HF PACTOR

- Equipment HF Radio and TNC
- Center frequency vs display frequency
- ALC/NB/Filters and there importance
- Updating the propagations tool and information
- Finding the best stations
- Pactor frequencies and bands
- Sunspot #’s Solar Flux plus A and K Indices

Equipment

Setup

Propagation & Solar

EQUIPMENT

- **HF Radio** - Looking for a radio that has level setting for Audio input and Audio Output

- **Pactor Modem -** Looking for a SCS PTC series modem that will do P1, P2 & P3 or a SCS Dragon that will do up to P4

Equipment required

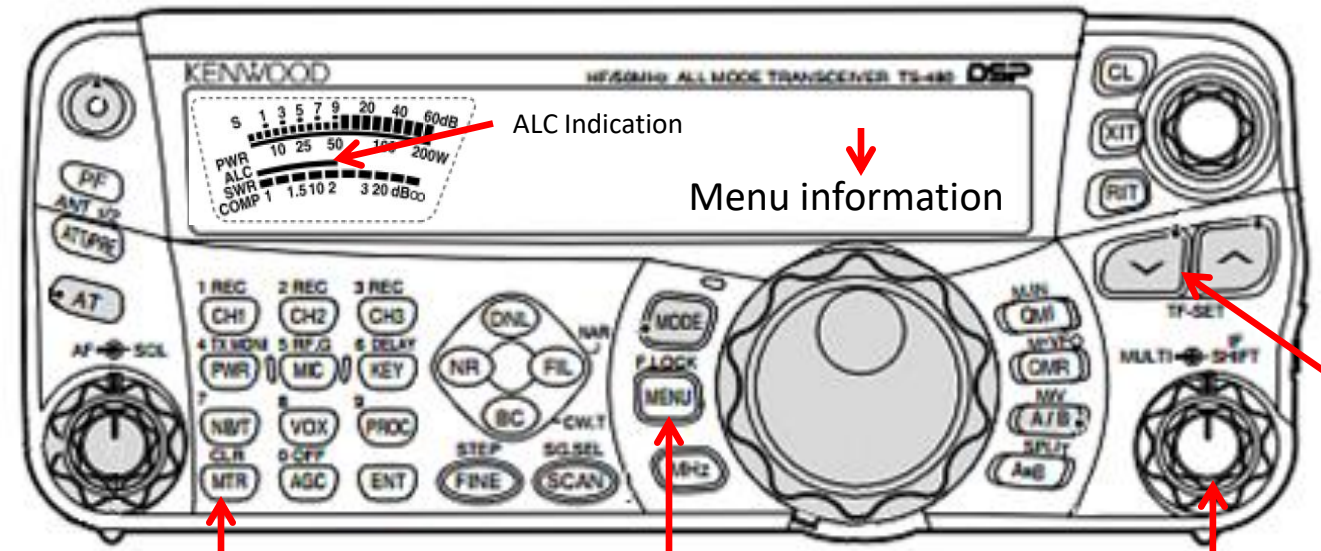
Kenwood TS-480Sat/HX

Sat -100 watts with Auto tuner
HX – 200 wats without and Auto tuner

SCS PTC Series or Dragon

TS-480SAT - Head controls

34 multi function buttons and 4 knobs



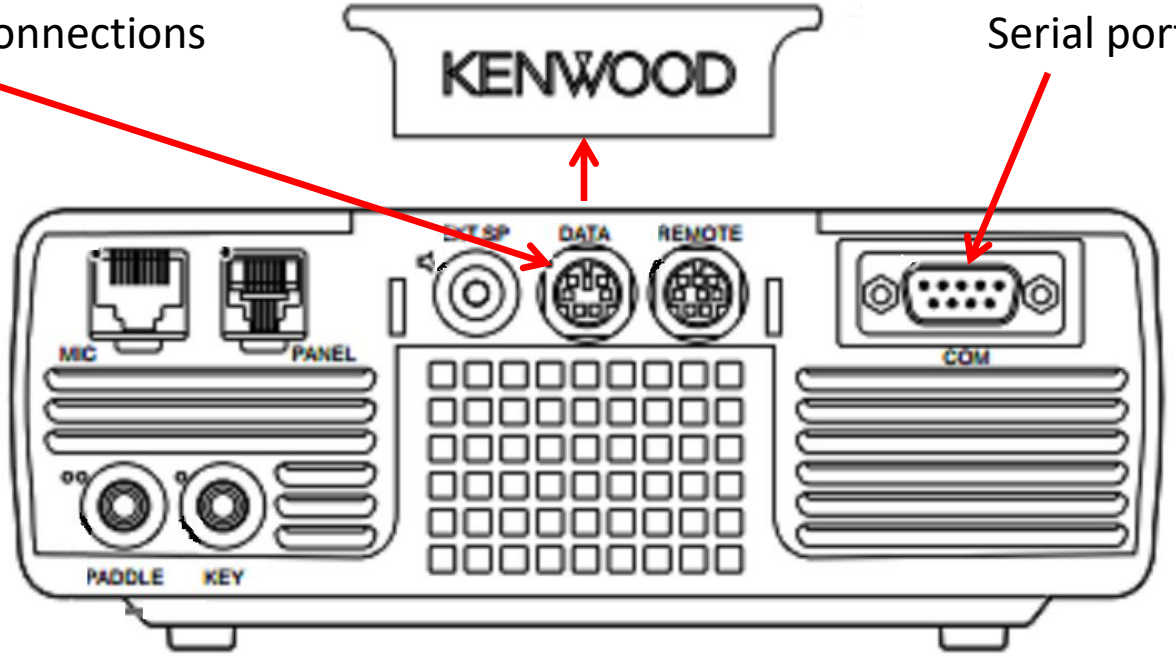
Kenwood TS-480- Rear Panel

Connections

Remove cover

SCS PTC Audio Connections

Serial port – CAT control



Menu – Audio in/out

Group	Menu No.	Function	Selections	Default	Ref. Page
Data Comm.	46	AF input level for Data communications (0: minimum ~ 9: maximum)	0 to 9	4	77, 78
	47	AF output level for Data communications (0: minimum ~ 9: maximum)	0 to 9	4	77, 78

Change as required.

Typical

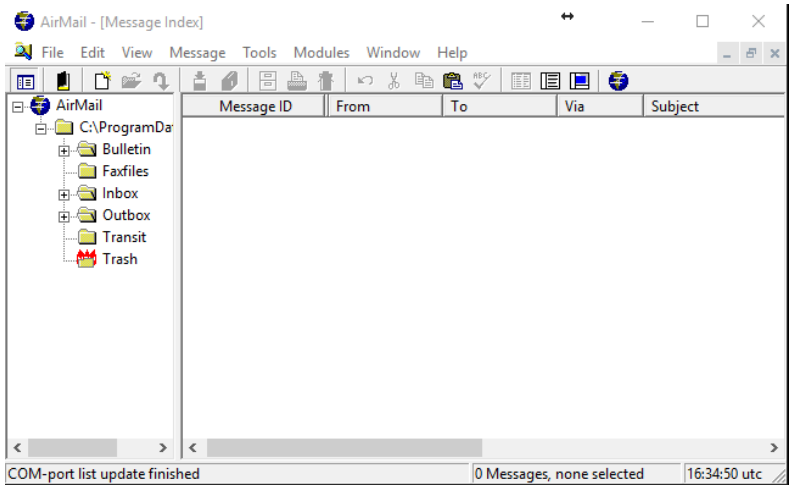
Menu 46 = 2

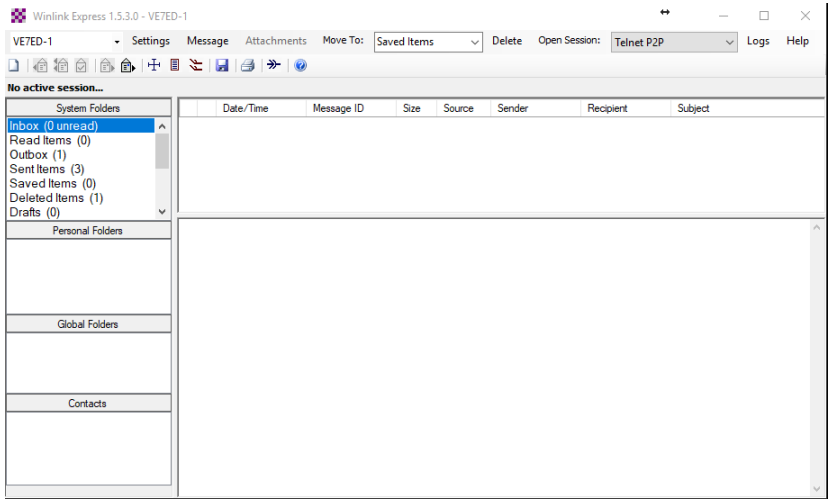
Menu 47 = 2

Setting up Pactor audio

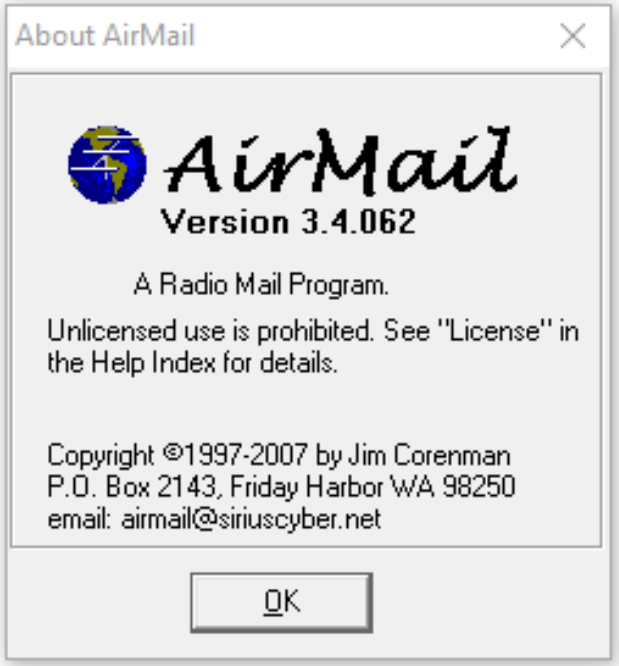
You will require the following software with the comport and baurd rate setup and tested.

