WLAN CARD WM288P
Specifications

1. General specification

2. Standard test condition

3. Electrical specification

4. Frequency channel plan

No.	Item	Specification				Test Method/Condition
		Condition	Min.	Typ.	Max.	
1.	**General specification**					
1-1.	Standard	IEEE 802.11b				
1-2.	Frequency Band(MHz)		2400		2483.5	
1-3.	No. of Selectable Channels	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)				
1-4.	Channel Spacing (MHz)			5		
1-5.	Modulation Technique	DSSS (CCK, DQPSK, DBPSK)				
1-6.	Spreading	11-chip Barker Sequence				
1-7.	Media Access Protocol	CSMA/CA(collision Avoidance) with ACK				
1-8.	Interface	Mini PCI Type III A				
1-9.	Dimensions	60.0 mm x 45.0 mm x 3.5 mm				
1-10.	LED Indicators	non				
1-11.	Antenna Connector	Hirose U.FL-R-SMT				
2.	**Standard Test Condition**					
2-1.	Supply voltage(V)			3.3		
3.	**Electrical Specification**					Temperature Range：0 ~ 55℃ Humidity：95 % (Non-condensing)
3-1.	Power Consumption (mA)	@+3.3V			150	Receiver Mode
					260	Transmit Mode
3-2	Receive Sensitivity (dBm)[FER < 8%]		-82	-84		@ 11 Msps
			-87			@ 5.5 Msps
			-90			@ 2 Msps
			-92			@ 1 Msps
3-3.	Average Output Power (dBm)		10	11		@29.5dB difference between the signal level at center frequency and higher first side lobe
3-4	Frequency Accuracy(ppm)		- 25		+ 25	

4. Frequency channel plan

		Regulation Domains					
Channel_ID	**Frequency (Mhz)**	**FCC (X '10')**	**IC (X '20')**	**ETSI (X '30')**	**Spain (X '31')**	**France (X '32')**	**MKK (X '40')**
1	2412	X	X	X			
2	2417	X	X	X			
3	2422	X	X	X			
4	2427	X	X	X			
5	2432	X	X	X			
6	2437	X	X	X			
7	2442	X	X	X			
8	2447	X	X	X			
9	2452	X	X	X			
10	2457	X	X	X	X	X	
11	2462	X	X	X	X	X	
12	2467			X		X	
13	2472			X		X	
14	2484						X

Manufacturing Test Suite User's Manual

A Utility for Testing the

Am1772™ Mini PCI Reference Design Kit

Version 0.2

Contacts

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Trademarks

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution

This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment.

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1 Overview

The AMD Manufacturing Test Suite (MTS) provides advanced functionalities, such as pure carrier wave generation, upper and lower side band data generation, RF carrier suppression, Tx Modulation Accuracy, BPSK, QPSK, Carrier 5.5, Carrier 11, Packet Error Rate (PER) Measurement, 25% Duty Cycle, Power Save/Awake, Tx/Rx Traffic generation in MAC mode and MAC Bypass Modes.

The following table shows the test suite's eight modes and their features.

