F6CTE (Patrick Lindecker) the 19 of June 2008

APRS EASY WITH MULTIPSK (4.9)

Introduction

In this document it will be found 4 forms (snapshots of Multipsk screen with indications to the « how to operate »), and which show the basic functions of APRS in Packet 1200 bauds mode (QRG : 144.800 MHz in FM but 144.390 MHz in the North American continent). Auxiliary options have been neglected. Their description will be found in the help. In Multipsk, APRS can be done in Packet 110, 300 and 1200 bauds, Pax, Pax2 and ARQ FAE in ALE or ALE400.

Notes about the help in Multipsk:

* for the contextual help, click on the right button of the mouse, with the focus over the APRS button (or a mode button, « Packet » for example),
* use also the button hints (wait a fraction of second over a button).

List of the forms

1) APRS reception
2) Map load from the APRS window (+ management of the maps)
3) APRS transmission
4) APRS repeaters management for APRS transmission + APRS digipeater function

APRS definition

APRS is short for « Automatic Position Reporting System », which was designed by Bob Bruninga, WB4APR, and introduced by him at the 1992 TAPR/ARRL Digital Communications Conference.

Fundamentally, APRS is a Packet communication protocol for disseminating live data to everyone on a network in real time. Its most visual feature is the combination of Packet radio with the Global Positioning System (GPS) satellite network, enabling radio amateurs to automatically display the positions of radio stations and other objects on maps on a PC.

Other features not directly related to position reporting are supported, such as weather station reporting, direction finding and messaging.

Example of use of repeaters (also called « digipeaters »), see the last form
For general mobiles:

TX : APZMU3 de F9YYY via **WIDE2-2**
.....repetition with F6CTE and F9YYZ substitution.....
RX : APZMU3 de F9YYY via F6CTE* WIDE2-1 (first hop)
RX : APZMU3 de F9YYY via F6CTE* F9YYZ* (second hop)

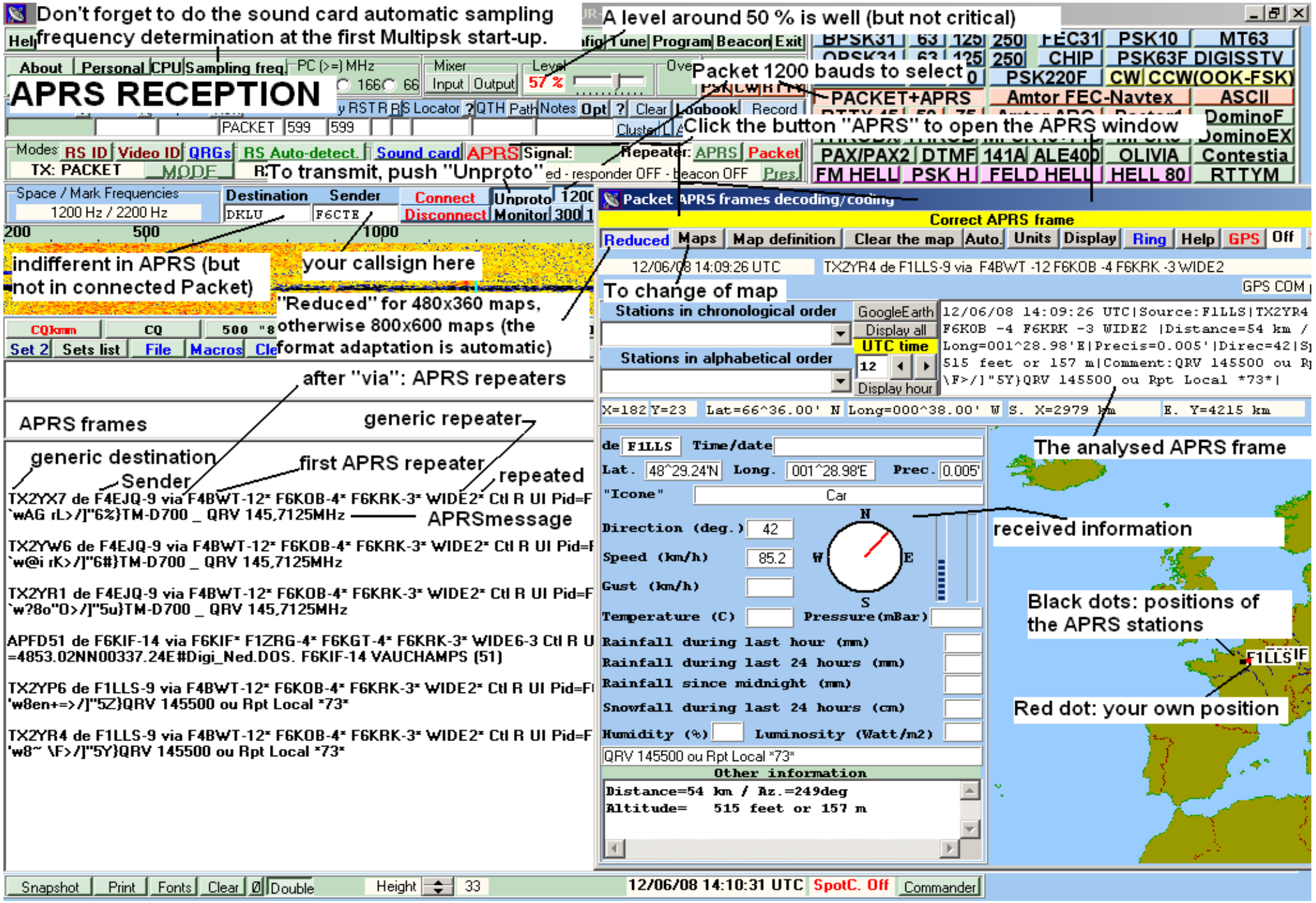
Note: "*" means end of the repetition relatively to the alias repeated, i.e when the SSID of this alias is worth 0, after decrementation (the bit H passing, hence, from 0 to 1).