Airmail & Winlink Express

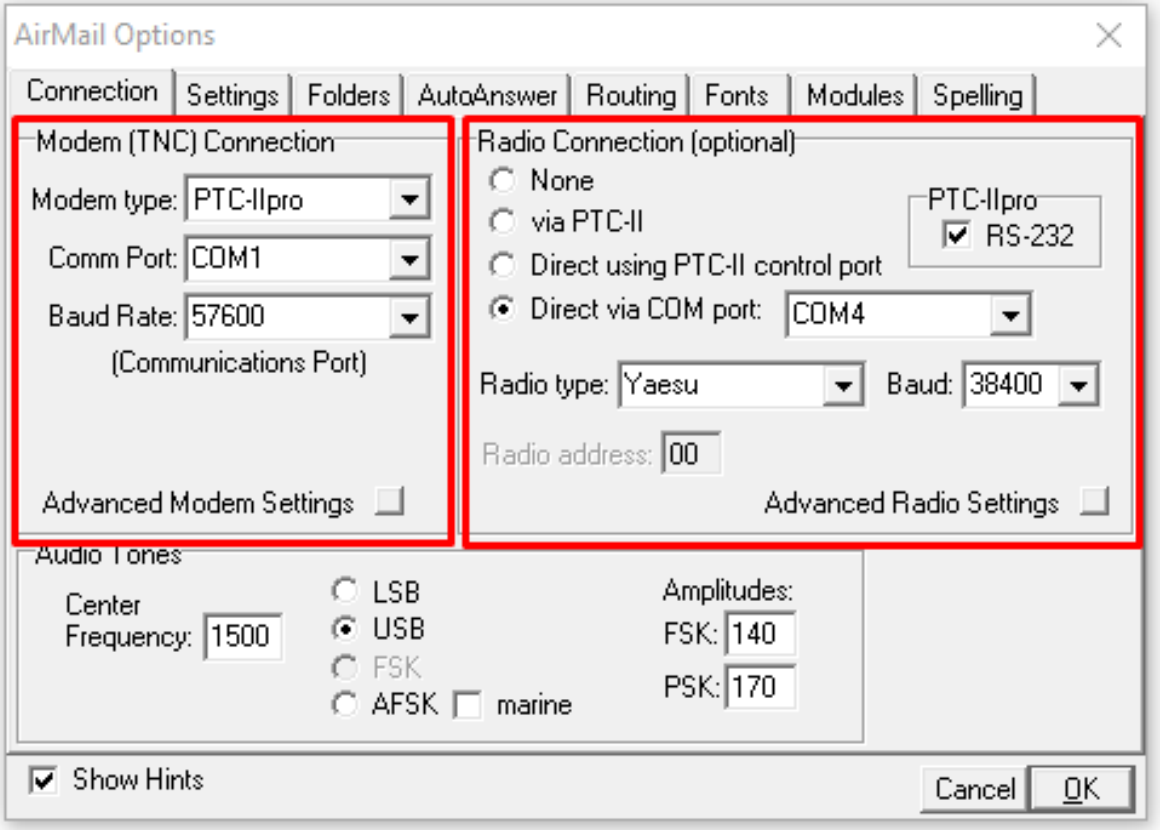


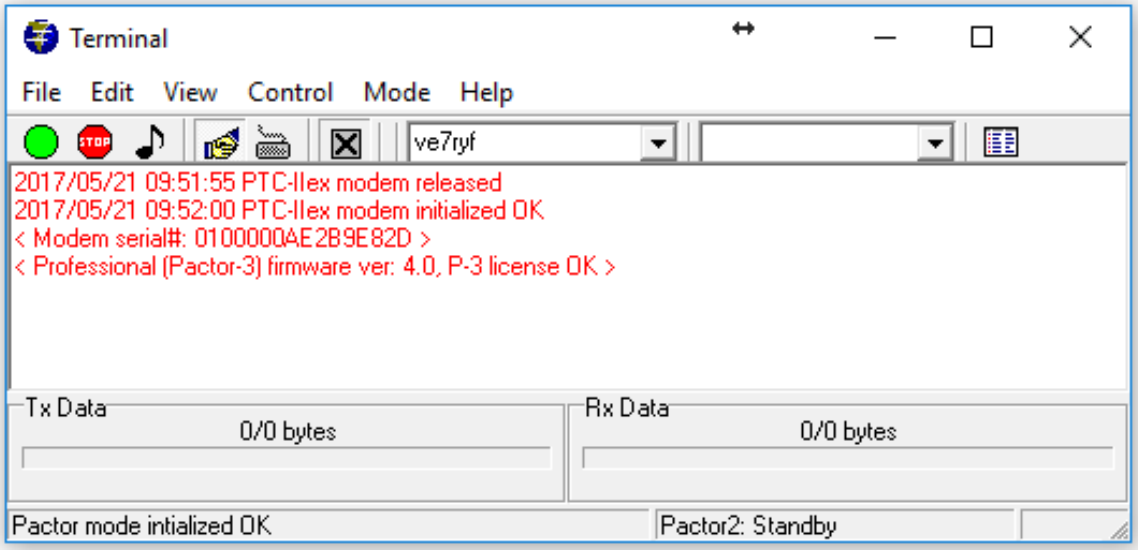


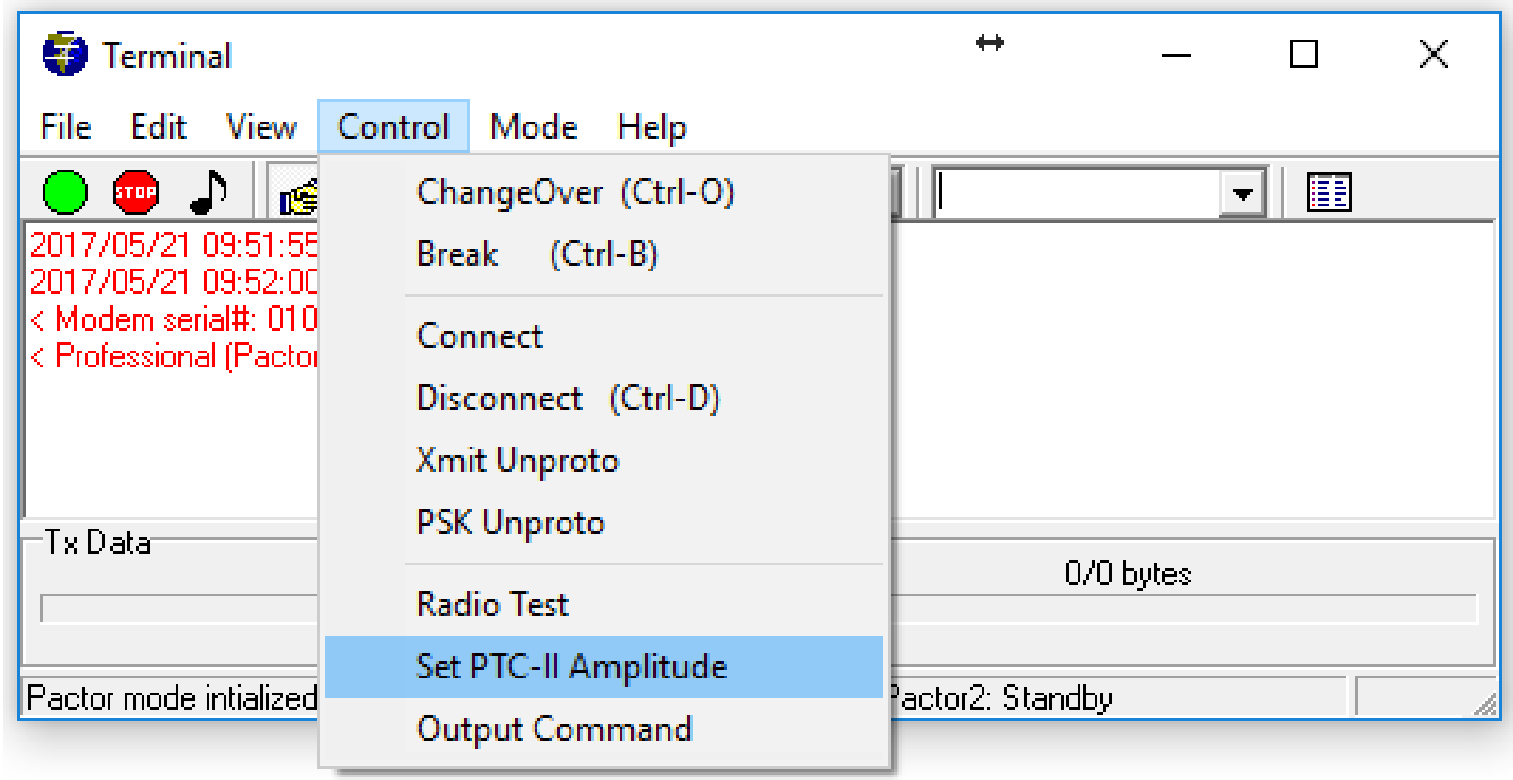
Setup - Airmail

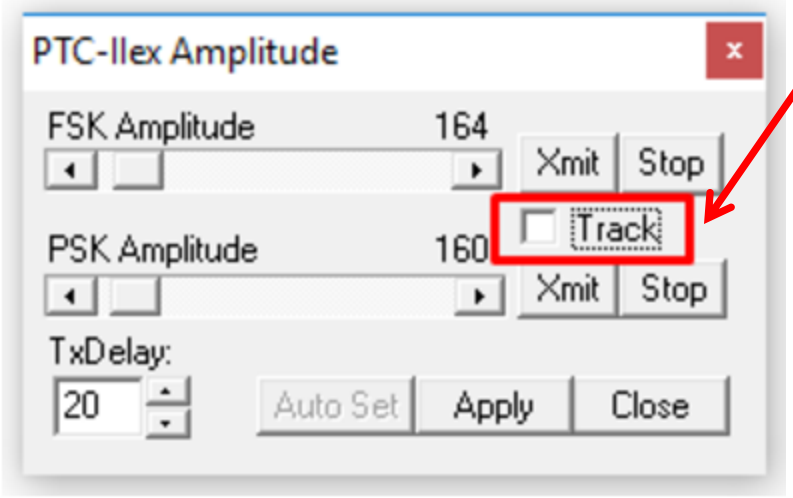


SCS Firmware – Version 4.0


AirMail Options
Connection
Settings
Folders
AutoAnswer
Routing
Fonts
Modules
Spelling
Modem (TNC) Connection
Modem type: PTC-IIpro
Comm Port: COM1
Baud Rate: 57600
(Communications Port)
Advanced Modem Settings
Radio Connection (optional)
None
via PTC-II
Direct using PTC-II control port
Direct via COM port: COM4
PTC-IIpro
RS-232
Radio type: Yaesu
Baud: 38400
Radio address: 00
Advanced Radio Settings
Audio Tones
Center Frequency: 1500
LSB
USB
FSK
AFSK
marine
Amplitudes:
FSK: 140
PSK: 170
Show Hints
Cancel
OK

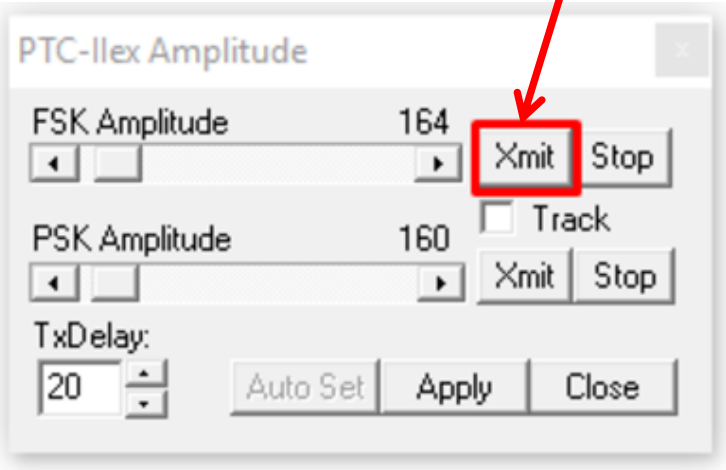

Terminal
File
Edit
View
Control
Mode
Help
ve7ryf
2017/05/21 09:51:55 PTC-IIex modem released