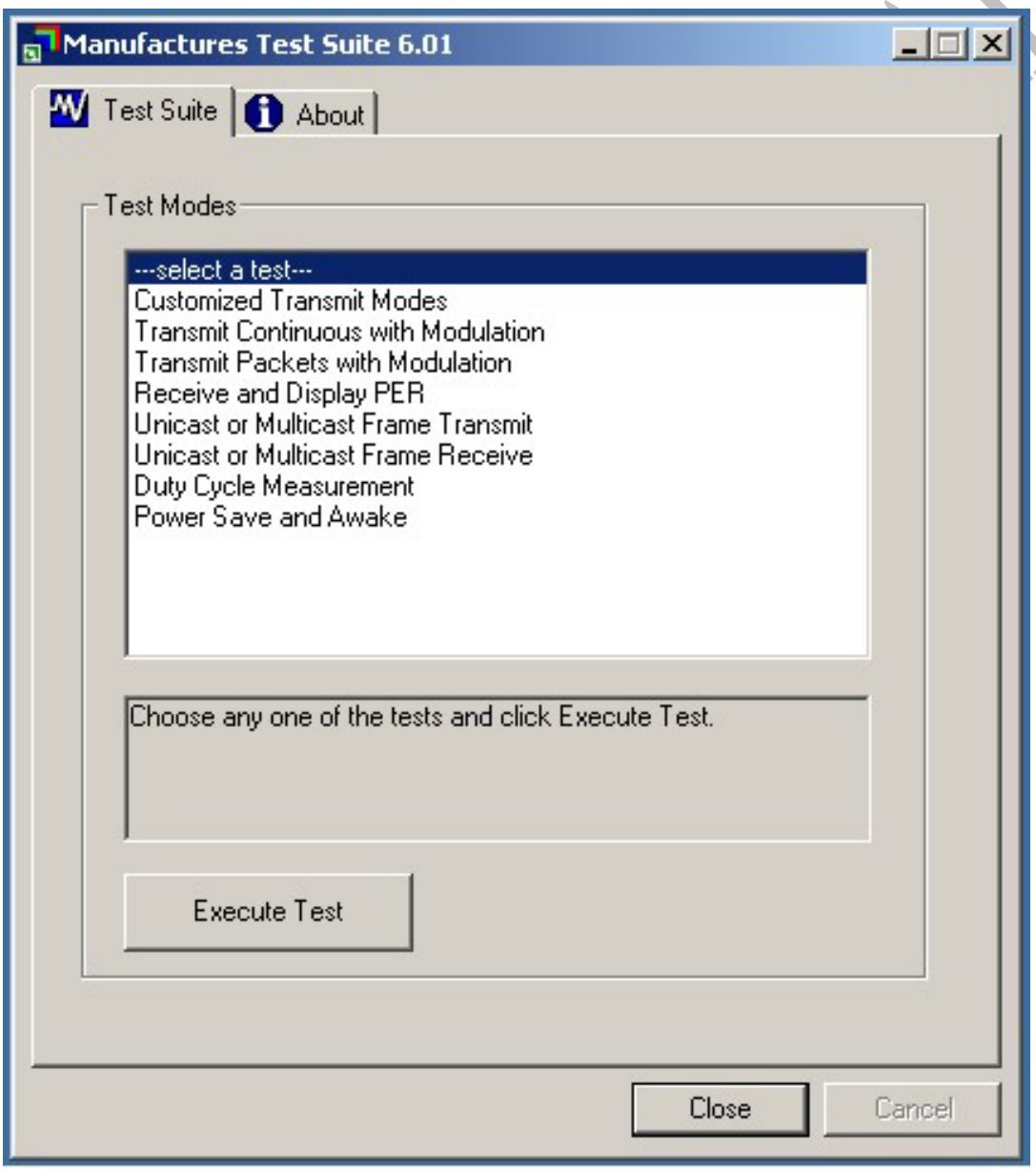
	MTS Test Mode	Features	Run Mode
1	Customized Transmit Modes	Carrier 1, Carrier 2, Upper Side Band, Lower Side Band, Randomized, Customized, RF Carrier Suppression, Tx Modulation Accuracy	Mac Bypass
2	Transmit Continuous With Modulation	BPSK, QPSK, CCK 5.5, CCK 11 with Scrambler On/Off, Data 101010, 111111, Random, Custom.	Mac Bypass
3	Transmit Packets With Modulation	Transmit Broadcast Frames	Mac Bypass
4	Receive and Display PER	Receive Frames and Display Packet Error Rate (PER)	Mac Bypass
5	Unicast and Multicast Frame Transmit	Start/Join an Adhoc BSS and do unicast or multicast (broadcast) frame transmit/receive.	Mac Mode
6	Unicast and Multicast Frame Receive	Join the Adhoc BSS started above in #5 and receive frames.	Mac Mode
7	Duty Cycle Measurement	25% Duty Cycle Measurement	Mac Bypass
8	Power Save and Awake	Place device in Sleep and then Awake it.	N/A

NOTE: mts.exe runs advanced baseband functionality that involves MAC tunneling. Please do NOT run Am1772 Terminal.exe or AtlasCfg.exe while mts.exe is running.