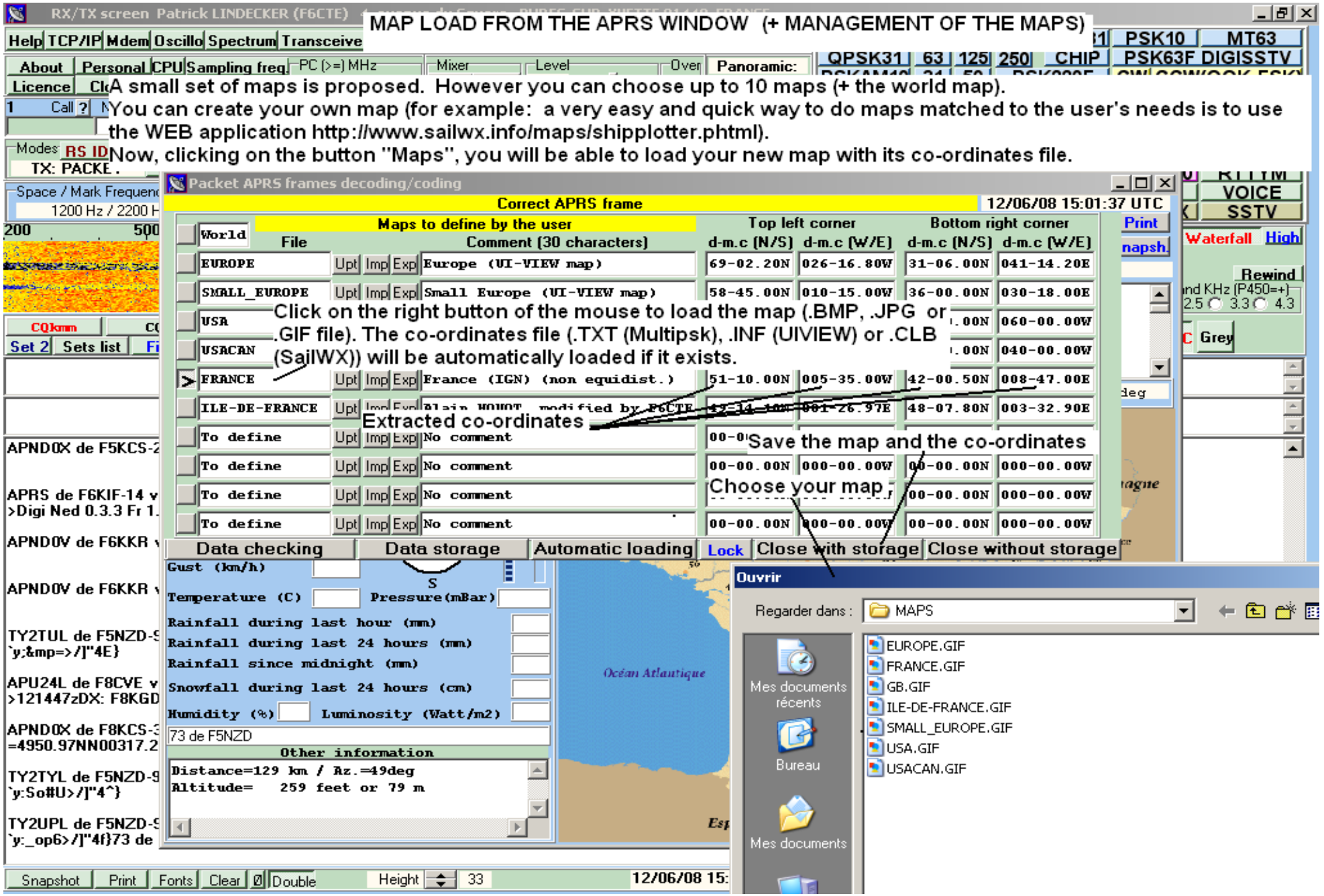
Other TX examples:

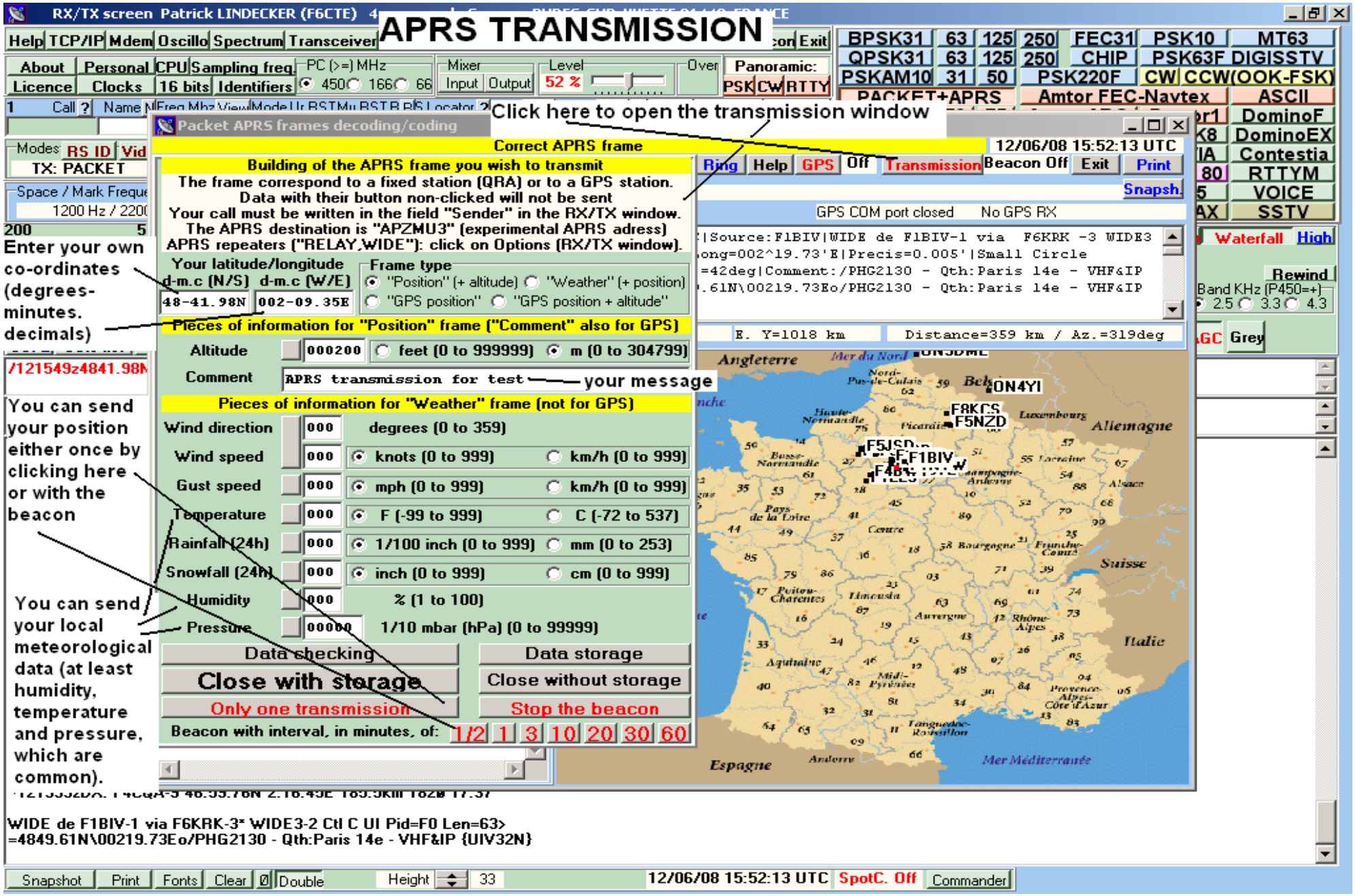
- TX (from local mobiles): APZMU3 de F9YYY via **WIDE1-1 WIDE2-1**