2017/05/21 09:52:00 PTC-IIex modem initialized OK
< Modem serial#: 0100000AE2B9E82D >
< Professional (Pactor-3) firmware ver: 4.0, P-3 license OK >
Tx Data
0/0 bytes
Rx Data
0/0 bytes
Pactor mode intialized OK
Pactor2: Standby


Terminal
File
Edit
View
Control
Mode
Help
ChangeOver (Ctrl-O)
Break (Ctrl-B)
Connect
Disconnect (Ctrl-D)
Xmit Unproto
PSK Unproto
Radio Test
Set PTC-II Amplitude
Output Command
2017/05/21 09:51:55
2017/05/21 09:52:00
< Modem serial#: 010
< Professional (Pactor
Tx Data
0/0 bytes
Pactor mode intialized
Pactor2: Standby

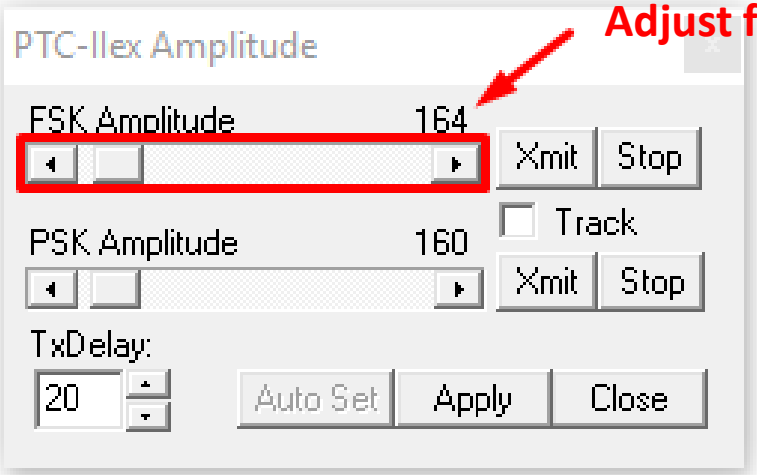


Untick Track

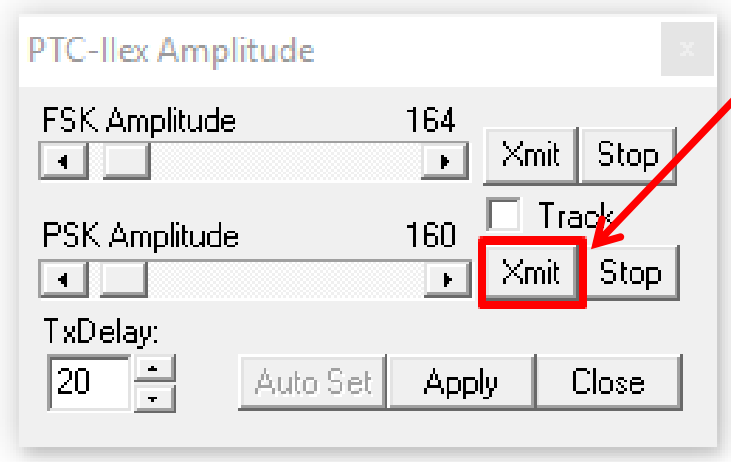
Click on Xmit
Transmitter will turn on



Adjust for No ALC on transceiver

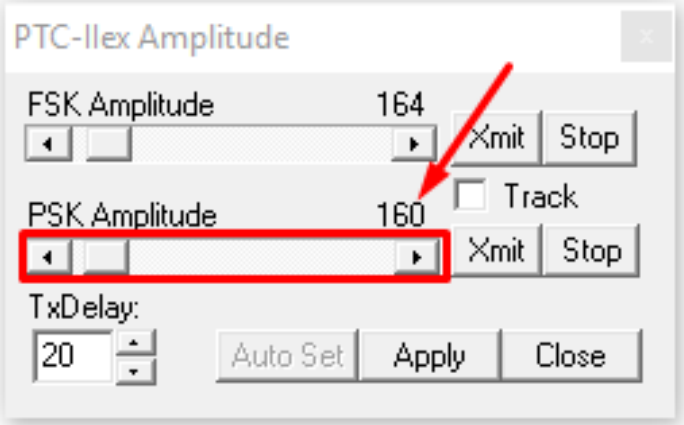


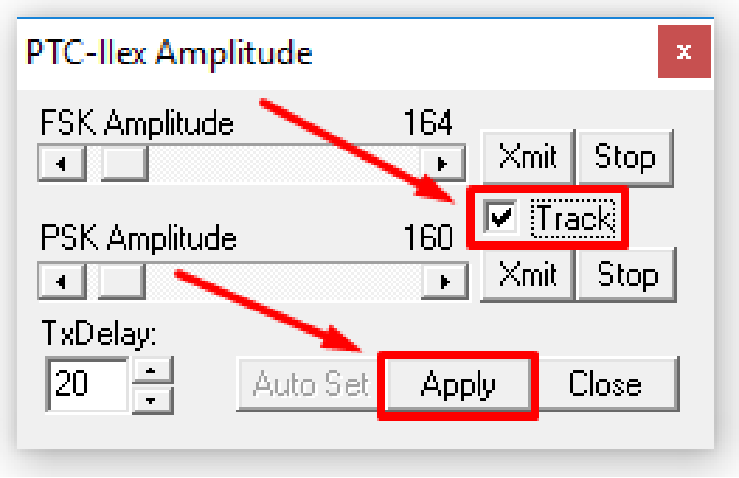
Best to adjust until you can see some ALC then back off till there is none



