF Winlink Operation

- Using HF radio, it is possible to connect to the Winlink system over long distances
- Often used by mariners to get information and send e-mail while cruising the high seas
- In a disaster, HF Winlink allows us to connect to a area where the internet may still be operational

# Radio E-mail Systems

- As with all digital modes, certain protocols are used to encode data into a form that can be transmitted over radio
- Two protocols are used for sending Winlink messages over HF radio
  - Pactor 3
  - Winmor

# Pactor 3

- Pactor-3: Is a superior protocol that can reliably send data over long distances with weak signals over extremely noisy conditions
- Used by most mariners and emergency organizations for contingency communications
  - Unfortunately, Pactor 3 is proprietary protocol that requires a TNC that costs about \$1,400
  - Fortunately, we were able to secure one for our radio room here at ECSS

# Winmor

- WINMOR: Winmor was developed by the Winlink development team as a low cost alternative to Pactor 3
- It is an open protocol, and operates through low cost sound card devices such as the SignalLink USB
  - \$1,400 Vs \$ \$100



# Pactor vs Winmor

System	Rate bits/sec (Max)	Bandwidth	Cost (Approx)
Pactor I	200	300Hz	\$50 -150
Pactor II	700	450Hz	\$1K - \$1.5K
Pactor III	2722	2.2 – 2.4Khz	\$1.2K – 1.6K
Winmor 500	329	500Hz	Windows w/ Sound Card
Winmor 1600	1314	1600Hz	Windows w/ Sound Card

# Equipment Needed

- Requirements are modest
  - Computer running Windows XP through Windows7 with at least 1 GB of Ram
  - RMS Express Client software and associated ITSHF Propagation prediction
  - A Signalink USB sound interface
  - A HF radio and associated antenna
    - Winmor RMS's are found on 80,40,30 & 20 meters

# RMS Express User Interface

The screenshot displays the RMS Express 1.1.0.5 - N6MDA application window. The interface includes a menu bar (Files, Message, View Attachments, Move To, Delete, Open Session, Logs, Help), a status bar (No active session...), and a main content area divided into a folder pane, a message list, and a message details pane.

**System Folders:** Inbox, Read Items, Outbox, Sent Items, Saved Items, Deleted Items, Drafts

**Personal Folders:**

**Contacts:** AF6XT, ECSS-1, INQUIRY, KE6NYT, KE6WEZ, KJ6RZ, MDATA, N6MDA, W6VO, W7DMM, WA8DRZ, barry\_stephens@hotmail.com, bormsby@sbcglobal.net, ke6nyt@arrl.net, ken.kj6rz@gmail.com

**Message List:**

Timestamp	MessageId	Size	#	Source	Sender	Subject
2011/05/29 18:28	XXEZ7300N1MH	250		W6VO	W6VO	Hello
2011/05/27 04:06	YFE70NWJIS7N	132		AF6XT	AF6XT	test
2011/05/03 19:53	RFFJC2ZY080X	181		KJ6RZ	ECSS-1	Test of RMS Express
2011/03/12 18:31	ZXPI31K36YBW	5268		WL2K	SERVICE	N6MDA INQUIRY: RMS_HF (Importable RMS HF

**Message Details:**

Message ID: YFE70NWJIS7N  
Date: 2011/05/24 02:14  
From: AF6XT  
To: N6MDA  
Source: AF6XT  
Subject: test