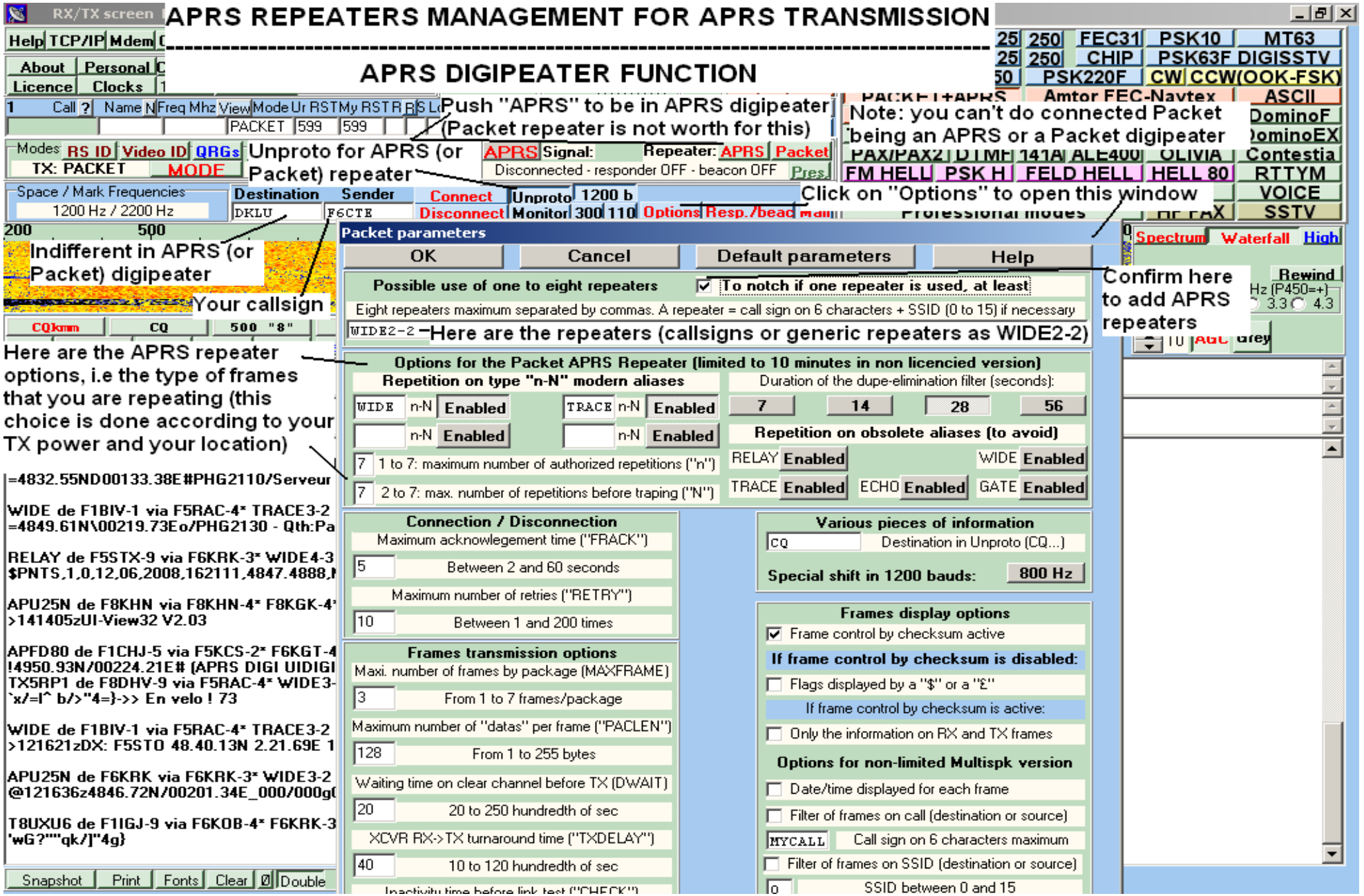
Note: "WIDE1-1" is used for a "small distance repeater"