Click on Xmit
Transmitter will turn on

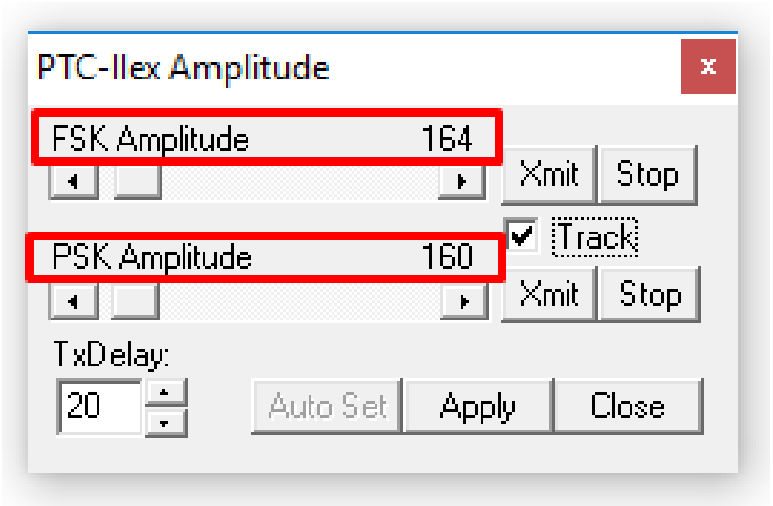
Adjust for No ALC on transceiver





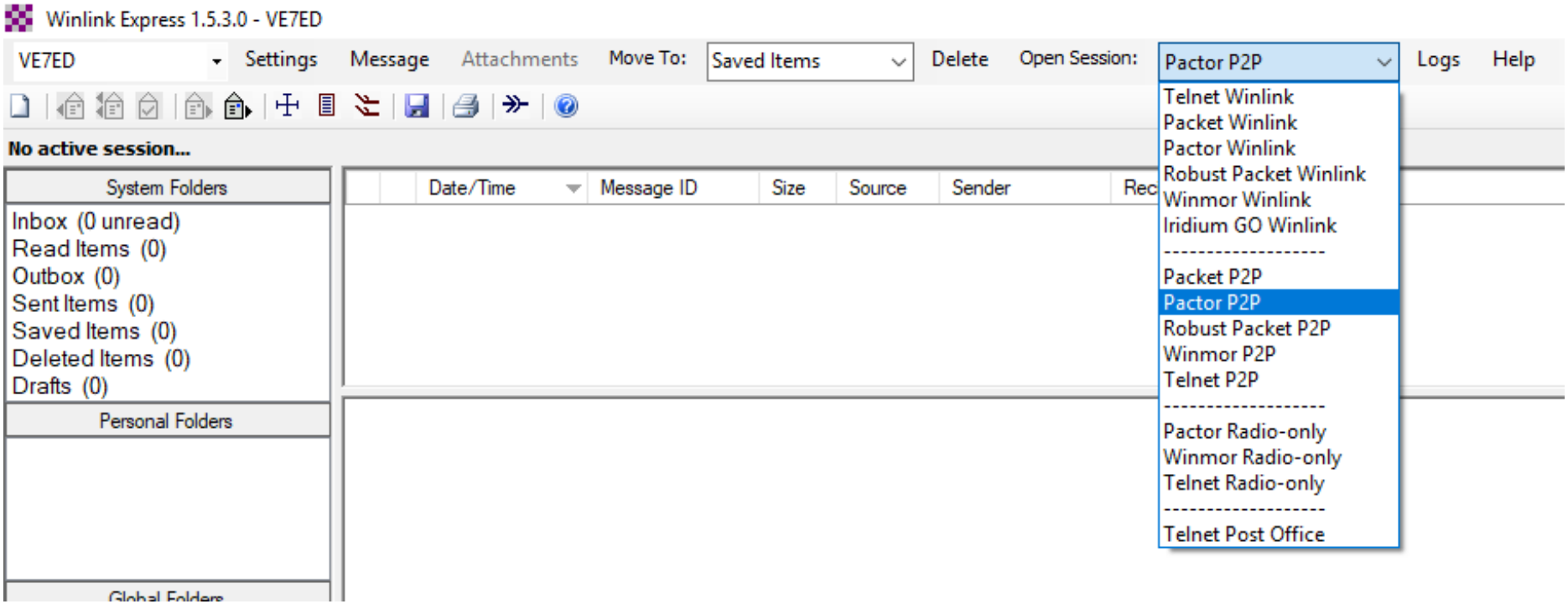
Tick the Track box and click apply

Make note of the FSK & PSK numbers



NOTE: In Winlink the PSK & FSK are reversed

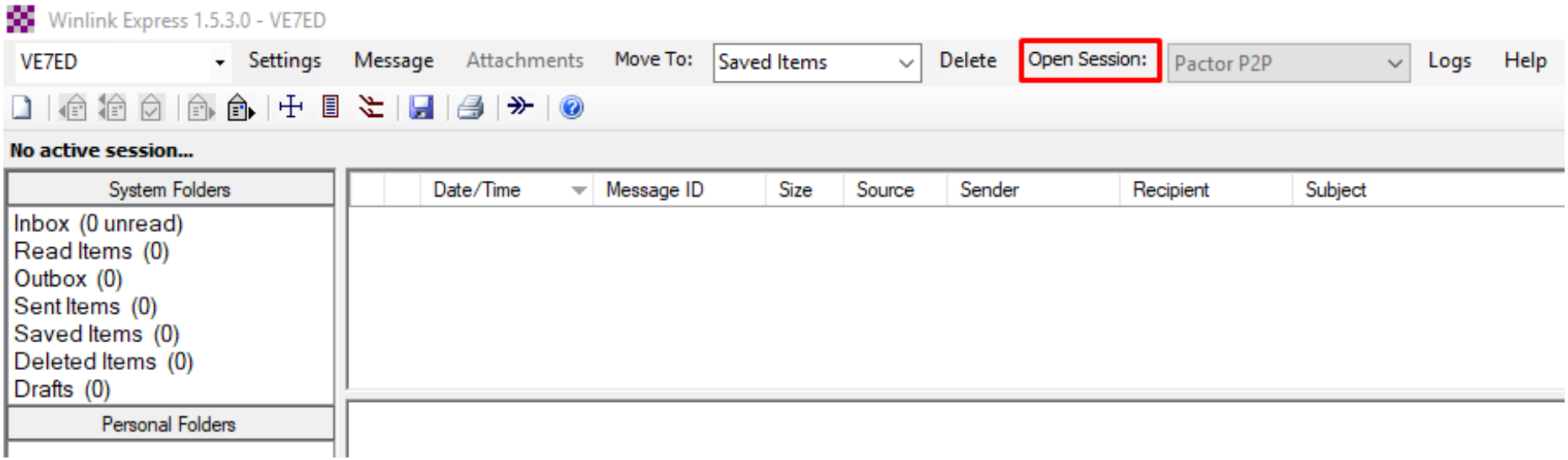
Setup - Winlink Express

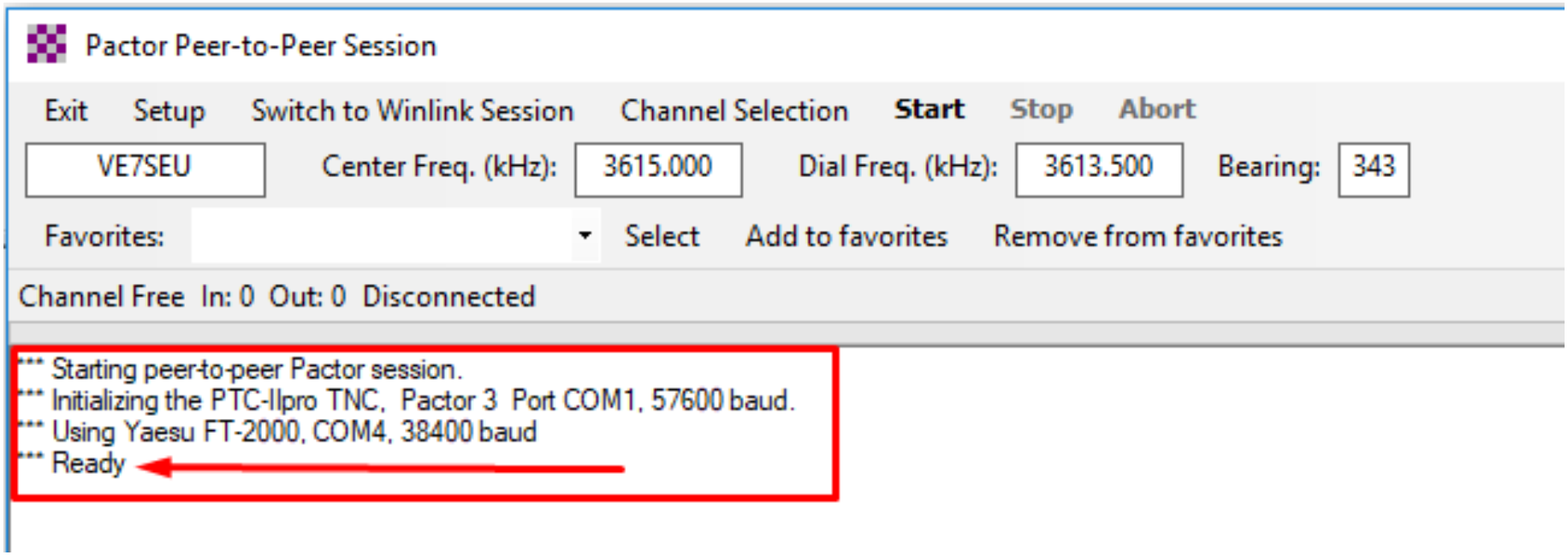

Winlink Express 1.5.3.0 - VE7ED
VE7ED
Settings
Message
Attachments
Move To:
Saved Items
Delete
Open Session:
Pactor P2P
Logs
Help
No active session...
System Folders
Inbox (0 unread)
Read Items (0)
Outbox (0)
Sent Items (0)
Saved Items (0)
Deleted Items (0)
Drafts (0)
Personal Folders
Global Folders
Date/Time
Message ID
Size
Source
Sender
Rec
Telnet Winlink
Packet Winlink
Pactor Winlink
Robust Packet Winlink
Winmor Winlink
Iridium GO Winlink

