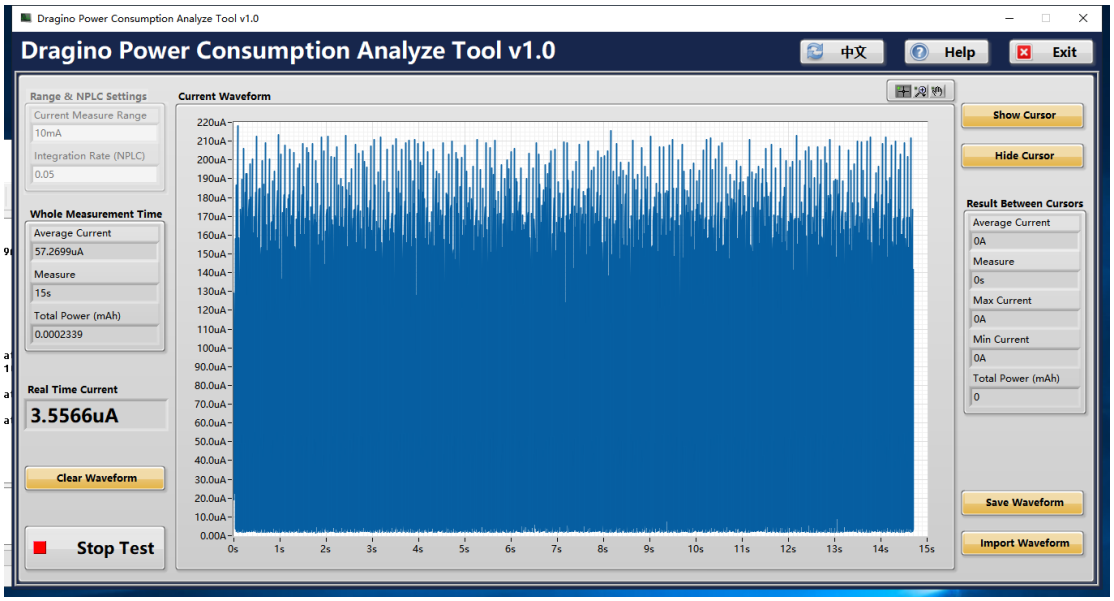
Test Engineer:	Lu Herong
Date:	2020-09-08