- TX (from home stations): APZMU3 de F9YYY via **WIDE2-2**
- or TX (from home stations): APZMU3 de F9YYY via **WIDE3-3** (in distant rural areas)


Don't forget to do the sound card automatic sampling frequency determination at the first Multipsk start-up.
A level around 50 % is well (but not critical)
APRS RECEPTION
Packet 1200 bauds to select
Click the button "APRS" to open the APRS window
To transmit, push "Unproto"
indifferent in APRS (but not in connected Packet)
your callsign here
"Reduced" for 480x360 maps, otherwise 800x600 maps (the format adaptation is automatic)
To change of map
after "via": APRS repeaters
APRS frames
generic repeater
generic destination
Sender
first APRS repeater
repeated
APRSmessage
TX2YX7 de F4EJQ-9 via F4BWT-12* F6KOB-4* F6KRK-3* WIDE2* Ctl R UI Pid=F
`wAG rL>/]"6%}TM-D700 _ QRV 145,7125MHz
TX2YW6 de F4EJQ-9 via F4BWT-12* F6KOB-4* F6KRK-3* WIDE2* Ctl R UI Pid=F
`w@i rK>/]"6#}TM-D700 _ QRV 145,7125MHz
TX2YR1 de F4EJQ-9 via F4BWT-12* F6KOB-4* F6KRK-3* WIDE2* Ctl R UI Pid=F
`w?8o"O>/]"5u}TM-D700 _ QRV 145,7125MHz
APFD51 de F6KIF-14 via F6KIF* F1ZRG-4* F6KGT-4* F6KRK-3* WIDE6-3 Ctl R U
=4853.02NN00337.24E#Digi_Ned.DOS. F6KIF-14 VAUCHAMPS (51)
TX2YP6 de F1LLS-9 via F4BWT-12* F6KOB-4* F6KRK-3* WIDE2* Ctl R UI Pid=F
'w8en+=>/]"5Z}QRV 145500 ou Rpt Local *73*
TX2YR4 de F1LLS-9 via F4BWT-12* F6KOB-4* F6KRK-3* WIDE2* Ctl R UI Pid=F
'w8~ \F>/]"5Y}QRV 145500 ou Rpt Local *73*
Correct APRS frame
TX2YR4 de F1LLS-9 via F4BWT -12 F6KOB -4 F6KRK -3 WIDE2
12/06/08 14:09:26 UTC|Source:F1LLS|TX2YR4
F6KOB -4 F6KRK -3 WIDE2 |Distance=54 km /
Long=001^28.98'E|Precis=0.005'|Direc=42|S
515 feet or 157 m|Comment:QRV 145500 ou R
\F>/]"5Y}QRV 145500 ou Rpt Local *73*|
The analysed APRS frame
received information
Black dots: positions of the APRS stations
Red dot: your own position
F1LLS
F6KIF
Other information
Distance=54 km / Az.=249deg
Altitude= 515 feet or 157 m
QRV 145500 ou Rpt Local *73*