test

# RMS Express Message

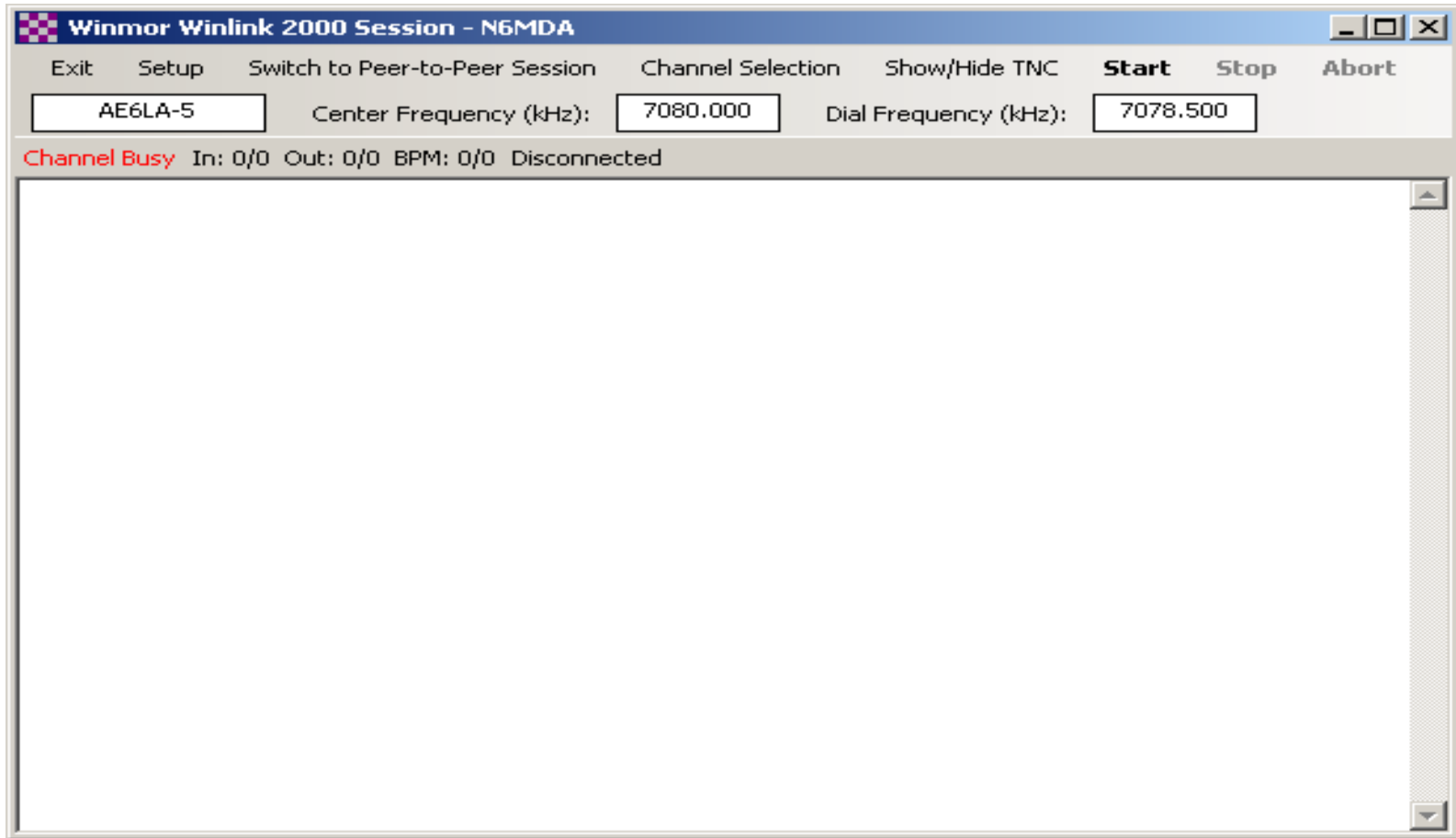
The image shows a screenshot of a software window titled "Enter a new message". The window has a standard Windows-style title bar with a close button (X) and a maximize button. Below the title bar, there are four menu items: "Close", "Attachments", "Post to Outbox", and "Save in Drafts Folder".

