

APRS (Automatic Packet Reporting System)



Western Placer Amateur Radio Club
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Advances in APRS Technology

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APRS Overall Concept

- APRS is now in its 20th year! APRS is digital communications information channel for Ham radio
- APRS is not a vehicle tracking system. It is a two-way tactical real-time digital communications system.
- APRS also supports global callsign-to-callsign messaging, bulletins, objects email and Voice.

VHF/UHF Ham Radio

- Hams have enjoyed using FM transceivers for years for SSTV, ATV, packet, satellite, EME, GPS because FM transceivers is easy to use.
- No longer are users of FM transceivers bound by line-of-sight distances and local same-city.
- The Internet now shrinks the communications ranges of FM to World Wide Coverage.
- Hams are using basic FM transceivers to communicate on a direct one-on-one basis with operators across the globe.

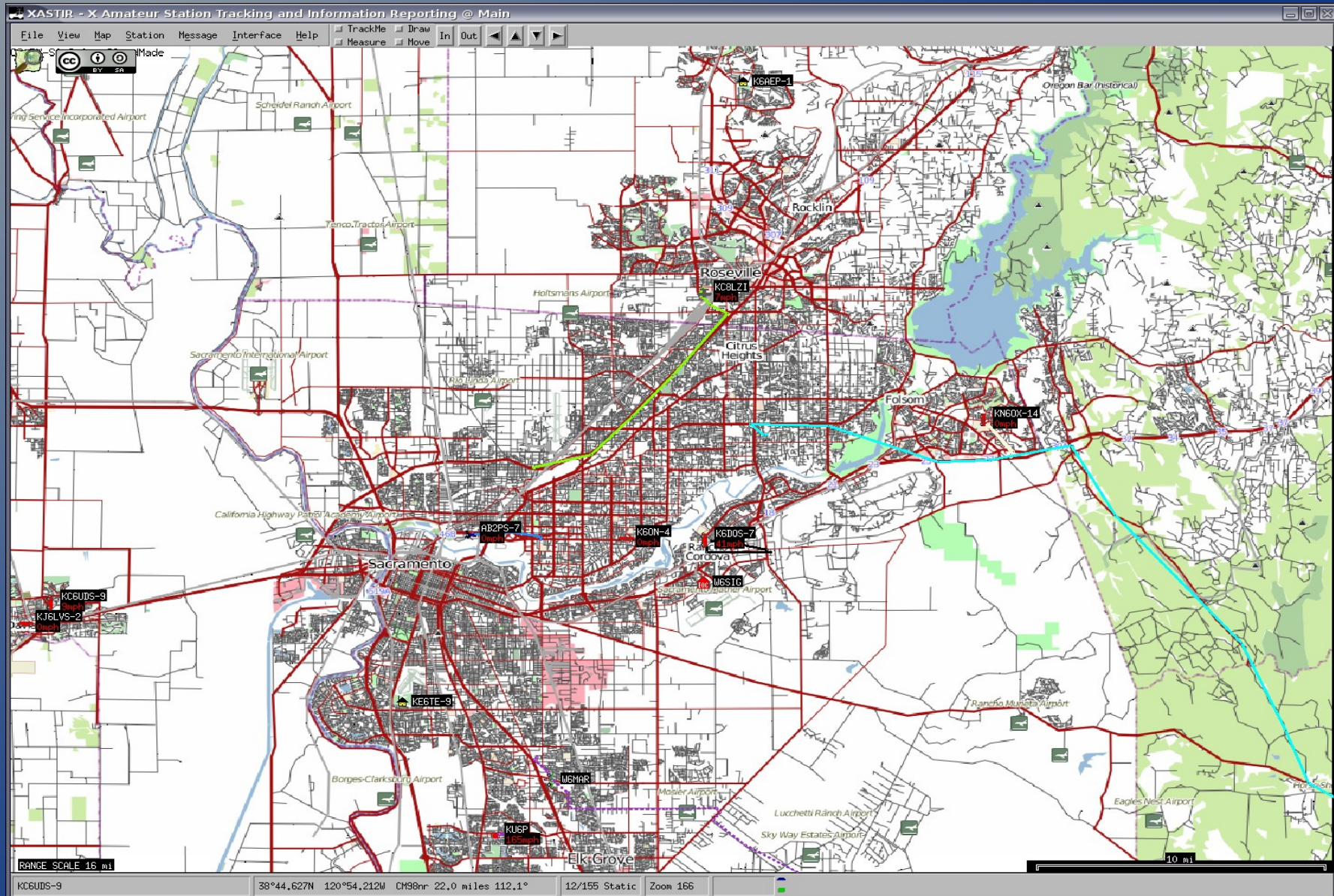
APRS in 2012

- APRS has now reached a level where off the shelf plug and play hardware is now available which make APRS practical.
- Up to a few years ago APRS was only for the most skilled radio amateur operators.
- Today it is available to all hams, and is the way of the future.
- If we wish to attract a new younger ham's APRS will be attractive.
- APRS is a ham radio somewhat like the Internet Facebook and other social media.