目录

1. Test Result

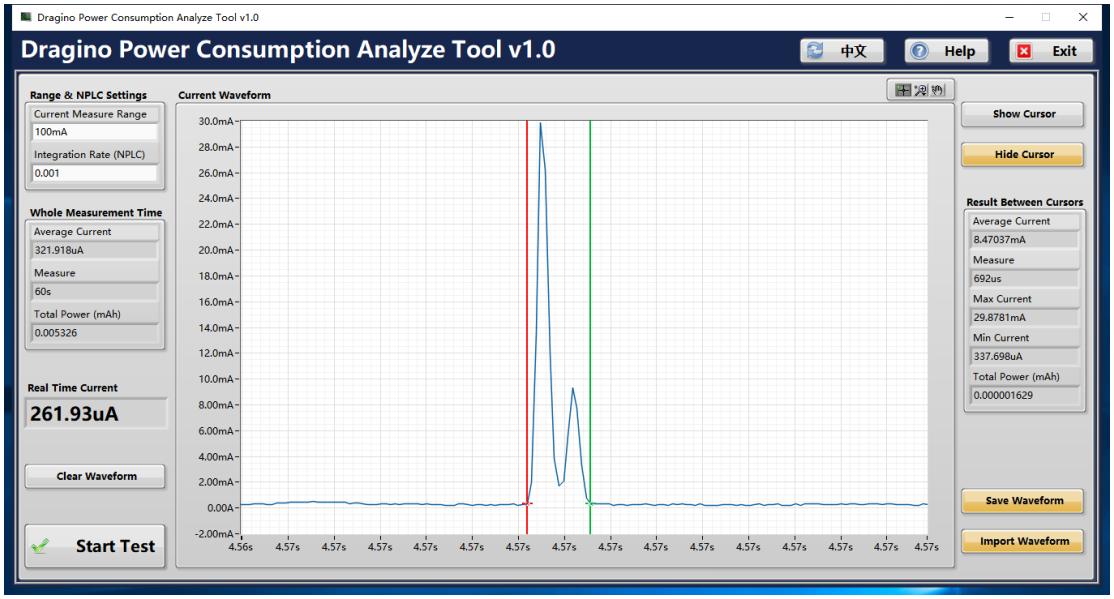
1. 1. Deep Sleep Mode

Average:58uA



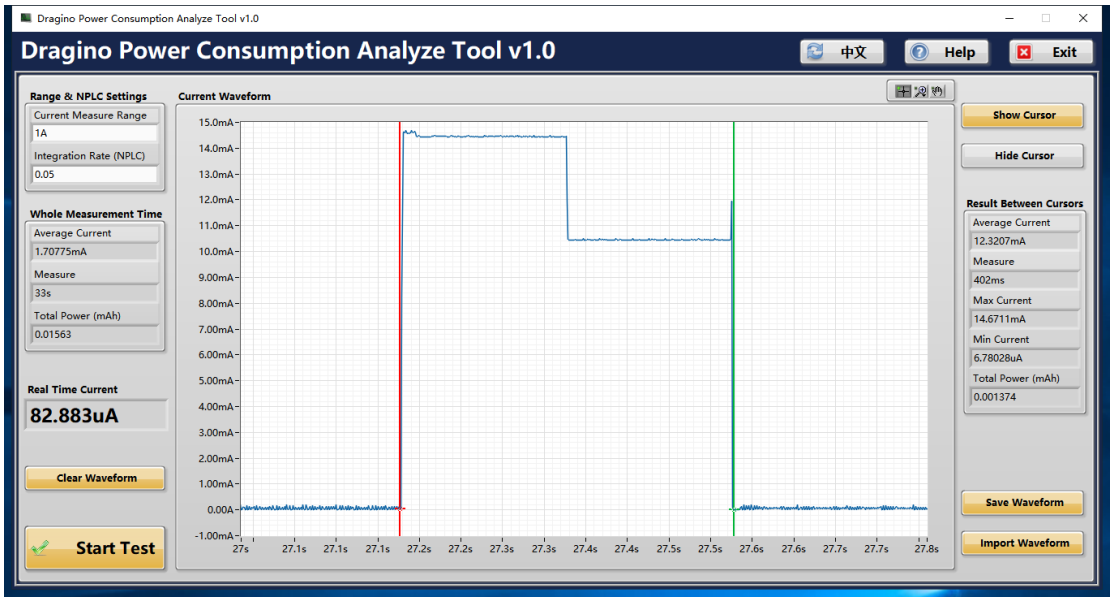
1. 2. Watchdog Power

Average 8.4704mA in 692us for every 18 seconds (watchdog period)



1. 3. Motion trigger interrupt power

Trigger every 10 seconds in a packet sending cycle



1. 4. EU868

1. 4. 1. DR=0,TXP=0

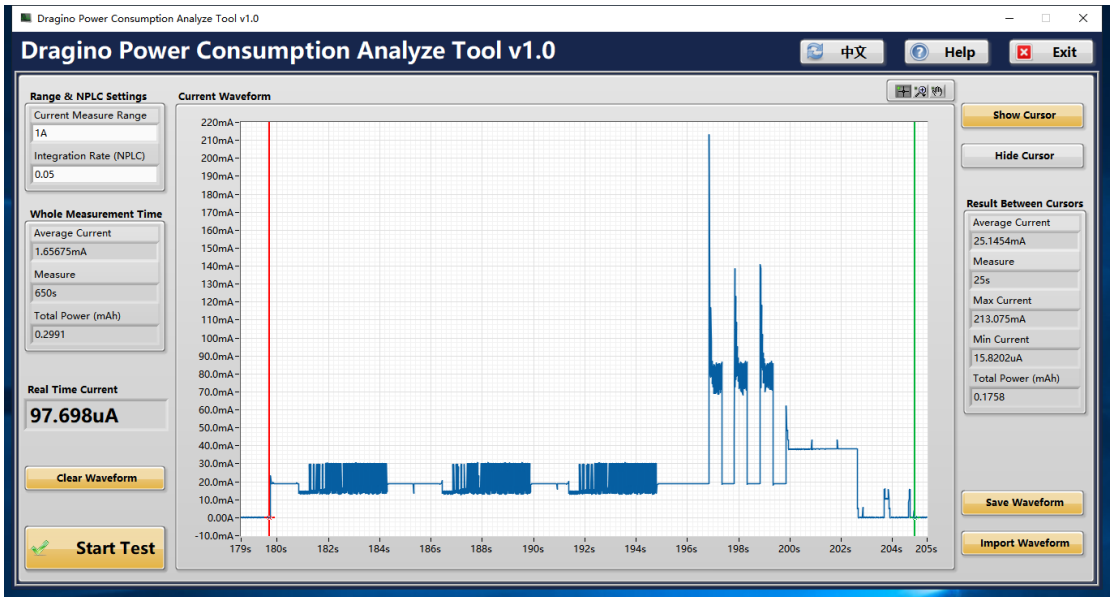
send data

Transmit Time:25s

Average Current in transmit time: 25.1454mA

The total current to send a packet is

25.1454mA *25s = 628.635 mA*s



Analyze Result

With Above test result and battery info, we can estimate the battery life.

