

## Garmin ANT+ test (11 March 2023)

ANT devices may use any RF frequency from 2400MHz to 2524MHz, with the exception of 2457MHz, which is reserved for ANT+ devices. Similarly ANT devices may use the public network key, a private network key, or a privately owned managed network key; but may not use the ANT+ network key, which is also reserved for ANT+ devices.

Source: <https://www.thisisant.com/developer/ant-plus/ant-antplus-defined>

Note that some RF channels are assigned and regulated by the ANT+ Alliance to maintain network integrity and interoperability. A large number of ANT+ devices can be found on RF channels 2450 MHz and 2457 MHz and should be avoided by non-ANT+ devices.

Source: [ANT Message Protocol and Usage 5.1](#)

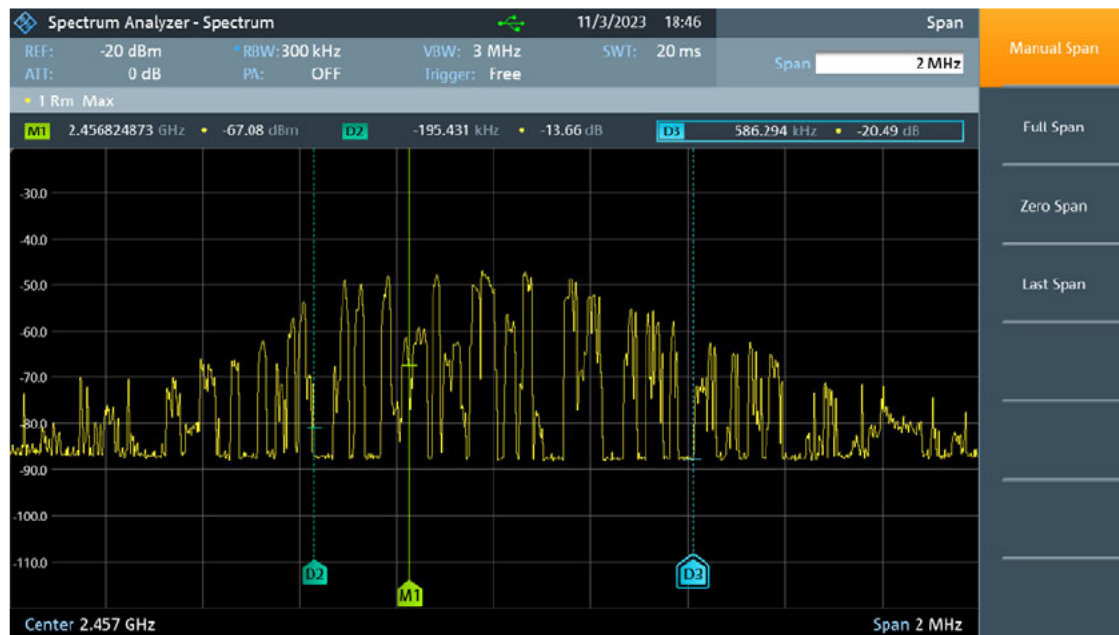
I can indeed see that. Below is Tekbox EMC probe next to a Garmin Dynamic Pod which is being shaken and connected to the EPIX2 watch in run mode.