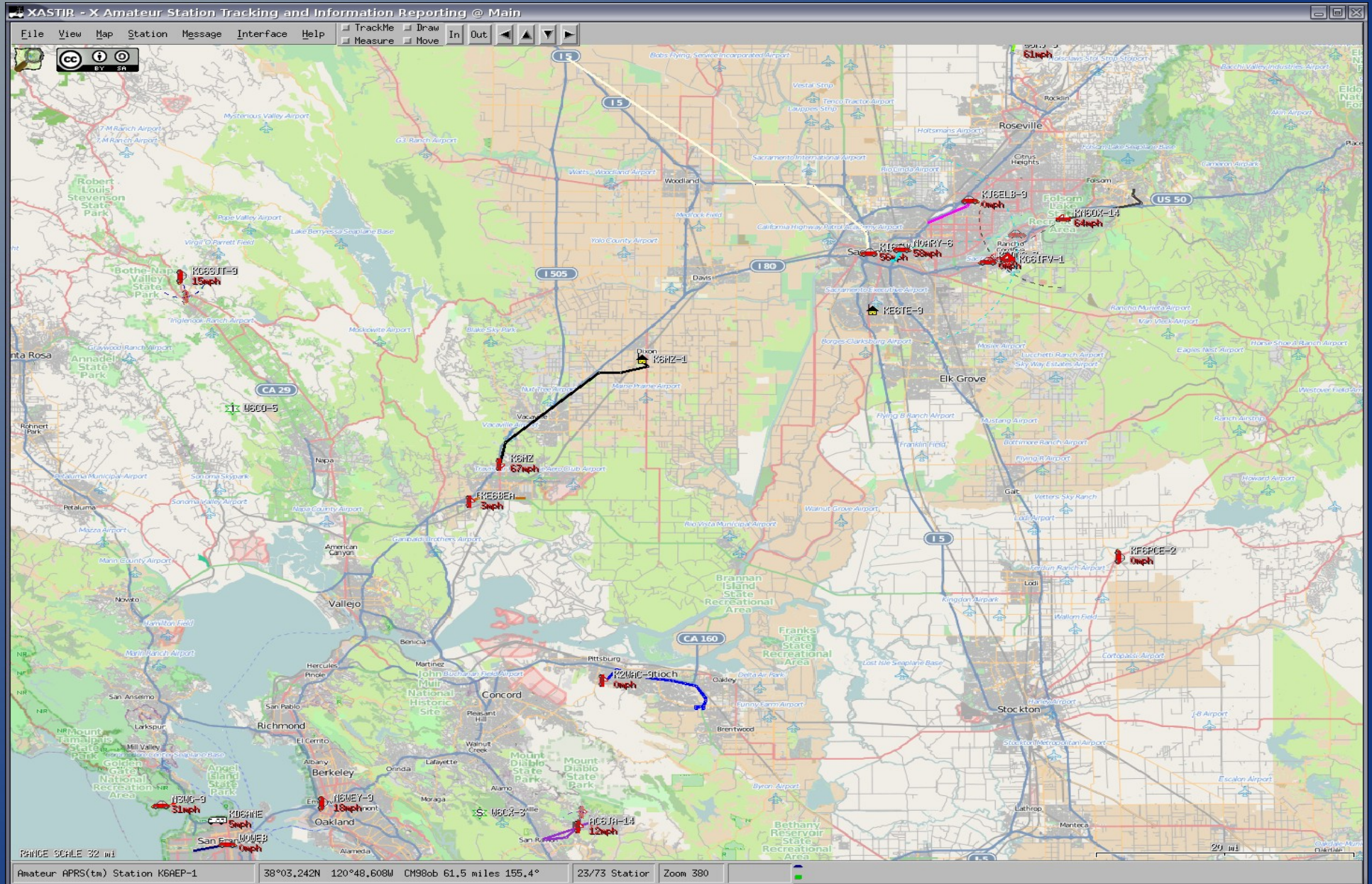
What Make APRS Useful

- It's system, which allows users to transmit text messages, alerts, bulletins, etc., with their GPS coordinates.
- It's a form of digital communication that you can use with handheld, mobile, and base station amateur radios.
- It can be used in all sorts of emergency communications and community events like bike races.

