

## **BT-Wifi Test Test Description**

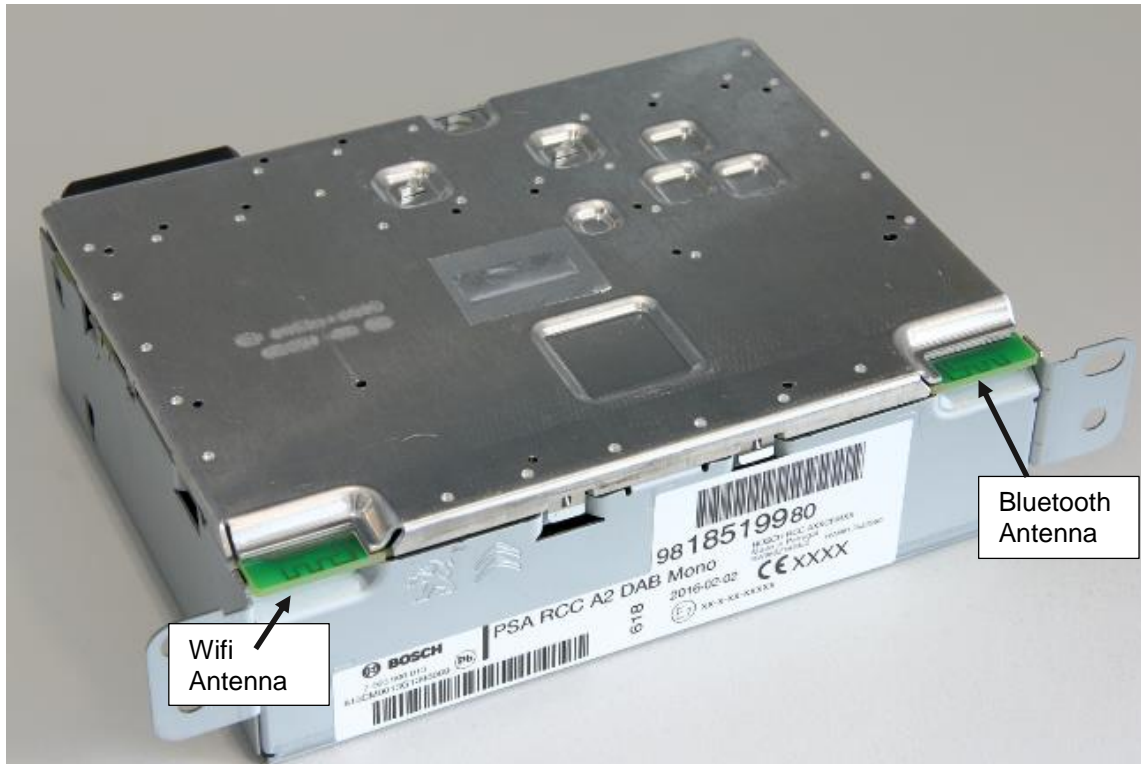
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## 2 PSA RCC Device

### 2.1 Front side



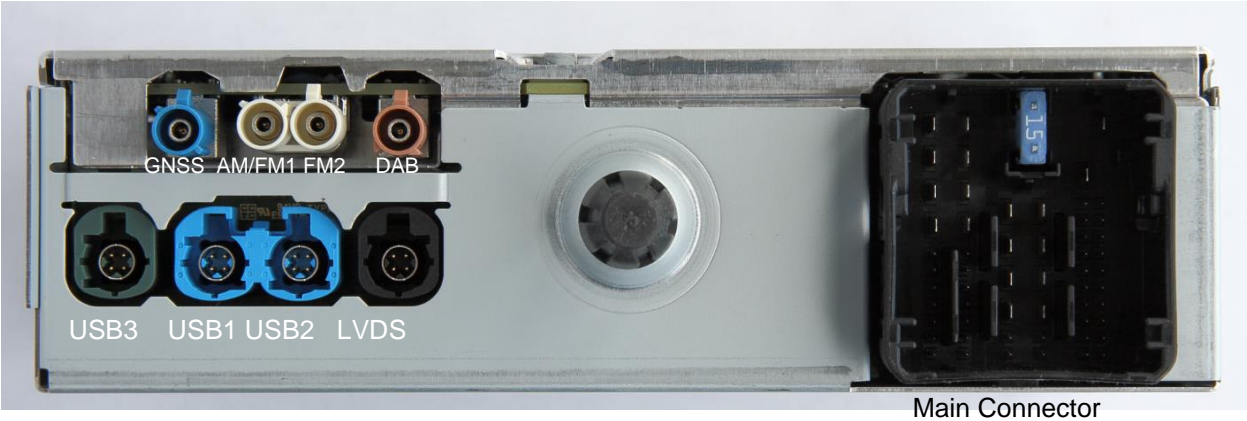
### 2.2 Back Side from A1 non DAB Variant



