APRS\_MM1029 Notes

* Software changed: May 1, 2019
* PWB S/N: 403
* Timing parameters for the flight
  + #define FLIGHT\_NAME "MCM1029"
  + Flight Time = 1 hour (60 minutes), APRS XMIT every 10 minutes
    - #define FLIGHT\_PERIOD 60
    - #define FLIGHT\_APRS\_TX\_PERIOD 10
  + Hibernate\Sleep time
    - Launch: Wednesday, May 1, 2019, Julian Day: 121
    - Wake up: Friday, November 1, 2019, Julian Day: 305
    - Number of days to hibernate 305 – 121 = 184
    - #define HIBERNATE\_PERIOD 184
  + Update GPS position every 24 hours when in Track mode
    - #define TRACK\_GPS\_PERIOD 24
  + Send APRS GPS position every 15 minutes when in Track mode
    - #define TRACK\_APRS\_TX\_PERIOD 15
  + Send 1 KHz ping every 15 seconds when in Track mode
    - #define TRACK\_PING\_TX\_PERIOD 15
  + Make 1 KHz ping 100 msec long
    - #define PING\_DURATION 1000
    - Ping time (msec) = PING\_DURATION/10

* Deleted 500 msec delay at the end Mode 2 code in the main loop
  + Used for debug and not used or needed in flight mode

if (mode == 2)

{

ping(PING\_DURATION); //send a ping

if(pings\_sent \* TRACK\_PING\_TX\_PERIOD > TRACK\_APRS\_TX\_PERIOD \* 60) // if it is time to send an APRS, send it using the existing GPS position

{

broadcastLocation( FLIGHT\_NAME ); //Send the location by APRS

track\_APRS\_packets ++;

pings\_sent = 0; //reset ping counter

}

if(track\_APRS\_packets \* TRACK\_APRS\_TX\_PERIOD > TRACK\_GPS\_PERIOD \* 60) //if it is time to update GPS, update the position

{

getGPS(180); //try for 3 minutes to get a GPS Position

}

alarm.setRtcTimer(0, 0, TRACK\_PING\_TX\_PERIOD); // hour, min, sec go back to sleep until the next ping

Snooze.hibernate( config\_teensy36 );

}

**~~delay(500);~~**

}

Initial Power up Test After Programming (USB Powered)

* Five Flashes
* First Msg: “00000TRACKER\_ON\_FLT”
  + Programmed to TRACKER\_ON\_MODE=FLT
* Second Message: “000000MM1029”
  + Flt position message time: 1536
  + Next Flt position message time: 1546
  + Δt = 10 minutes

Power up with test battery

* GPS position is correct
  + Crary Lab: 77° 50.89’, 166° 40.13’,
* Position updates correctly

1 May 2019

* Initial Battery Voltage = 3.655V
* Super Capacitor Charge Voltage = 3.700V
* Installed initial battery voltage = 3.664 V
* Installed battery and plugged in voltage = 3.500 V