APRS Tracking Xastir Linux



APRS Tracker -Linux Xastir



Xastir Tracker — Trip to Rosville TM-D72

XASTIR - X Amateur Station Tracking and Information Reporting @ static-host

File View Map Station Message Interface Help TrackMe Draw In Out Measure Move

Station Info

K8AEP-10 Enable Automatic Updates

Messages received: 26 Last Heard: 04/07/2012 10:41:58
 via the TNC on device 0, last via TNC on device 0, and has moved
 path: S8U03X,NIDE1-1,NIDE2-1
 at 04/07 10:41 : TH-D7 Mic-E In Service =
 Power Gain: default (9W @ 20ft HAAT, 3dB omni, range 6.2mi)
 Speed: 181° Speed: 18.4 mph
 Distance from my station: 1219 yards Bearing from my station: 275.1°

Time	Altitude	Latitude	Longitude	Speed	Bearing	Mode
04/07 10:41	38 51,880N	121 16,770W	18mph	181°	CH981u *	
04/07 10:41	38 51,990N	121 16,880W	26mph	136°	CH981u *	
04/07 10:40	38 52,160N	121 16,880W	17mph	175°	CH981u *	
04/07 10:40	38 52,230N	121 17,140W	33mph	105°	CH981u *	
04/07 10:39	38 52,150N	121 17,470W	20mph	66°	CH981u *	
04/07 10:39	38 52,300N	121 17,650W	30mph	135°	CH981u *	
04/07 10:38	38 52,240N	121 17,780W	15mph	68°	CH981u *	
04/07 10:37	38 52,320N	121 17,820W	6mph	140°	CH981u *	