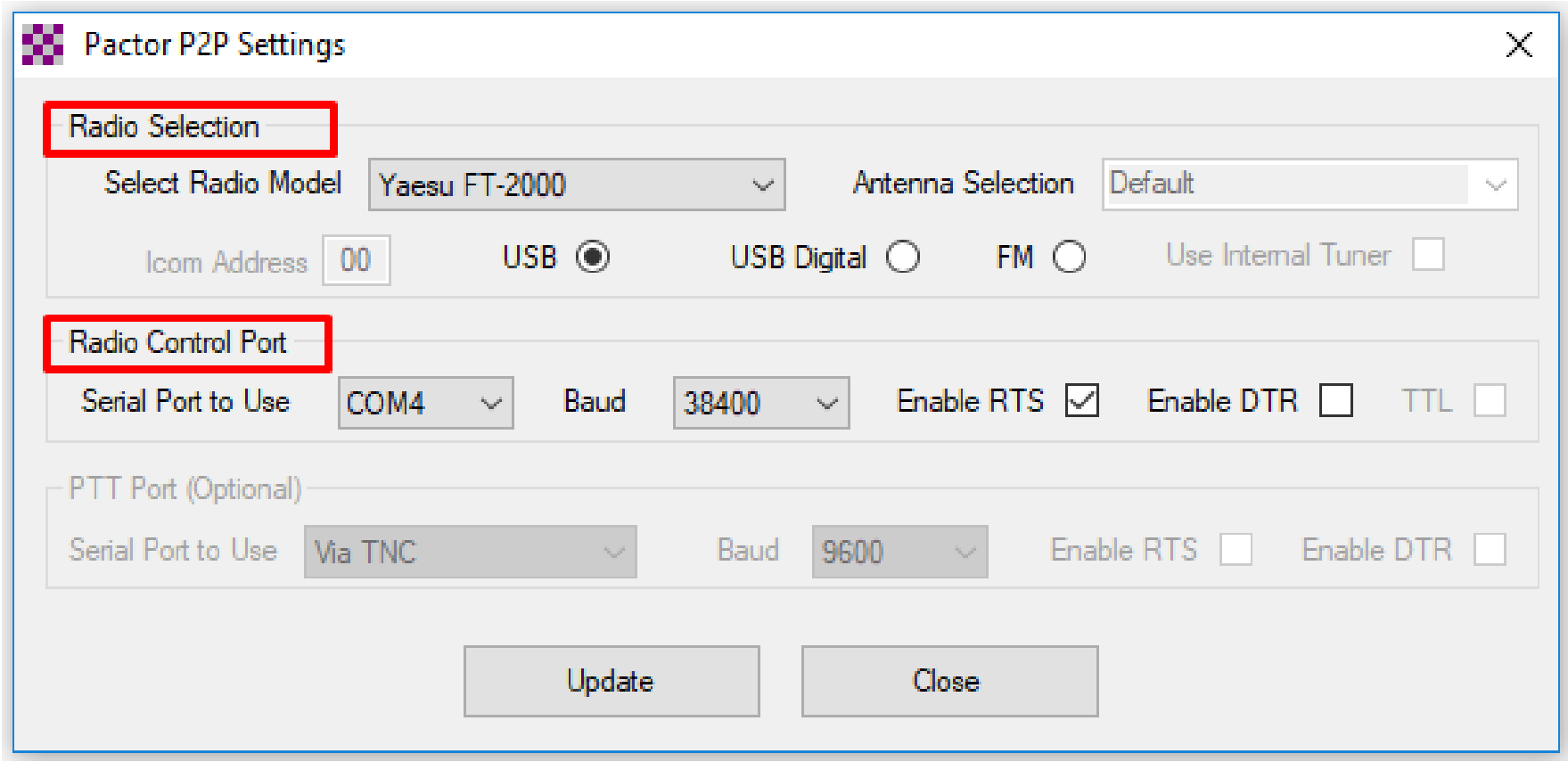
Packet P2P
Pactor P2P
Robust Packet P2P
Winmor P2P
Telnet P2P

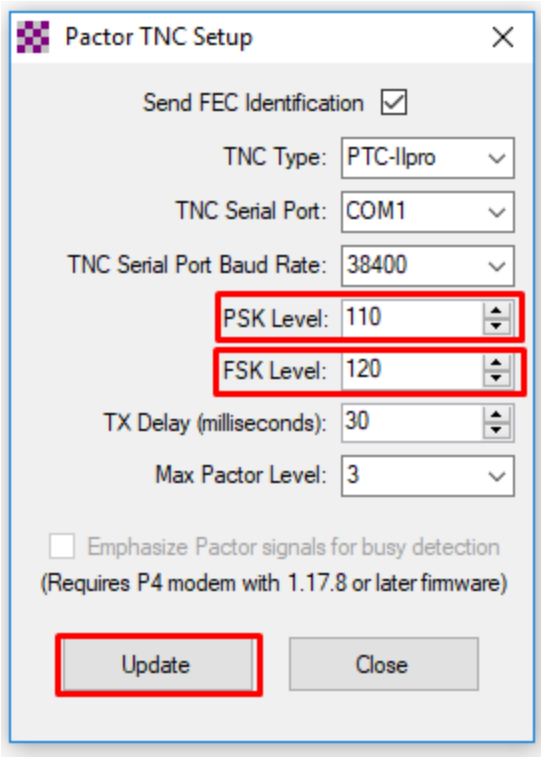
Pactor Radio-only
Winmor Radio-only
Telnet Radio-only

Telnet Post Office


Winlink Express 1.5.3.0 - VE7ED
VE7ED
Settings
Message
Attachments
Move To:
Saved Items
Delete
Open Session:
Pactor P2P
Logs
Help
No active session...
System Folders
Inbox (0 unread)
Read Items (0)
Outbox (0)
Sent Items (0)
Saved Items (0)
Deleted Items (0)
Drafts (0)
Personal Folders
Date/Time
Message ID
Size
Source
Sender
Recipient
Subject


Pactor Peer-to-Peer Session
Exit
Setup
Switch to Winlink Session
Channel Selection
Start
Stop
Abort
VE7SEU
Center Freq. (kHz):
3615.000
Dial Freq. (kHz):
3613.500
Bearing:
343
Favorites:
Select
Add to favorites
Remove from favorites
Channel Free In: 0 Out: 0 Disconnected
*** Starting peer-to-peer Pactor session.
*** Initializing the PTC-IIpro TNC, Pactor 3 Port COM1, 57600 baud.
*** Using Yaesu FT-2000, COM4, 38400 baud
*** Ready

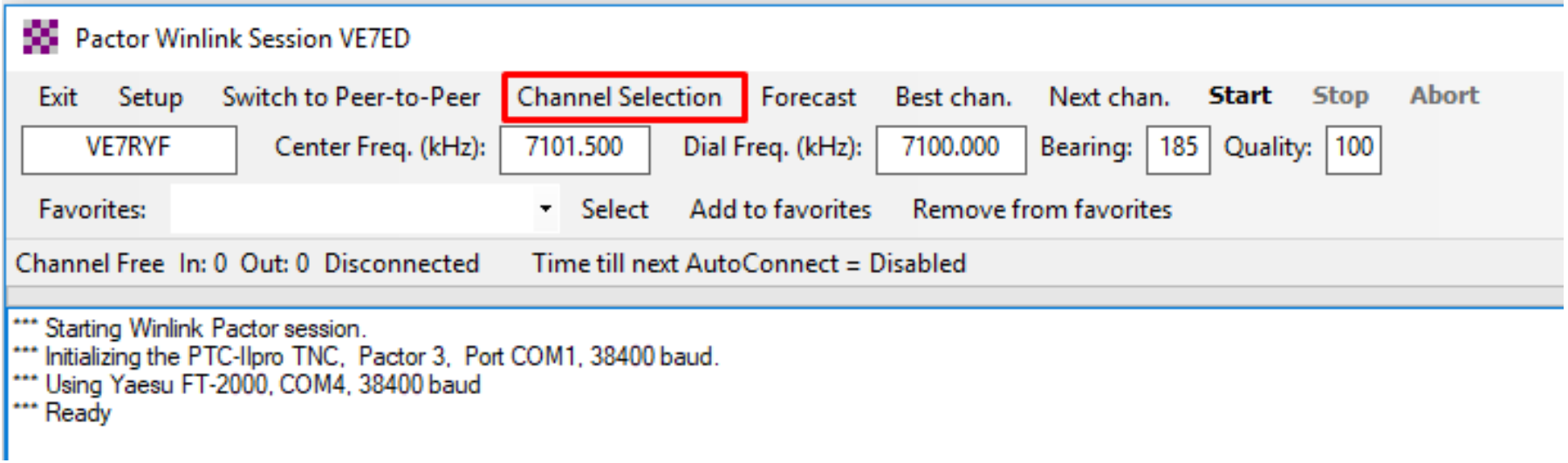

Pactor P2P Settings
Radio Selection
Select Radio Model
Yaesu FT-2000
Antenna Selection
Default
Icom Address
00
USB
USB Digital
FM
Use Internal Tuner
Radio Control Port
Serial Port to Use
COM4
Baud
38400
Enable RTS
Enable DTR
TTL
PTT Port (Optional)
Serial Port to Use
Via TNC
Baud
9600
Enable RTS
Enable DTR
Update
Close

