

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-Adress 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:

Local Area Connection 5 Properties	Internet Protocol Version 4 (TCP/IPv4) Properties						
Networking Sharing	General						
Connect using:	You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.						
Configure This connection uses the following items:	 Obtain an IP address automatically Ouse the following IP address: 						
Client for Microsoft Networks	IP address: 172 . 17 . 0 . 3						
Packet Scheduler Pie and Printer Sharing for Microsoft Networks	Subnet mask: 255 . 255 . 0 . 0						
	Default gateway:						
Internet Protocol Version 4 (TCP/IPv4) Link-Layer Topology Discovery Mapper I/O Driver	Obtain DNS server address automatically						
	O Use the following DNS server addresses:						
Install Uninstall Properties	Preferred DNS server:						
Description Transmission Control Protocol/Internet Protocol. The default	Alternate DNS server:						
wide area network protocol that provides communication across diverse interconnected networks.	Validate settings upon exit Advanced						
OK Cancel	OK Cancel						

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:

😵 PuTTY Configuration									
Putty Configuration Category: Session Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Colours Connection Proxy Telnet	Basic options for your PuTTY set Specify the destination you want to connect Host Name (or IP address) 172.17.0.1 Connection type: Raw Telnet Rlogin SSH Load, save or delete a stored session Saved Sessions G3G Default Settings G3G JLR_IMC cTP	ssion et to Port 22 Costal Load Save Delete							
About	Close window on exit: Always Never Only on clo	ean exit Cancel							

You can use your personal window settings under "Window".

🕵 PuTTY Configuration		— X					
Category:							
	Options controlling PuTTY's window						
	Set the size of the window						
Kevboard	Columns	Rows					
Bell	80	100					
Features Window Appearance Behaviour Translation	When window is resized: Change the number of rows and columns Change the size of the font Change font size only when maximised Forbid resizing completely 						
Selection	Control the scrollback in the window						
	Lines of scrollback	500					
Data	Display scrollbar						
Proxy	Display scrollbar in full screen mode						
···· Telnet ···· Rlogin I⊞·· SSH	Reset scrollback on keypress						
	Reset scrollback on display activity						
Serial	Push erased text into scr	rollback					
About		Open Cancel					



Use "root" as username for Auto-login

Reputry Configuration		×
Category:	D	1
- Session Logging - Terminal - Keyboard - Bell - Features - Window - Appearance - Behaviour - Translation - Colours - Colours - Colours - Colours - Proxy - Telnet - Rlogin - SSH - Setial - Se	Data to see Login details Auto-login usemame When usemame is not sp	India to the server
About		Open Cancel

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 Bluetooth Tests

Note that the RF Power on all tests are fixed settings inside module. They cannot be changed.

To start any test it is necessary to type in "./bt_rf_certification_tests.sh" added with the needed parameters which a described in the following picture:

🛃 172.17.0.1 - PuTTY				- • ×					
Using username "root". root@mx6q:~# cd /rta root@mx6q:/rta# ./bt_rf_certification_tests.sh -h ####################################									
# TESTMODE:	command	options:							
<pre># # initiate the BT Testmode # TxData1 # TxData2 # RxData # TxStart #</pre>	 0 1 3 4 5	none frequency package_name frequency frequency							
******	*********	************	************	**********					
<pre># OPTIONS: # frequency channel # # page</pre>	ckage name	PACKAGE NAME	# # hopping	channel #					
<pre># modulation MOD_FREQ #</pre>									
# # #			# #	#					
# # # 2402 0 # # _D	H1	DH1	# # low	0-19 #					
# 0 OFF # # # # _2	DH1	2-DH1	# # mid	28-47 #					
# ••• ••• # # 2441 39 # # _3	DH1	3-DH1	# # high	59-78 #					
# 2048 500kHz # # ••• ••• # # _D	H3	DH3	# # all	0-78 #					
# # # 2480 78 # # _21	DH3	2-DH3	* *********	******					
# 4096 1MHz #	DH3	1 3-DH3	±						
* ************************************	0110	0.010	"						
# #_D	H5	DH5	#						
# # _2	DH5	2-DH5	#						
#3	DH5	3-DH5	#						
**************************************	**********	*************	*************	**********					
# Standard way of usage: # 1. initialisation and con	figure Test	mode bt	rf certification	tests.sh 0					
# or	riguie iest								
# 1. starting test		bt_rf_certifi	cation_tests.sh	1 2434 _DH1					
ŧ 2									
a s. rebool the larget									
root@mx6q:/rta#									

For example:

Continuous Transmission at 2402MHz with DH5-Packets:

./bt_rf_certification_tests.sh 1 2402 _DH5

Continuous Hopping on all channels with 3-DH5-Packets:

./bt_rf_certification_tests.sh 3 _3DH5 all



6.1 Bluetooth tests with Bluetooth tester

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

學 172.17.0.1 - PuTTY	- O X
root@mx6q:/test# ./bt_rf_certification_tests.sh 0 ************************************	*
<pre>* Set_Event_Filter HCI-Command: -> successfull * Enable Write Scann HCI-Command: -> successfull * Enable_Device_Under_Test_Mode HCI-Command: -> successfull ***********************************</pre>	

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





The Punitest menue is shown:

```
Putty 172.17.0.1 - Putty
<<<<<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)
 : Get RF DataRate
 : 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 punitest 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.



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



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





Do the following settings and start the test





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"



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.

🛃 JPerf 2.0.2 - Network performance measurement graphical tool														
JPerf									_					
Iperf command: bin/iperf.exe -s -P 0 -i 1 -p 5001 -l 1			.0K -C -fk							Run IPerfi				
Choose iPerf Mode:	Olient	Server address			Port		5,001							
		Parallel Streams		1							St 😸	op IPerf!		
	Server	Listen Port		5,001 🊔	Client I	Limit]				_	
		Num Connections		0 🌩						<u> </u>			-	
Application layer of	ptions					Bai	ndwidt	h & Ji	tter		Mon, 71	Mar 2016 11	:11:25	
Enable Compatibilit	ty Mode		10,000								-			
Transmit	10	×	a 7,500											
e	Bytes 🔘 Seco	nds	5,000 9 9 5,000											
Output Format K	Bits 👻													
Report Interval	1	≑ seconds	1.00											
Testing Mode	Dual Trade	E	(j. 0.75											
te	stport	5,001	ຕິ 0.50											
Representative File			E 0.25											
Print MSS			0.00 + 10	11	12	13	14	15	16	17	18	19	20	
							Ti	ime (sec)						
Transport layer opt	tions	8	#276: [10691.0	OKBits/s]										
Choose the protocol to		Output												
TCP														
Buffer Length	10 🌲 🔣	Bytes 👻												
TCP Window Size	56 🌲 KE	Bytes 👻												
Max Segment Size	1 <u>*</u> KE	Bytes 👻												
TCP No Delay														
O UDP						<u> </u>								
UDP Bandwidth	1 Å MBy	tes/sec 👻 🔻			Save	Clear r	now 📃	Clear Out	put on each	Iperf Run				