For example, if we install the sensor node where the DR=0, Transmit one uplink every 7minutes .

The average current for the end node composed of:

- ✓ Deep Sleep Mode Power Consumption in one period : 0.058mA *7*60s(24.36mA*s)
- ✓ Watch Dog Current Power Consumption in one period: 0.00069s*8.4704mA*7*60s/18s(0.1364mA*s)
- ✓ Sampling & Uplink & Downlink Power Consumption Power Consumption in one period:628.635mA*s
- ✓ Motion trigger interrupt power Consumption in one period:12.3207mA*0.402s*7*60s/10s(208.023mA*s)

AV_Current is :(24.36mA*s +0.1364mA*s+ 628.635mA*s+208.023mA*s)/(7*60s)= 2.05mA.

LBT1 uses a 1000mah rechargeable battery. The service life of the battery under most stable voltage conditions is:

1000 =2.05mA * 24 * d

So 1000= AV_CURRENT * 24 *d

So1000=(AV_CURRENT * 24) * d

So d = 1000/ (AV_CURRENT * 24) = 1000/ (2.05 * 24) = 20.3(d)

1. 4. 2. DR=5,TXP=0

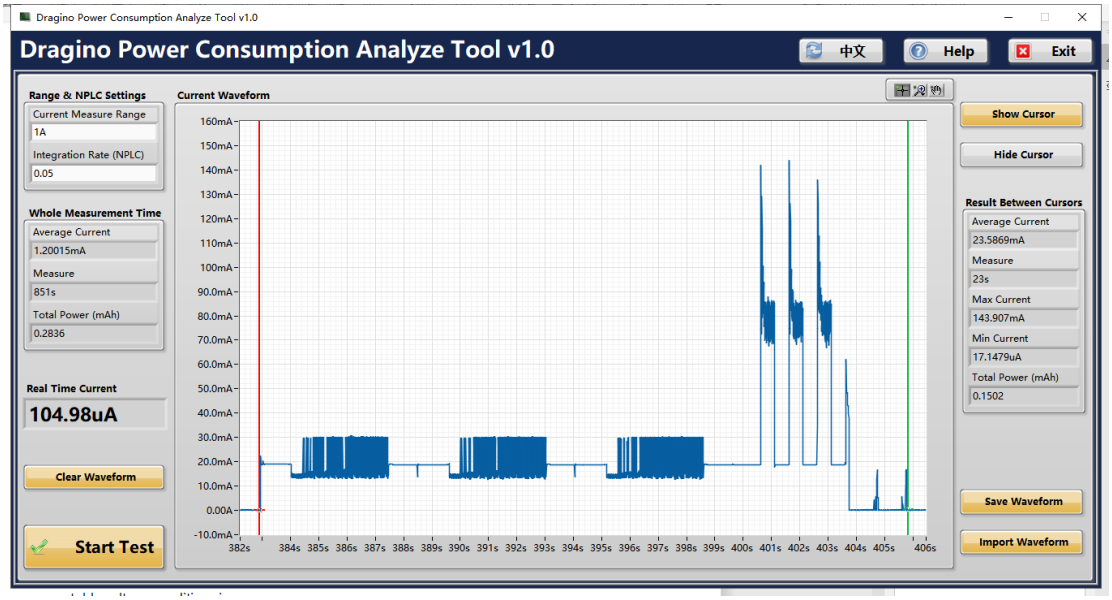
send data

Transmit Time: 23s

Average Current in transmit time: 23.5869mA

The total current to send a packet is

23.5869mA * 23s = 542.4987 mA*s



Analyze Result

With Above test result and battery info, we can estimate the battery life.

For example, if we install the sensor node where the DR=0, Transmit one uplink every 7minutes .

The average current for the end node composed of:

- ✓ Deep Sleep Mode Power Consumption in one period : 0.058mA *7*60s(24.36mA*s)
- ✓ Watch Dog Current Power Consumption in one period: 0.00069s*8.4704mA*7*60s/18s(0.1364mA*s)
- ✓ Sampling & Uplink & Downlink Power Consumption Power Consumption in one period:542.4987mA*s
- ✓ Motion trigger interrupt power Consumption in one period:12.3207mA*0.402s*7*60s/10s(208.023mA*s)

AV_Current is :(24.36mA*s + 0.1364mA*s+ 542.4987mA*s+208.023mA*s)/(7*60s)= 1.35mA.

LBT1 uses a 1000mah rechargeable battery. The service life of the battery under most stable

voltage conditions is:

1000 =**1.8453**mA * 24 * d

So 1000= **AV_CURRENT** * 24 *d

So1000=(**AV_CURRENT** * 24) * d

So d = 1000/ (**AV_CURRENT** * 24) = 1000/ (**1.8453*** 24) = 22.5(d)