MAP LOAD FROM THE APRS WINDOW (+ MANAGEMENT OF THE MAPS)
A small set of maps is proposed. However you can choose up to 10 maps (+ the world map).
You can create your own map (for example: a very easy and quick way to do maps matched to the user's needs is to use the WEB application http://www.sailwx.info/maps/shipplotter.phtml).
Now, clicking on the button "Maps", you will be able to load your new map with its co-ordinates file.
Packet APRS frames decoding/coding
Correct APRS frame
12/06/08 15:01:37 UTC
Maps to define by the user
Top left corner
Bottom right corner
File
Comment (30 characters)
d-m.c (N/S)
d-m.c (W/E)
EUROPE
Europe (UI-VIEW map)
SMALL_EUROPE
Small Europe (UI-VIEW map)
USA
USACAN
FRANCE
France (IGN) (non equidist.)
ILE-DE-FRANCE
To define
No comment
Click on the right button of the mouse to load the map (.BMP, .JPG or .GIF file). The co-ordinates file (.TXT (Multipsk), .INF (UIVIEW) or .CLB (SailWX)) will be automatically loaded if it exists.
Extracted co-ordinates
Save the map and the co-ordinates
Choose your map
Data checking
Data storage
Automatic loading
Lock
Close with storage
Close without storage
Gust (km/h)
Temperature (C)
Pressure(mBar)
Rainfall during last hour (mm)
Rainfall during last 24 hours (mm)
Rainfall since midnight (mm)
Snowfall during last 24 hours (cm)
Humidity (%)
Luminosity (Watt/m2)
73 de F5NZD
Other information
Distance=129 km / Az.=49deg
Altitude= 259 feet or 79 m
Océan Atlantique
Ouvrir
Regarder dans :
MAPS
EUROPE.GIF
FRANCE.GIF
GB.GIF
ILE-DE-FRANCE.GIF
SMALL_EUROPE.GIF
USA.GIF
USACAN.GIF
Mes documents récents
Bureau
Mes documents
Snapshot
Print
Fonts
Clear
Double
Height
33


APRS TRANSMISSION
RX/TX screen Patrick LINDECKER (F6CTE)
Click here to open the transmission window
Packet APRS frames decoding/coding
Correct APRS frame
Building of the APRS frame you wish to transmit
The frame correspond to a fixed station (QRA) or to a GPS station.
Data with their button non-clicked will not be sent
Your call must be written in the field "Sender" in the RX/TX window.
The APRS destination is "APZMU3" (experimental APRS adress)
APRS repeaters ("RELAY,WIDE"): click on Options (RX/TX window).
Your latitude/longitude
d-m.c (N/S) d-m.c (W/E)
48-41.98N 002-09.35E
Frame type
"Position" (+ altitude) "Weather" (+ position)
"GPS position" "GPS position + altitude"
Pieces of information for "Position" frame ("Comment" also for GPS)
Altitude 000200 feet (0 to 999999) m (0 to 304799)
Comment APRS transmission for test
your message
Pieces of information for "Weather" frame (not for GPS)
Wind direction 000 degrees (0 to 359)
Wind speed 000 knots (0 to 999) km/h (0 to 999)
Gust speed 000 mph (0 to 999) km/h (0 to 999)
Temperature 000 F (-99 to 999) C (-72 to 537)
Rainfall (24h) 000 1/100 inch (0 to 999) mm (0 to 253)
Snowfall (24h) 000 inch (0 to 999) cm (0 to 999)
Humidity 000 % (1 to 100)
Pressure 00000 1/10 mbar (hPa) (0 to 99999)
Data checking
Data storage
Close with storage
Close without storage
Only one transmission
Stop the beacon
Beacon with interval, in minutes, of: 1/2 1 3 10 20 30 60
Enter your own co-ordinates (degrees-minutes. decimals)
You can send your position either once by clicking here or with the beacon
You can send your local meteorological data (at least humidity, temperature and pressure, which are common).
12/06/08 15:52:13 UTC
Beacon Off
Exit
Print
GPS COM port closed
No GPS RX
Distance=359 km / Az.=319deg
WIDE de F1BIV-1 via F6KRK-3* WIDE3-2 Ctl C UI Pid=F0 Len=63>
=4849.61N\00219.73Eo/PHG2130 - Qth:Paris 14e - VHF&IP {UIV32N}
Snapshot
Print
Fonts
Clear
Double
Height
33
SpotC. Off
Commander


