

模块工作参数测试报告

EMW3239功耗测试



文档简介



EMW3239外观图

EMW3239是单3.3V供电，拥有主频最高至100MHz的Cortex-M4 MCU，256KB SRAM，3MB Flash(1MB片内+2MB SPI Flash)。

EMW3239作为双模蓝牙和Wi-Fi的Combo方案，集成了满足大多数设备输出功率要求的功率放大器，实现最好接收灵敏度的低噪声放大器和内部射频发射接收开关。

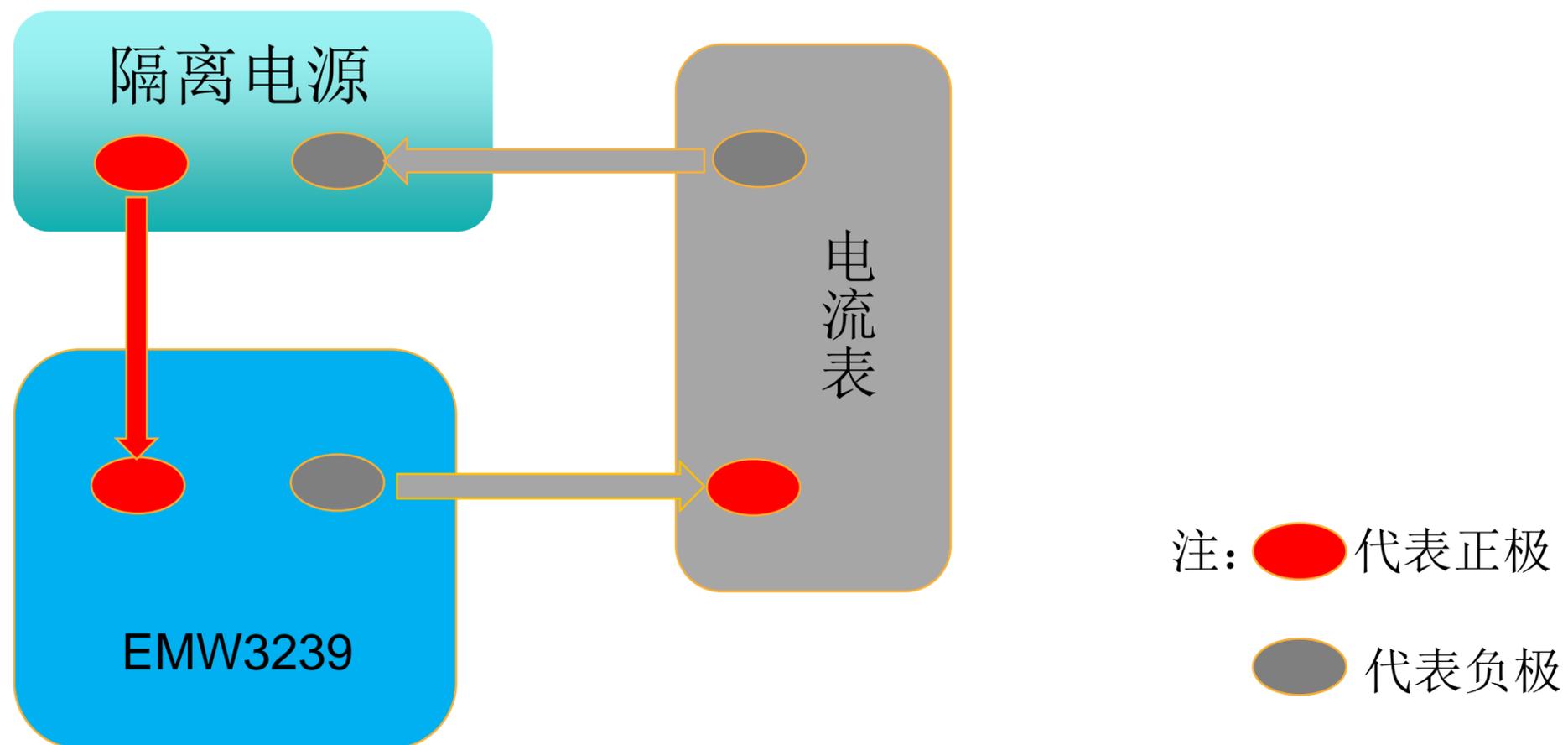
本文主要提供了EMW3239在不同工作模式下的BLE蓝牙功耗，WiFi功耗及经典蓝牙功耗的测试方法和结果。

测试环境及仪器

EMW3239在运行power test bin 时，bin文件内部设定控制指令，WiFi模块上电自运行power test bin。测试仪器：KEITHLEY DMM7510数字万用表,隔离电源。

测试方法

测试方法： EMW3239串联KEITHLEY DMM7510数字电流表，测试出电流及波形。



测试设备连接示意图

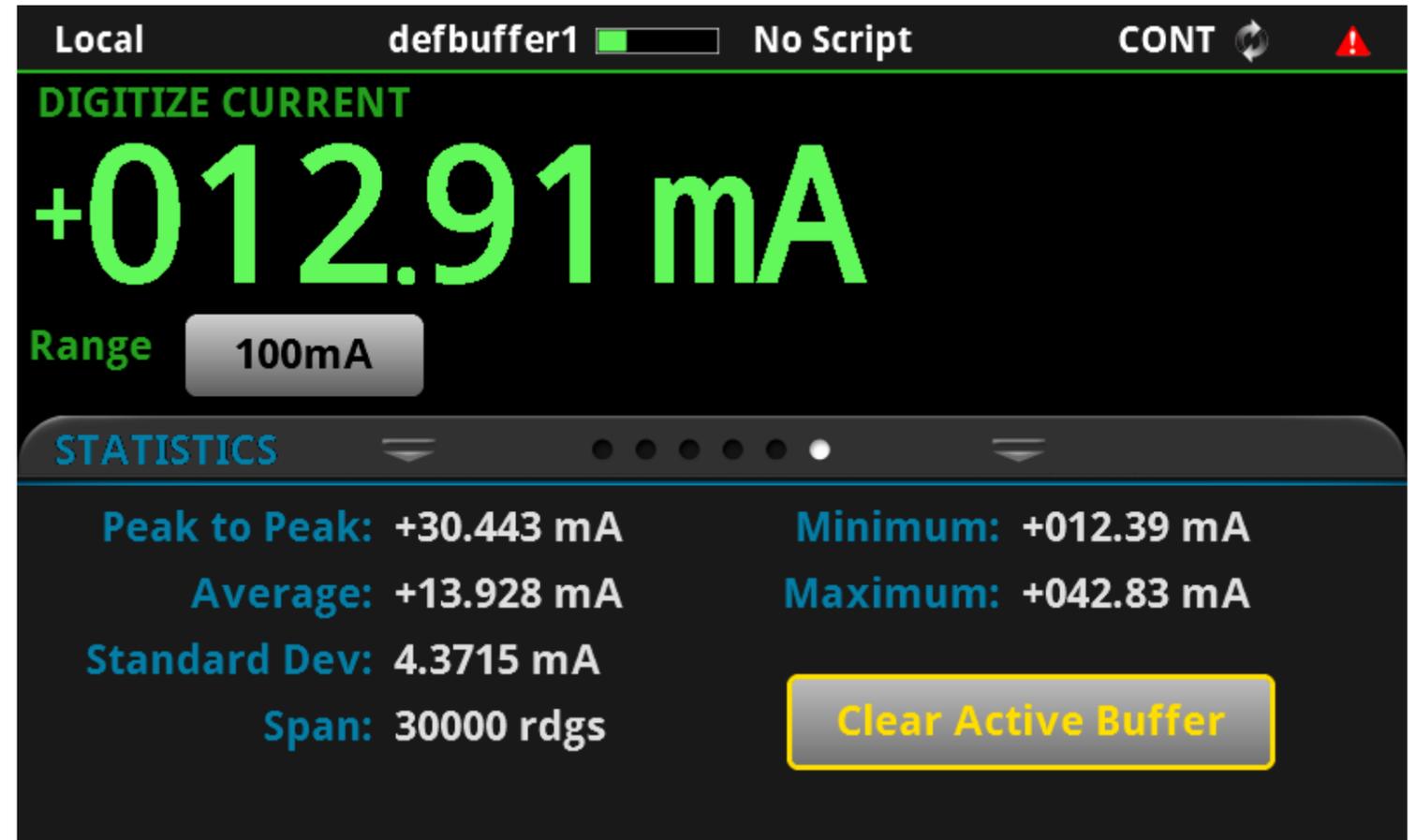
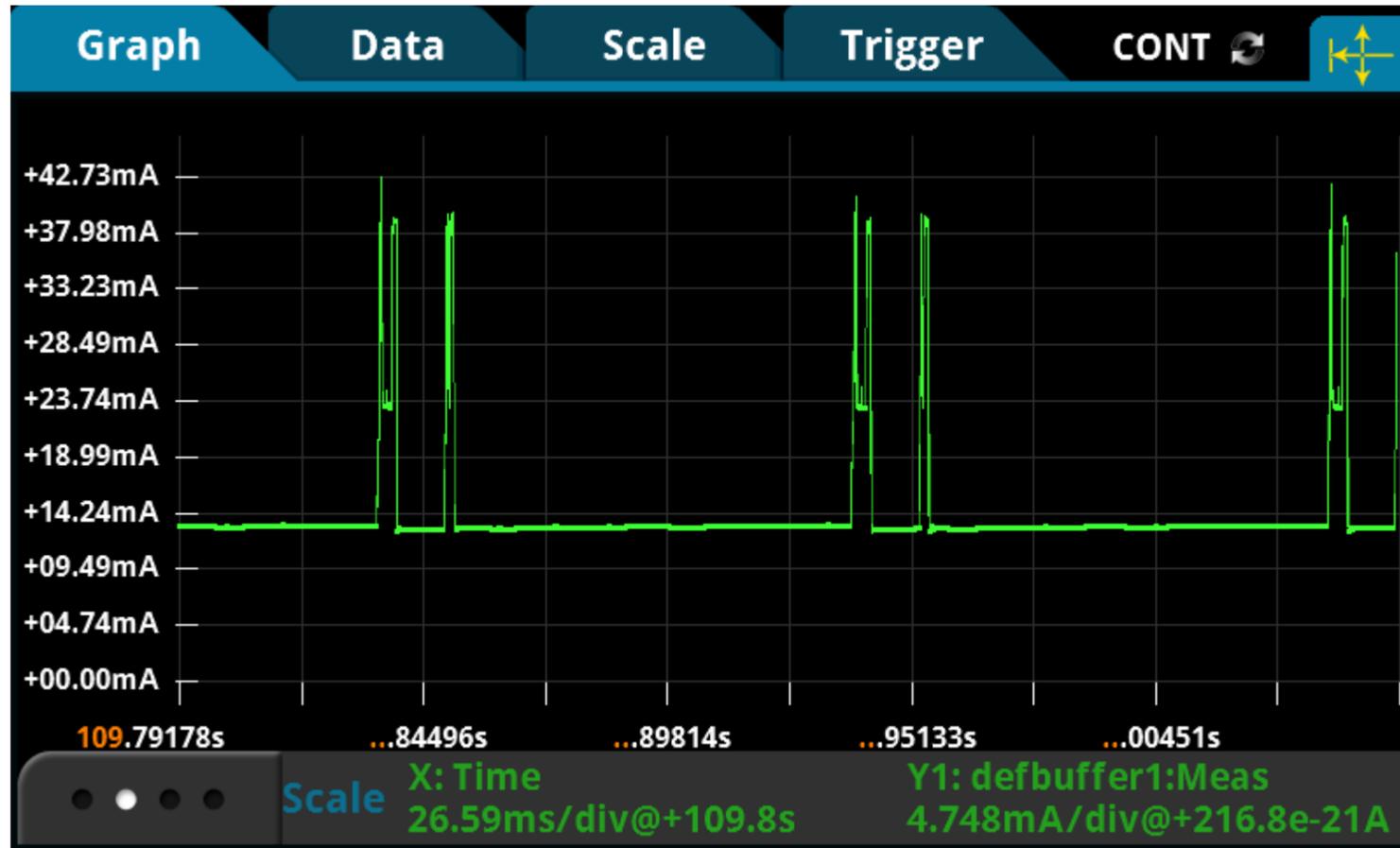
EMW3239 WiFi Current Test Summary

Mode	Current		备注
	Mean	Peak	
WIFI初始化	13.93mA	42.83mA	不开启WiFi低功耗
连接WIFI	51.81mA	363.50mA	不开启WiFi低功耗
连接WIFI	15.61mA	86.70mA	开启WiFi低功耗
连接WIFI	5.53mA	92.79mA	WiFi&MCU开启低功耗
UDP发送	62.54mA	358.10mA	不开启WiFi低功耗
softAP模式	56.95mA	321.70mA	softAP联网状态
Easylink 模式	57.84mA	213.62mA	模块配网过程
Standby模式	19.91uA	50.83uA	MCU进standby模式， WiFi&Flash进超低功耗模式

注：

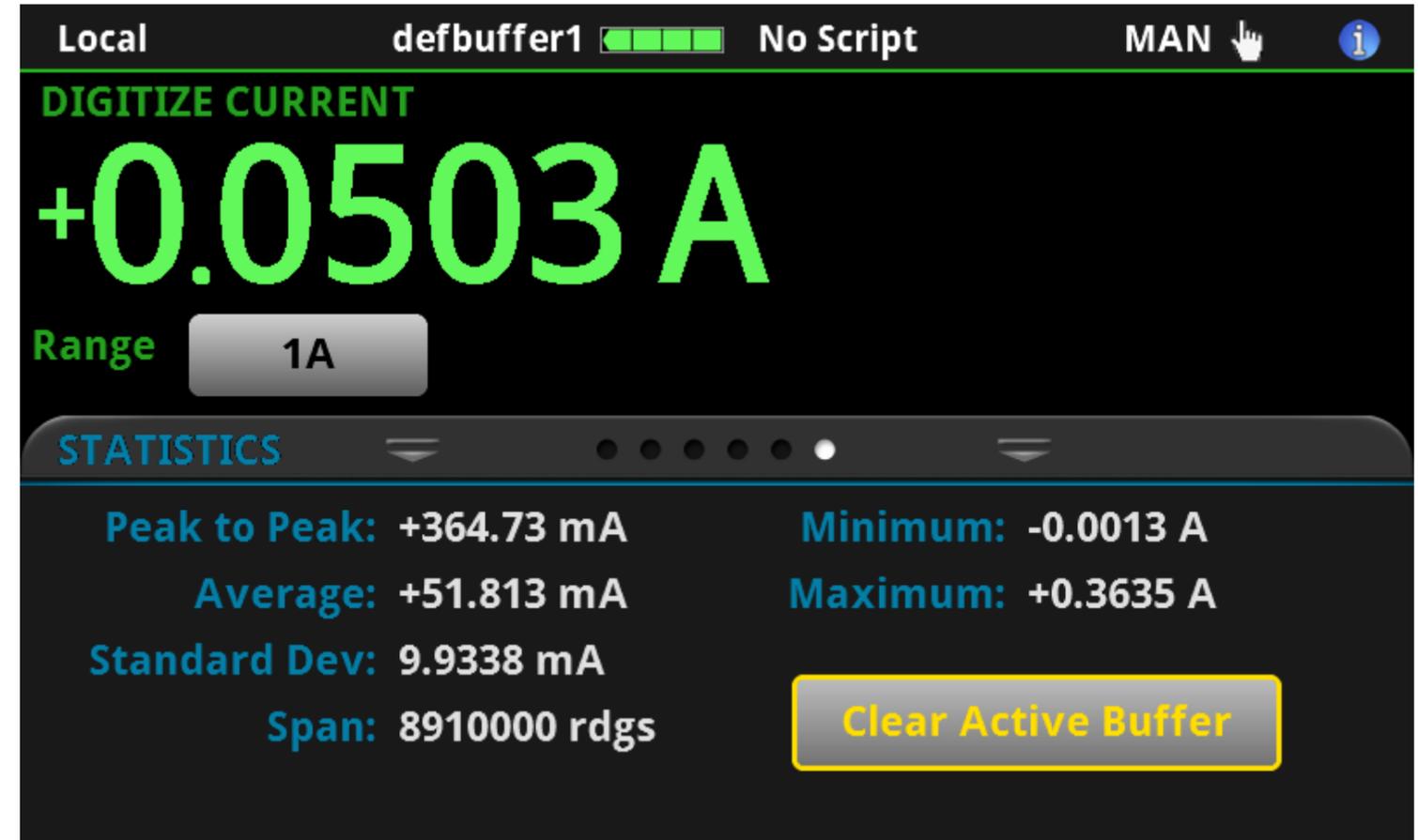
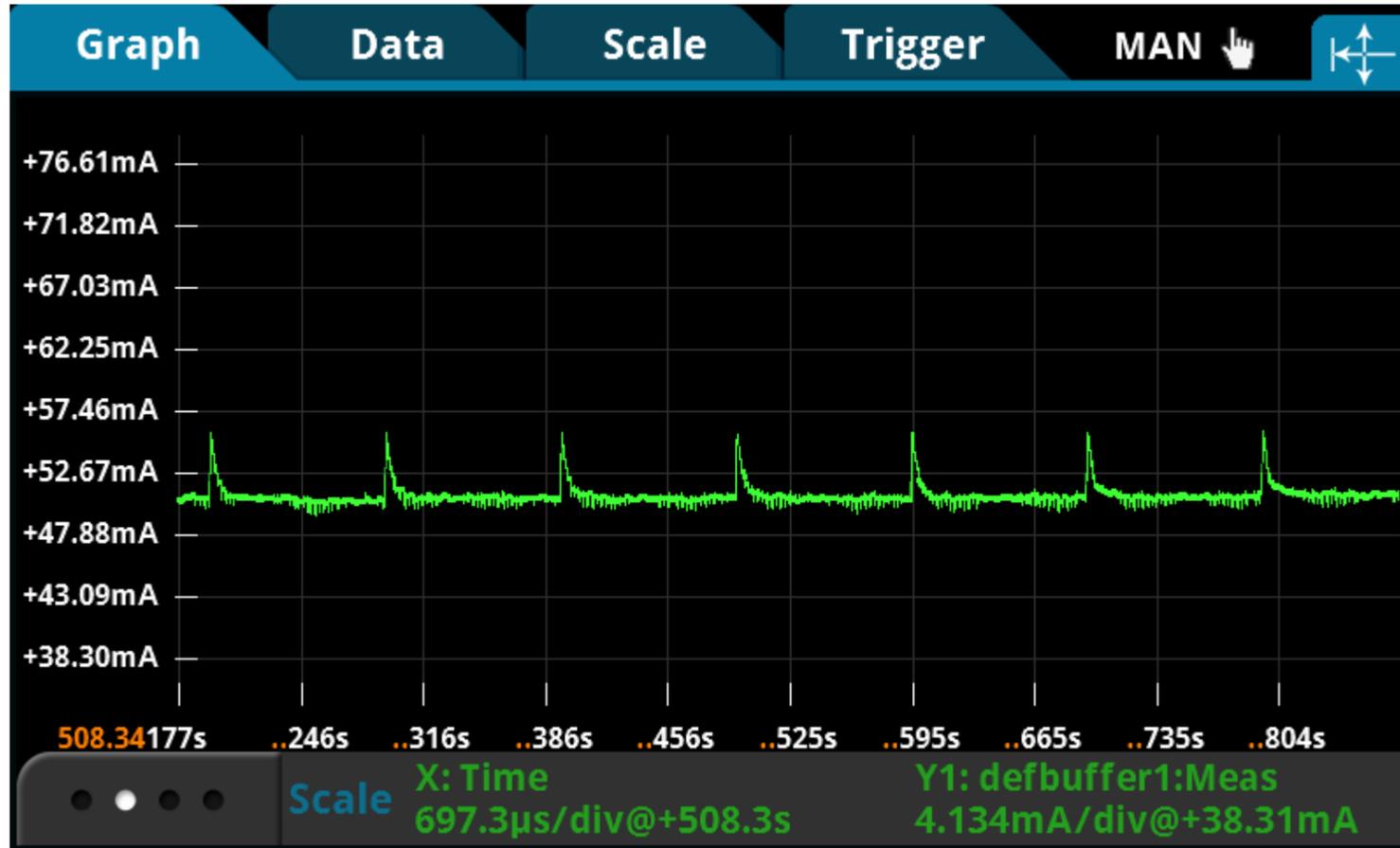
- 1，平均电流只能作为参考值，具体的数值可能与MCU的工作模式有很大的关系。
- 2，数据收发时的平均电流无法统计