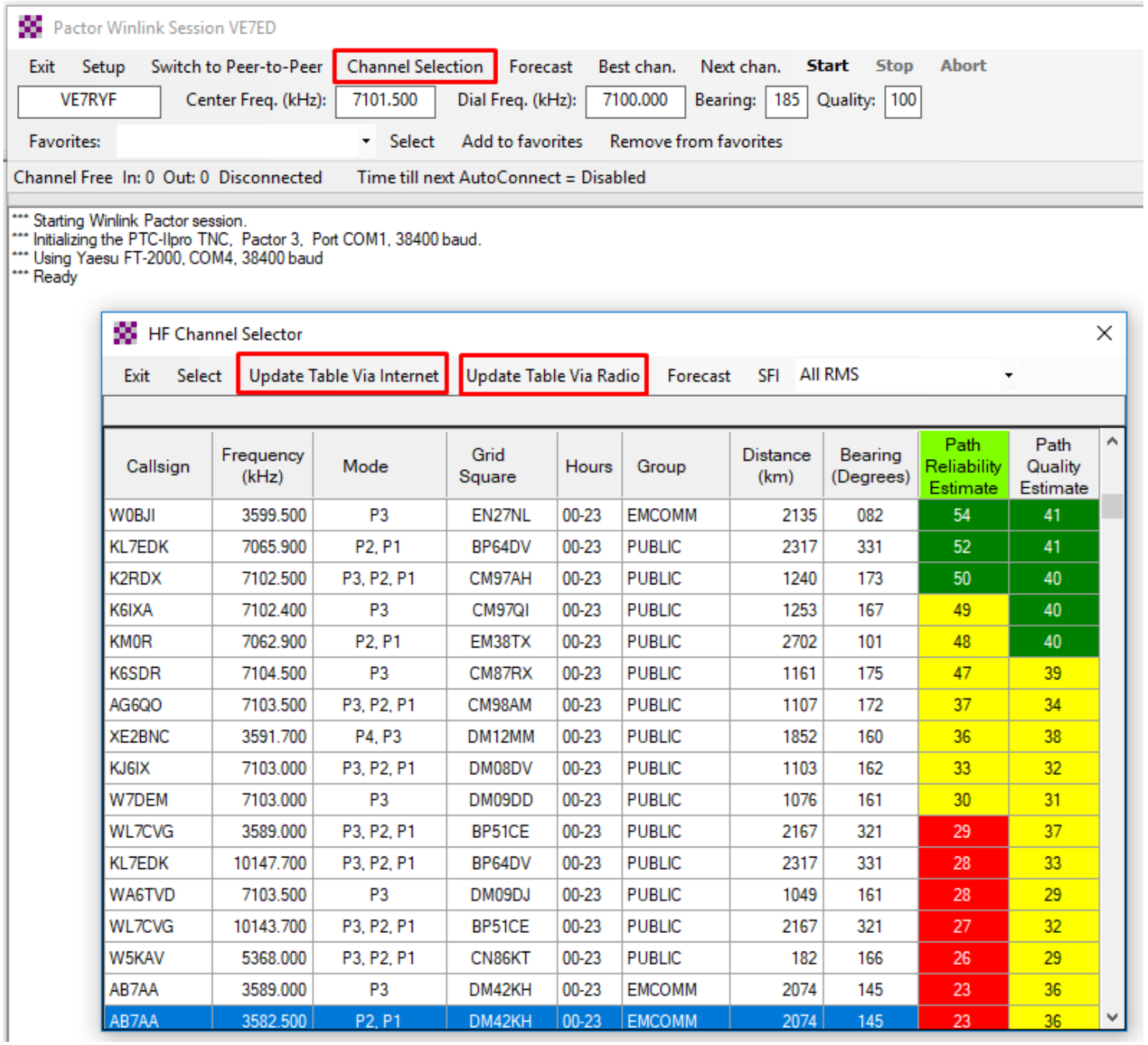


NOTE: In Airmail the PSK & FSK are reversed

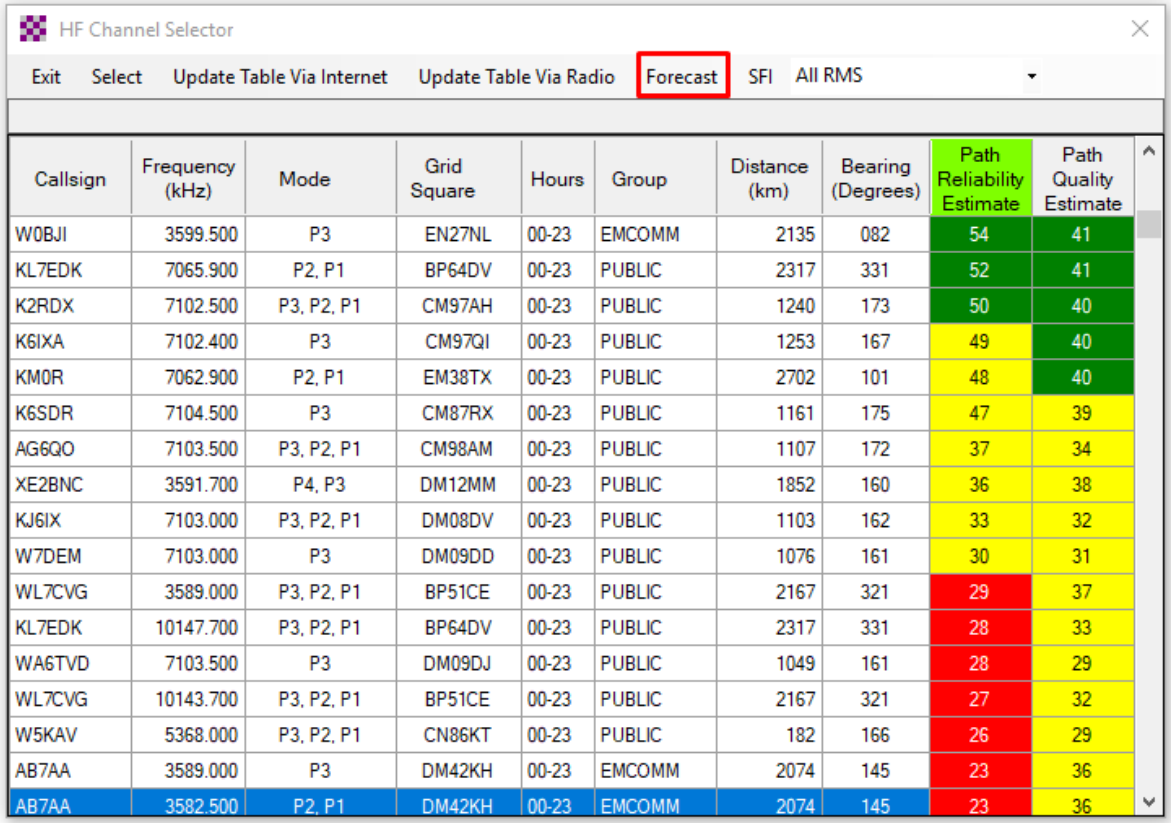
Airmail will get you very close and you can fine tune in Winlink by changing the number then click on update and retest.

Repeat as necessary till you achieve No ALC

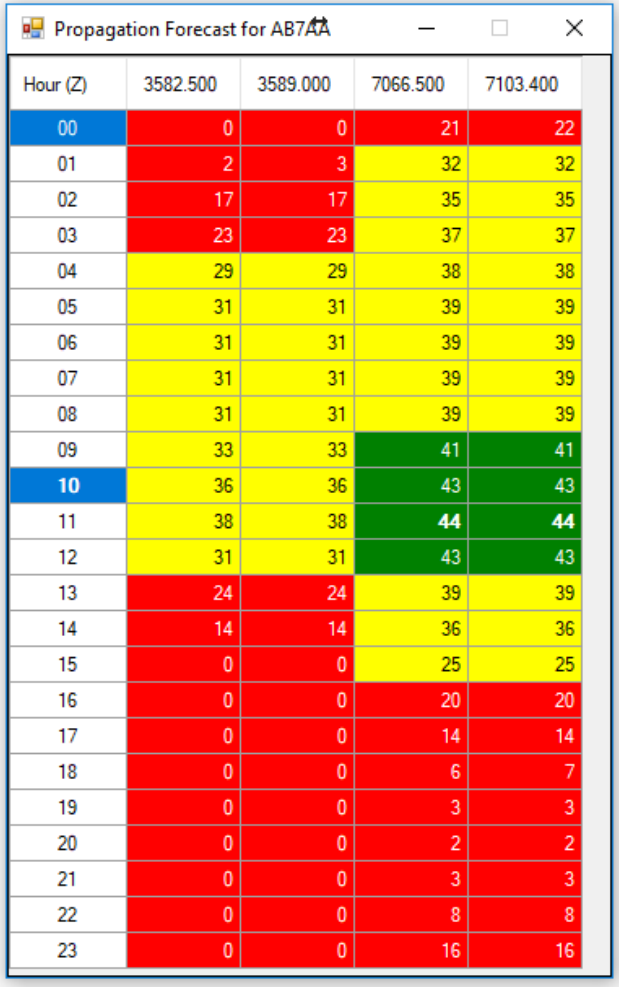

Pactor Winlink Session VE7ED
Exit
Setup
Switch to Peer-to-Peer
Channel Selection
Forecast
Best chan.
Next chan.
Start
Stop
Abort
VE7RYF
Center Freq. (kHz):
7101.500
Dial Freq. (kHz):
7100.000
Bearing:
185
Quality:
100
Favorites:
Select
Add to favorites
Remove from favorites
Channel Free In: 0 Out: 0 Disconnected
Time till next AutoConnect = Disabled
*** Starting Winlink Pactor session.
*** Initializing the PTC-IIpro TNC, Pactor 3, Port COM1, 38400 baud.
*** Using Yaesu FT-2000, COM4, 38400 baud
*** Ready