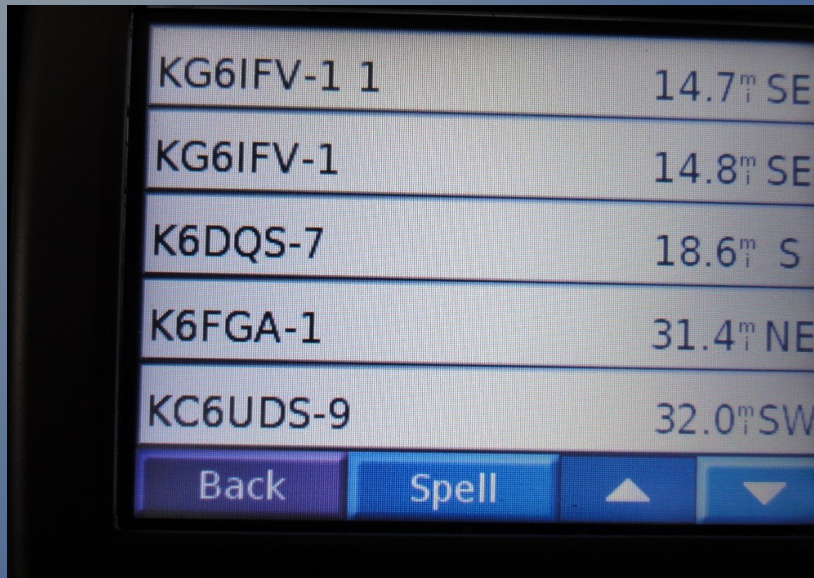
RANGE SCALE 16 mi

K7FED-1 38°59,506N 121°06,561W CH98kx 7/187 Station Zoom 171

APRS on Android Tablet



APRS on GPS Devices

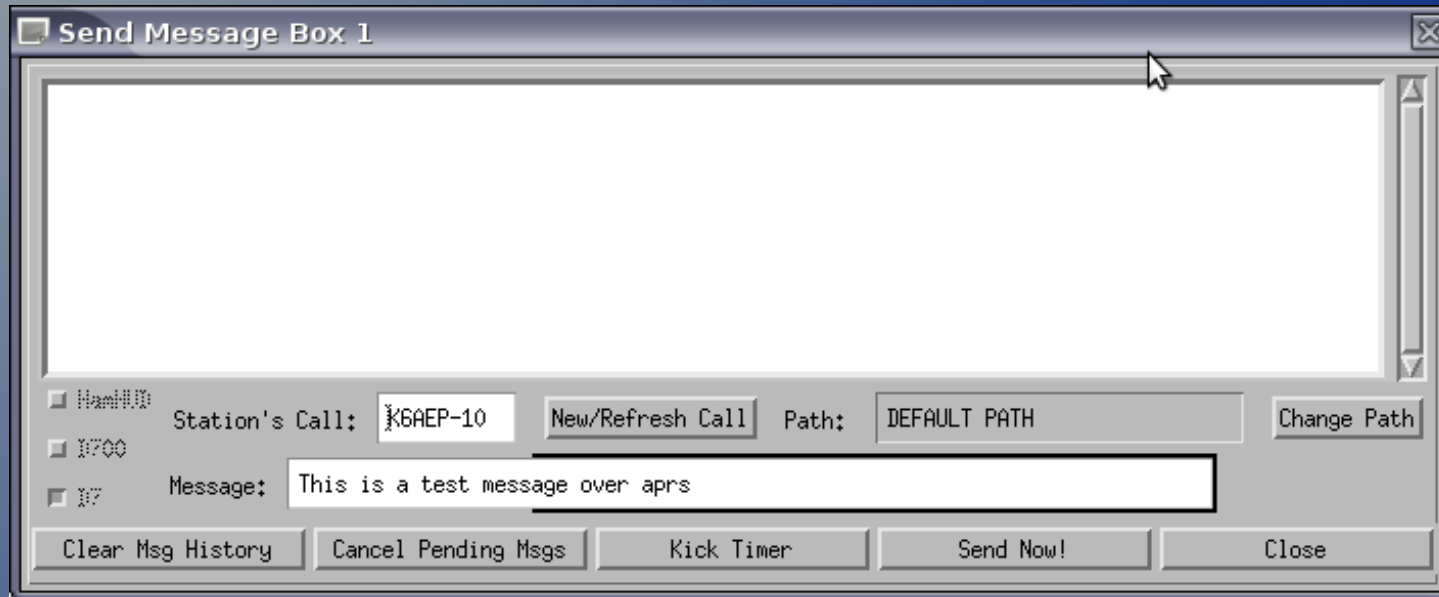


KG6IFV-1 1	14.7 ^m SE
KG6IFV-1	14.8 ^m SE
K6DQS-7	18.6 ^m S
K6FGA-1	31.4 ^m NE
KC6UDS-9	32.0 ^m SW

Back Spell

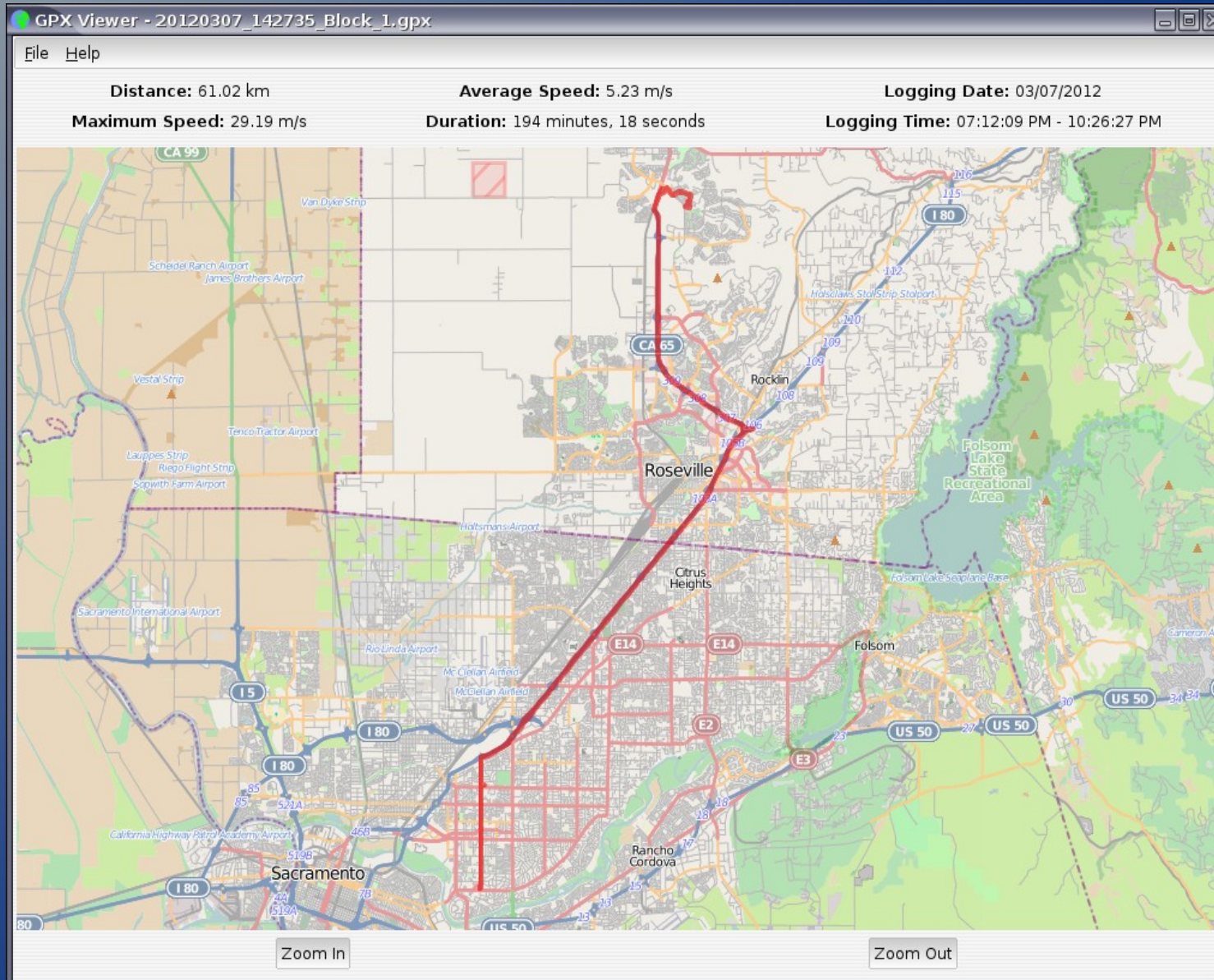


APRS Messaging



Kenwood D72 GPS Log

Trip from Lincoln Hills to Sacramento 3/7/2012



Internet APRS Tracking

Google Maps APRS - SeaMonkey

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop <http://aprs.fi/#!call=a%2FK6AEP-10&timerange=3600> Search Print

Home Bookmarks Most Visited The Mozilla Organiz... Latest Builds Abrams Family Of L...

Google Maps APRS

38°38.81' N 120°55.62' W, CM98MP

Overlays Map

aprs.fi · Login

CableWholesale
Official Site for CableWholesale. Free Shipping on Orders over \$50!
www.CableWholesale.com AdChoices

Track callsign: Clear / Show all

Address, city or Locator: Clear

Show last: 1 hour

K6AEP-10
Updated: 2012-03-06 21:26:41z (15d9m)
Position: 38°52.17' N 121°16.88' W

2010 2011 2012

Other SSIDs: K6AEP K6AEP-1
K6AEP-2
Wx: 66.6°F 54% 1017 mbar 1.7 MPH SE

Other views:

- Station info
- Raw packets
- Status packets - Beacon packets
- APRS/CWOP weather - Telemetry
- Messages - Bulletin board