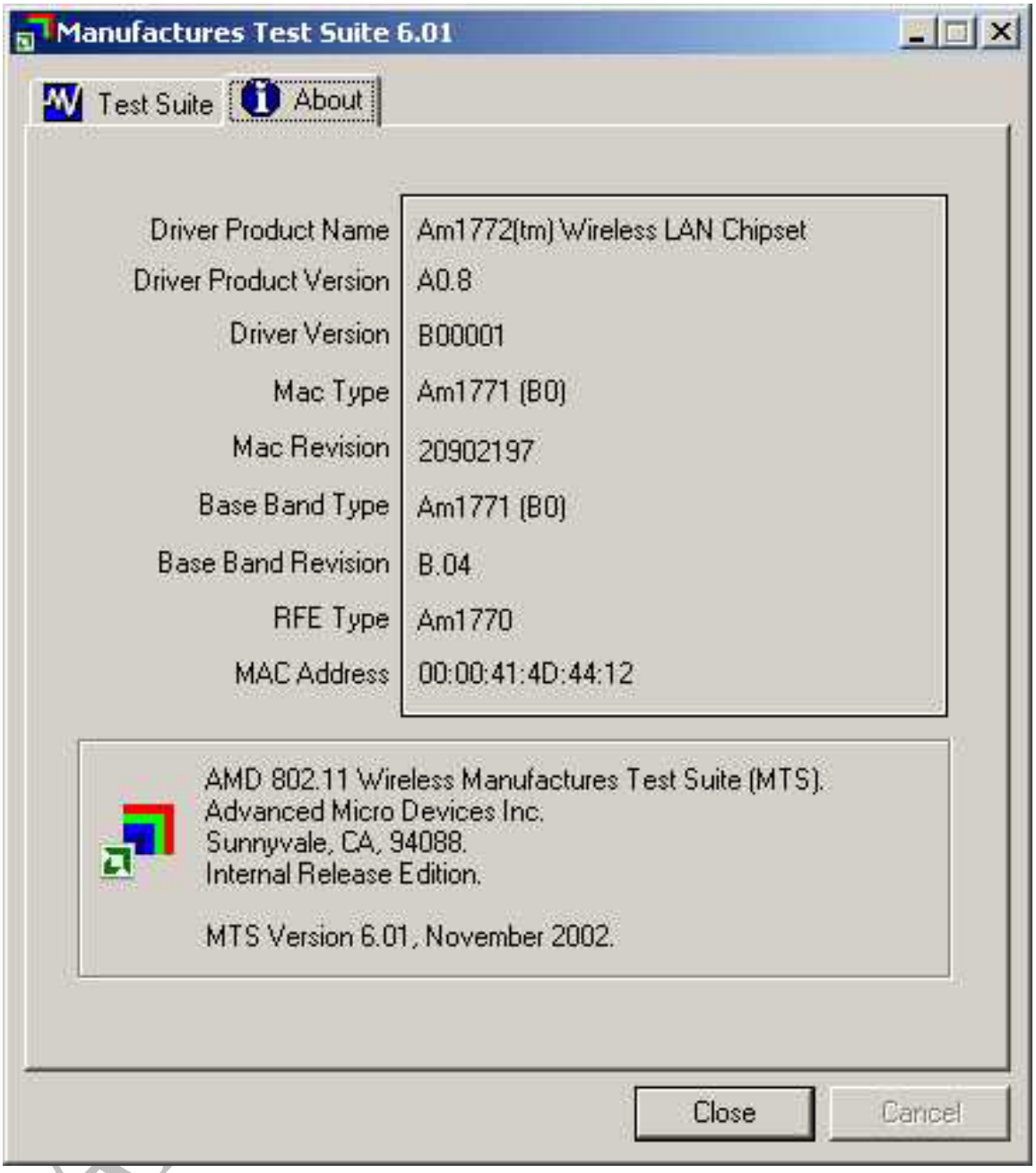
2 Installation

Step #1: Install the Am1772™ Terminal application. See *Am1772™ Terminal User's Manual*.

Step #2: The MTS application, MTS.EXE, should be within the above software pack. Save it to the local drive and create a shortcut to it on the desktop. Run MTS.EXE. The following Main Screen will be displayed:



Clicking on the *About* property page displays the following screen:

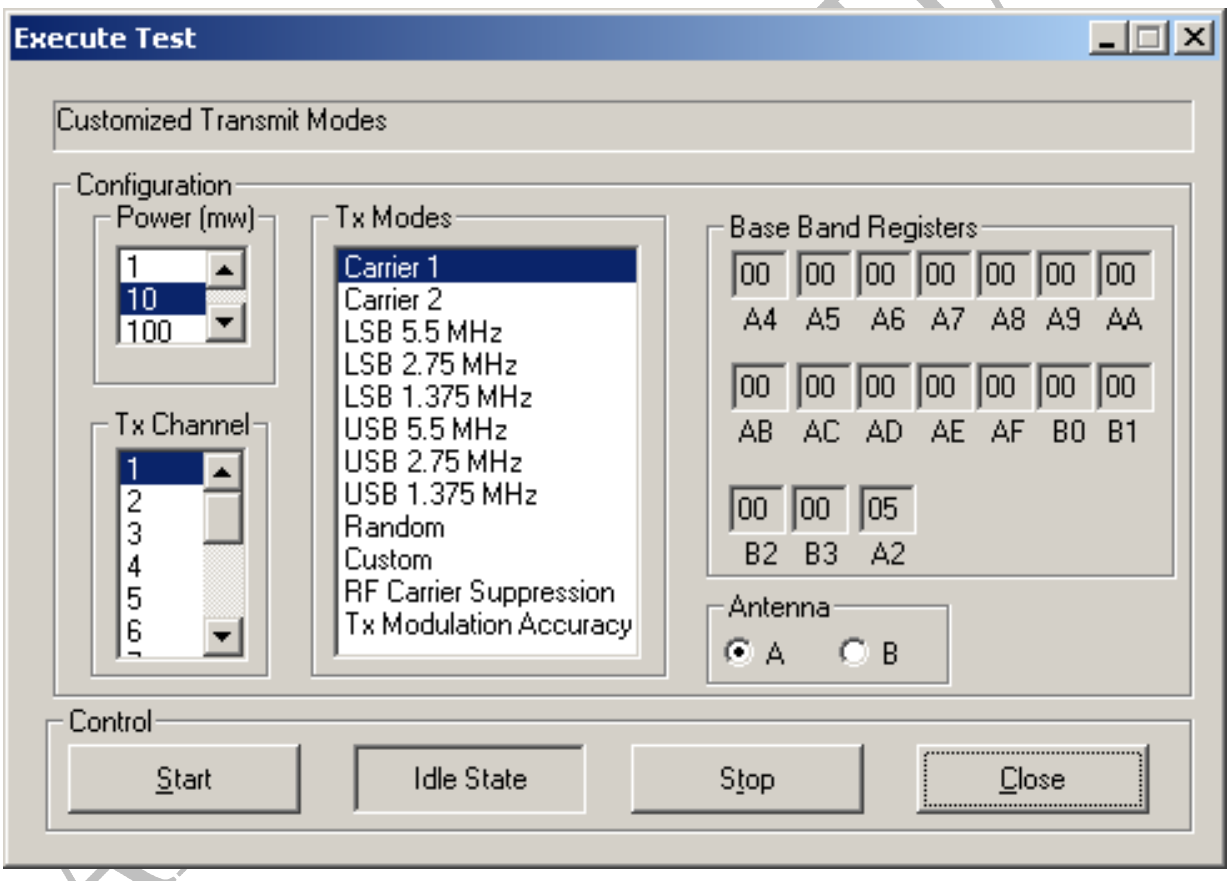


3 MTS Tests

From the main test suite window, select a test to be performed. The following sections describe each test.

3.1 Customized Transmit Modes

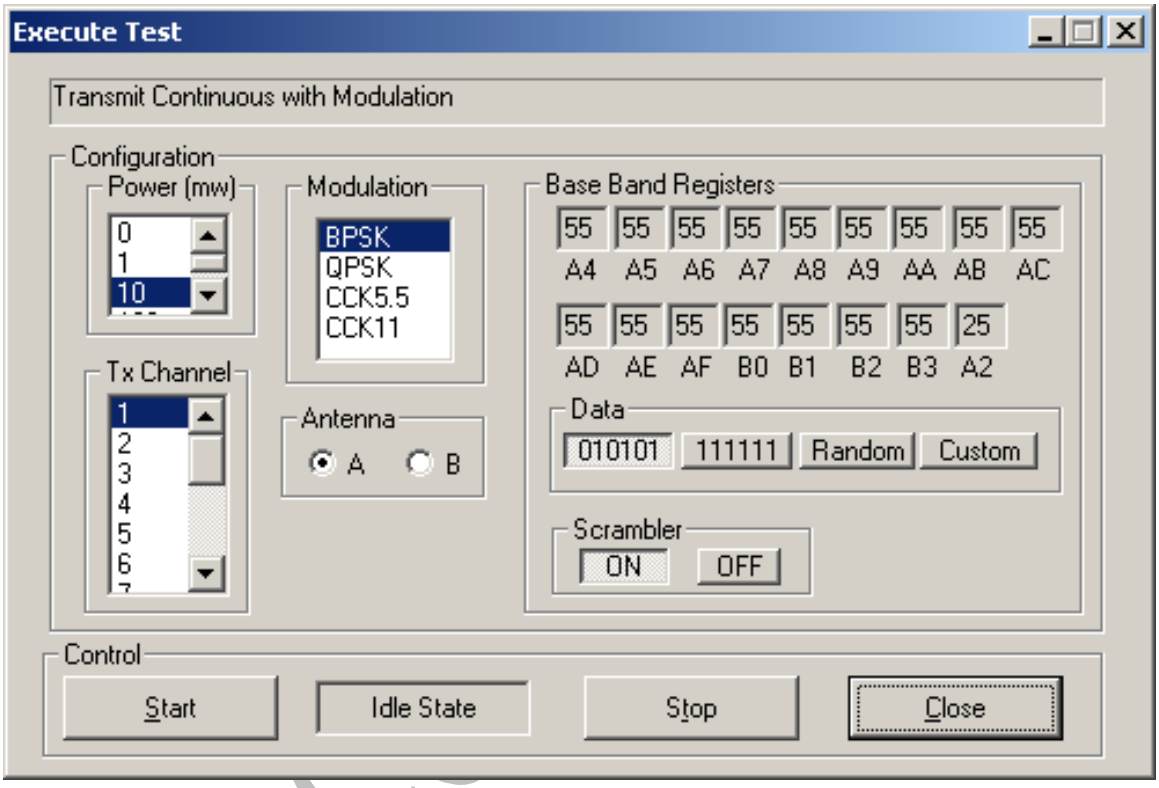
Select the appropriate configuration and click **Start** to initiate the selected Tx Mode. To change the configuration, first click **Stop**, change the configuration, and then **Start** again. After the test click **Close**.



Customized Transmit Modes

3.2 Transmit Continuous with Modulation

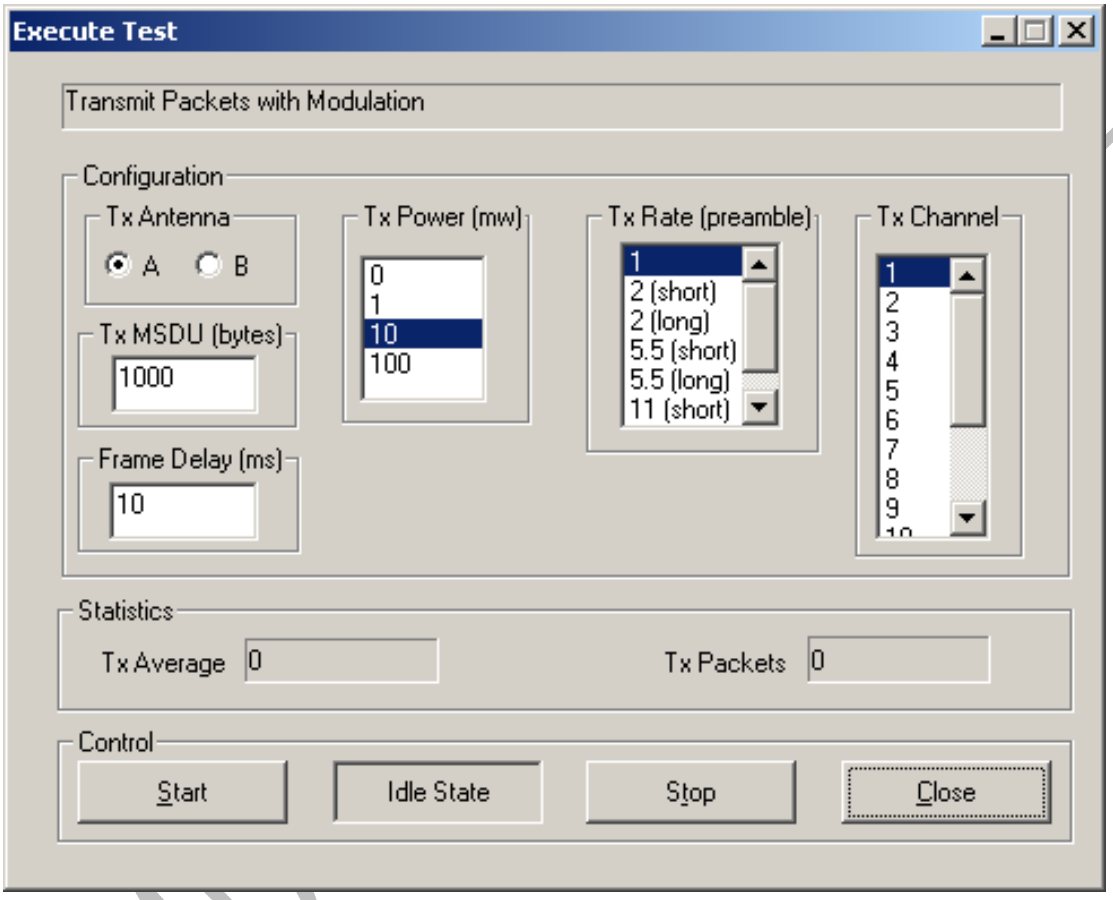
Select the appropriate configuration and click **Start** to initiate the selected modulation. To change the configuration first click **Stop**, change the configuration, and then **Start** again. After the test, click **Close**.