WiFi初始化, 不开启WiFi低功耗



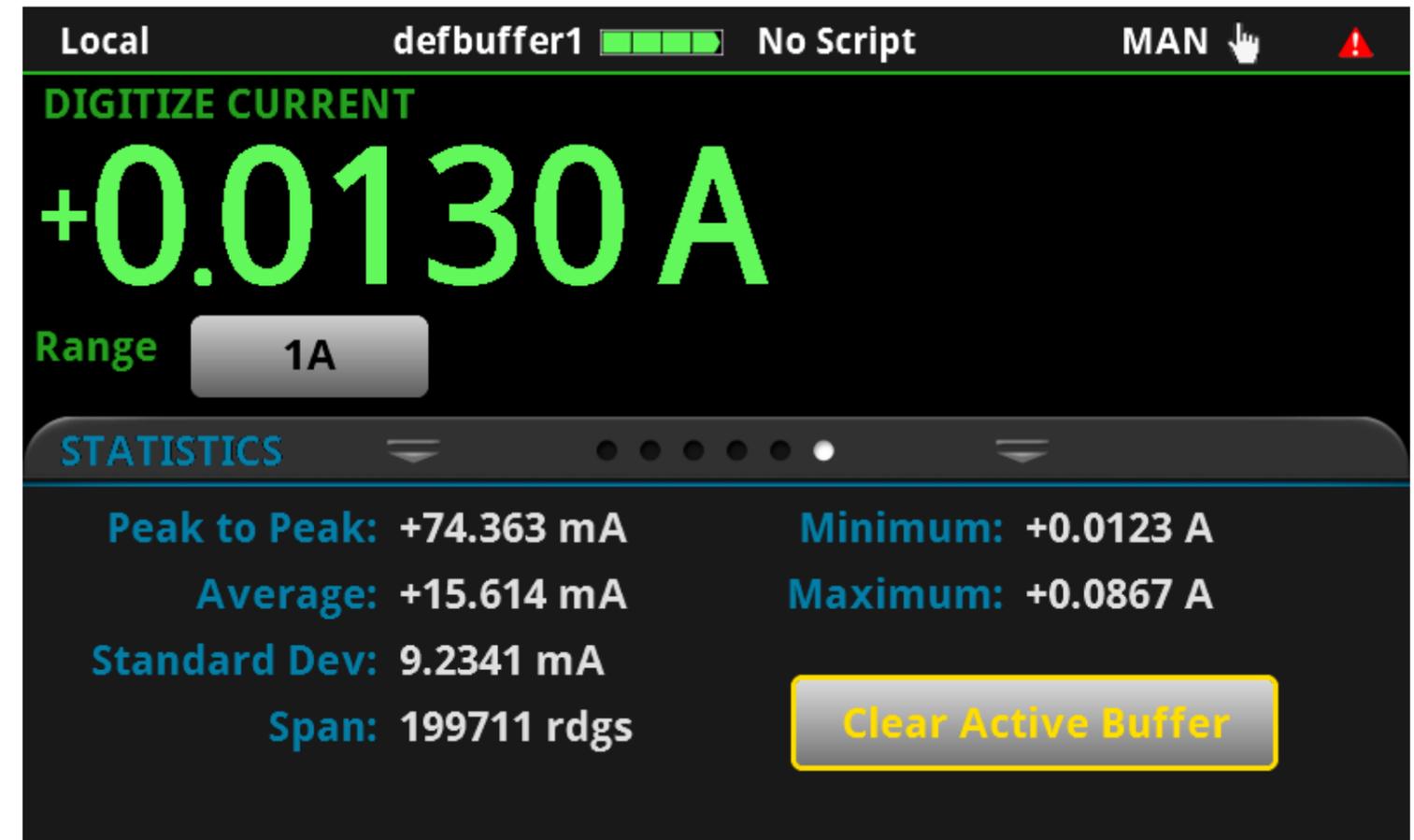
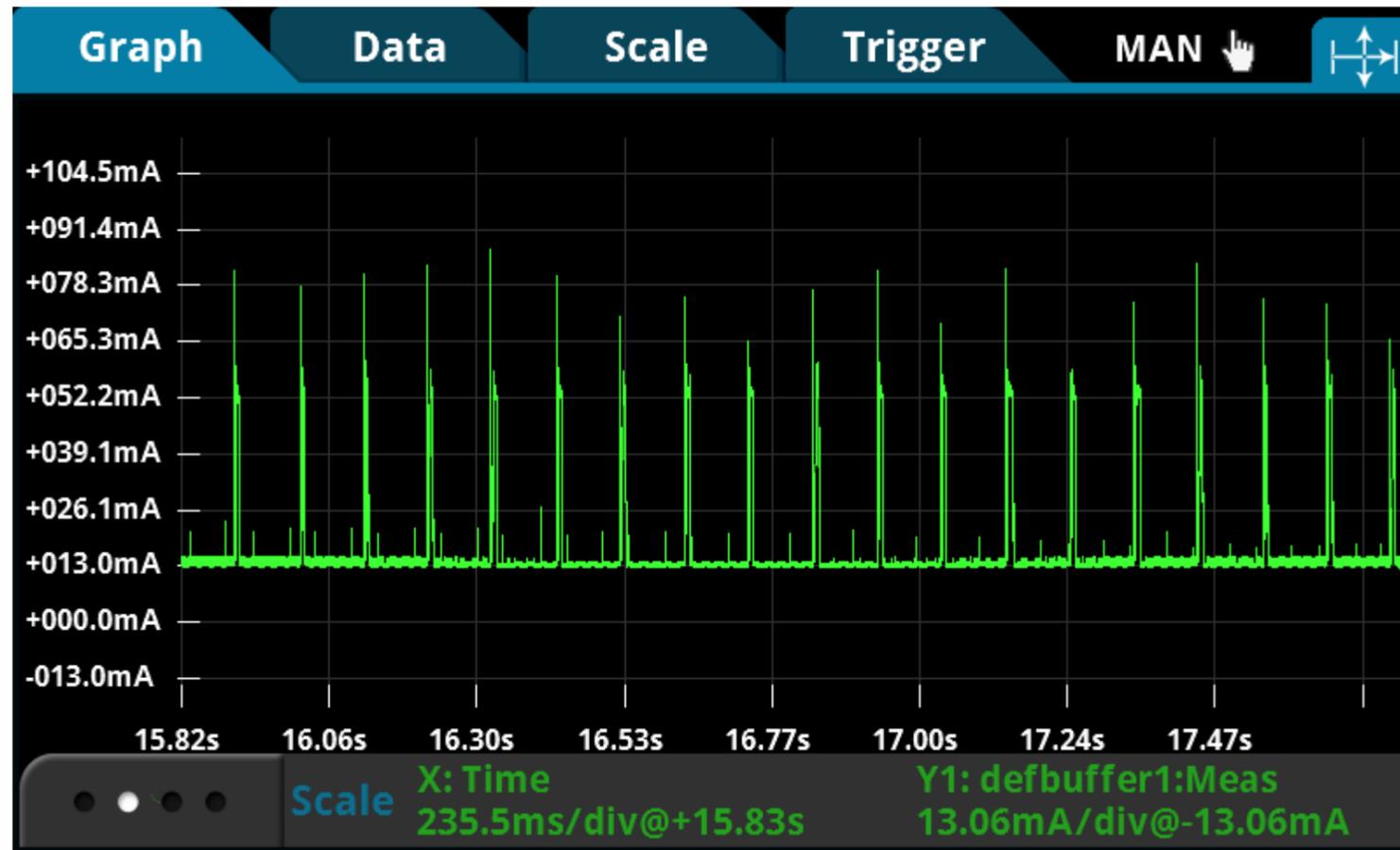
峰值电流	42.83mA
平均电流	13.93mA

连接WiFi，不开启WiFi低功耗



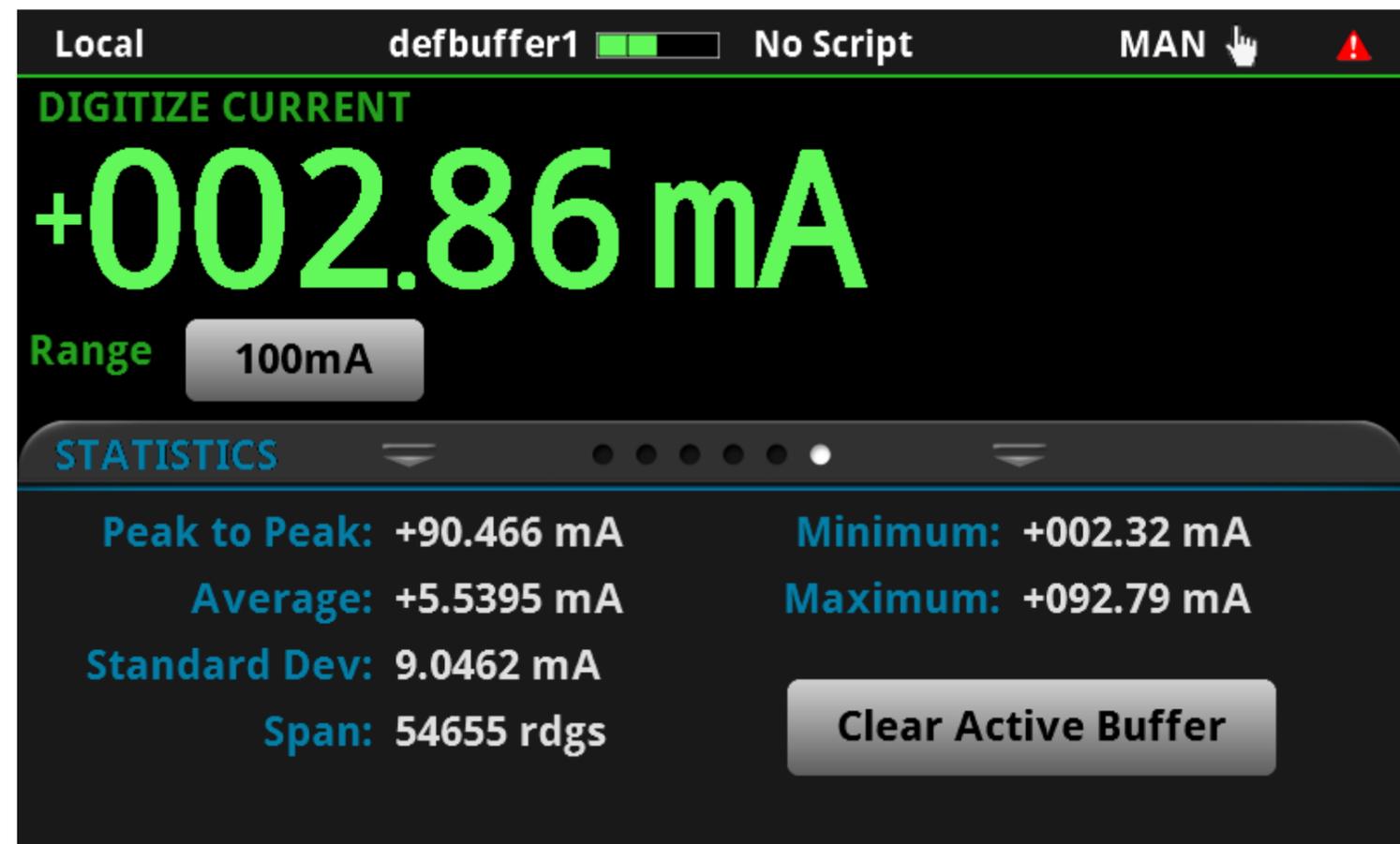
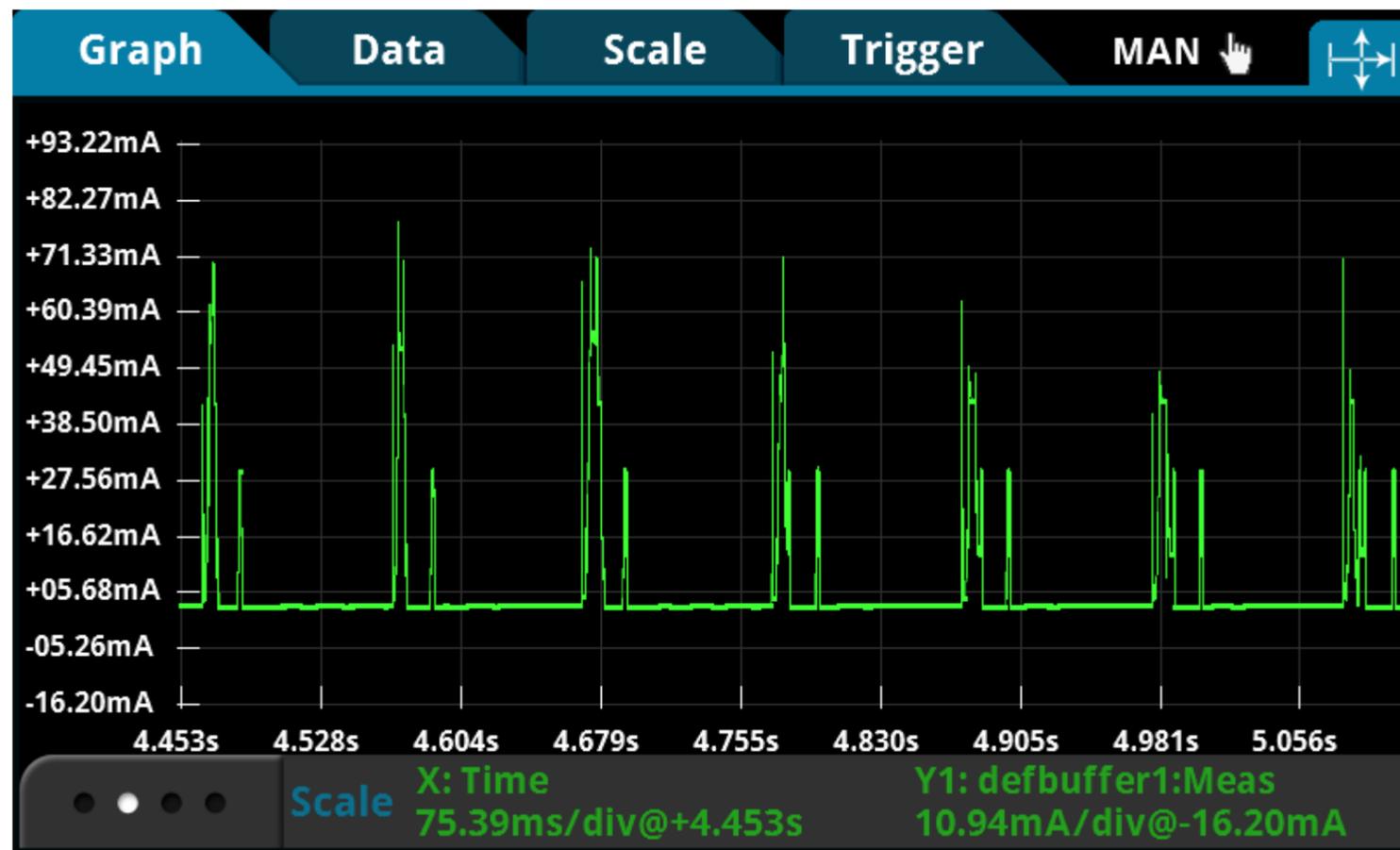
峰值电流	363.50mA
平均电流	51.81mA