### 2.3 Back Side from A1 DAB Variant



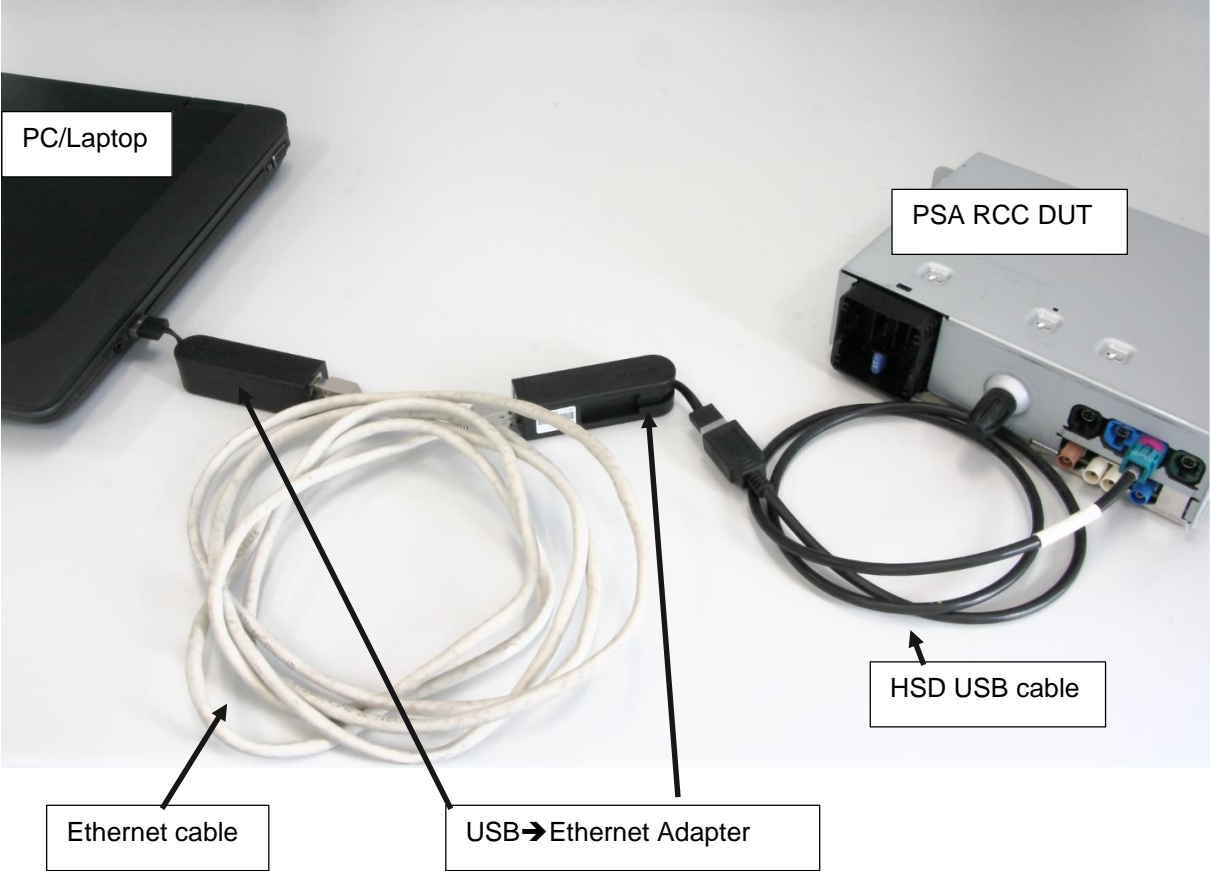
2.4 Back Side from A2 DAB-Variant



2.5 Back Side from A2 nonDAB-Variant



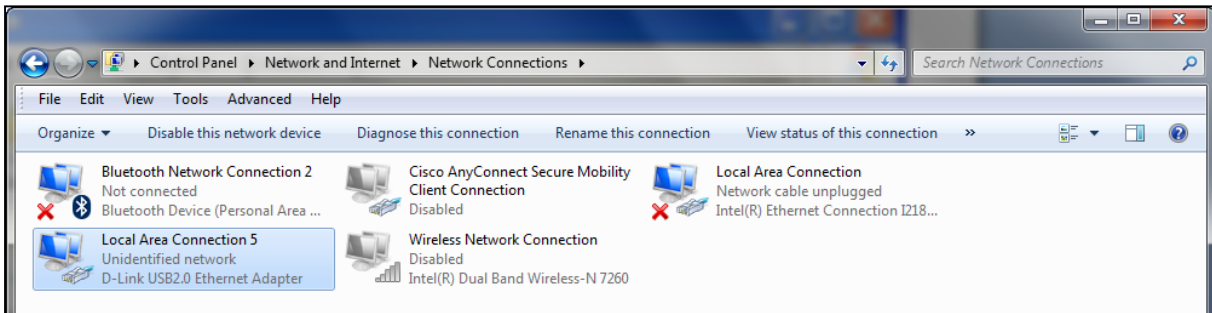
3 Test Setup



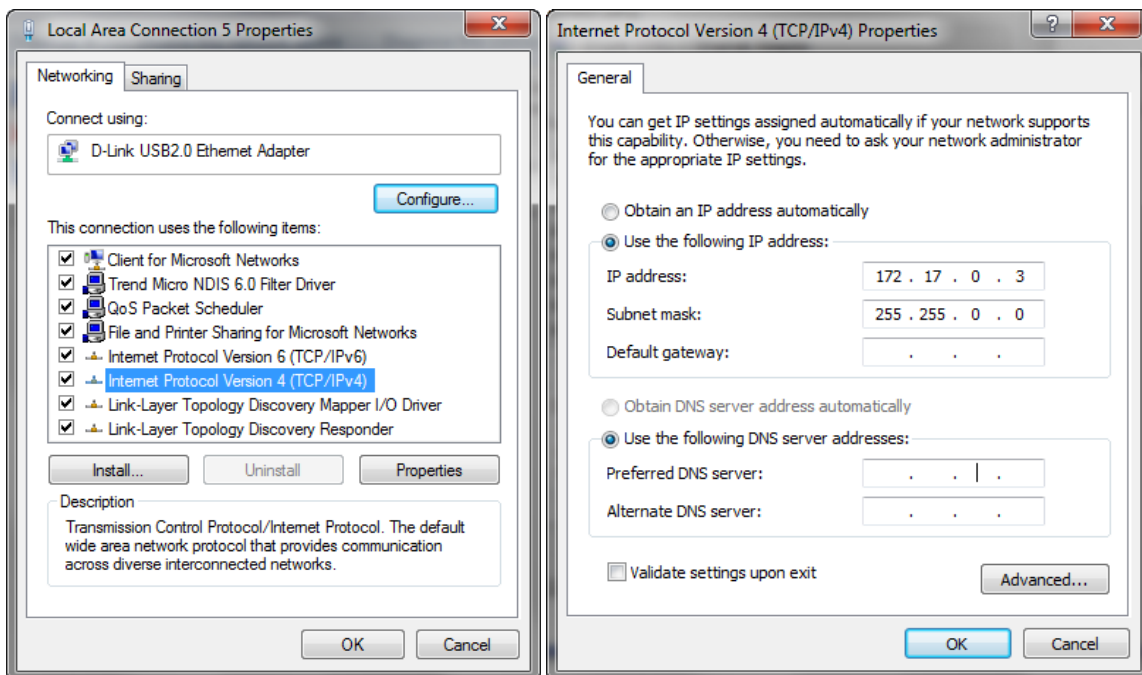
## 4 Network configuration

Add the IP-Address for 172.17.0.5 for the D-Link adapter at the Microsoft network controls as shown in the next pictures.

Network connection:



With a double click on the LAN-connection with the D-Link DUB-E100 USB 2.0 Fast Ethernet Adapter you should be able to make the following setting under properties:



In case of problems it might be necessary to restart the computer and check all items again.

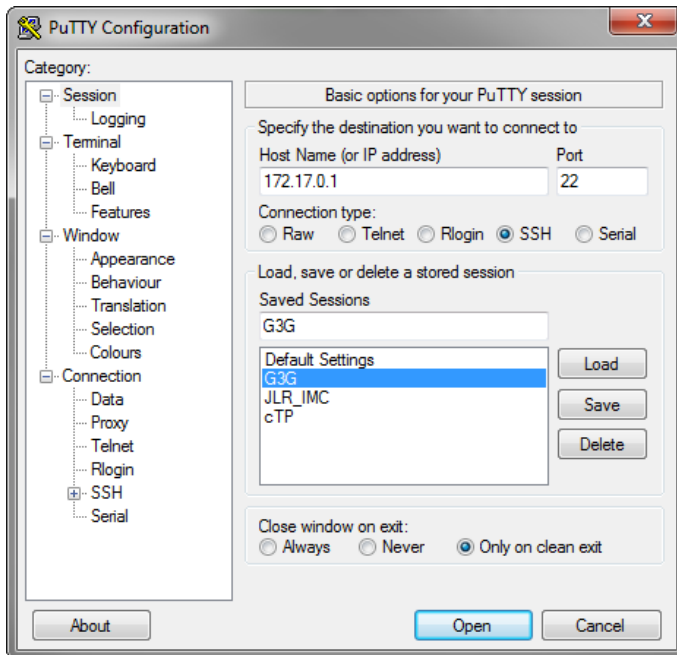
Be also aware that your computer is capable multi network connections. This is often related to your PC administration policies.

**IP address "172.17.0.1" is the DUT**

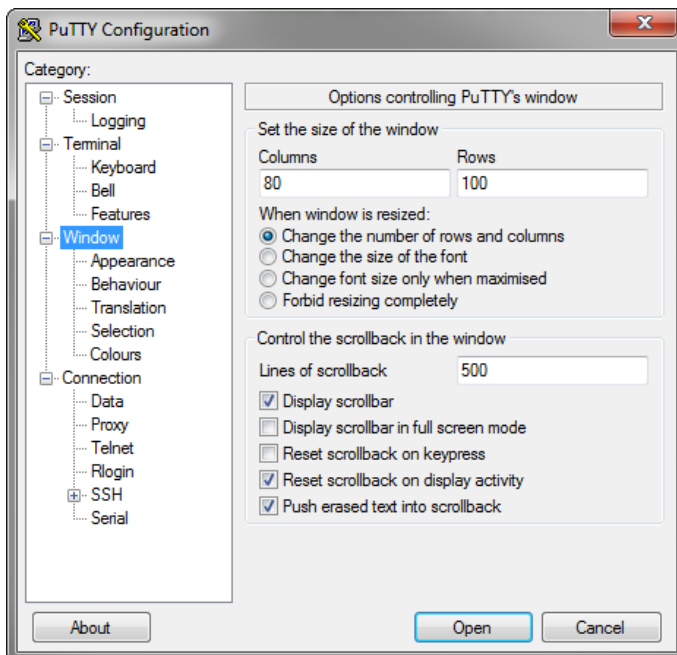
## 5 PuTTY Configuration and Use

Start PuTTY: (Simply run PuTTY.EXE no installation is required.)

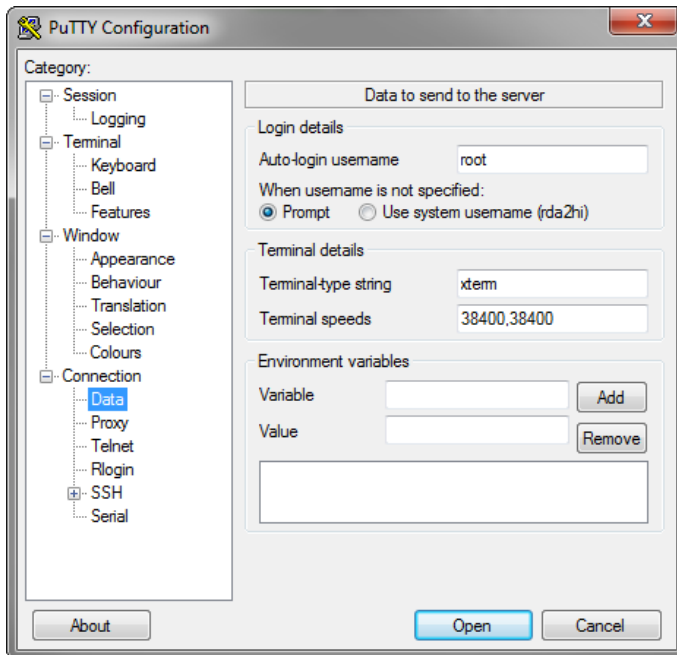
If not configured up to now configure PuTTY as shown in the next 3 pictures:



You can use your personal window settings under “Window”.