The main content area of the window is divided into several sections:

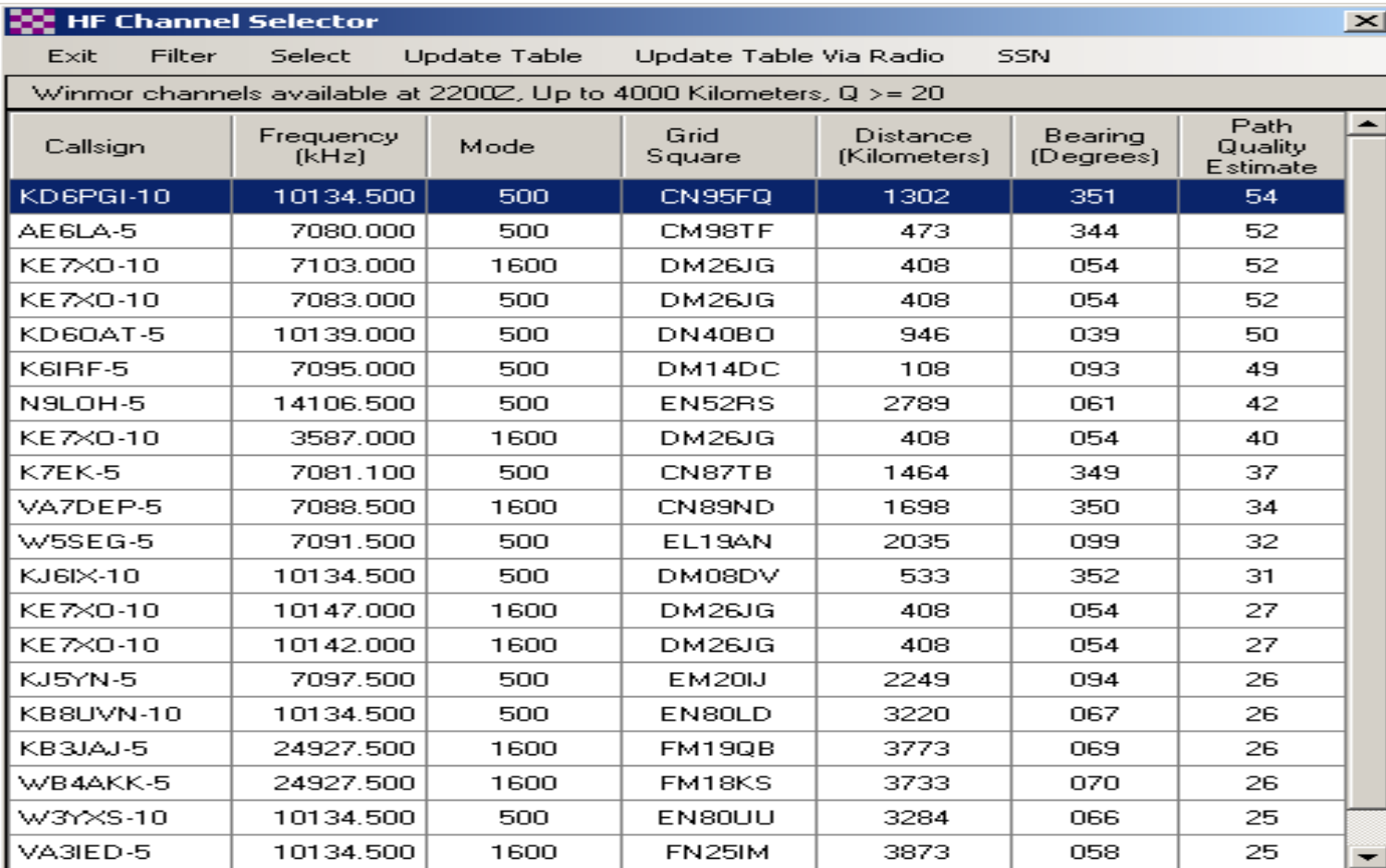
- From:** A dropdown menu currently showing "NBMDA".
- Message Type:** Two radio buttons are present. The first is labeled "Winlink Message" and is selected. The second is labeled "Peer-to-Peer Message".
- To:** A text input field.
- Cc:** A text input field.
- Subject:** A text input field.
- Attach:** A text input field.

Below these fields is a large, empty text area for composing the message body, with a vertical scrollbar on the right side.