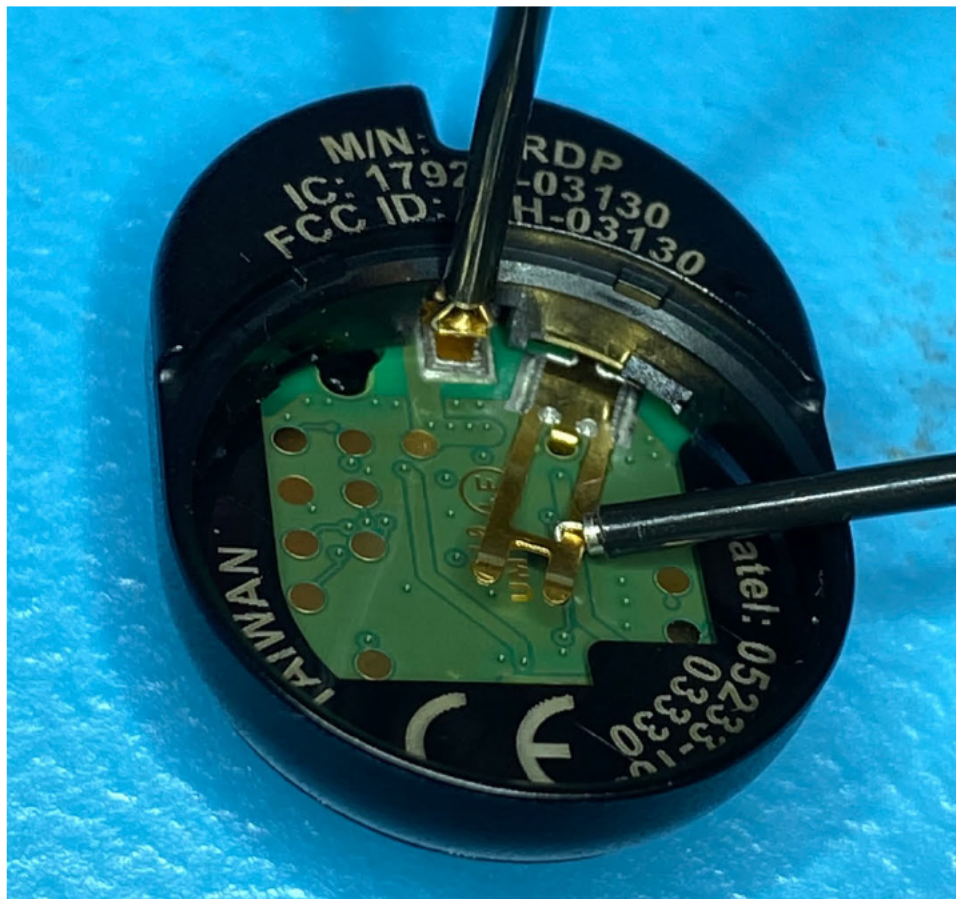
The 2437 MHz signal is ANT+, the others are general signals in the lab also visible when the ANT sender is turned off:



A closer view:

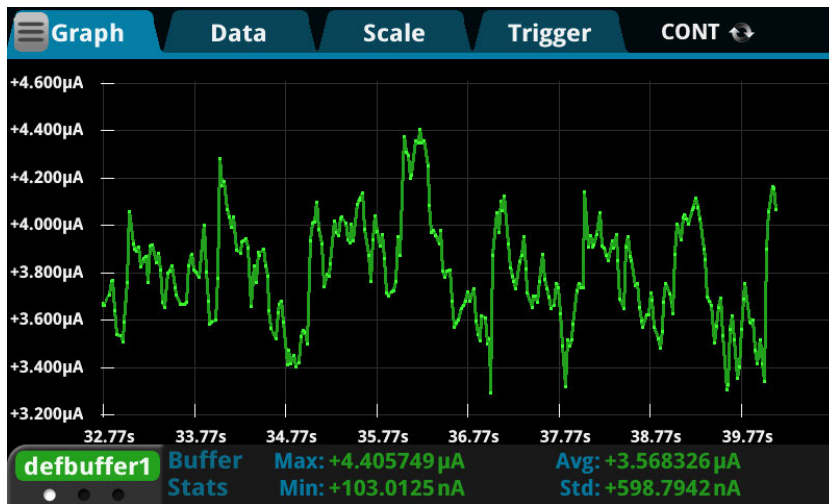


Then I performed power consumption by setting a lab power supply at 3V (the regular CR1632 battery is 3.0V nominal). I connect to the pod via Hirschman PMS 0,64 pins.