Use “root” as username for Auto-login



Afterwards use “Save-Button” in “Session”-screen.

From now on the session can be started by double-clicking the entry “G3G”.

At the first time of starting Putty a message is displayed. The text asks if you trust the connection. Click “yes” button.

After some seconds “root@mx6q:~#” is shown

Then type in “cd /rta” to enter the required directory



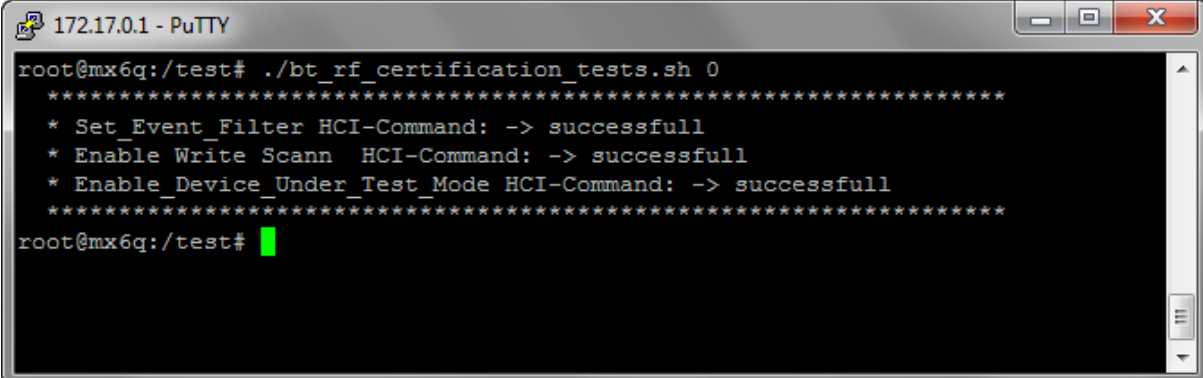
Now iPerf, Bluetooth or WLAN tests can be started as described in the following chapters.





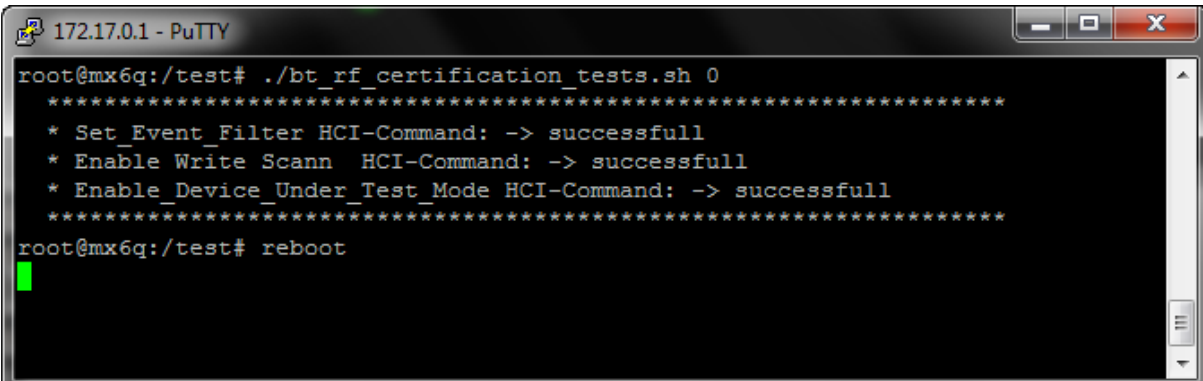
## 6.1 Bluetooth tests with Bluetooth tester

Activate Bluetooth test mode to test with a Bluetooth tester like Rohde & Schwarz CBT



```
172.17.0.1 - PuTTY
root@mx6q:/test# ./bt_rf_certification_tests.sh 0
*****
* Set_Event_Filter HCI-Command: -> successfull
* Enable_Write_Scann HCI-Command: -> successfull
* Enable_Device_Under_Test_Mode HCI-Command: -> successfull
*****
root@mx6q:/test#
```

In order to leave this mode, the DUT has to be rebooted with the command *reboot*:



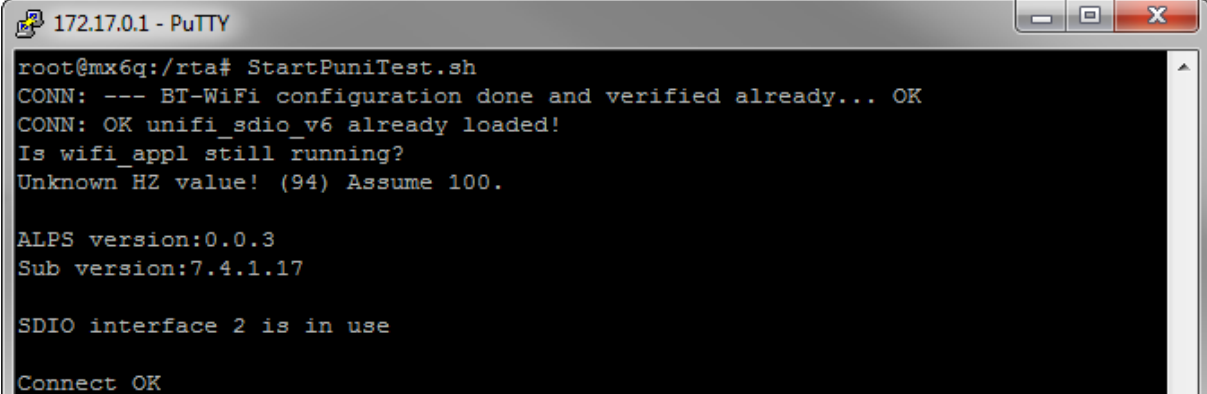
```
172.17.0.1 - PuTTY
root@mx6q:/test# ./bt_rf_certification_tests.sh 0
*****
* Set_Event_Filter HCI-Command: -> successfull
* Enable_Write_Scann HCI-Command: -> successfull
* Enable_Device_Under_Test_Mode HCI-Command: -> successfull
*****
root@mx6q:/test# reboot
```

Alternative the device can be disconnected from the power supply. Connect it some seconds later and start the device again.

## 7 WLAN

Note that the RF Power on all tests are fixed settings inside module. They can not be changed. You will get a failure from Punitest if you try to change the power value.

Start Punitest



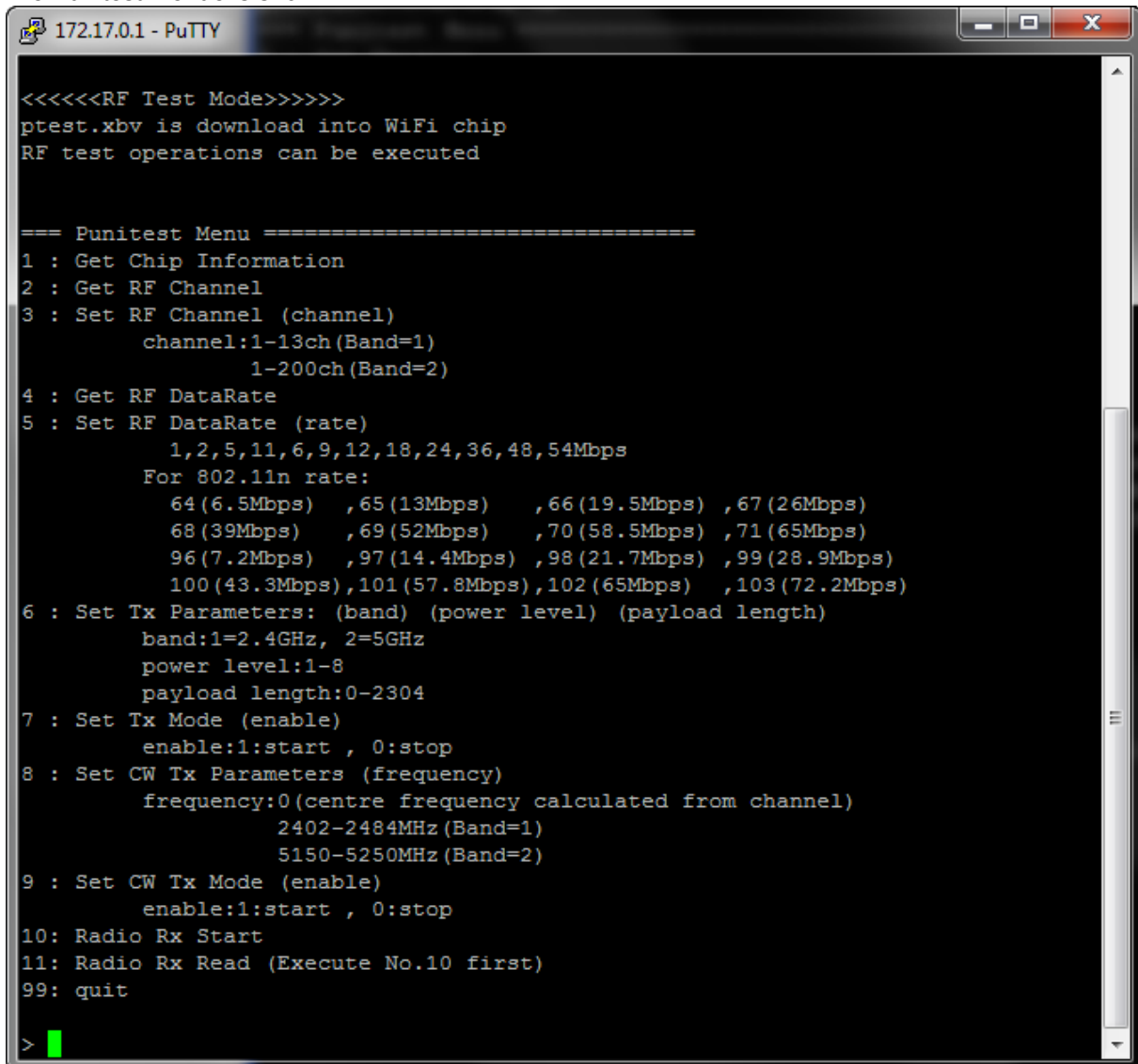
```
172.17.0.1 - PuTTY
root@mx6q:/rta# StartPuniTest.sh
CONN: --- BT-WiFi configuration done and verified already... OK
CONN: OK unifi_sdio_v6 already loaded!
Is wifi_appl still running?
Unknown HZ value! (94) Assume 100.

ALPS version:0.0.3
Sub version:7.4.1.17

SDIO interface 2 is in use

Connect OK
```