连接WiFi，开启WiFi低功耗



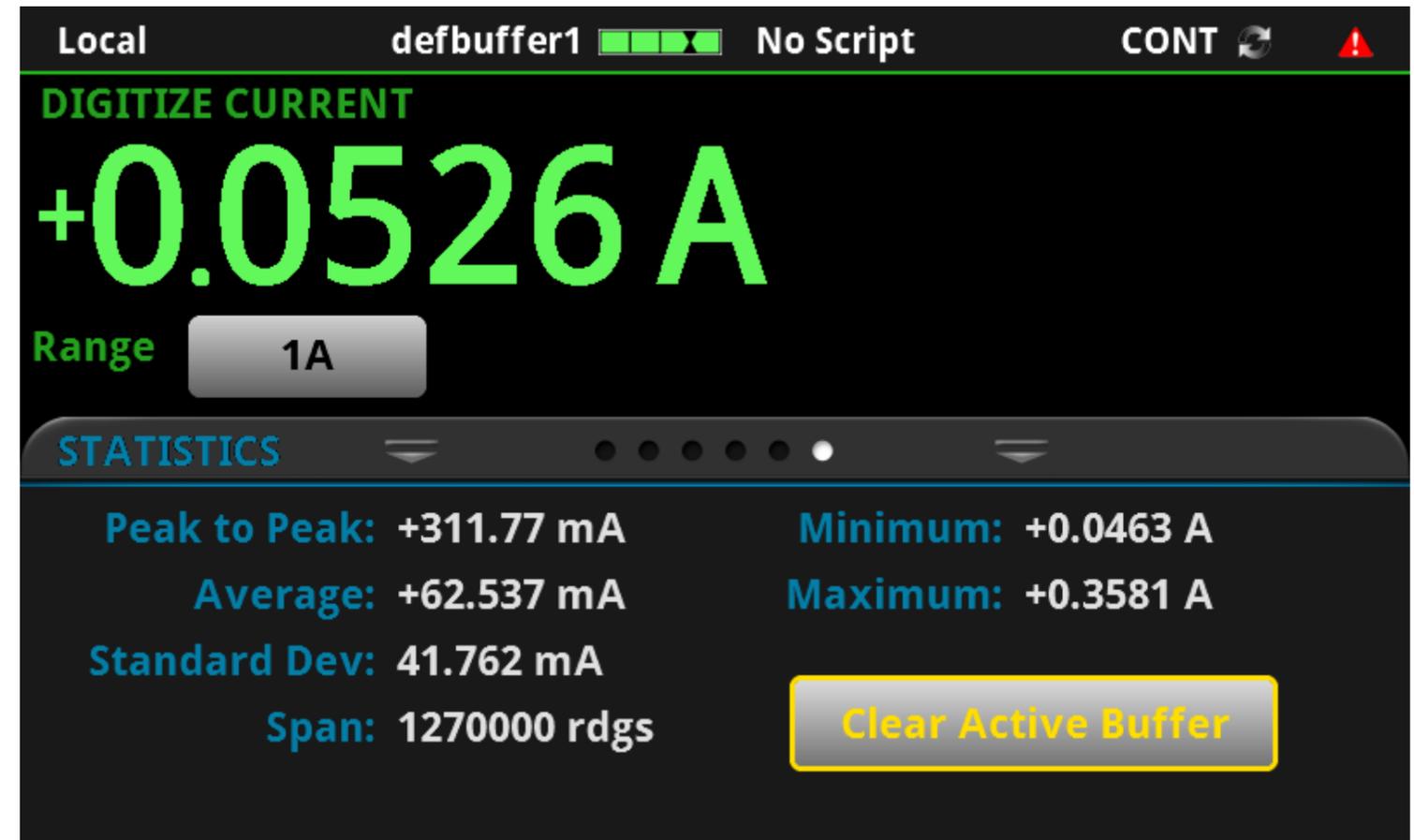
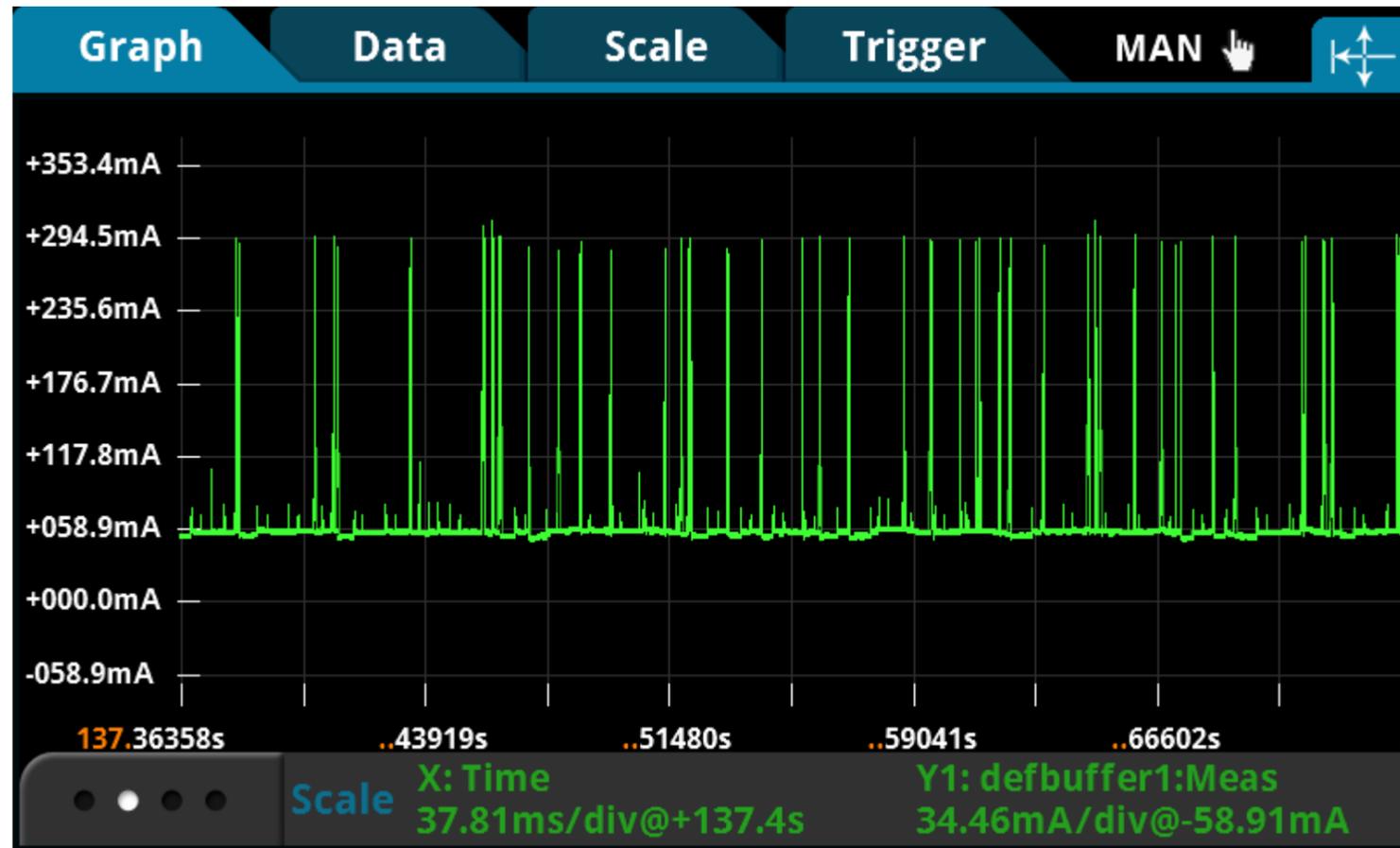
峰值电流	86.70mA
平均电流	15.61mA

连接WiFi, WIFI和MCU开启低功耗



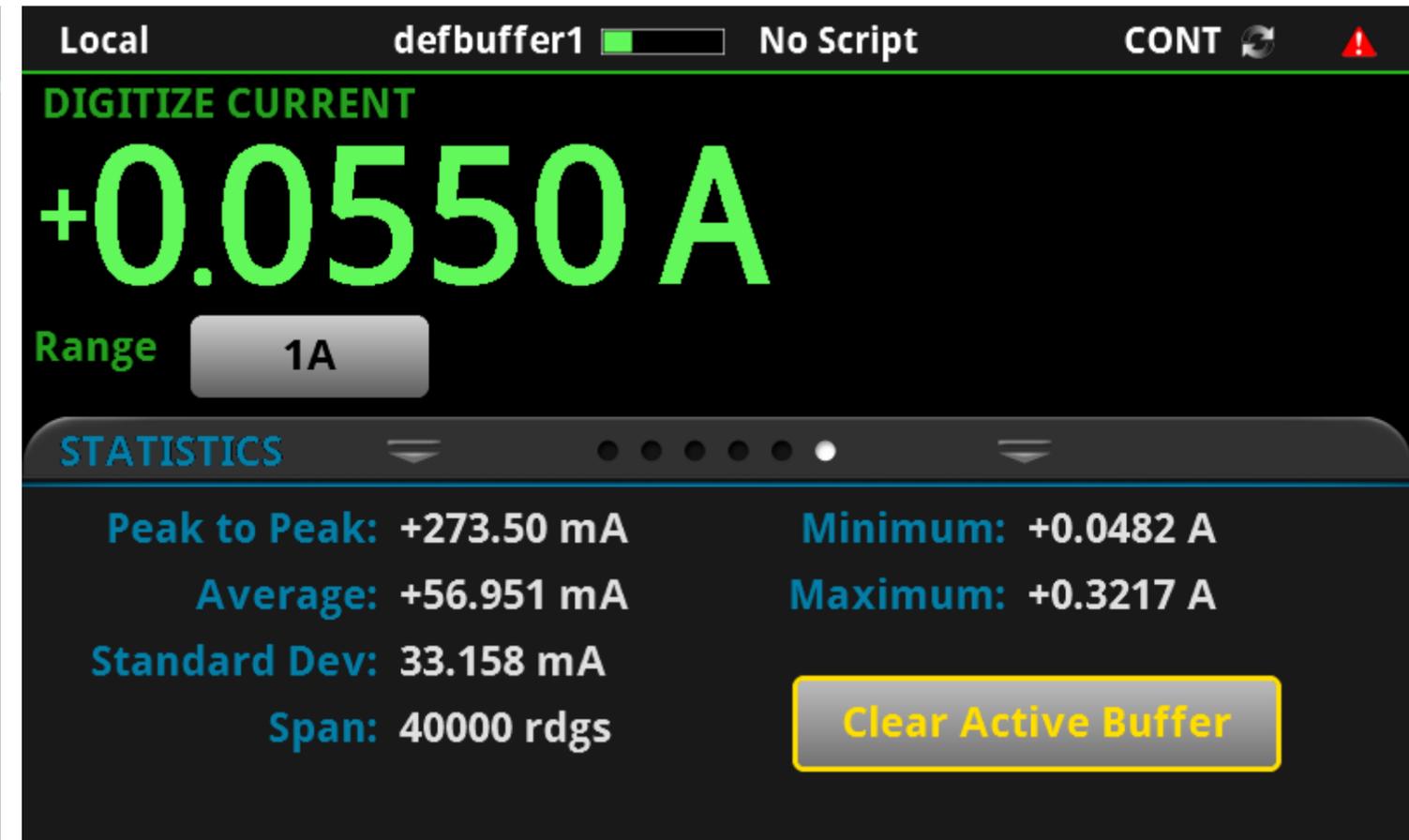
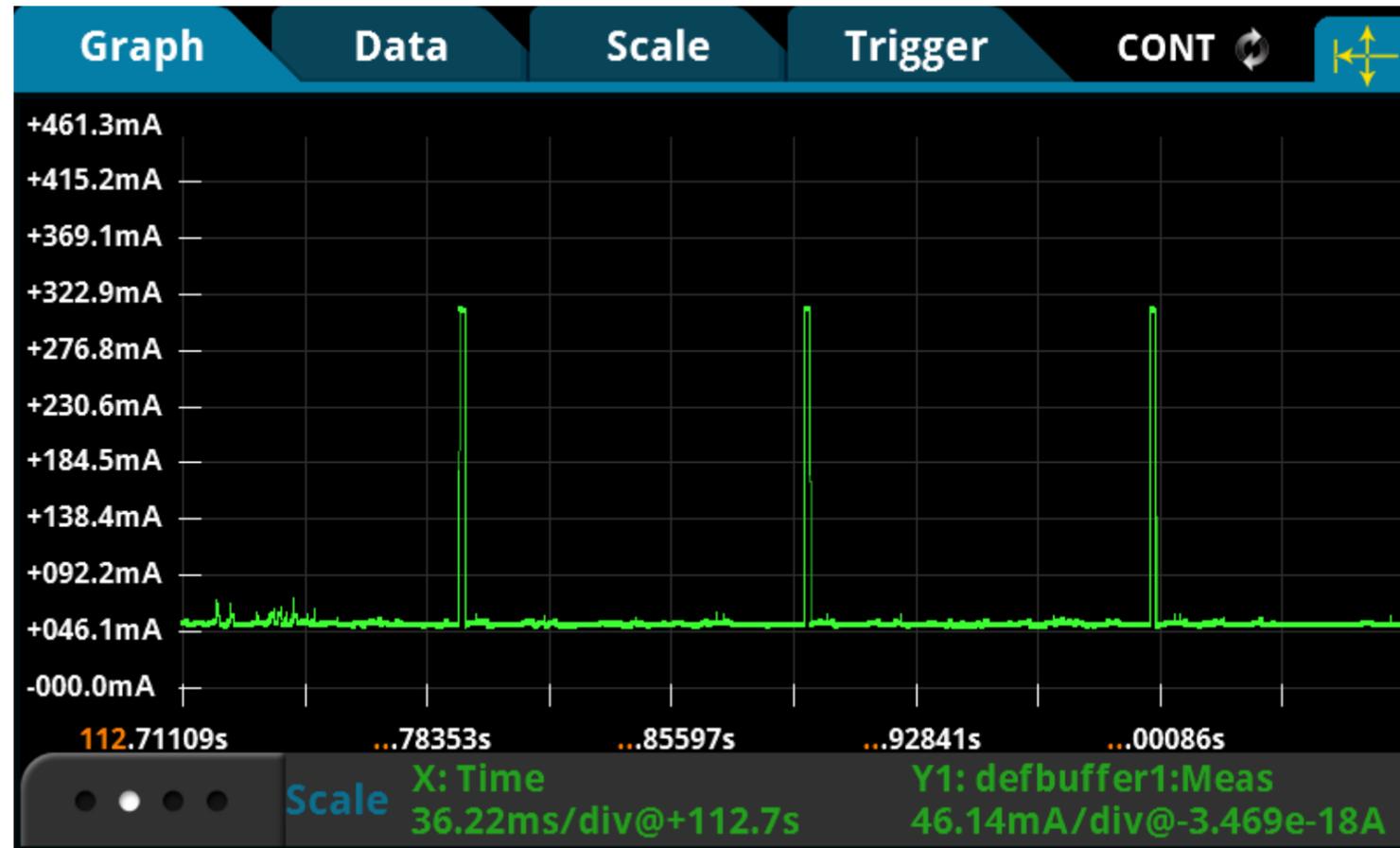
峰值电流	92.79mA
平均电流	5.53mA