# Winmor WL2K Session



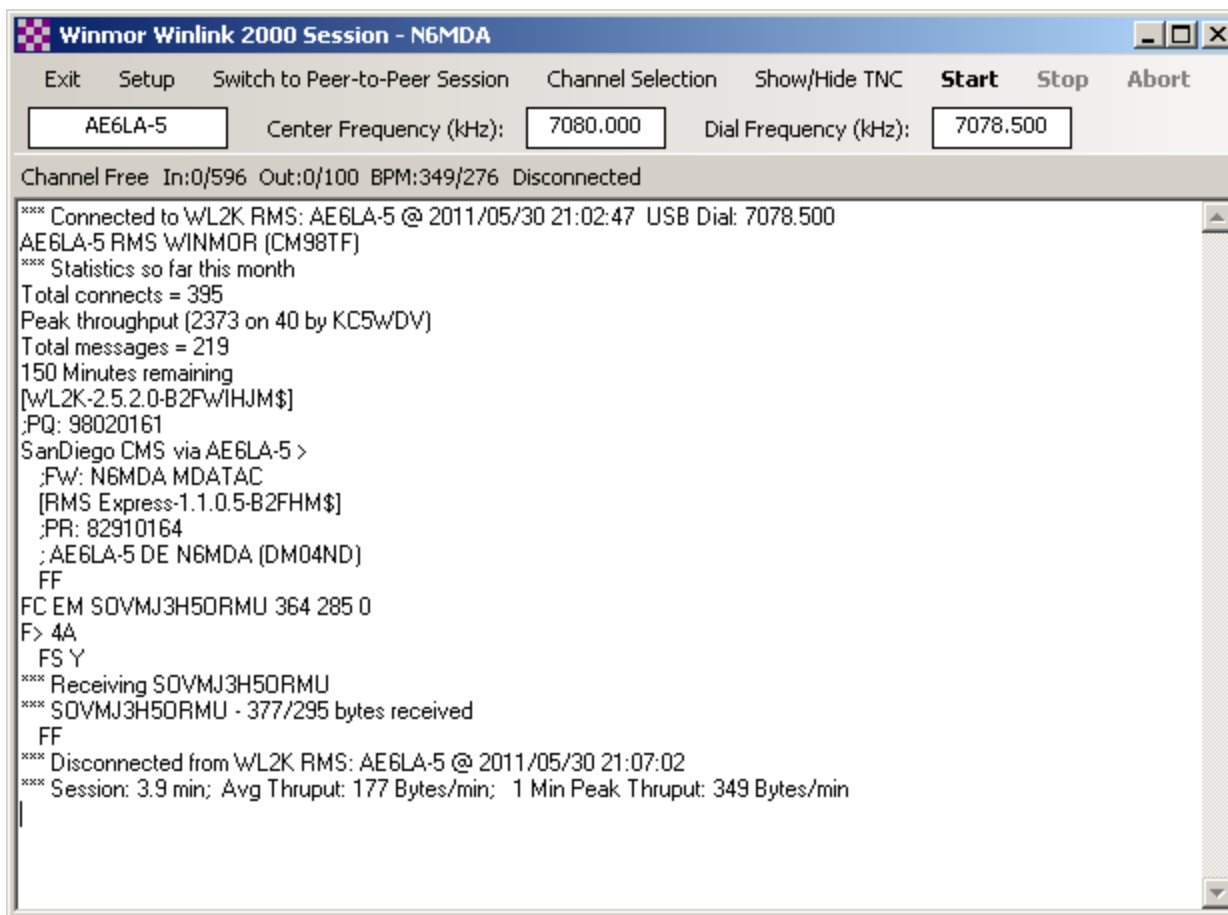
# HF Channel Selection



The screenshot shows a software window titled "HF Channel Selector" with a menu bar containing "Exit", "Filter", "Select", "Update Table", "Update Table Via Radio", and "SSN". Below the menu bar, a status bar reads "Winmor channels available at 2200Z, Up to 4000 Kilometers, Q >= 20". The main area contains a table with the following columns: Callsign, Frequency (kHz), Mode, Grid Square, Distance (Kilometers), Bearing (Degrees), and Path Quality Estimate. The table lists 20 channels, with the first row highlighted in blue.