The Punitest menu is shown:



```
<<<<<<RF Test Mode>>>>>>
ptest.xbv is download into WiFi chip
RF test operations can be executed

=== Punitest Menu =====
1 : Get Chip Information
2 : Get RF Channel
3 : Set RF Channel (channel)
   channel:1-13ch (Band=1)
           1-200ch (Band=2)
4 : Get RF DataRate
5 : Set RF DataRate (rate)
   1,2,5,11,6,9,12,18,24,36,48,54Mbps
   For 802.11n rate:
       64 (6.5Mbps) , 65 (13Mbps) , 66 (19.5Mbps) , 67 (26Mbps)
       68 (39Mbps) , 69 (52Mbps) , 70 (58.5Mbps) , 71 (65Mbps)
       96 (7.2Mbps) , 97 (14.4Mbps) , 98 (21.7Mbps) , 99 (28.9Mbps)
       100 (43.3Mbps) , 101 (57.8Mbps) , 102 (65Mbps) , 103 (72.2Mbps)
6 : Set Tx Parameters: (band) (power level) (payload length)
   band:1=2.4GHz, 2=5GHz
   power level:1-8
   payload length:0-2304
7 : Set Tx Mode (enable)
   enable:1:start , 0:stop
8 : Set CW Tx Parameters (frequency)
   frequency:0 (centre frequency calculated from channel)
           2402-2484MHz (Band=1)
           5150-5250MHz (Band=2)
9 : Set CW Tx Mode (enable)
   enable:1:start , 0:stop
10: Radio Rx Start
11: Radio Rx Read (Execute No.10 first)
99: quit
>
```

Then key in:

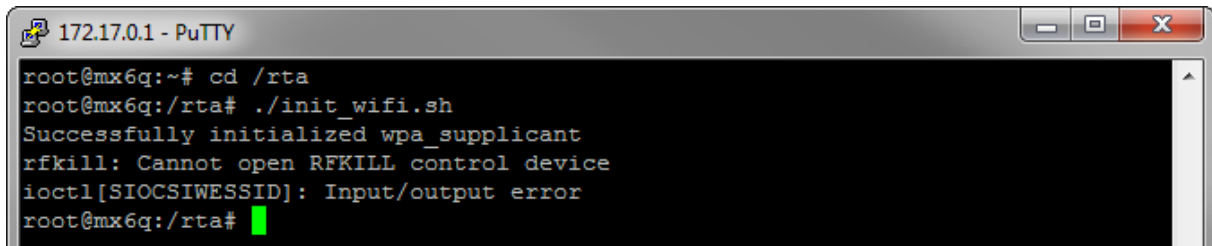
- 3 1 <Enter> (CH1)
- 5 1 <Enter> (1Mbit)
- 7 1 <Enter> (Tx Start)

A feedback is always given on the screen.  
The Punitest menu is shown again.

## 7.1 Connect to WLAN-Access Point and do iPerf

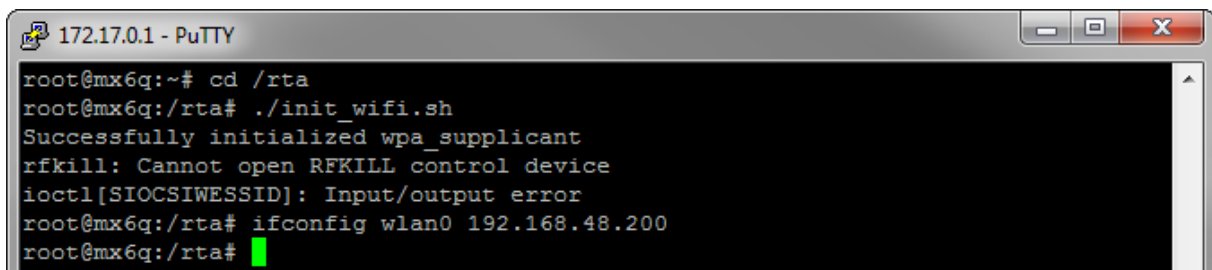
In order to connect to a WLAN Access Point an unsecured WLAN network with the SSID “PSA-WLAN” is necessary. If punittest was used directly before the device **must** be restarted before normal WLAN operation is possible.

If not already done change directory with “cd /rta”. Afterwards type “./init\_wifi.sh” to connect to the WLAN network.



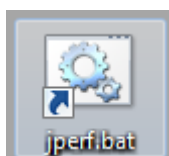
```
172.17.0.1 - PuTTY
root@mx6q:~# cd /rta
root@mx6q:/rta# ./init_wifi.sh
Successfully initialized wpa_supplicant
rfkill: Cannot open RFKILL control device
ioctl[SIOCSIWESSID]: Input/output error
root@mx6q:/rta#
```

Now configure the IP of the DUT according the network settings of your Access Point with “ifconfig wlan0 suitable IP”