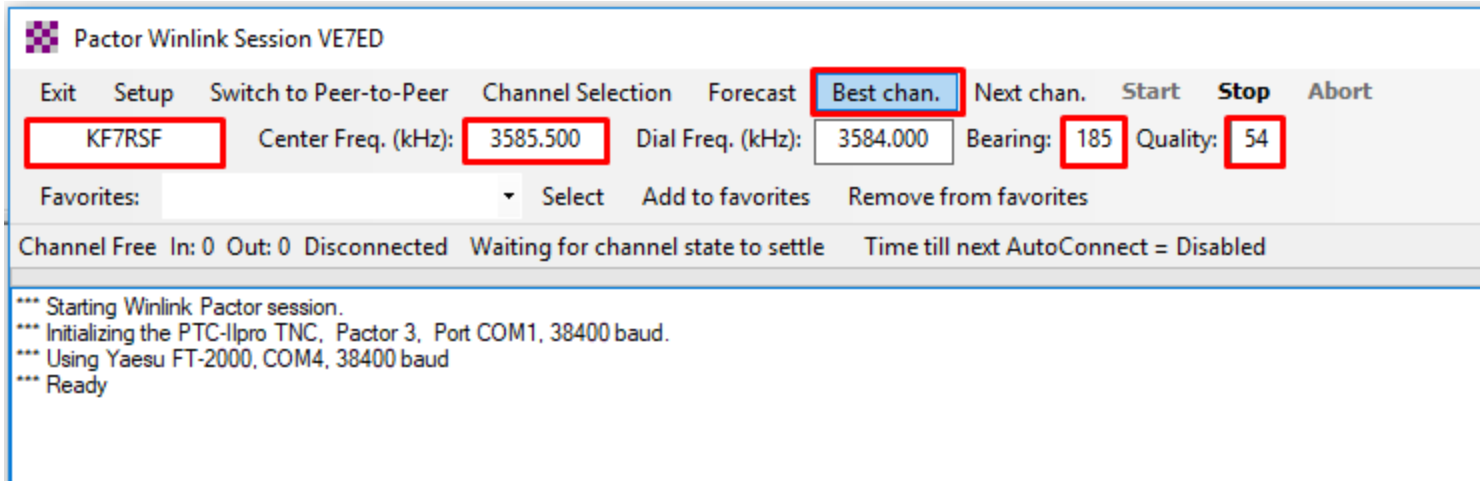
Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
W0BJI	3599.500	P3	EN27NL	00-23	EMCOMM	2135	082	54	41
KL7EDK	7065.900	P2, P1	BP64DV	00-23	PUBLIC	2317	331	52	41
K2RDX	7102.500	P3, P2, P1	CM97AH	00-23	PUBLIC	1240	173	50	40
K6IXA	7102.400	P3	CM97QI	00-23	PUBLIC	1253	167	49	40
KM0R	7062.900	P2, P1	EM38TX	00-23	PUBLIC	2702	101	48	40
K6SDR	7104.500	P3	CM87RX	00-23	PUBLIC	1161	175	47	39
AG6QO	7103.500	P3, P2, P1	CM98AM	00-23	PUBLIC	1107	172	37	34
XE2BNC	3591.700	P4, P3	DM12MM	00-23	PUBLIC	1852	160	36	38
KJ6IX	7103.000	P3, P2, P1	DM08DV	00-23	PUBLIC	1103	162	33	32
W7DEM	7103.000	P3	DM09DD	00-23	PUBLIC	1076	161	30	31
WL7CVG	3589.000	P3, P2, P1	BP51CE	00-23	PUBLIC	2167	321	29	37
KL7EDK	10147.700	P3, P2, P1	BP64DV	00-23	PUBLIC	2317	331	28	33
WA6TVD	7103.500	P3	DM09DJ	00-23	PUBLIC	1049	161	28	29
WL7CVG	10143.700	P3, P2, P1	BP51CE	00-23	PUBLIC	2167	321	27	32
W5KAV	5368.000	P3, P2, P1	CN86KT	00-23	PUBLIC	182	166	26	29
AB7AA	3589.000	P3	DM42KH	00-23	EMCOMM	2074	145	23	36
AB7AA	3582.500	P2, P1	DM42KH	00-23	EMCOMM	2074	145	23	36

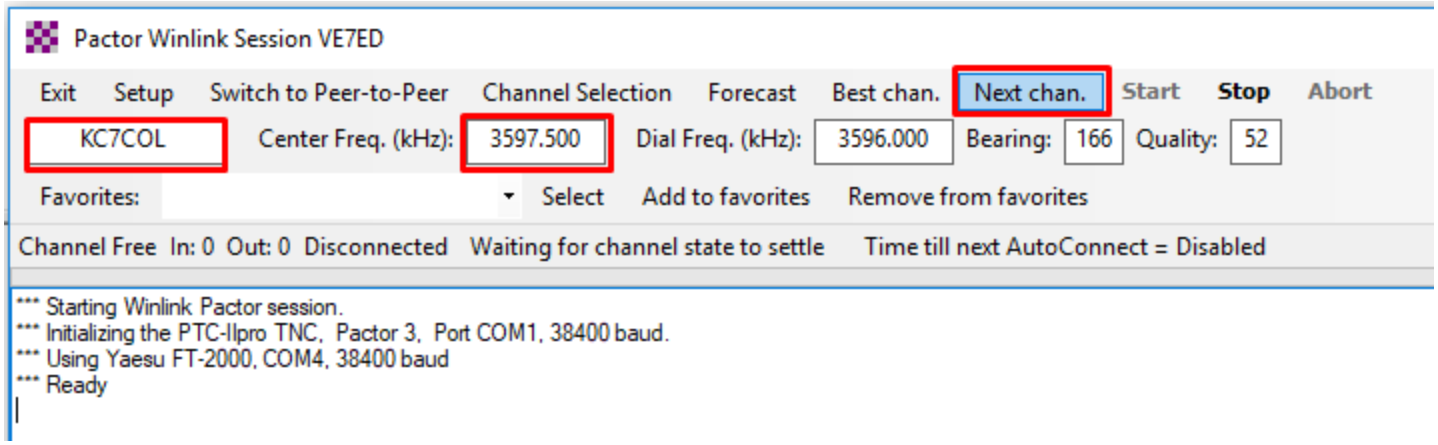


Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
W0BJI	3599.500	P3	EN27NL	00-23	EMCOMM	2135	082	54	41
KL7EDK	7065.900	P2, P1	BP64DV	00-23	PUBLIC	2317	331	52	41
K2RDX	7102.500	P3, P2, P1	CM97AH	00-23	PUBLIC	1240	173	50	40
K6IXA	7102.400	P3	CM97QI	00-23	PUBLIC	1253	167	49	40
KM0R	7062.900	P2, P1	EM38TX	00-23	PUBLIC	2702	101	48	40
K6SDR	7104.500	P3	CM87RX	00-23	PUBLIC	1161	175	47	39
AG6QO	7103.500	P3, P2, P1	CM98AM	00-23	PUBLIC	1107	172	37	34
XE2BNC	3591.700	P4, P3	DM12MM	00-23	PUBLIC	1852	160	36	38
KJ6IX	7103.000	P3, P2, P1	DM08DV	00-23	PUBLIC	1103	162	33	32
W7DEM	7103.000	P3	DM09DD	00-23	PUBLIC	1076	161	30	31
WL7CVG	3589.000	P3, P2, P1	BP51CE	00-23	PUBLIC	2167	321	29	37
KL7EDK	10147.700	P3, P2, P1	BP64DV	00-23	PUBLIC	2317	331	28	33
WA6TVD	7103.500	P3	DM09DJ	00-23	PUBLIC	1049	161	28	29
WL7CVG	10143.700	P3, P2, P1	BP51CE	00-23	PUBLIC	2167	321	27	32
W5KAV	5368.000	P3, P2, P1	CN86KT	00-23	PUBLIC	182	166	26	29
AB7AA	3589.000	P3	DM42KH	00-23	EMCOMM	2074	145	23	36
AB7AA	3582.500	P2, P1	DM42KH	00-23	EMCOMM	2074	145	23	36



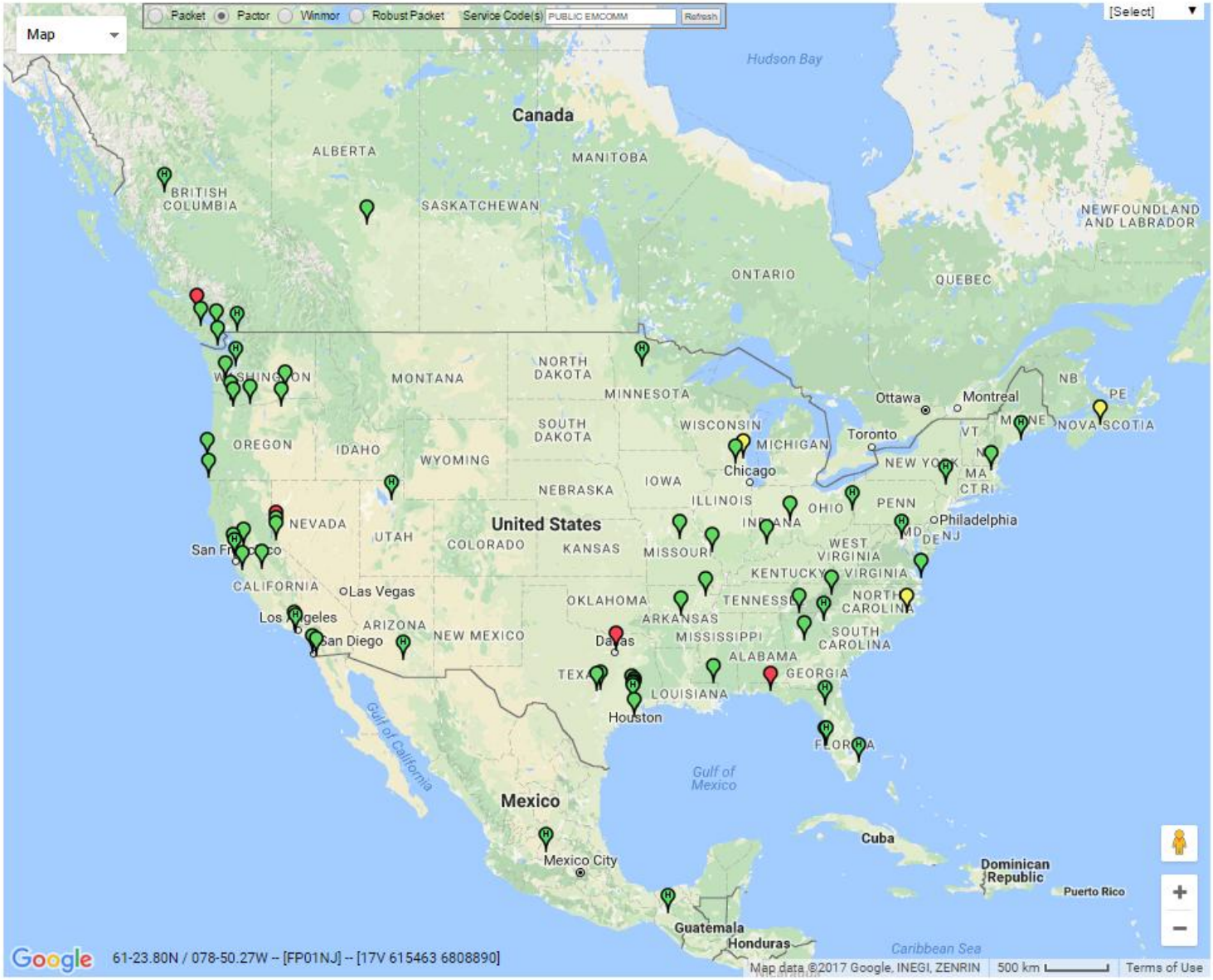
Hour (Z)	3582.500	3589.000	7066.500	7103.400
00	0	0	21	22
01	2	3	32	32
02	17	17	35	35
03	23	23	37	37
04	29	29	38	38
05	31	31	39	39
06	31	31	39	39
07	31	31	39	39
08	31	31	39	39
09	33	33	41	41
10	36	36	43	43
11	38	38	**44**	**44**
12	31	31	43	43
13	24	24	39	39
14	14	14	36	36
15	0	0	25	25
16	0	0	20	20
17	0	0	14	14
18	0	0	6	7
19	0	0	3	3
20	0	0	2	2
21	0	0	3	3
22	0	0	8	8
23	0	0	16	16