UDP发送模式，不开启WiFi低功耗



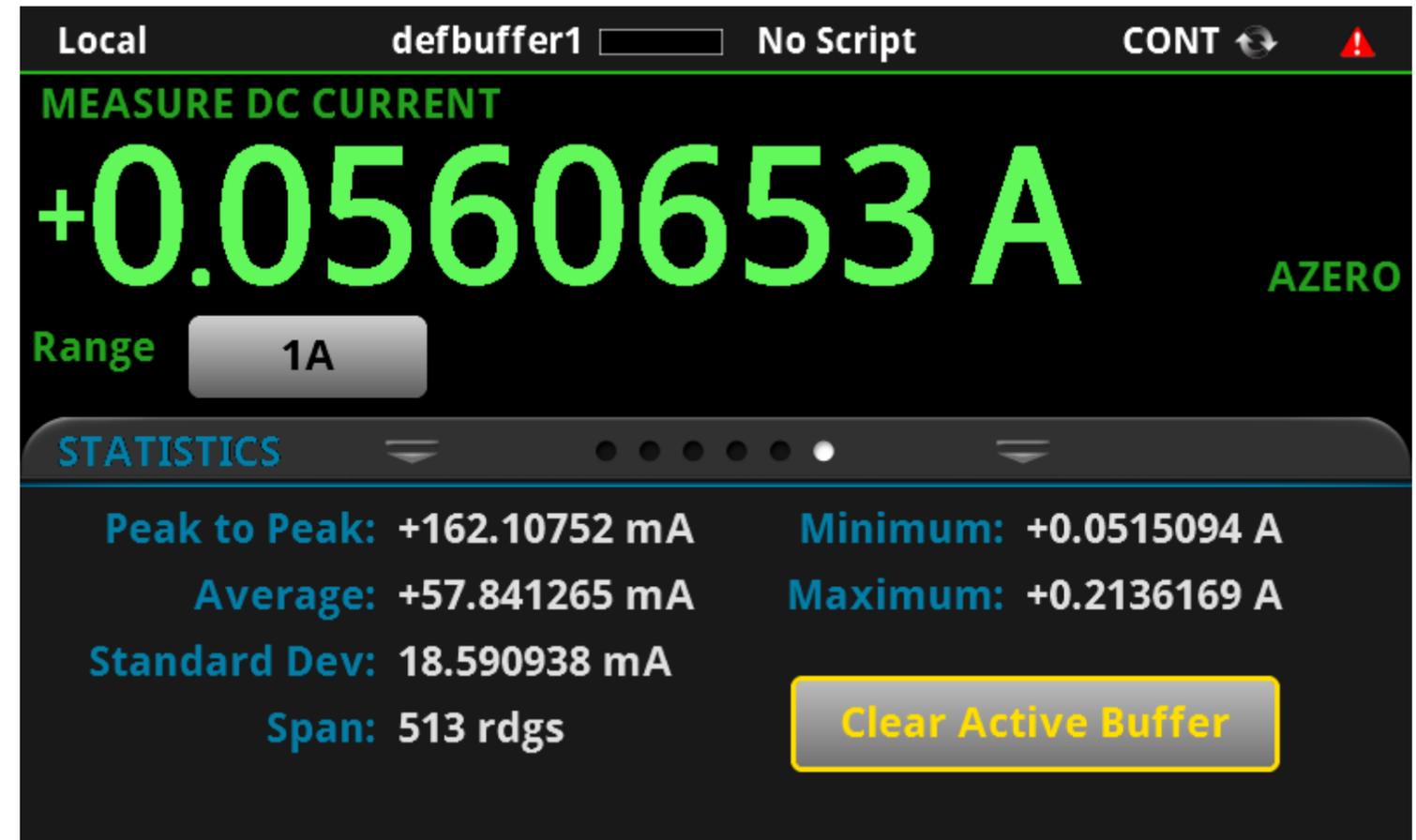
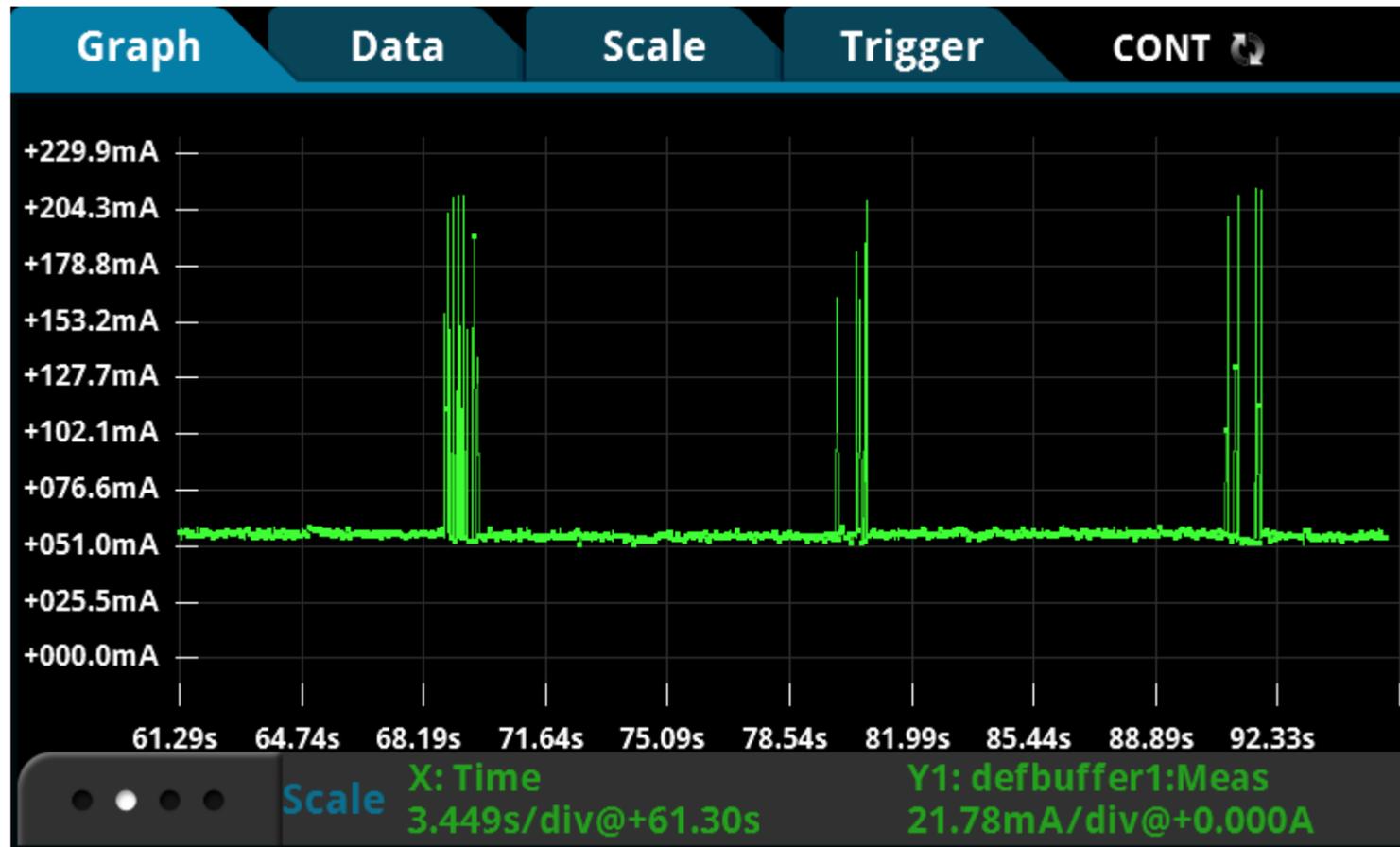
峰值电流	358.10mA
平均电流	62.54mA

Soft AP模式



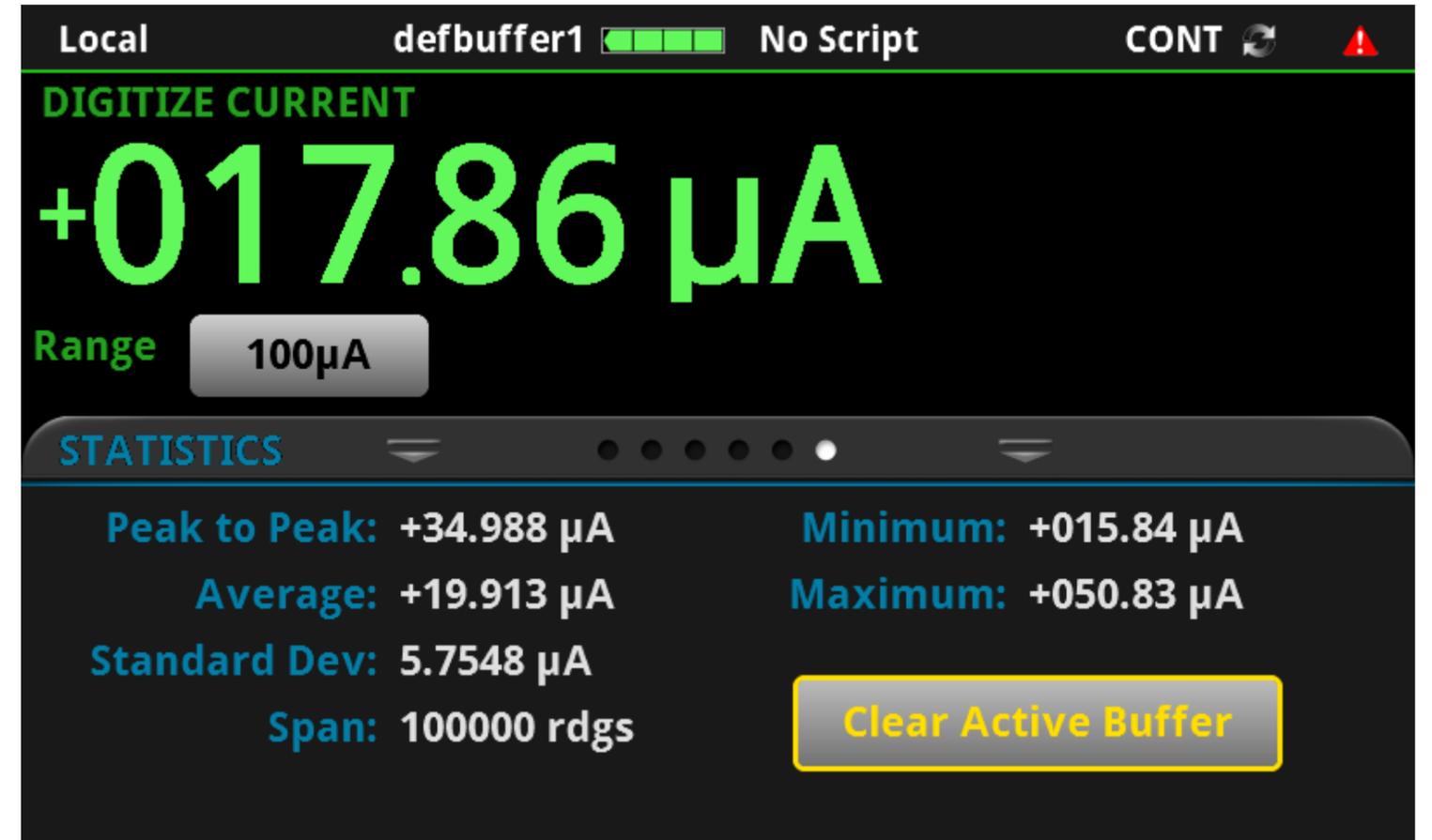
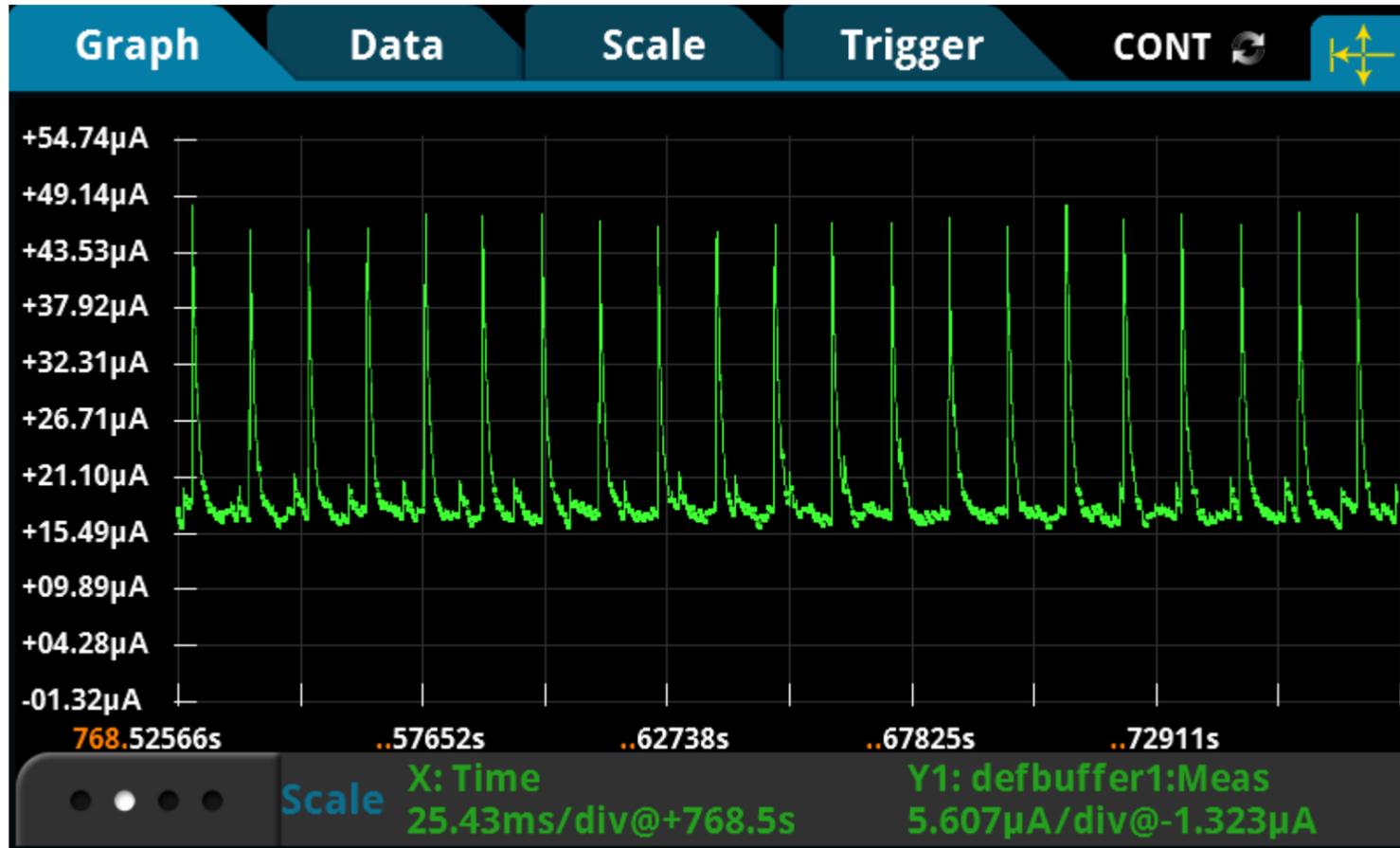
峰值电流	321.70mA
平均电流	56.95mA