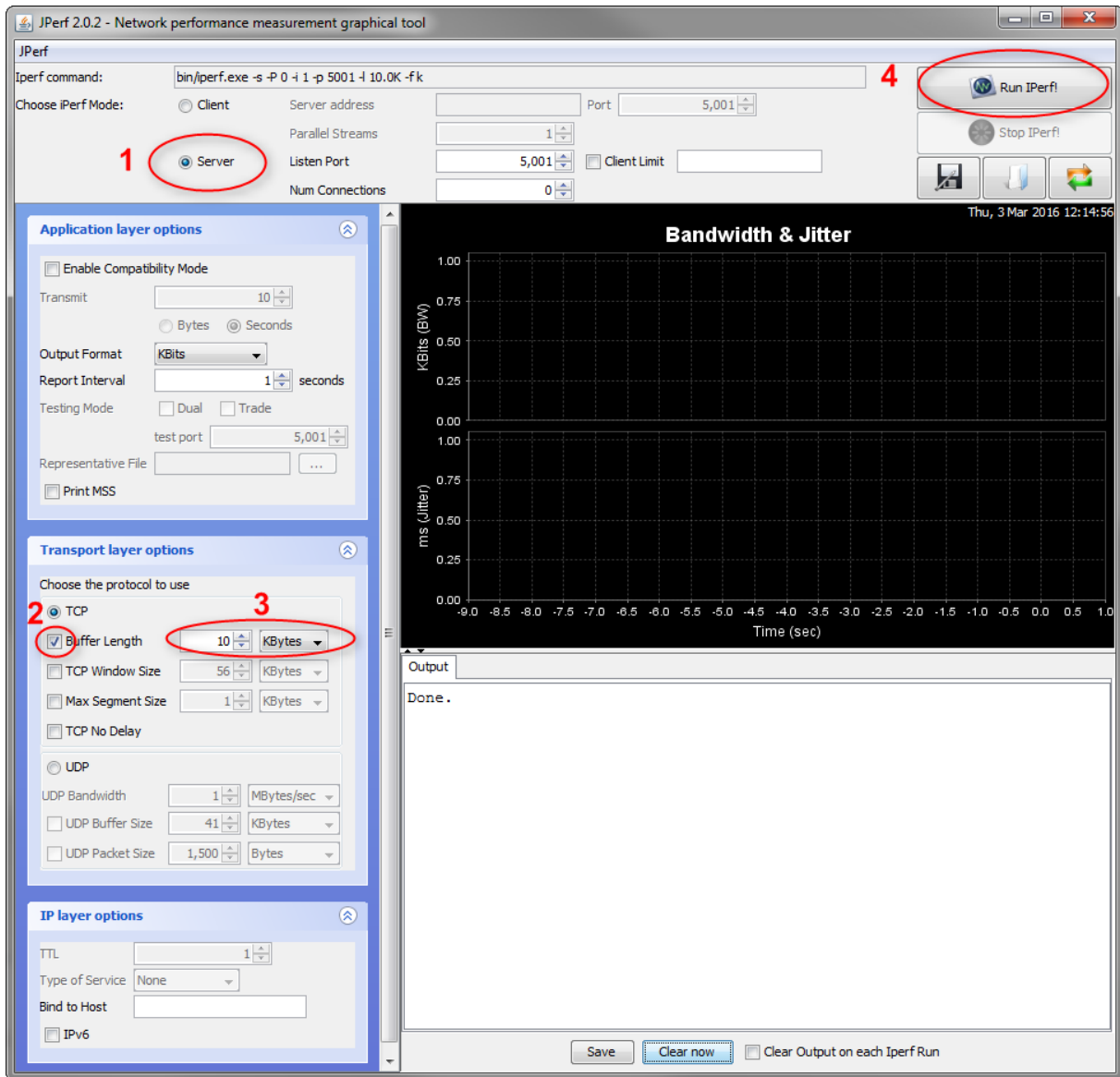


```
172.17.0.1 - PuTTY
root@mx6q:~# cd /rta
root@mx6q:/rta# ./init_wifi.sh
Successfully initialized wpa_supplicant
rfkill: Cannot open RFKILL control device
ioctl[SIOCSIWESSID]: Input/output error
root@mx6q:/rta# ifconfig wlan0 192.168.48.200
root@mx6q:/rta#
```

Start “jPerf” on the PC which is connected to the Access Point.

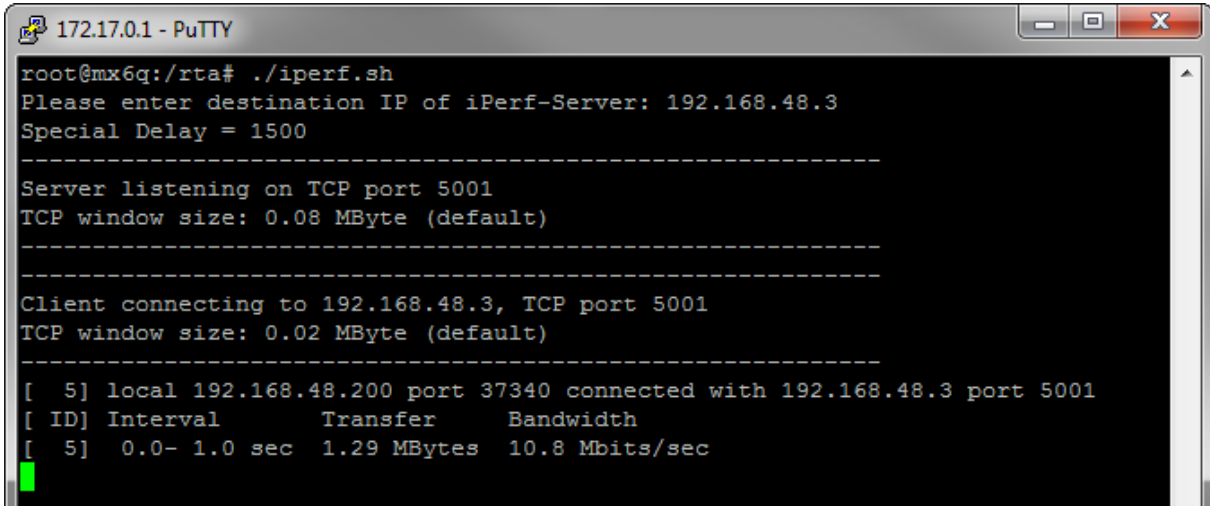


Do the following settings and start the test



The screenshot shows the JPerf 2.0.2 interface. The 'Iperf command' field contains `bin/iperf.exe -s -P 0 -i 1 -p 5001 -l 10.0K -fk`. The 'Choose iPerf Mode' section has 'Server' selected. The 'Application layer options' section includes 'Enable Compatibility Mode', 'Transmit' (10), 'Output Format' (KBits), 'Report Interval' (1), and 'test port' (5,001). The 'Transport layer options' section has 'TCP' selected, 'Buffer Length' (10 KBytes) checked, and 'TCP Window Size' (56 KBytes). The 'IP layer options' section has 'TTL' (1) and 'Type of Service' (None). The 'Run IPerf!' button is circled in red. The 'Bandwidth & Jitter' graph shows two empty plots for 'kBits (BW)' and 'ms (Jitter)' over a 'Time (sec)' range from -9.0 to 1.0. The 'Output' window shows 'Done.'.