- Prefix browsing
- Google Earth KML ?
- Data export tool
- Preferences - My account

Information:
APRS stations currently moving · User guide · FAQ · Blog · Discussion group · Linking to aprs.fi · AIS sites · Service status · Database statistics · Advertising on aprs.fi · Technical details · API · Change log · Planned changes · Credits and thanks · Terms Of Service

idle

APRSpoint Windows

The screenshot displays the APRSpoint software interface. The main window shows a map of California with various APRS positions plotted as icons. The positions are listed in the left-hand pane, including call signs like 441.0375, AC6ET-8, AE6GT-7, AE6GT-9, AE6LA, RY AE6LA-1, RY AE6RR-9, AE6YN, K3UG-9, K6AEP-1, K6ARC-2, K6CDF-3, K6CDF-6, K6CDF-7, K6DOS-8, K6FGA-1, K6GER, K6GSJ-1, K6JFT-1, K6LRC-3, K6MZ-1, K6ON-4, K7AGE-1, K7FED-1, K7FED-1, K6HRO, K6BZE, K6SSM, K6CUDS, K6C9FH, K6HNI, K6DNIG, K6BBA, K6LQJ, K6TE-9, K67XD, K66DPH, K6FPC, K6IMM-4, K6JAS-2, K6SEJ-1, K6UDH, K6VYK-2, K6JWC, K6DX-9, K6MOI, K6RSU, K6SZL, K6MCC-7, K6UP, K6VJ-9, N6ARY-6, N6WG-9, N6DZR-9, N6HDN-4, N6IL-9, N6OIM-1, and N6T7F-9. The map shows the state of California with major cities and highways. The status bar at the bottom indicates the user is connected to port COM2 at 9600bps, and the current time is 8:38 AM on 3/8/2012.