Easylink模式



峰值电流	213.62mA
平均电流	57.84mA

Standby 模式

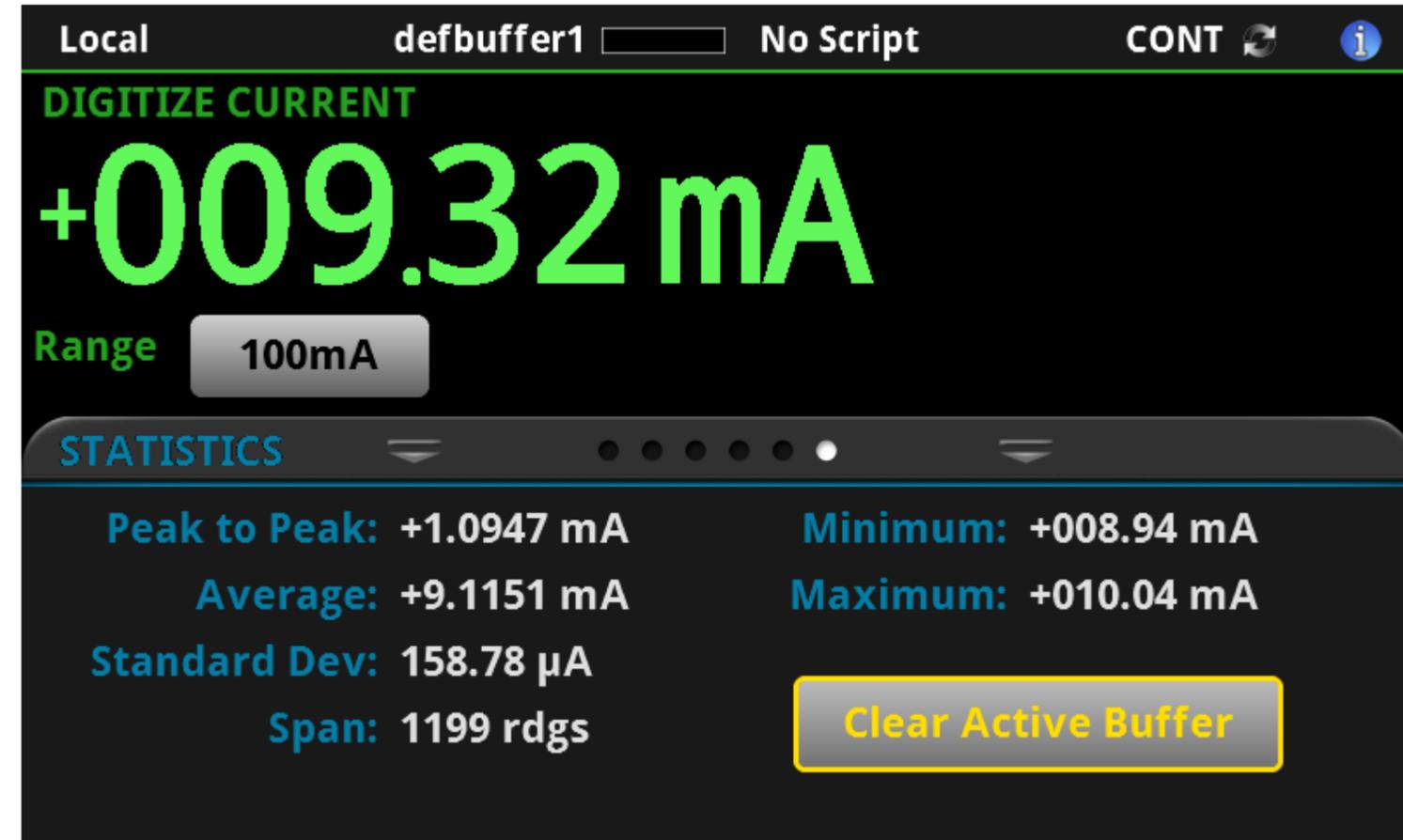
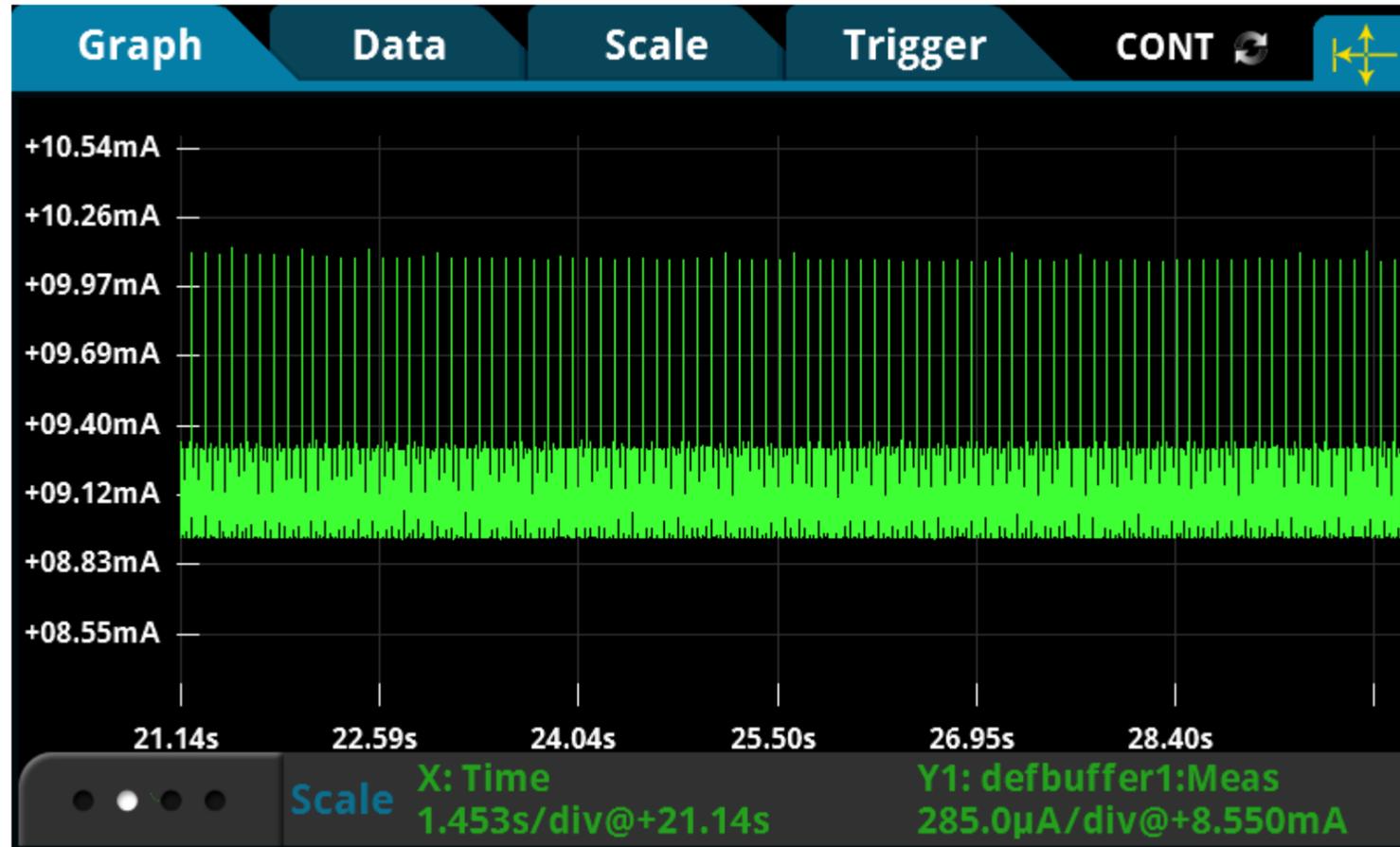


峰值电流	50.83uA
平均电流	19.91uA

EMW3239 BLE Current Test Summary

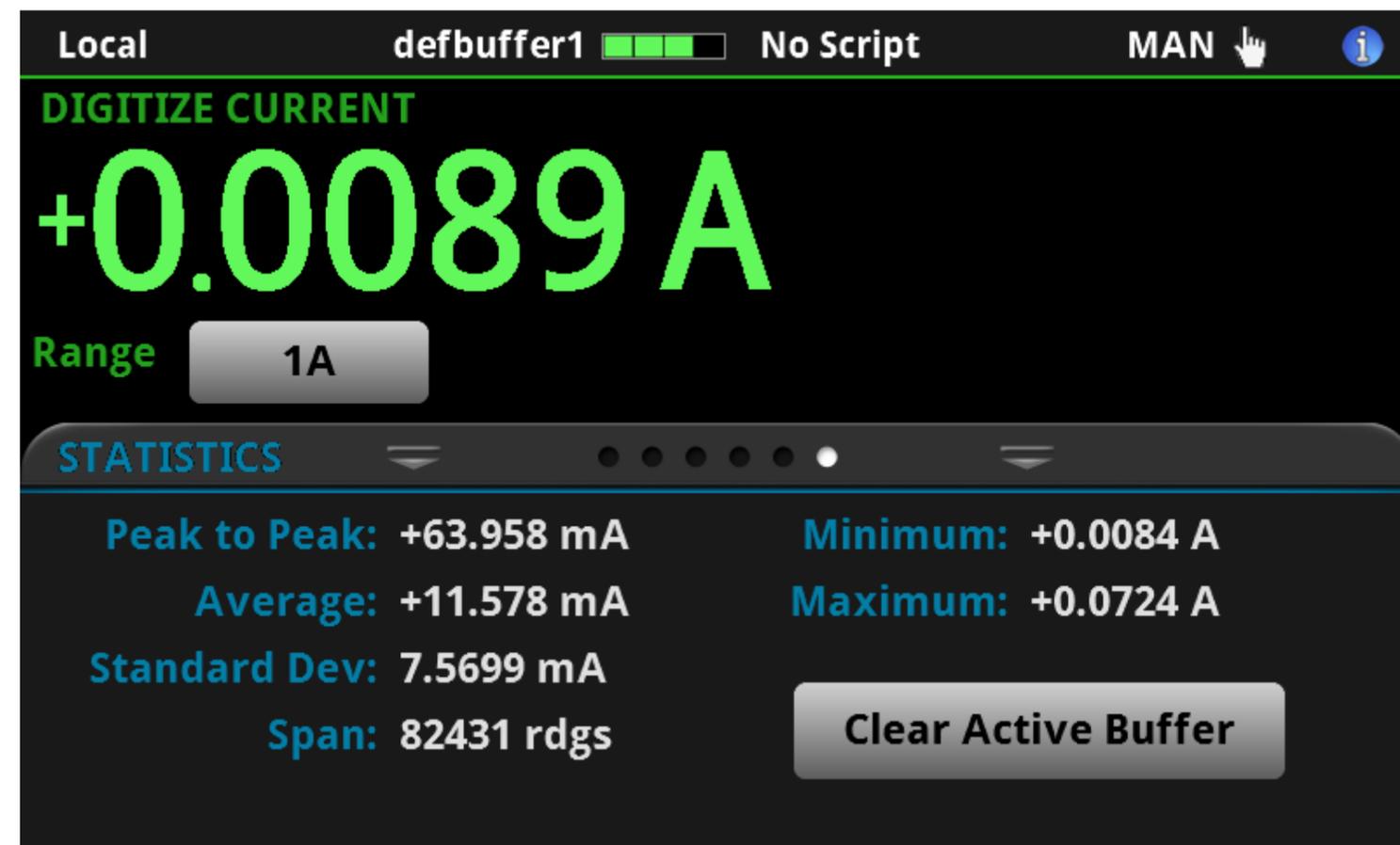
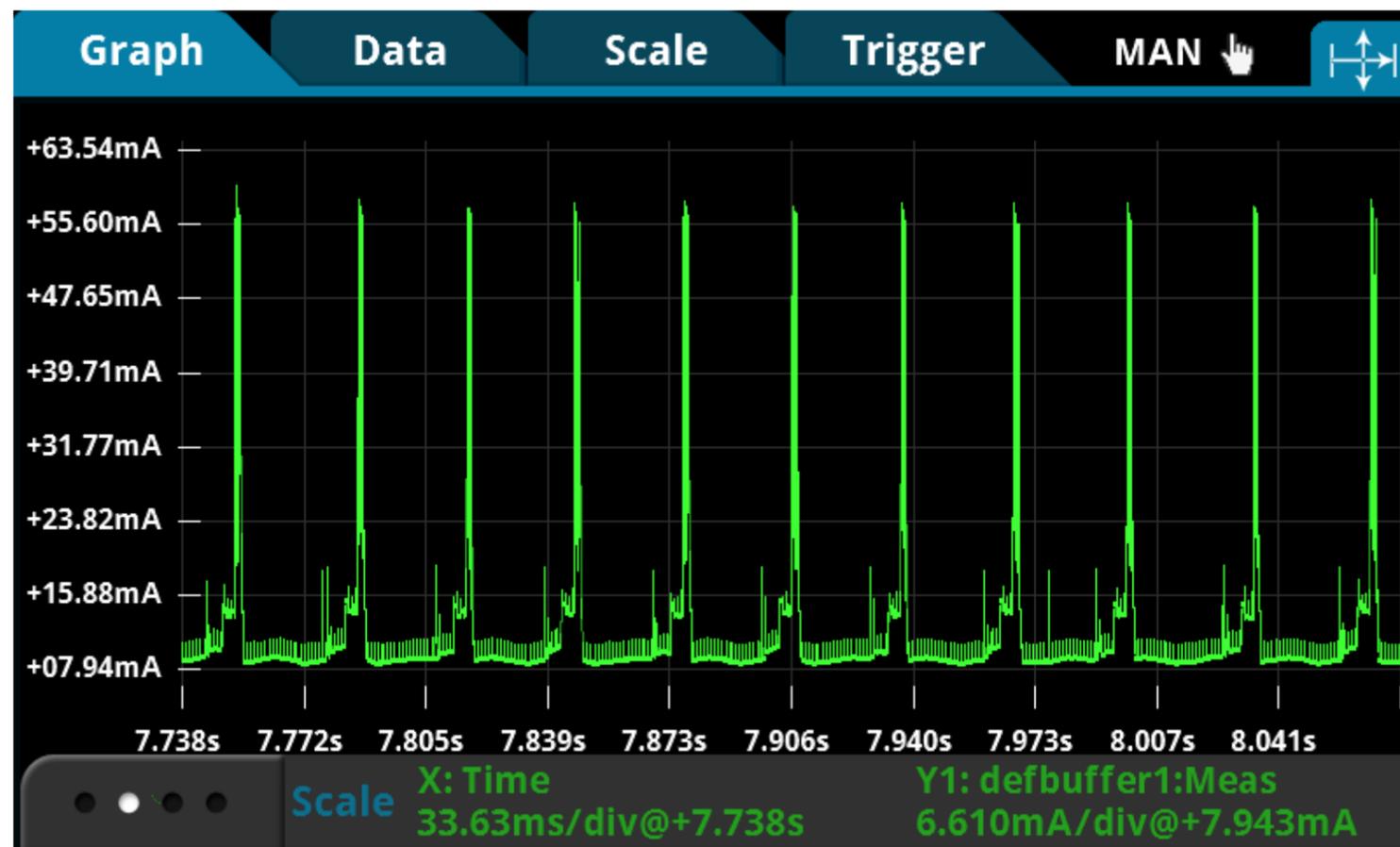
<i>Mode</i>	<i>Current</i>		备注
	<i>Mean</i>	<i>Peak</i>	
Bletooth 初始化	<i>9.12mA</i>	<i>10.04mA</i>	Bluetooth 初始化, WiFi关闭
Bluetooth 高速广播	<i>11.58mA</i>	<i>72.40mA</i>	间隔30ms发送数据
Bluetooth 低速广播	<i>9.62mA</i>	<i>82.63mA</i>	间隔700ms发送数据
Bluetooth 扫描	<i>18.45mA</i>	<i>76.94mA</i>	Bluetooth扫描从设备
Bluetooth 数据发送	<i>12.40mA</i>	<i>58.71mA</i>	作为主设备发送数据
Bluetooth 数据接收	<i>11.59mA</i>	<i>70.69mA</i>	作为从设备接收数据

Bleetooth 初始化



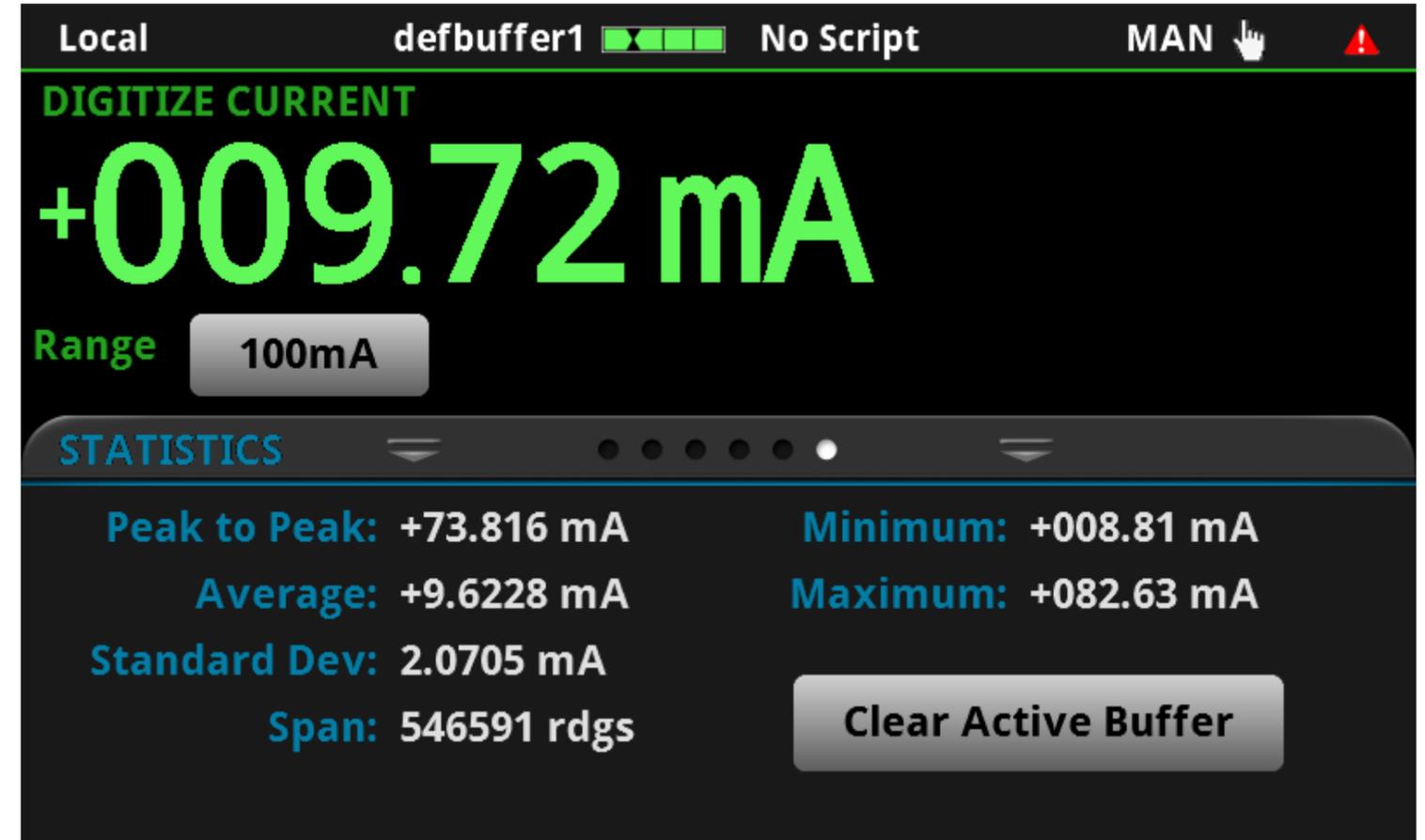
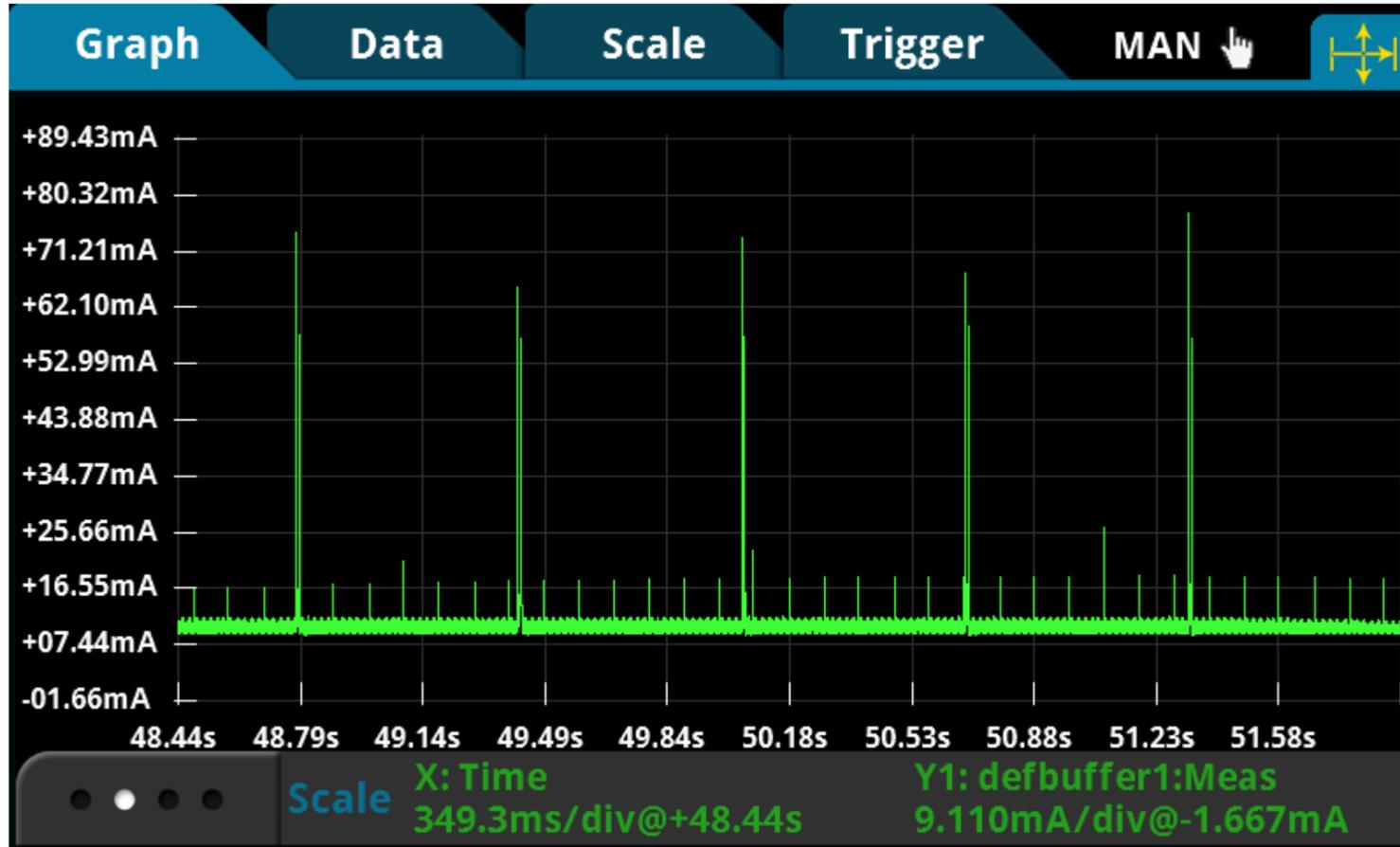
峰值电流	10.04mA
平均电流	9.12mA

Bluetooth 高速广播



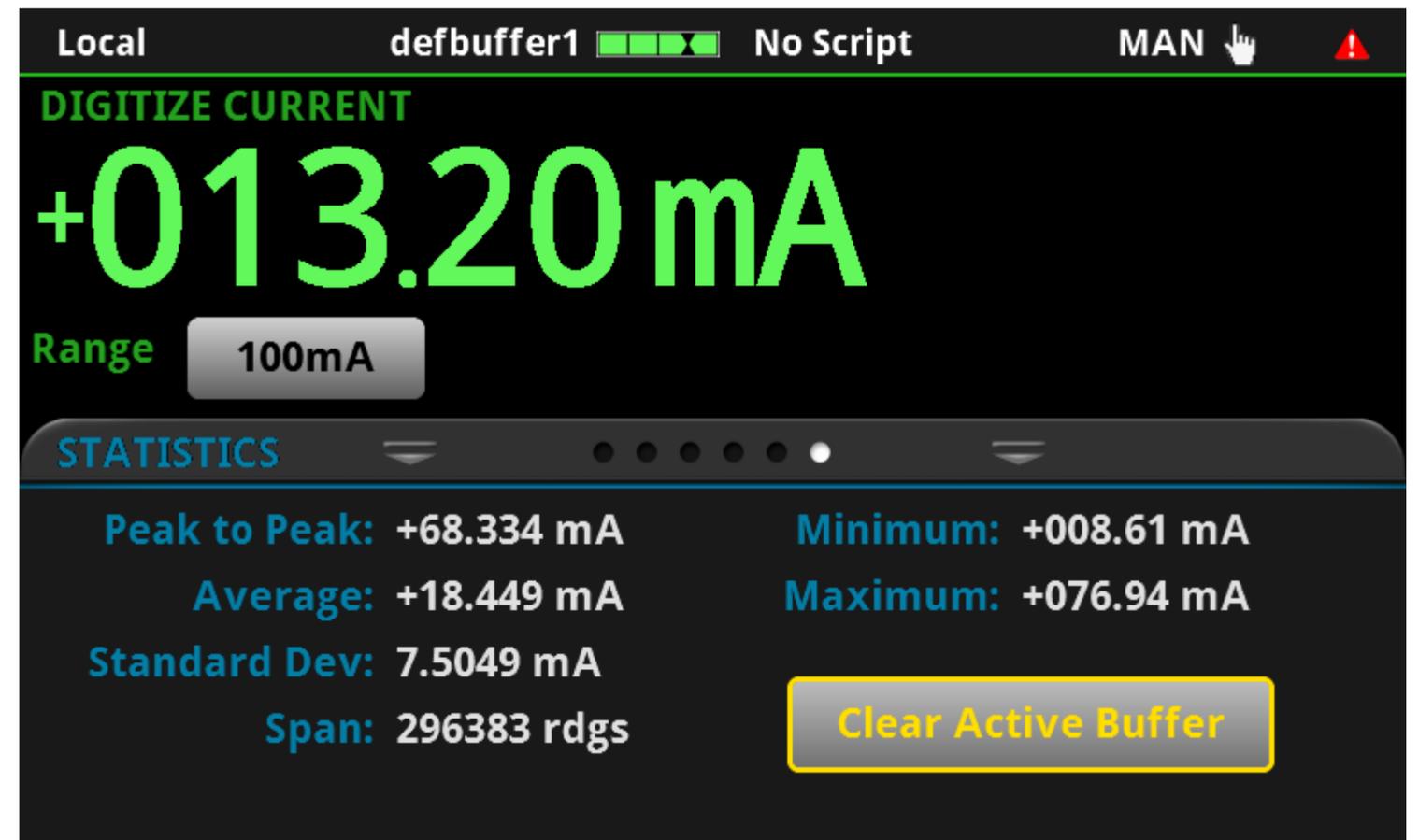
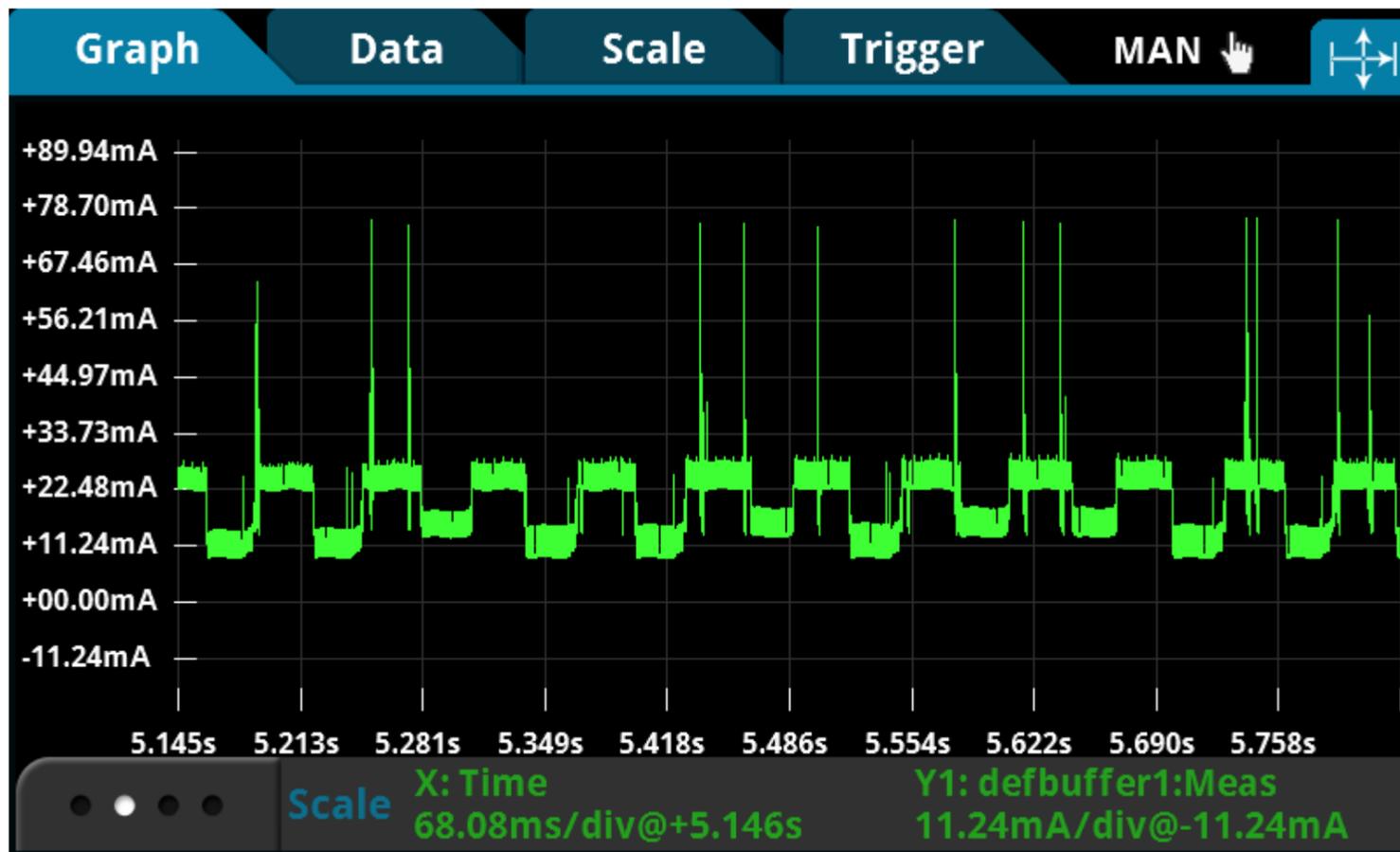
峰值电流	72.40mA
平均电流	11.58mA

Bluetooth 低速广播



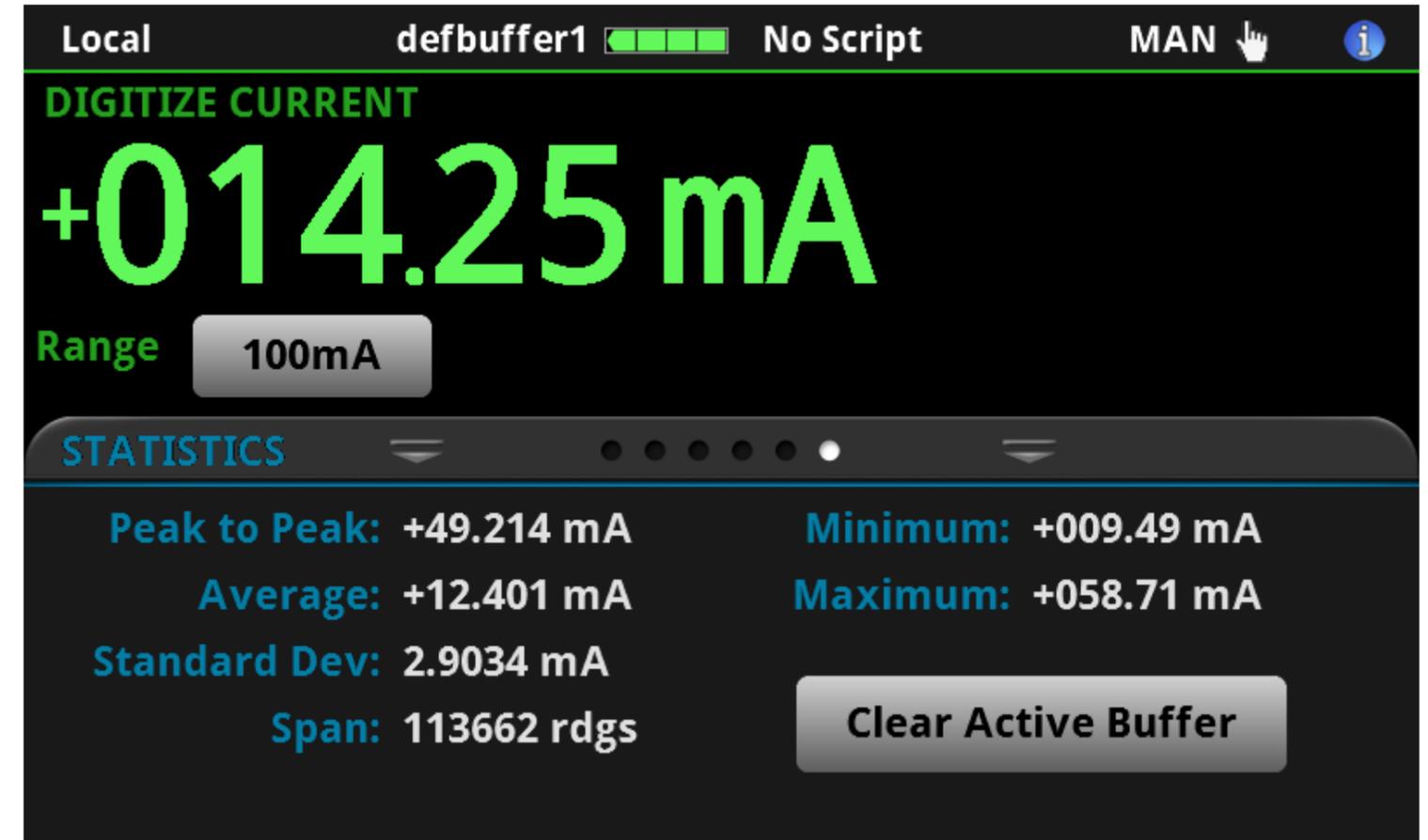
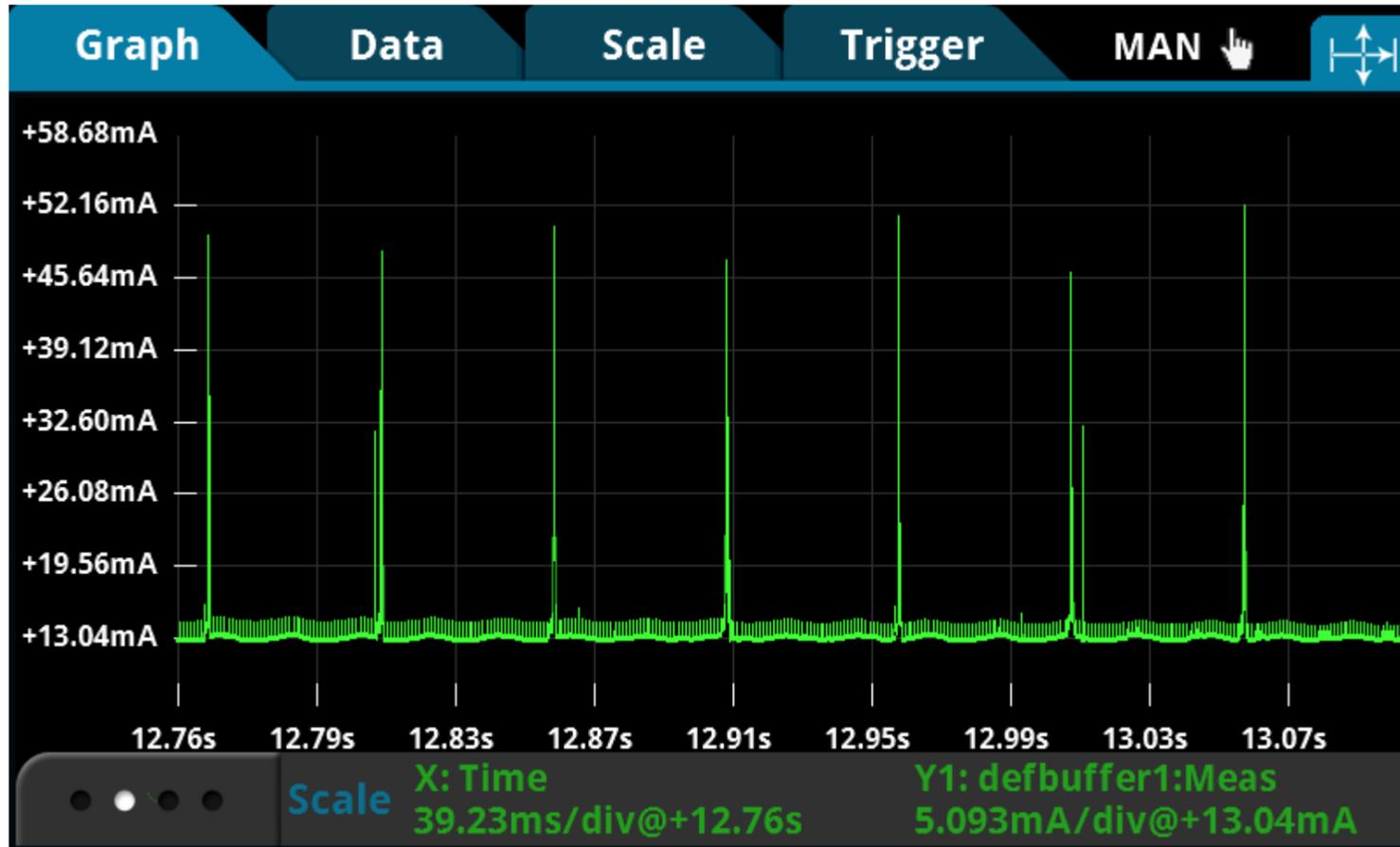
峰值电流	82.63mA
平均电流	9.62mA