APRS REPEATERS MANAGEMENT FOR APRS TRANSMISSION
APRS DIGIPEATER FUNCTION
Push "APRS" to be in APRS digipeater
(Packet repeater is not worth for this)
Note: you can't do connected Packet
being an APRS or a Packet digipeater
Unproto for APRS (or
Packet) repeater
Click on "Options" to open this window
Indifferent in APRS (or
Packet) digipeater
Your callsign
Here are the repeaters (callsigns or generic repeaters as WIDE2-2)
Confirm here
to add APRS
repeaters
Here are the APRS repeater
options, i.e the type of frames
that you are repeating (this
choice is done according to your
TX power and your location)
Packet parameters
OK
Cancel
Default parameters
Help
Possible use of one to eight repeaters
To notch if one repeater is used, at least
Eight repeaters maximum separated by commas. A repeater = call sign on 6 characters + SSID (0 to 15) if necessary
WIDE2-2
Options for the Packet APRS Repeater (limited to 10 minutes in non licencied version)
Repetition on type "n-N" modern aliases
Duration of the dupe-elimination filter (seconds):
Repetition on obsolete aliases (to avoid)
1 to 7: maximum number of authorized repetitions ("n")
2 to 7: max. number of repetitions before traping ("N")
Connection / Disconnection
Maximum acknowlegement time ("FRACK")
Between 2 and 60 seconds
Maximum number of retries ("RETRY")
Between 1 and 200 times
Frames transmission options
Maxi. number of frames by package (MAXFRAME)
From 1 to 7 frames/package
Maximum number of "datas" per frame ("PACLEN")
From 1 to 255 bytes
Waiting time on clear channel before TX (DWAIT)
20 to 250 hundredth of sec
XCVR RX->TX turnaround time ("TXDELAY")
10 to 120 hundredth of sec
Various pieces of information
Destination in Unproto (CQ...)
Special shift in 1200 bauds:
800 Hz
Frames display options
Frame control by checksum active
If frame control by checksum is disabled:
Flags displayed by a "$" or a "£"
If frame control by checksum is active:
Only the information on RX and TX frames
Options for non-limited Multispk version
Date/time displayed for each frame
Filter of frames on call (destination or source)
Call sign on 6 characters maximum
Filter of frames on SSID (destination or source)
SSID between 0 and 15
=4832.55ND00133.38E#PHG2110/Serveur
WIDE de F1BIV-1 via F5RAC-4* TRACE3-2
=4849.61N\00219.73Eo/PHG2130 - Qth:Pa
RELAY de F5STX-9 via F6KRK-3* WIDE4-3
$PNTS,1,0,12,06,2008,162111,4847.4888,
APU25N de F8KHN via F8KHN-4* F8KGK-4
>141405zUI-View32 V2.03
APFD80 de F1CHJ-5 via F5KCS-2* F6KGT-4
!4950.93N/00224.21E# (APRS DIGI UIDIGI
TX5RP1 de F8DHV-9 via F5RAC-4* WIDE3-
`x/=|^ b/>"4=}->> En velo ! 73
WIDE de F1BIV-1 via F5RAC-4* TRACE3-2
>121621zDX: F5STO 48.40.13N 2.21.69E 1
APU25N de F6KRK via F6KRK-3* WIDE3-2
@121636z4846.72N/00201.34E_000/000g
T8UXU6 de F1IGJ-9 via F6KOB-4* F6KRK-3
'wG?""qk/]"4g}