APRSpoint Windows

The screenshot displays the APRSpoint software interface. The main window shows a map of California with numerous APRS stations marked as icons with call signs. A list of these call signs is visible on the left side of the window. The interface includes a menu bar (File, Edit, View, Comm, Tools, Help), a toolbar, and a status bar at the bottom. The status bar indicates the user is connected to port COM2 at 9600bps, the date is 3/8/2012, and the time is 8:35 AM. The map shows major cities like Sacramento, San Francisco, and Stockton, with various APRS stations scattered across the state.

Positions (7)

- 441.0375
- ACBET-8
- AE8GT-7
- AE8GT-9
- AE8LA
- RY AE8LA-1
- RY AE8RR-9
- AE8YN
- KJUG-9
- K6AEP-1
- K6ARC-2
- K6CDF-3
- K6CDF-6
- K6CDF-8
- K6DOS-7
- K6FGA-1
- K6GER
- K6GSJ-1
- K6JFT-1
- K6LRC-3
- K6MZ-1
- K6ON-4
- K7AGE-1
- K7FED-1
- K7FED-1
- KA6HRO
- KB7BZE
- K6SSM
- K6UDS
- K6I9RH
- KD6HNI
- KD6NIG
- KE6BEA
- KE6LOJ
- KE6TE-9
- KE7TXD
- KF6DPH
- KF6PCE
- KI6IMM-4
- KI6JAS-2
- KI6SEJ-1
- KI6UDH
- KI6VYK-2
- KJ6IWC
- KJ6IX-9
- KJ6MOI
- KJ6RSU
- KK6ZL
- KM6CQ-7
- KU6P
- KV7J-9
- N6ARY-8
- N3WG-9
- N6DZR-8
- N6HON-4
- N6IL-9
- N6OIM-1
- NRT7F-9