Bluetooth 扫描周围设备



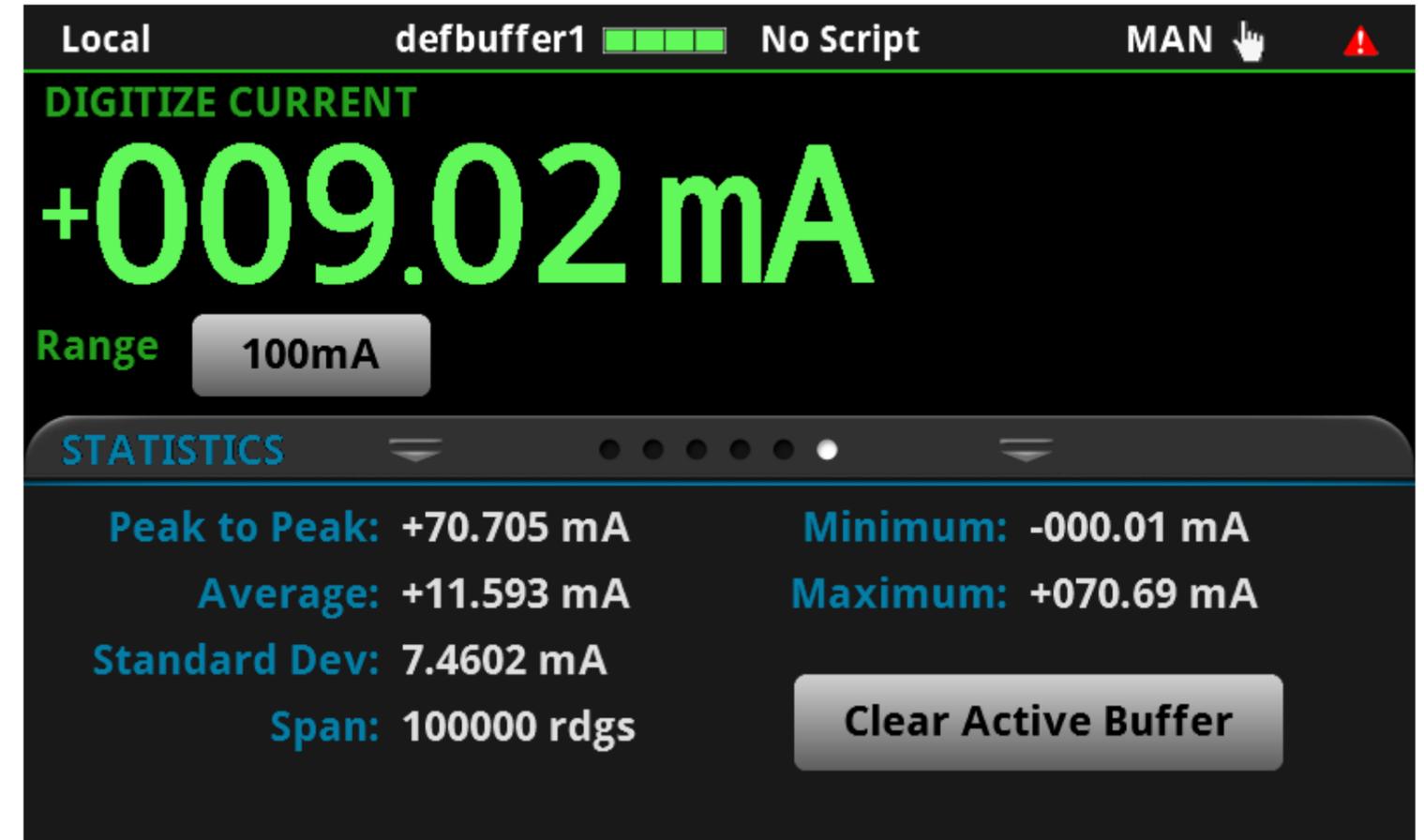
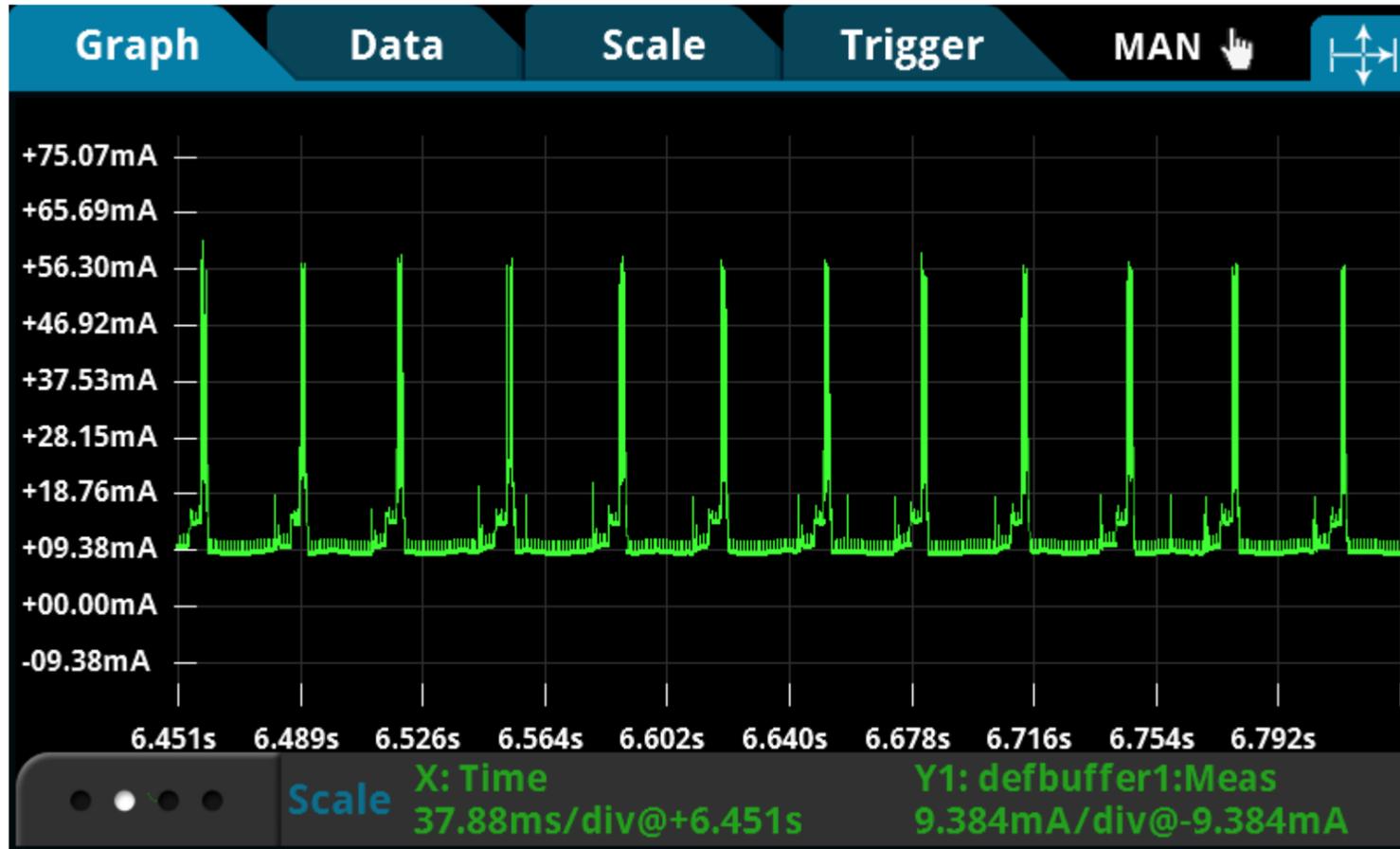
峰值电流	76.94mA
平均电流	18.45mA

Bluetooth 数据发送



峰值电流	58.71mA
平均电流	12.40mA

Bluetooth 数据接收

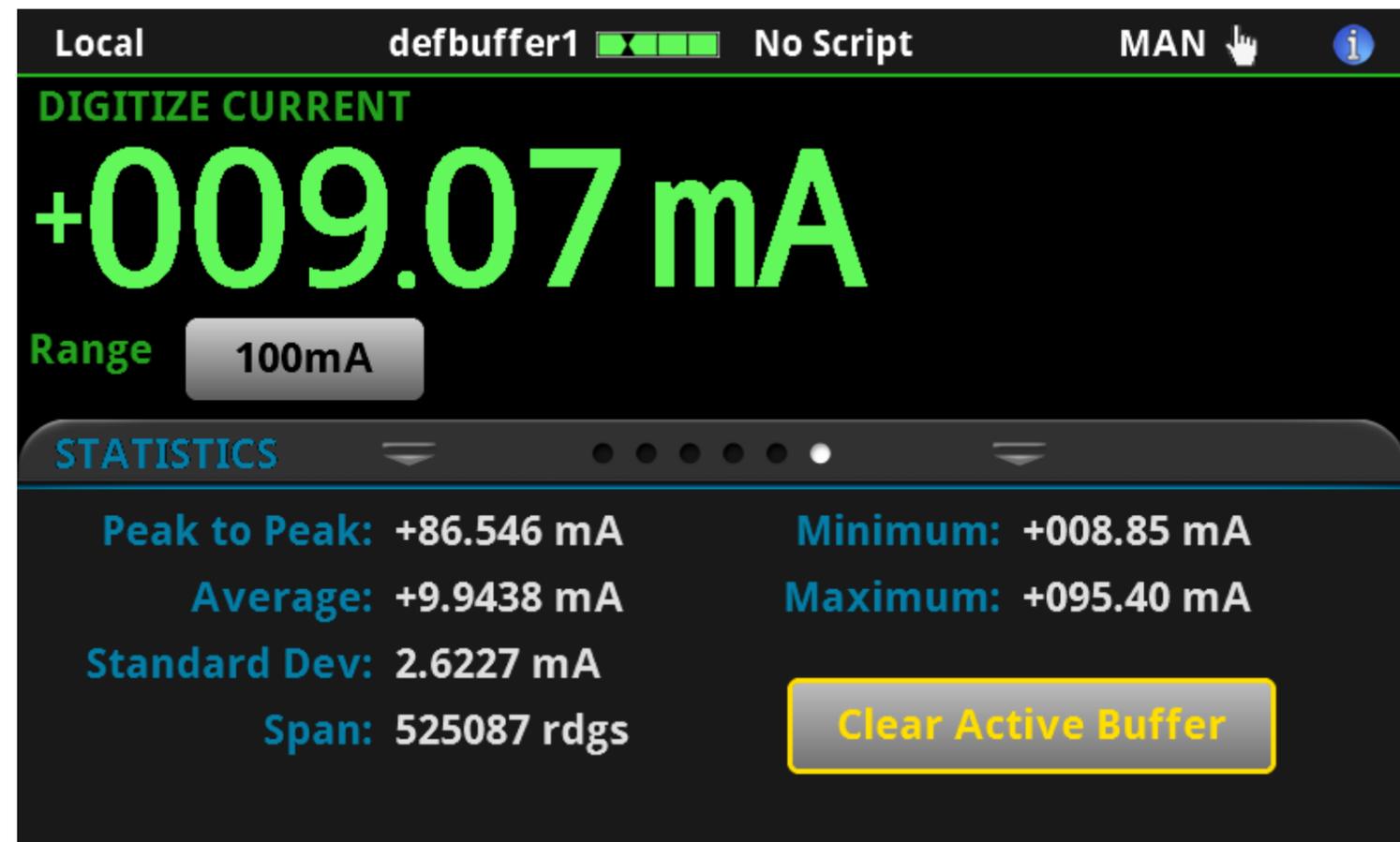
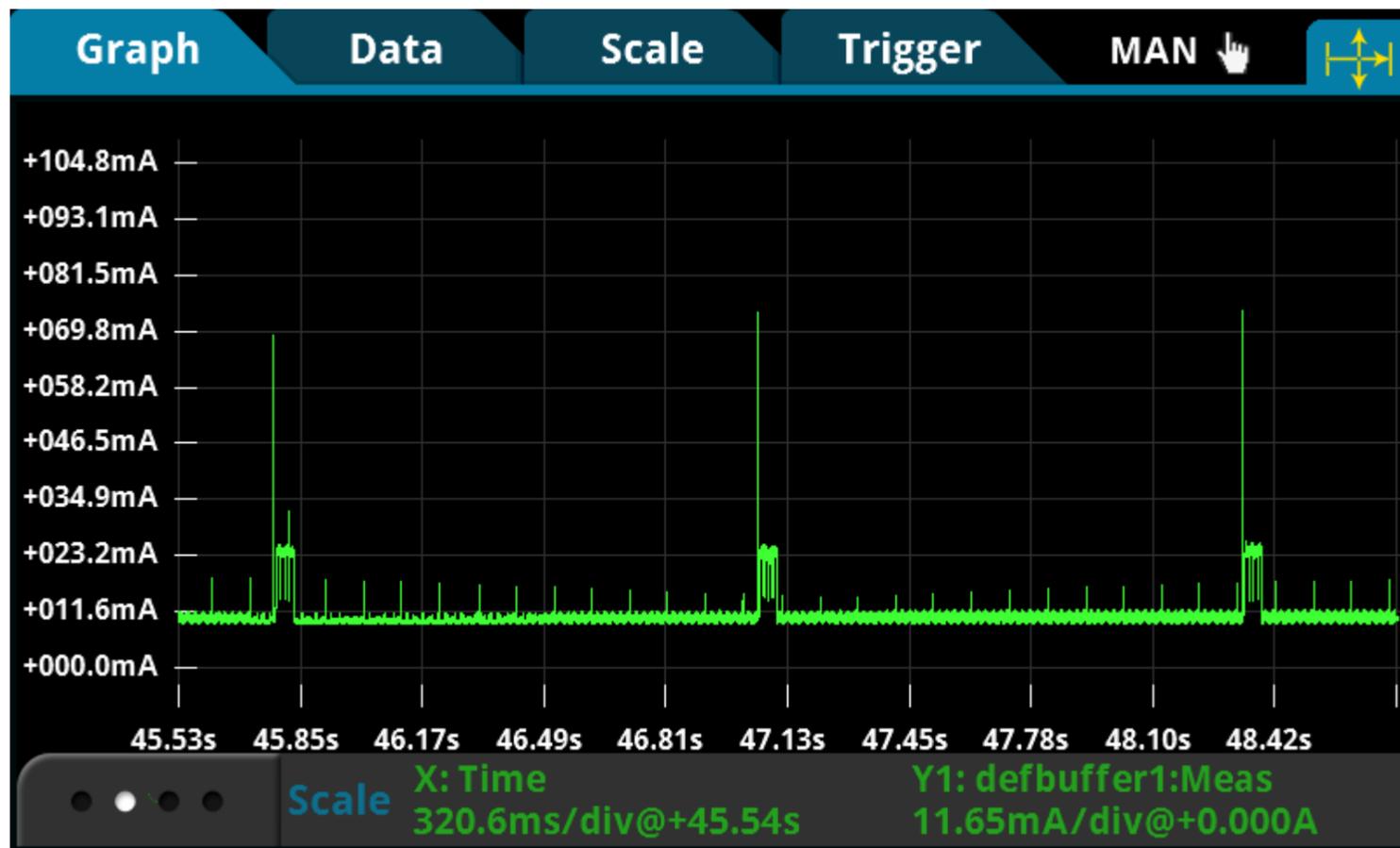