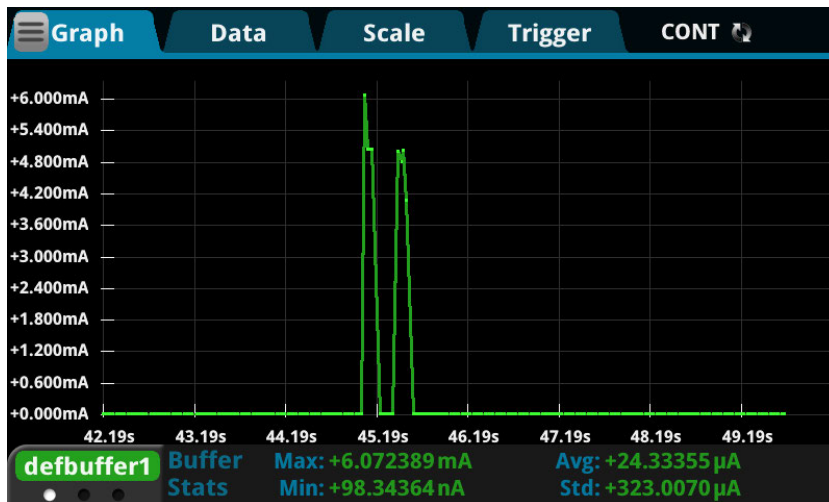


And then measure via the Keithley DMM6500.

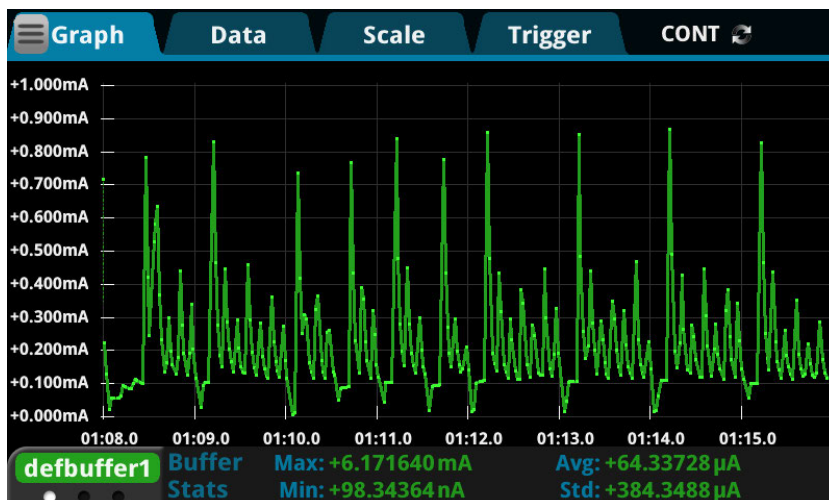
(1) In sleep mode, the power use is at around  $\sim 3.5\mu\text{A}$ :



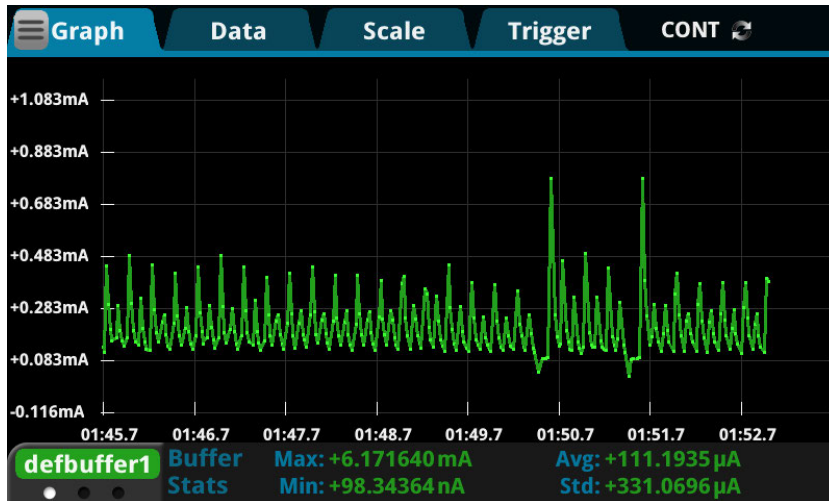
(2) After a shake, the pod is waking up and twice draws two 8mA peaks:



(3) With regular shaking (simulating a run), we see sequence where regularly there are peaks with 500mS in between, but this pattern is not always regular. Not surprisingly, they align with transmits peaks in the 2.4GHz spectrum. Total average current consumption remains fairly low at 64 $\mu\text{A}$ :



(4) Moving the pod less results in fewer 800mA peaks and more 400mA peaks:



(5) Sometimes, we have stronger peaks, almost 2mA:

