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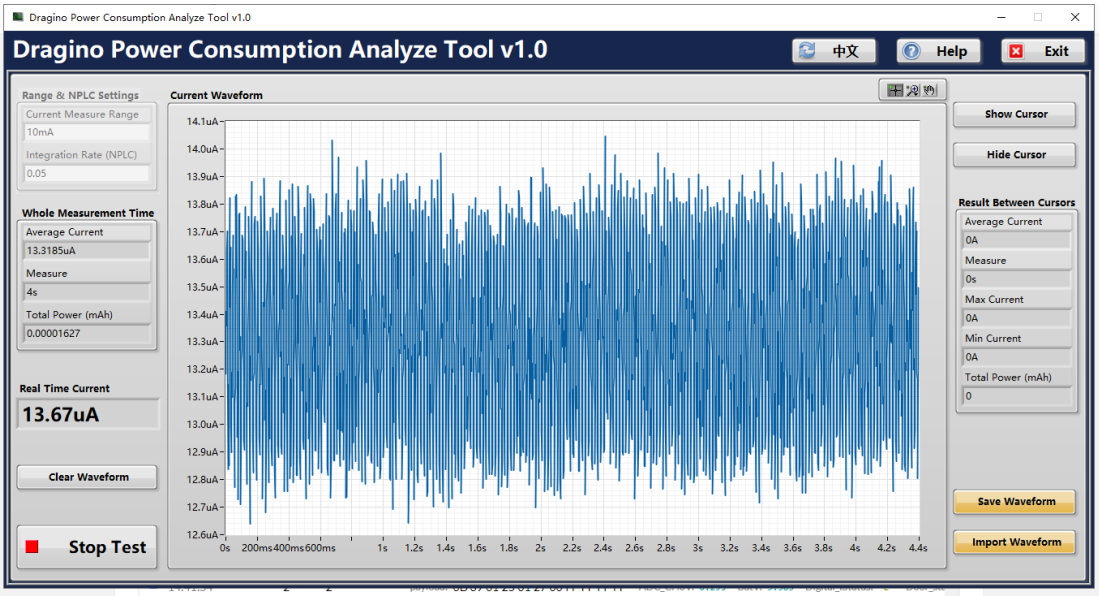
目录

1. Test Result

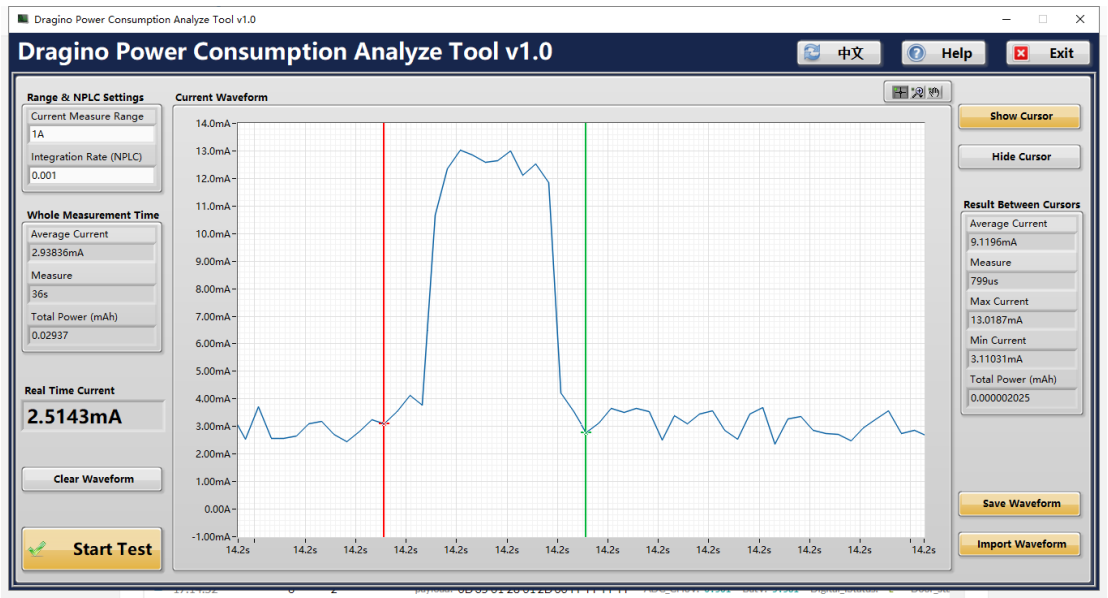
1. 1. Deep Sleep Mode

Average:14uA



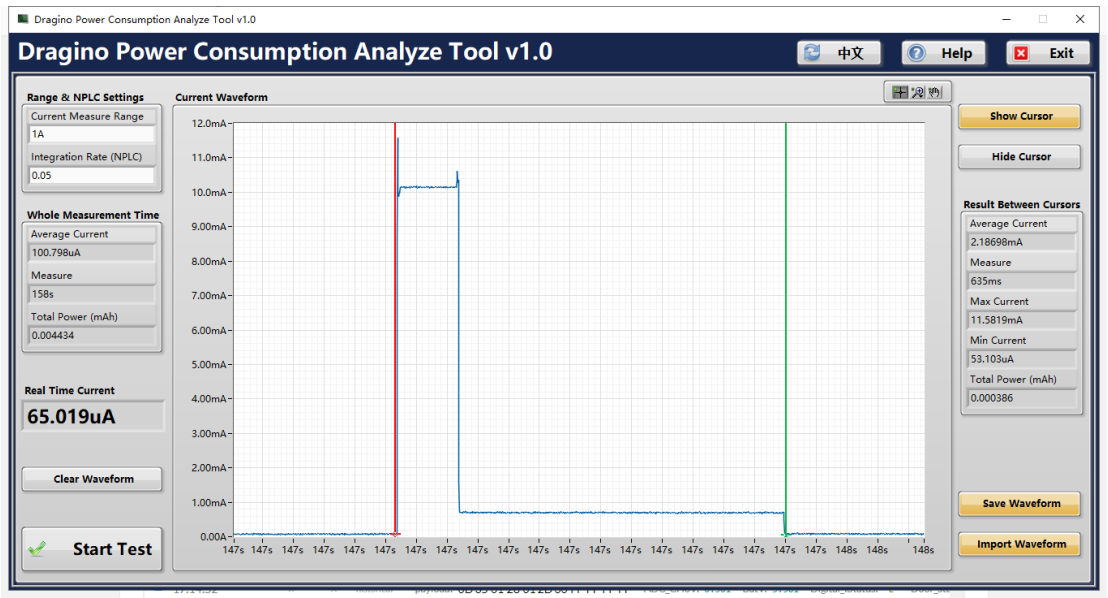
1. 2. Watchdog Power

Average 9.1196mA in 799us for every 18 seconds (watchdog period)



1. 3. Alarm Power Consumption

Average 2.187mA in 635ms for every 1 minute



1. 4. EU868

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

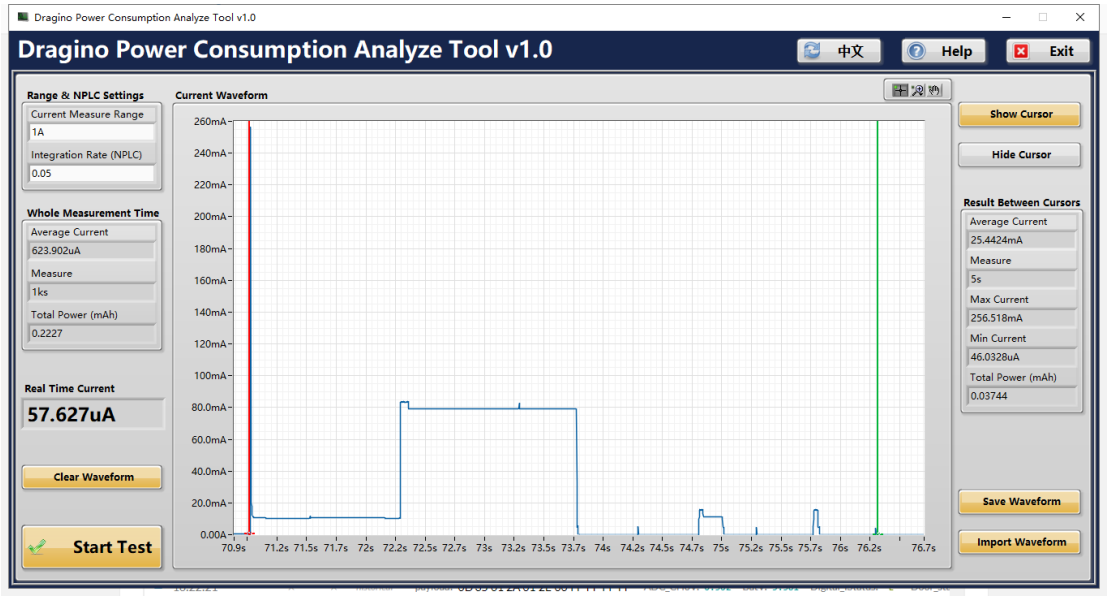
send data

Transmit Time: 5s

Average Current in transmit time: 25.4424mA

The total current to send a packet is

25.4424mA * 5s =127.212mA*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 20 minutes .

The average current for the end node composed of:

- ✓ Deep Sleep Mode Power Consumption in one period : 0.014mA *20*60s=(16.8mA*s)
- ✓ Watch Dog Current Power Consumption in one period: 0.000799s*9.1196mA*(20*60s/18 s)=(0.4858mA*s)
- ✓ Alarm Power Consumption in one period: 2.187mA*0.635s*(20*60s/60s)=(27.7749mA*s)
- ✓ Sampling & Uplink & Downlink Power Consumption Power Consumption in one period:127.212mA*s

AV_Current is :(16.8mA*s + 0.4858mA*s + 127.212mA*s+27.7749mA*s)/(20*60s)= 0.1436mA.

The battery used in LSN50V2-D20 is 8500mAh and of stable voltage in the most of life. With considering a max 2% discharge rate from the battery spec.So the battery life is y. so

8500(1 - 2%*y) =0.1436mA * 24 * 365 * y

So 8500 – 170*y = **AV_CURRENT** * 8760 *y

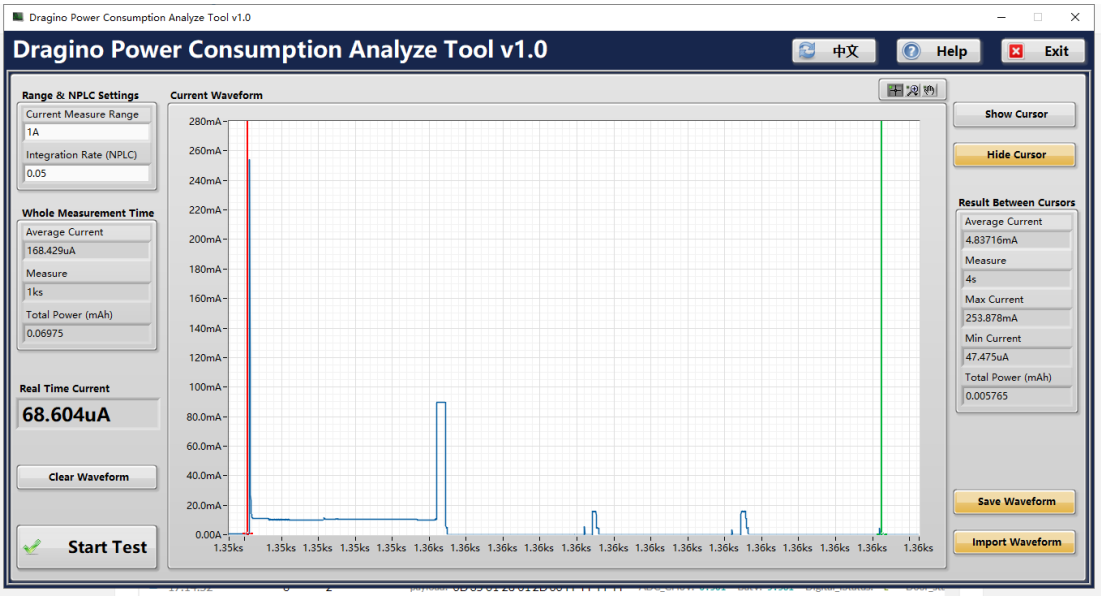
So8500=(AV_CURRENT * 8760 +170) * Y

So Y = 8500/ (AV_CURRENT * 8760+170) = 8500/ (0.1436* 8760+170) = 5.9(Years)

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

send data
Transmit Time: 4s
Average Current in transmit time: 4.8372mA
The total current to send a packet is

4.8372mA * 4s =19.3488mA*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=5, Transmit one uplink every 20 minutes .
The average current for the end node composed of:

- ✓ Deep Sleep Mode Power Consumption in one period : 0.014mA *20*60s=(16.8mA*s)
- ✓ Watch Dog Current Power Consumption in one period: 0.000799s*9.1196mA*(20*60s/18 s)=(0.4858mA*s)
- ✓ Alarm Power Consumption in one period: 2.187mA*0.635s*(20*60s/60s)=(27.7749mA*s)
- ✓ Sampling & Uplink & Downlink Power Consumption Power Consumption in one period:19.3488mA*s

AV_Current is :(16.8mA*s + 0.4858mA*s + 19.3488mA*s+27.7749mA*s)/(20*60s)= 0.0537mA.

The battery used in LSN50V2-D20 is 8500mAh and of stable voltage in the most of life. With considering a max 2% discharge rate from the battery spec.So the battery life is y. so

8500(1 - 2%*y) =0.0537mA * 24 * 365 * y

So 8500 – 170*y = AV_CURRENT * 8760 *y

So8500=(AV_CURRENT * 8760 +170) * Y

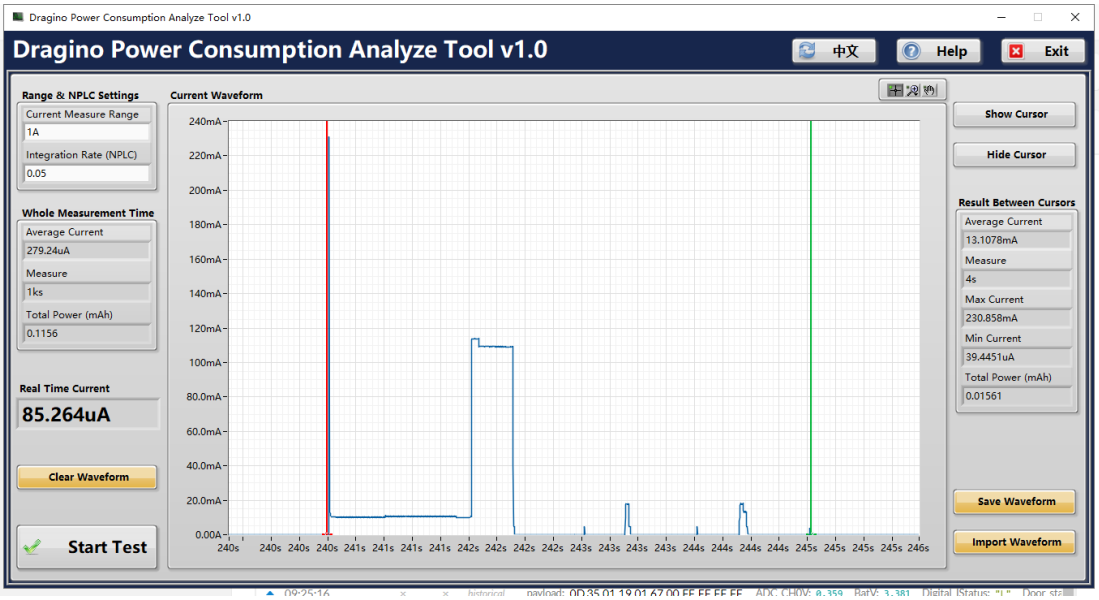
So Y = 8500/ (AV_CURRENT * 8760+170) = 8500/ (0.0537* 8760+170) = 13.2(Years)

1. 5. US915

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

send data
Transmit Time: 4s
Average Current in transmit time: 13.1078mA
The total current to send a packet is

13.1078mA * 4s =52.4312mA*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 20 minutes .
The average current for the end node composed of:

- ✓ Deep Sleep Mode Power Consumption in one period : 0.014mA *20*60s=(16.8mA*s)
- ✓ Watch Dog Current Power Consumption in one period: 0.000799s*9.1196mA*(20*60s/18 s)=(0.4858mA*s)
- ✓ Alarm Power Consumption in one period: 2.187mA*0.635s*(20*60s/60s)=(27.7749mA*s)
- ✓ Sampling & Uplink & Downlink Power Consumption Power Consumption in one

period:52.4312mA*s

AV_Current is :(16.8mA*s + 0.4858mA*s + 52.4312mA*s+27.7749mA*s)/(20*60s)= 0.0812mA.

The battery used in LSN50V2-D20 is 8500mAh and of stable voltage in the most of life. With considering a max 2% discharge rate from the battery spec.So the battery life is y. so

8500(1 - 2%*y) =0.0812mA * 24 * 365 * y

So 8500 – 170*y = AV_CURRENT * 8760 *y

So8500=(AV_CURRENT * 8760 +170) * Y

So Y = 8500/ (AV_CURRENT * 8760+170) = 8500/ (0.0812* 8760+170) = 9.6(Years)

1. 5. 2. DR=3,TXP=0

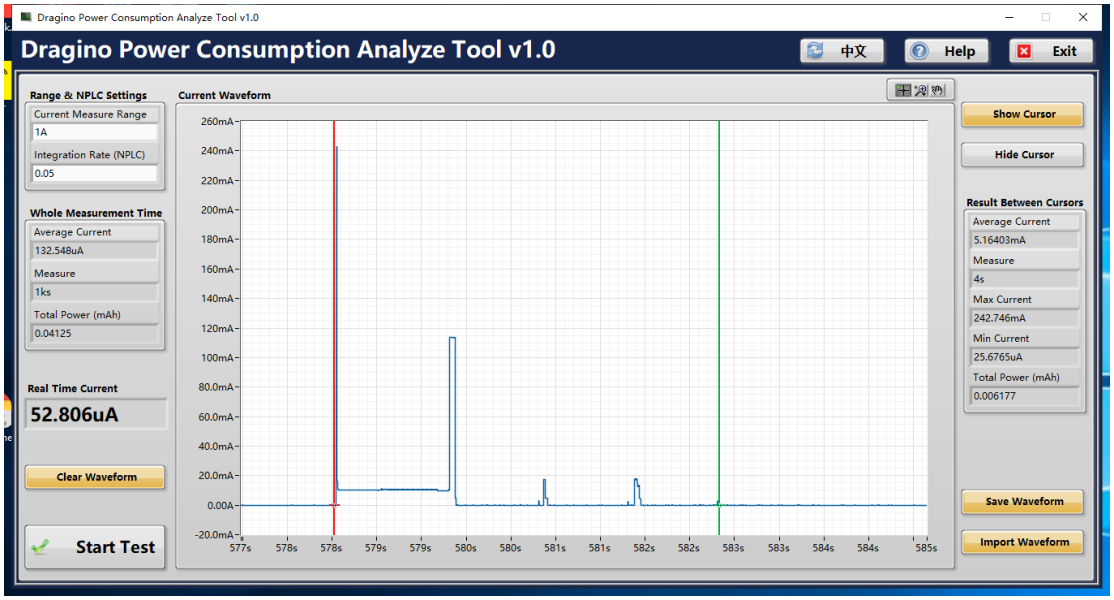
send data

Transmit Time: 4s

Average Current in transmit time: 5.164mA

The total current to send a packet is

5.164mA * 4s =20.656mA*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=3, Transmit one uplink every 20 minutes .

The average current for the end node composed of:

- ✓ Deep Sleep Mode Power Consumption in one period : 0.014mA *20*60s=(16.8mA*s)
- ✓ Watch Dog Current Power Consumption in one period: 0.000799s*9.1196mA*(20*60s/18

s)=(0.4858mA*s)

- ✓ Alarm Power Consumption in one period: 2.187mA*0.635s*(20*60s/60s)=(27.7749mA*s)
- ✓ Sampling & Uplink & Downlink Power Consumption Power Consumption in one period:**52.4312**mA*s

AV_Current is :(16.8mA*s + 0.4858mA*s + 20.656mA*s+27.7749mA*s)/(20*60s)= 0.0548mA.

The battery used in LSN50V2-D20 is 8500mAh and of stable voltage in the most of life. With considering a max 2% discharge rate from the battery spec.So the battery life is y. so

8500(1 - 2%*y) =**0.0548**mA * 24 * 365 * y

So 8500 – 170*y = **AV_CURRENT** * 8760 *y

So8500=(**AV_CURRENT** * 8760 +170) * Y

So Y = 8500/ (**AV_CURRENT** * 8760+170) = 8500/ (**0.0548*** 8760+170) = 13(Years)