Pactor Winlink Session VE7ED
Exit
Setup
Switch to Peer-to-Peer
Channel Selection
Forecast
Best chan.
Next chan.
Start
Stop
Abort
KF7RSF
Center Freq. (kHz):
3585.500
Dial Freq. (kHz):
3584.000
Bearing:
185
Quality:
54
Favorites:
Select
Add to favorites
Remove from favorites
Channel Free In: 0 Out: 0 Disconnected
Waiting for channel state to settle
Time till next AutoConnect = Disabled
*** Starting Winlink Pactor session.
*** Initializing the PTC-IIpro TNC, Pactor 3, Port COM1, 38400 baud.
*** Using Yaesu FT-2000, COM4, 38400 baud
*** Ready


Pactor Winlink Session VE7ED
Exit
Setup
Switch to Peer-to-Peer
Channel Selection
Forecast
Best chan.
Next chan.
Start
Stop
Abort
KC7COL
Center Freq. (kHz):
3597.500
Dial Freq. (kHz):
3596.000
Bearing:
166
Quality:
52
Favorites:
Select
Add to favorites
Remove from favorites
Channel Free In: 0 Out: 0 Disconnected
Waiting for channel state to settle
Time till next AutoConnect = Disabled
*** Starting Winlink Pactor session.
*** Initializing the PTC-IIpro TNC, Pactor 3, Port COM1, 38400 baud.
*** Using Yaesu FT-2000, COM4, 38400 baud
*** Ready

Live System Information

RMS Map | RMS List | CMS Status | Traffic | Gateway Versions | User Versions | Local Status

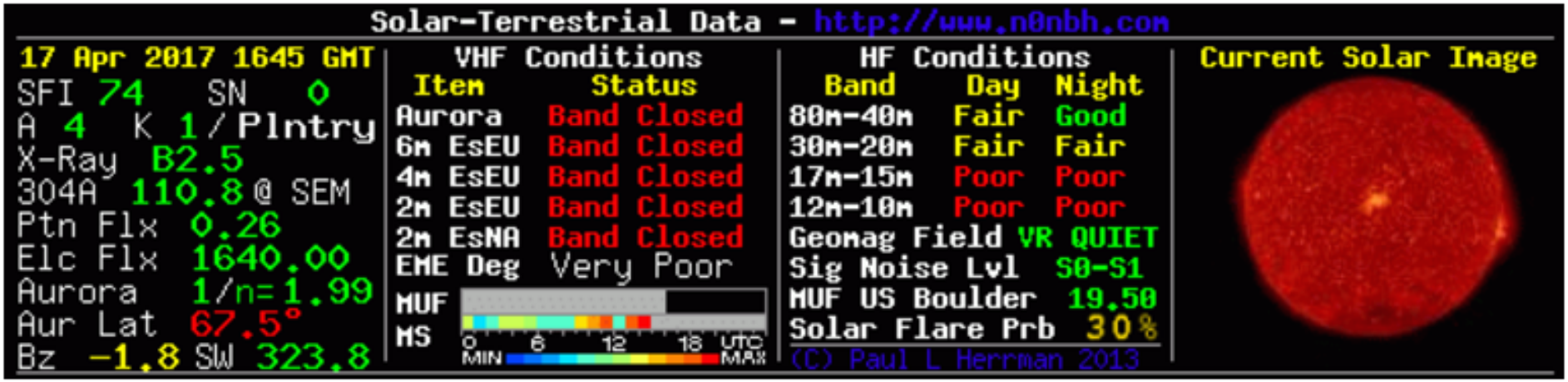


LEGEND:

Solar and Propagation

- VARPA - www.varpa.bc.ca
- Space Weather - www.spaceweather.com
- NOAA Space - www.swpc.noaa.gov/
- WM7D – wm7d.net

Solar – Terrestrial Data



VOACAP

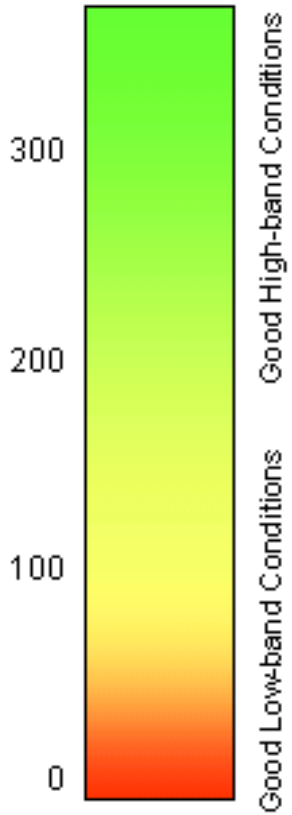
Voice **O**f **A**merica **C**overage **A**nalysis **P**rogram

- It is a free professional high-frequency (HF) propagation prediction software from NTIA/ITS, originally developed for Voice of America (VOA).
- Winlink use's it but it is out of date! (2012)

- Get the new version (2016) from Greg Hand's site

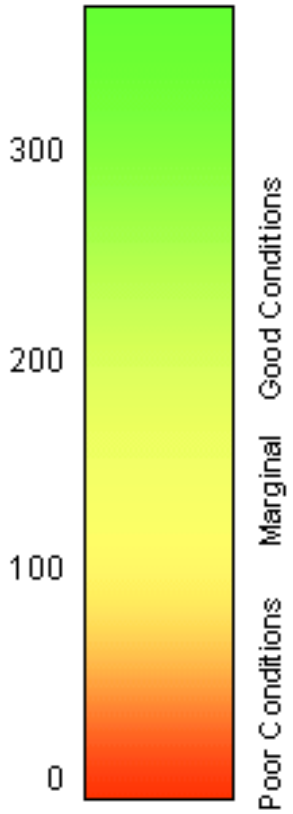
www.greg-hand.com/versions/itshfbc_161207.exe

Sunspot Numbers



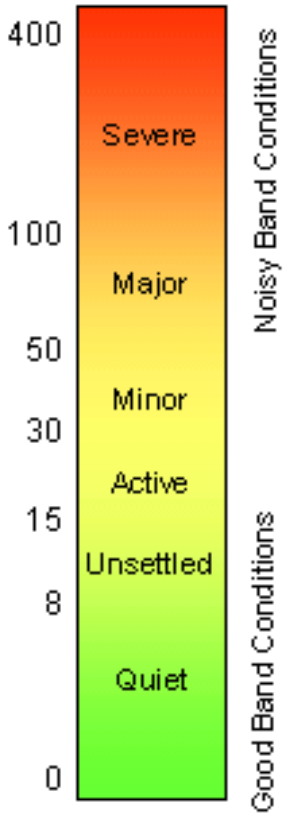
The number of sunspots is a measure of magnetic activity on the sun's surface, which roughly correlates to the ionization of the ionosphere. More is better.

Solar Flux Index (SFI)



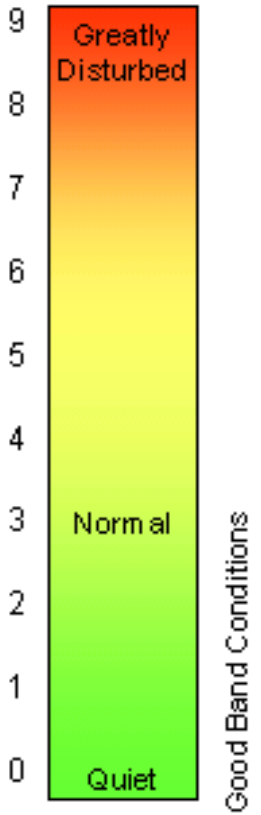
Solar Flux Index (SFI) is a gauge of solar particles and magnetic fields (solar wind) reaching Earth's atmosphere. Higher numbers are better.

Planetary "Ap" Index



The A index (linear scale) is published daily, and is made up of the eight K indices over 24 hours. The Planetary A index is the average over several locations on Earth.

"K" Index



The planetary Kp is the mean standardized K-index from 13 geomagnetic observatories between 44° and 60 ° northern or southern geomagnetic latitude (quasi-log scale).

Questions?

- Power points will be on the VARPA website