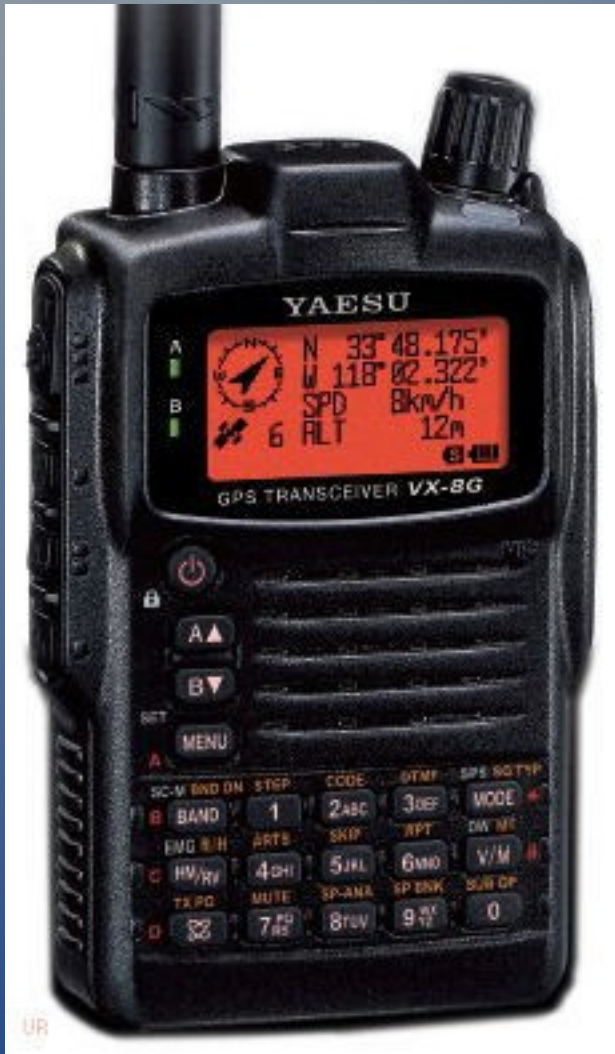
Connected to port COM2 at 9600bps

3/8/2012 8:35 AM

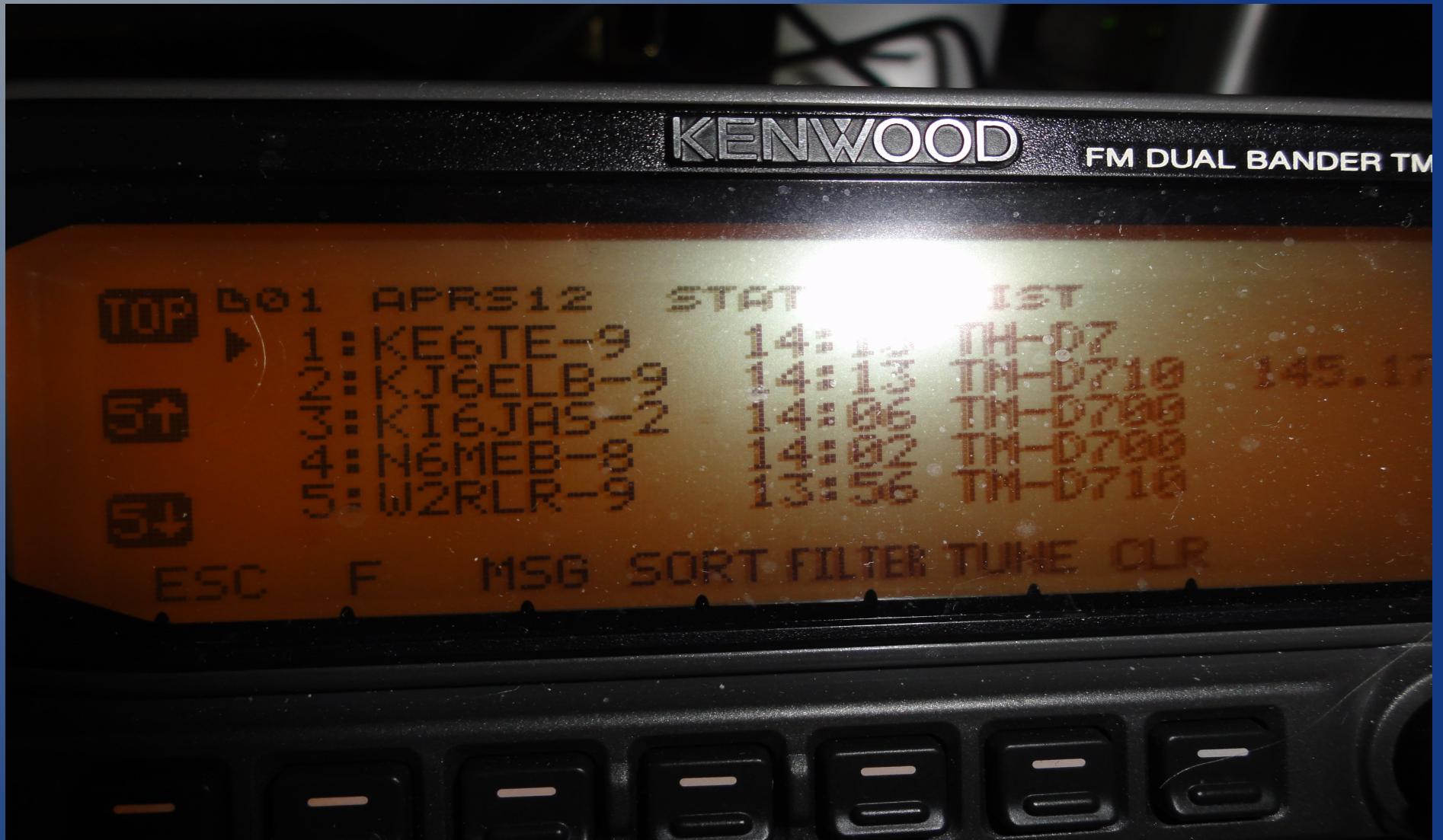
Aprspoint

The screenshot displays the APRSPoint software interface. The main window shows a map of California with various APRS stations marked with call signs and icons. The interface includes a menu bar (File, Edit, View, Comm, Tools, Help), a toolbar, and a status bar at the bottom. The status bar shows the station ID K6AEP-1, the date 3/8/2012, and the time 8:39 AM. The map shows the state of California with various cities and counties labeled. The APRS stations are marked with call signs such as K6AEP-1, K6DGS-7, K6GER, K6GSI-1, K6JFT-1, K6LRC-3, K6M2-1, K6RON-4, K7AGE-1, K7FED-1, K7FED-1, K6ASHRO, K6B7ZE, K6C8SSM, K6C8UDS, K6C8HRH, K6D6HNI, K6D6NIG, K6E6BEA, K6E6LQJ, K6E6TE-9, K6E7XD, K6F6DPH, K6F6PCE, K6I6MM-4, K6I6JAS-2, K6I6SEJ-1, K6I6UDH, K6I6VYK-2, K6J6WC, K6J6IX-9, K6J6MQI, K6J6RSU, K6K6ZL, K6M6CQ-7, K6U6P, K6V7J-9, K6W6RY-4, K6X6WG-9, K6Y6DZR-4, K6Z6HDN-4, K6Z6IL-9, K6Z6OIM-1, and K6Z6RT7F-9. The map also shows the Pacific Ocean to the west and the Sierra Nevada mountains to the east. The interface is connected to port COM2 at 9600bps.