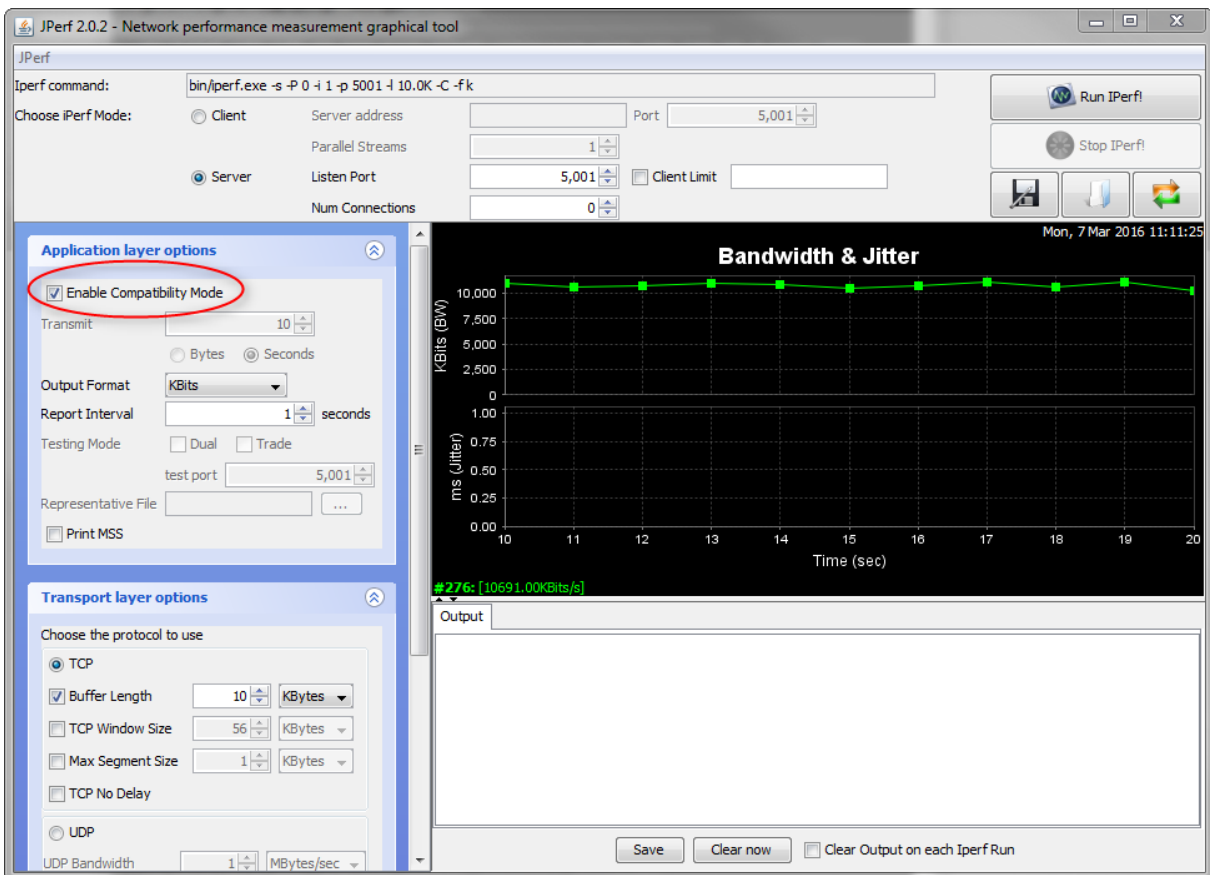
Now start iPerf on the DUT. The script will ask for the IP of the iPerf-Server. Type in the IP of the PC where you started “jPerf”



```
172.17.0.1 - PuTTY
root@mx6q:/rta# ./iperf.sh
Please enter destination IP of iPerf-Server: 192.168.48.3
Special Delay = 1500
-----
Server listening on TCP port 5001
TCP window size: 0.08 MByte (default)
-----
Client connecting to 192.168.48.3, TCP port 5001
TCP window size: 0.02 MByte (default)
-----
[ 5] local 192.168.48.200 port 37340 connected with 192.168.48.3 port 5001
[ ID] Interval      Transfer    Bandwidth
[ 5] 0.0- 1.0 sec  1.29 MBytes 10.8 Mbits/sec
```

To stop the script use twice the key combination “STRG” + C or “CTRL” + C

If a failure appears or jPerf stops working activate in addition the Compatibility Mode and repeat the steps to start the test.



The screenshot shows the JPerf 2.0.2 graphical user interface. The 'Application layer options' section has 'Enable Compatibility Mode' checked and circled in red. The 'Transport layer options' section has 'TCP' selected. On the right, a 'Bandwidth & Jitter' graph shows a stable bandwidth of approximately 10,000 KBits (BW) and 0.25 ms (Jitter) over a 20-second interval. The output window at the bottom shows the command: `#276: [10691.00KBits/s]`.