Current status report of FX.25 KISS TNC development

Kazuhisa Yokota, JN1DFF
Masaaki Yonezawa, JE1WAZ

Packet Radio Users’ Group
Aug.12, 2020
Use of FX.25 KISS TNC and future plan

Future plan

- Wi-Fi installation flexibility using Wi-Fi interface
- I2C sensors
- Independent sensor node

Reliable communication with error correction

Between FX.25 stations

Compatible with current system

Between FX.25 station and AX.25 station

Now experimenting in the 430MHz band as APRS nodes
Features of FX.25 KISS TNC

• Using TI TCM3105 Bell 202 modem chip
  – Implements software modem on next version
• Using ESP-WROOM-32 Wi-Fi module
  – Dual core 32bit RISC CPU, clock 80-240MHz
  – RAM 520kB, flash ROM 4MB
• Host interface is USB serial and TCP/IP on Wi-Fi
• KISS mode only
• supports full FX.25 draft spec.
  – http://www.stensat.org/docs/FX-25_01_06.pdf
• can receive AX.25 packet, too
FX.25 KISS TNC hardware

PC

USB Serial

UART (TTL)

Wi-Fi module

GPIO TX RX

Pulse (TTL)

TCM3105 RXD TXD CDT

Bell 202 SP MIC Radio PTT

FX.25 KISS TNC
Features of TNC software

- Implemented by C language
- Running on FreeRTOS
- Each functions implemented as tasks of OS
- Using queues inter task communication
- Using interrupt to read RXD signal of modem
- Using infra red I/F to send the data to modem
- Implements software modem on next version
  - The TNC software is available on GitHub
    - https://github.com/amedes/fx25-kiss-tnc