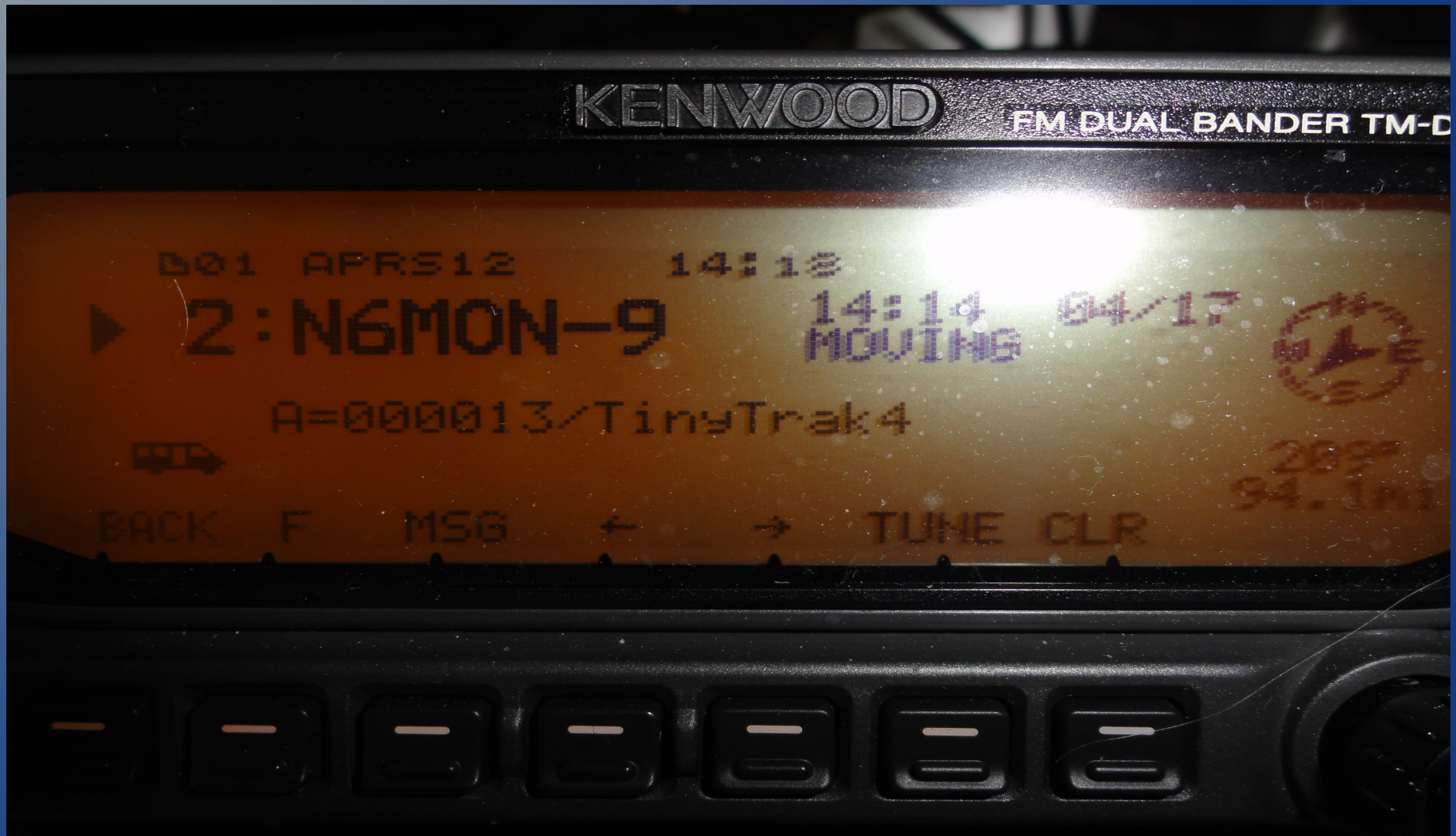
APRS Latest Hardware



Tm-D710 - Stations



Tm-D710 – Station Details



Tm-D710 - Filter



Tm-D710-Kenwood Rigs



Now for a Demo

- Kenwood D72 HT – Released 12/2011
 - Demo By Clay K6AEP
- Home station – Kenwood D710, Argent GTRANS
Garmin, Nuvi360, Computer Xastir software
- Yaesu VX8DR HT – Released 12/2009
 - Demo by Kent KJ6APX
- Home station – Yaesu FT-8900, Argent Open Tracker, Nuvi 350