Subject: #1287, RPR2006C v2.3.2 is slower then v1.0.8
From: Jeffrey Westgeest <jewe@dare.nl>
Date: 04/20/2016 06:18 AM
To: "kuiper@jpl.nasa.gov" <kuiper@jpl.nasa.gov>
CC: Antoine van Peer <anpe@dare.nl>, "Franco, Manuel" <Manuel.M.Franco@jpl.nasa.gov>, "Teitelbaum, Larry" <Lawrence.Teitelbaum@jpl.nasa.gov>

Dear Mr. Kuiper,

My name is Jeffrey Westgeest and I am one of the senior developers at DARE!! Instruments.

I have looked at the reported item with the RadiPower. (#1287, RPR2006C v2.3.2 is slower then v1.0.8)
At this moment I have the impression that your reported item is related to the behavior of the filter setting.

I have done several measurements with the auto and fixed filter settings.
The used python script for testing is attached.
I have used Debian GNU/Linux 8.4 (jessie) 64 bits as testing machine.

The results of my measurements:
Signal generator output: -50 dBm
Filter: AUTO
Samples: 1000
Measuring: -50.89 dBm
Duration(Sec): 164.943696022

Signal generator output: -40 dBm
Filter: AUTO
Samples: 1000
Measuring: -41.11 dBm
Duration(Sec): 104.533071995

Signal generator output: -30 dBm
Filter: AUTO
Samples: 1000
Measuring: -31.02 dBm
Duration(Sec): 44.7287838459

Signal generator output: -20 dBm
Filter: AUTO
Samples: 1000
Measuring: -20.78 dBm
Duration(Sec): 23.5713908672

Signal generator output: -10 dBm
Filter: AUTO
Samples: 1000
Measuring: -10.67 dBm
Duration(Sec): 17.5558629036

Signal generator output: 0 dBm
Filter: AUTO
Samples: 1000
Measuring: -10.67 dBm
Duration(Sec): 17.5558629036

Signal generator output: -50 dBm
Filter: 7
Samples: 1000
Measuring: -50.88 dBm
Duration(Sec): 158.494415998

Signal generator output: -50 dBm
Filter: 6
Samples: 1000
Measuring: -50.87 dBm
Duration(Sec): 98.3870871067

Signal generator output: -50 dBm
Filter: 5
Samples: 1000
Measuring: -50.86 dBm
Duration(Sec): 38.2345271111

Signal generator output: -50 dBm
Filter: 4
Samples: 1000
Measuring: -50.87 dBm
Duration(Sec): 17.1574699879

Signal generator output: -50 dBm
Filter: 3
Samples: 1000
Measuring: -50.86 dBm
Duration(Sec): 11.1494948864

Signal generator output: -50 dBm
Filter: 2
Samples: 1000
Measuring: -50.90 dBm
Duration(Sec): 9.04163908958

Signal generator output: -50 dBm
Filter: 1
Samples: 1000
Measuring: -50.87 dBm
Duration(Sec): 8.44735884666

Signal generator output: 0 dBm

Filter: 1
Samples: 1000
Measuring: -0.49 dBm
Duration(Sec): 8.42022705078

Signal generator output: 0 dBm
Filter: 7
Samples: 1000
Measuring: -0.47 dBm
Duration(Sec): 151.038294077

In your initial e-mail you spoke about reaching a bit more than 100 readings per second.
In document bookThree570-572, there is a screen shot(Fig. 1.61) with the auto filter selected.

Based on my measurements, I have to conclude that you probable have performed the initial measurements with filter 1 or 2.
With the auto filter and 0 dBm you still need 17.5 mSec (57 Hz) for a measurement.

Can you verify that with filter 2 you get the reading speed that you need?

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Best regards,

Jeffrey Westgeest
Senior Software Engineer

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~ Measure the Difference!! ~

speed.py

```
# Test program for RPR2006C speed measurement.

import serial
from timeit import default_timer as timer

def readlineCR(port):
    rv = ""
    while True:
        ch = port.read()
        if ch=='\n' or ch=='':
            return rv
        else:
            rv += ch

port = serial.Serial("/dev/ttyUSB0", baudrate=115200, timeout=3.0)

#Getting the current filter setting
port.write("Filter?\n")
rcv = readlineCR(port)
print "Filter:", rcv

# time the measurement
start = timer()
for x in range(0, 1000):
        port.write("POWER?\n")
        rcv = readlineCR(port)

end = timer()

print "Samples:", x+1
#print the last measurement, to ensure that the power is measuring what we
are expecting.
print "Measuring:", rcv
#print the test time
print "Duration(Sec):", (end - start)
```

Attachments:

speed.py 763 bytes