Callsign	Frequency (kHz)	Mode	Grid Square	Distance (Kilometers)	Bearing (Degrees)	Path Quality Estimate
<b>KD6PGI-10</b>	<b>10134.500</b>	<b>500</b>	<b>CN95FQ</b>	<b>1302</b>	<b>351</b>	<b>54</b>
AE6LA-5	7080.000	500	CM98TF	473	344	52
KE7XD-10	7103.000	1600	DM26JG	408	054	52
KE7XD-10	7083.000	500	DM26JG	408	054	52
KD6OAT-5	10139.000	500	DN40BO	946	039	50
K6IRF-5	7095.000	500	DM14DC	108	093	49
N9LOH-5	14106.500	500	EN52RS	2789	061	42
KE7XD-10	3587.000	1600	DM26JG	408	054	40
K7EK-5	7081.100	500	CN87TB	1464	349	37
VA7DEP-5	7088.500	1600	CN89ND	1698	350	34
W5SEG-5	7091.500	500	EL19AN	2035	099	32
KJ6IX-10	10134.500	500	DM08DV	533	352	31
KE7XD-10	10147.000	1600	DM26JG	408	054	27
KE7XD-10	10142.000	1600	DM26JG	408	054	27
KJ5YN-5	7097.500	500	EM20IJ	2249	094	26
KB8UVN-10	10134.500	500	EN80LD	3220	067	26
KB3JAJ-5	24927.500	1600	FM19QB	3773	069	26
WB4AKK-5	24927.500	1600	FM18KS	3733	070	26
W3YXS-10	10134.500	500	EN80UU	3284	066	25
VA3IED-5	10134.500	1600	FN25IM	3873	058	25

# Winmor WL2K Session



Winmor Winlink 2000 Session - N6MDA

Exit Setup Switch to Peer-to-Peer Session Channel Selection Show/Hide TNC **Start** Stop Abort

AE6LA-5 Center Frequency (kHz): 7080.000 Dial Frequency (kHz): 7078.500

Channel Free In:0/596 Out:0/100 BPM:349/276 Disconnected

```
**** Connected to WL2K RMS: AE6LA-5 @ 2011/05/30 21:02:47 USB Dial: 7078.500
AE6LA-5 RMS WINMOR (CM98TF)
**** Statistics so far this month
Total connects = 395
Peak throughput (2373 on 40 by KC5WDV)
Total messages = 219
150 Minutes remaining
[WL2K-2.5.2.0-B2FwIHJM$]
;PQ: 98020161
SanDiego CMS via AE6LA-5 >
;Fw: N6MDA MDATA C
[RMS Express-1.1.0.5-B2FHM$]
;PR: 82910164
;AE6LA-5 DE N6MDA (DM04ND)
FF
FC EM SOVMJ3H5ORMU 364 285 0
F> 4A
FS Y
**** Receiving SOVMJ3H5ORMU
**** SOVMJ3H5ORMU - 377/295 bytes received
FF
**** Disconnected from WL2K RMS: AE6LA-5 @ 2011/05/30 21:07:02
**** Session: 3.9 min; Avg Thruput: 177 Bytes/min; 1 Min Peak Thruput: 349 Bytes/min
```

# Winmor Sound Card TNC

**WINMOR Sound Card TNC Port:8500**

Help Hide Send ID

Connection State  
ISS TO IRS  
TCP Capture OK

Transmit  
0 Avg ACK Percentage 100  
Xmt Frame:

Receive  
Rcv Level: [Progress Bar]  
Remote Station Offset: -5.2 Hz  
Rcv Frame: 2 Car 4FSK FEC Data Short

Busy Detector  
Squelch: 5

Waterfall 2 KHz  
500 2500  
4FSK / 39

# Further Information

- [N6MDA@ARRL.net](mailto:N6MDA@ARRL.net)

On the web at:

- <http://www.winlink.org/>
- <http://www.Winlink.org/ClientSoftware>
- <http://www.greg-hand.com/hfwin.32.html>
- <http://groups.yahoo.com/group/WINMOR>

# End of Presentation

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