

K5TIT



Texas
Interconnect
Team



Geo-location and D-STAR

Situational Awareness Brought to Fruition

Pete Loveall AE5PL



- WNOFEW – 1971
- WBOFEW (Advanced) – 1972
- RTTY – 1972
- Packet – 1986
- APRS – 1996
- AE5PL (Extra) – 2000
- Author – javAPRSSrvr – 2002
- Author – D-PRS – 2005

D-STAR DV



- Digital **VOICE**
- 4800 bps bit stream
- After header, continuous 96 bit segments
- 72 bits to AMBE voice and FEC
- 24 bits to “low speed data” – NO FEC, FCS
 - Signaling
 - Synchronization
 - Undefined

Icom Low Speed Data



- Icom defined usage
- Front panel “message” display
- Low speed (less than 1200 bps) serial data

Icom Serial Data



- External Asynchronous Data
- Internal GPS

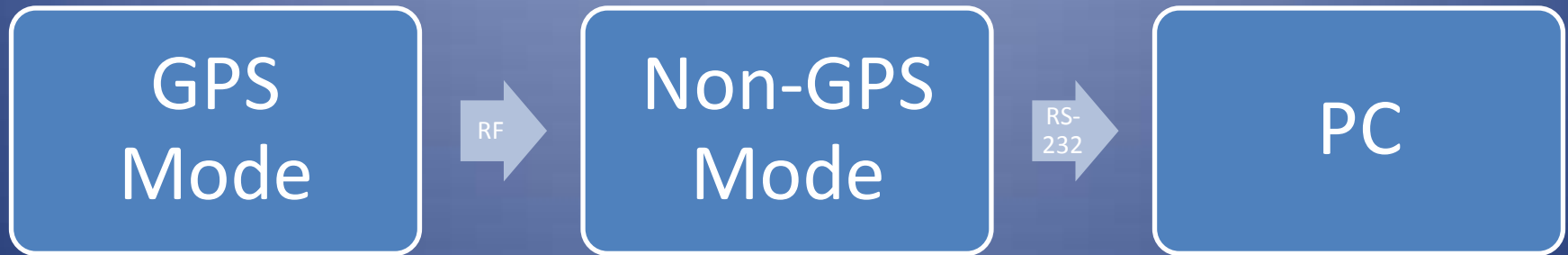
- BOTH use the exact same format

Icom GPS Modes



- Original: GPS Mode
 - No inherent error detection
 - NMEA GPS strings followed by callsign and front panel message
- GPS-A Mode
 - APRS TNC2 format with CRC wrapper
 - Not displayed on Icom radios

Simple Icom Geo-location



Special Notes



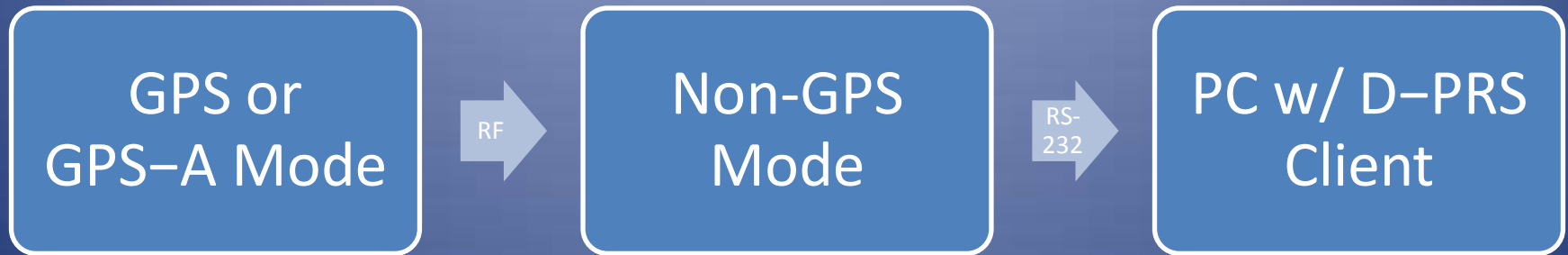
- NO protocol error correction or detection
 - Must be supplied by application
- NO messaging
- ADJUNCT to voice
 - Must coexist and give priority to voice
- NOT intended for tracking
- Continuous transmission with PTT depressed

D-PRS



- Icom GPS to APRS Translation
- Specification, Not Protocol
- Supports GPS and GPS-A modes
- Uses GPS-A CRC wrapper to facilitate APRS-APRS client communications

Simple Icom Geo-location



D-PRS



- APRS mapping clients
- APRS-IS gateways
- D-STAR client support (D-RATS)
- APRS messaging over D-STAR DV

D-PRS IGates



- Standalone
- D-STAR Gateway Collocation

Requirements



- GPS Mode:
 - Mandatory message configuration
 - <http://www.aprs-is.net/dprscalcul.aspx>
- GPS-A Mode:
 - APIInna,DSTAR* UNPROTO
 - nna is defined at <http://www.aprs-is.net/dprs.aspx>

Be Heard



- Simplex does not require special RPTR settings
- Repeater use (repeater not linked):
 - URCALL = CQCQCQ
 - RPTR1 = Local repeater call including ID (K5TIT B)
 - RPTR2 = Local gateway call including ID (K5TIT G)

Don't Interfere!



- Never beacon on a linked repeater
- Only beacon on a repeater with prior permission
- Never beacon on a repeater if active on voice (either you or the repeater is active)

Situational Awareness



- EVERY time you transmit, you send your position
- Active voice net, Net Control sees everyone's position when they transmit
- No interference or wasted net time trying to describe your location

Quick, Tell Me Where You Are!



APRS vs. D-PRS



- APRS
 - Tracking
 - Messaging
 - Informational
 - Normally, multiple radios, possible interference
- D-PRS
 - Situational Awareness
 - Voice network adjunct
 - Single, non-interfering radio

Final Thoughts



- Be considerate
- Be considerate
- Listen
- Listen
- Listen
- Be prepared

Q&A



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