峰值电流	70.69mA
平均电流	11.59mA

EMW3239 BT Current Test Summary

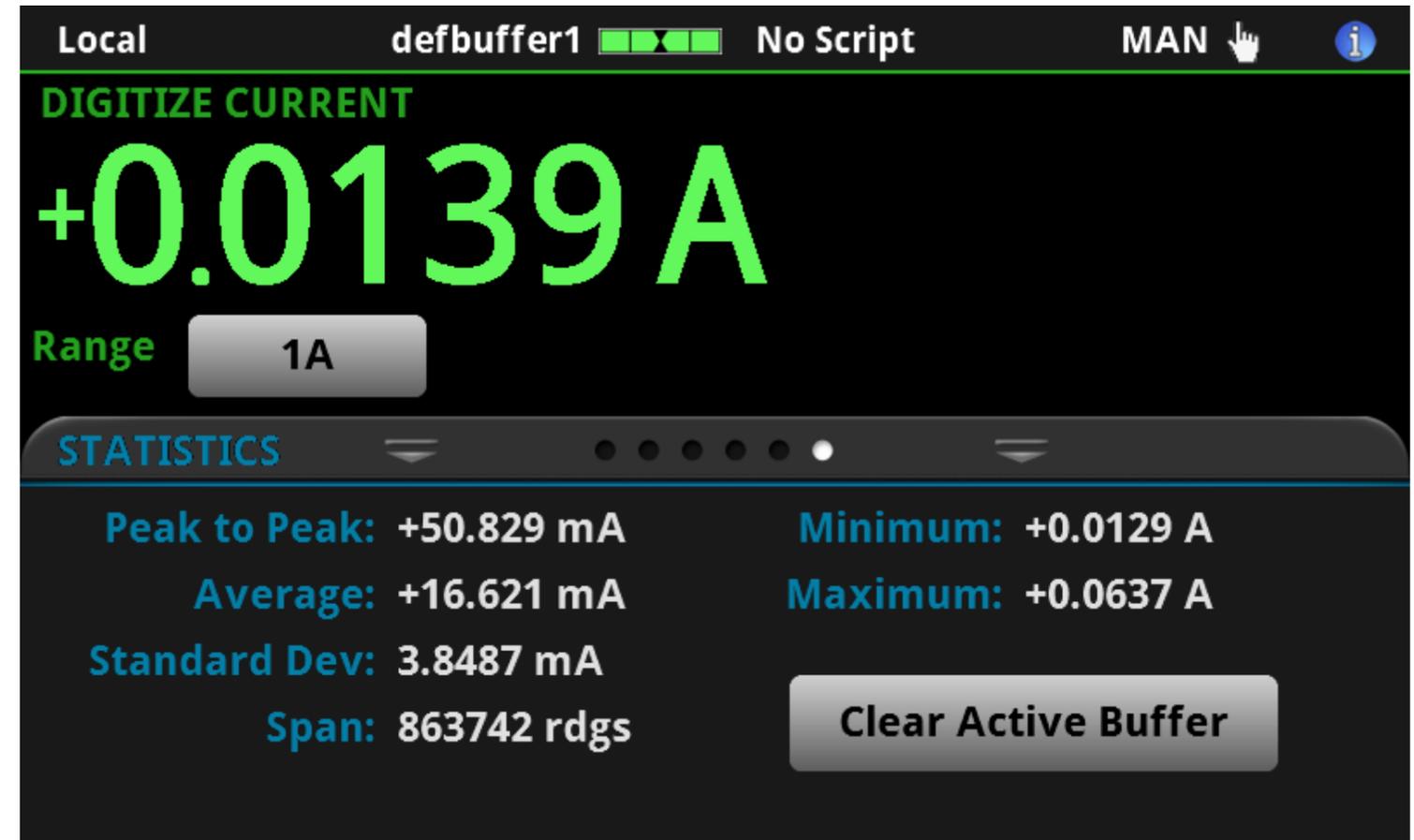
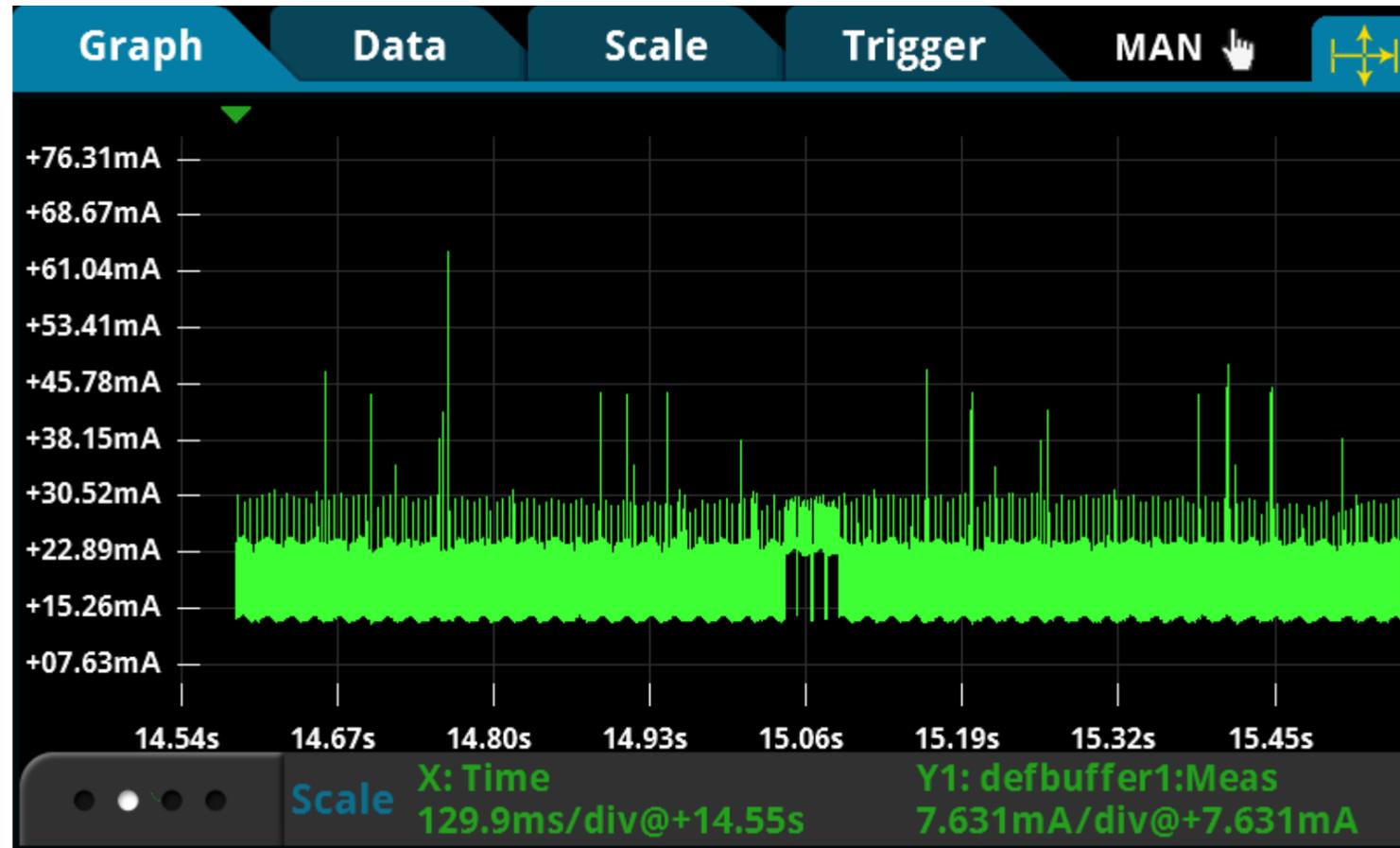
<i>Mode</i>	<i>Current</i>		备注
	<i>Mean</i>	<i>Peak</i>	
可被其他蓝牙设备发现	<i>9.94mA</i>	<i>95.40mA</i>	Bluetooth 初始化, WiFi关闭
Bluetooth 数据发送	<i>16.62mA</i>	<i>63.7mA</i>	作为主设备发送数据
Bluetooth 数据接收	<i>14.76mA</i>	<i>72.17mA</i>	作为从设备接收数据

可被其他蓝牙设备发现



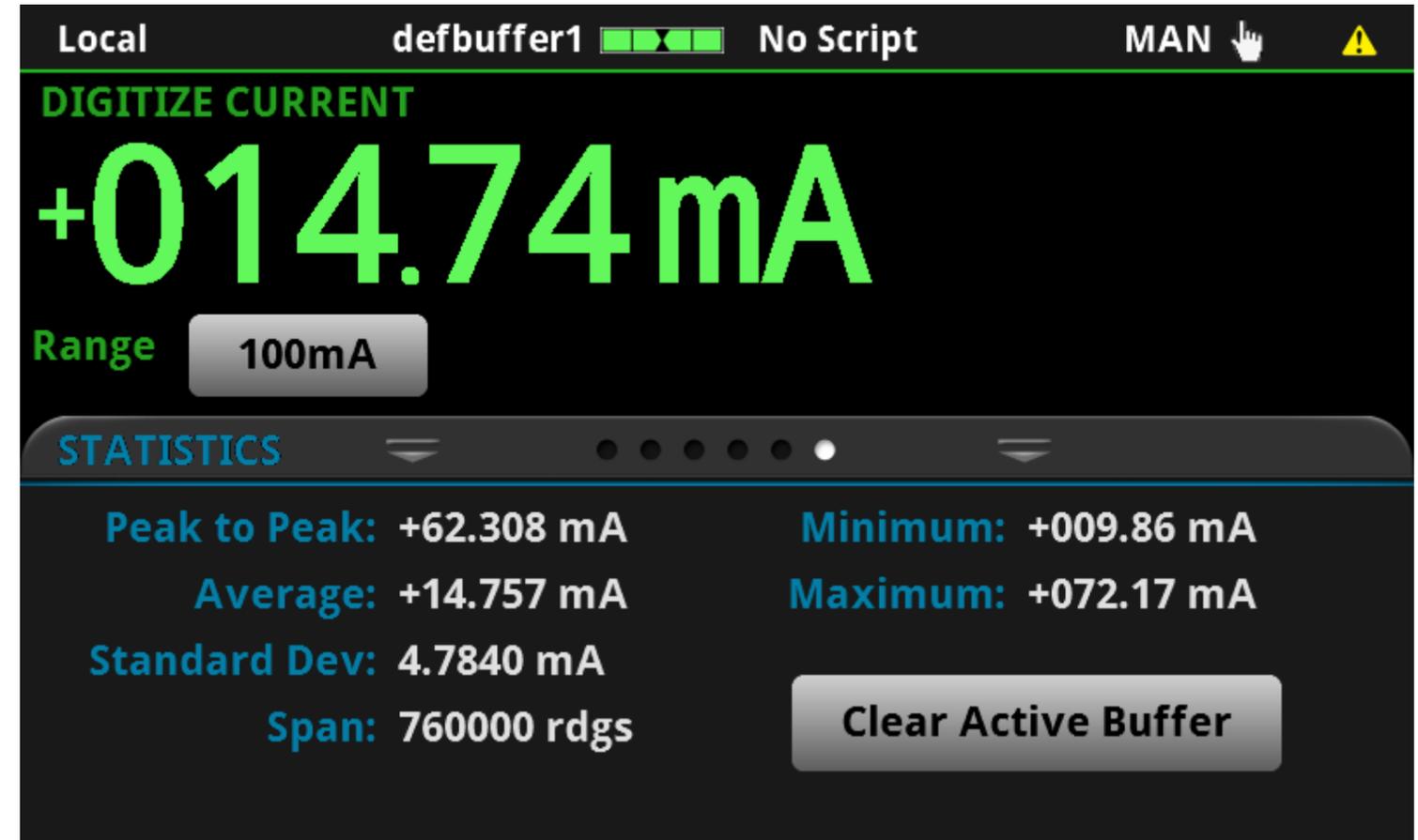
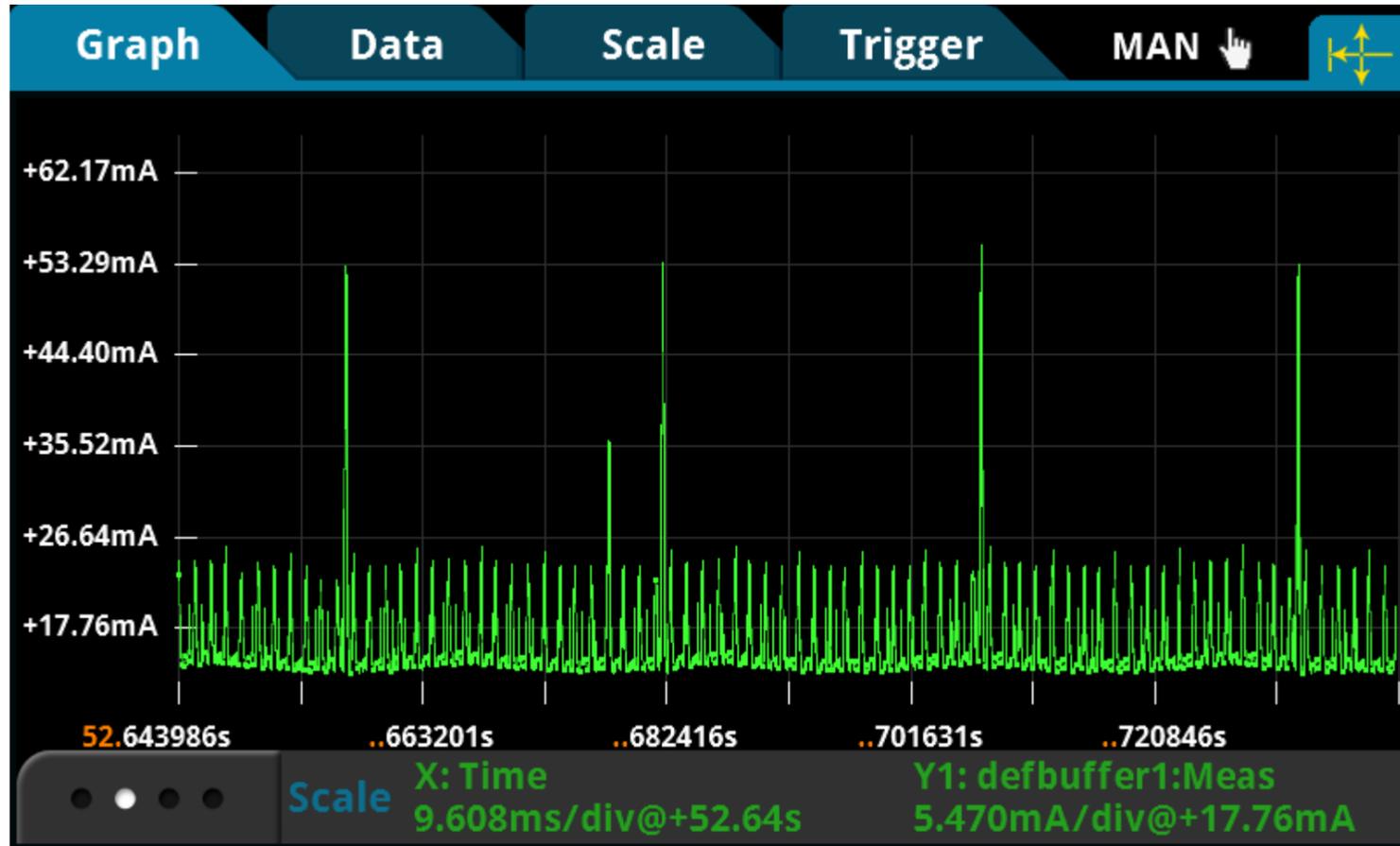
峰值电流	95.40mA
平均电流	9.94mA

作为主设备发送数据



峰值电流	63.7mA
平均电流	16.62mA

作为从设备接收数据



峰值电流	72.17mA
平均电流	14.76mA