Transmit Continuous with Modulation

3.3 Transmit Packets with Modulation

Select the appropriate configuration and click **Start** to initiate the selected Tx mode. To change the configuration first click **Stop**, change the configuration, and then **Start** again. After the test, click **Close**.

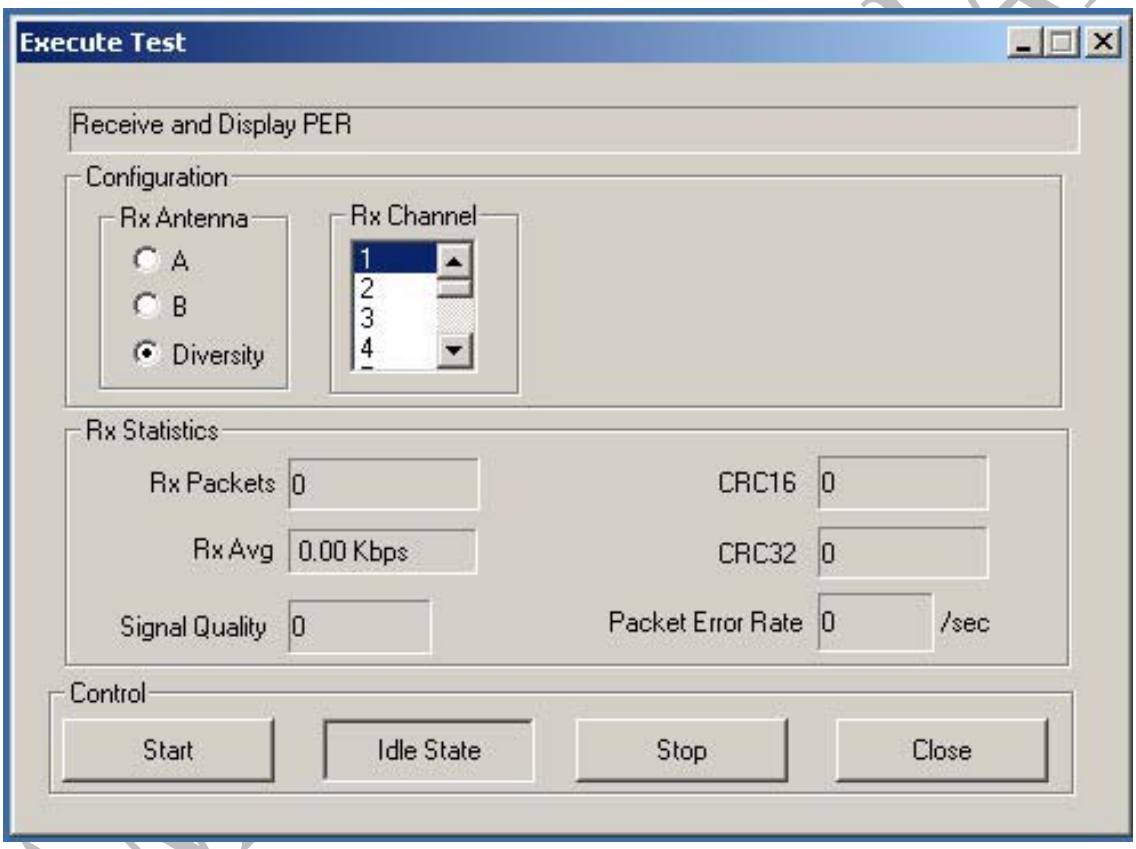


Transmit Packets with Modulation

3.4 Receive and Display PER

Select the appropriate configuration and click **Start** to initiate the selected mode. After selection press the **Start** button to see traffic with another InfraAP or Adhoc IBSS station that is required for this test mode. Alternatively, use another notebook that is in unicast transmit mode.

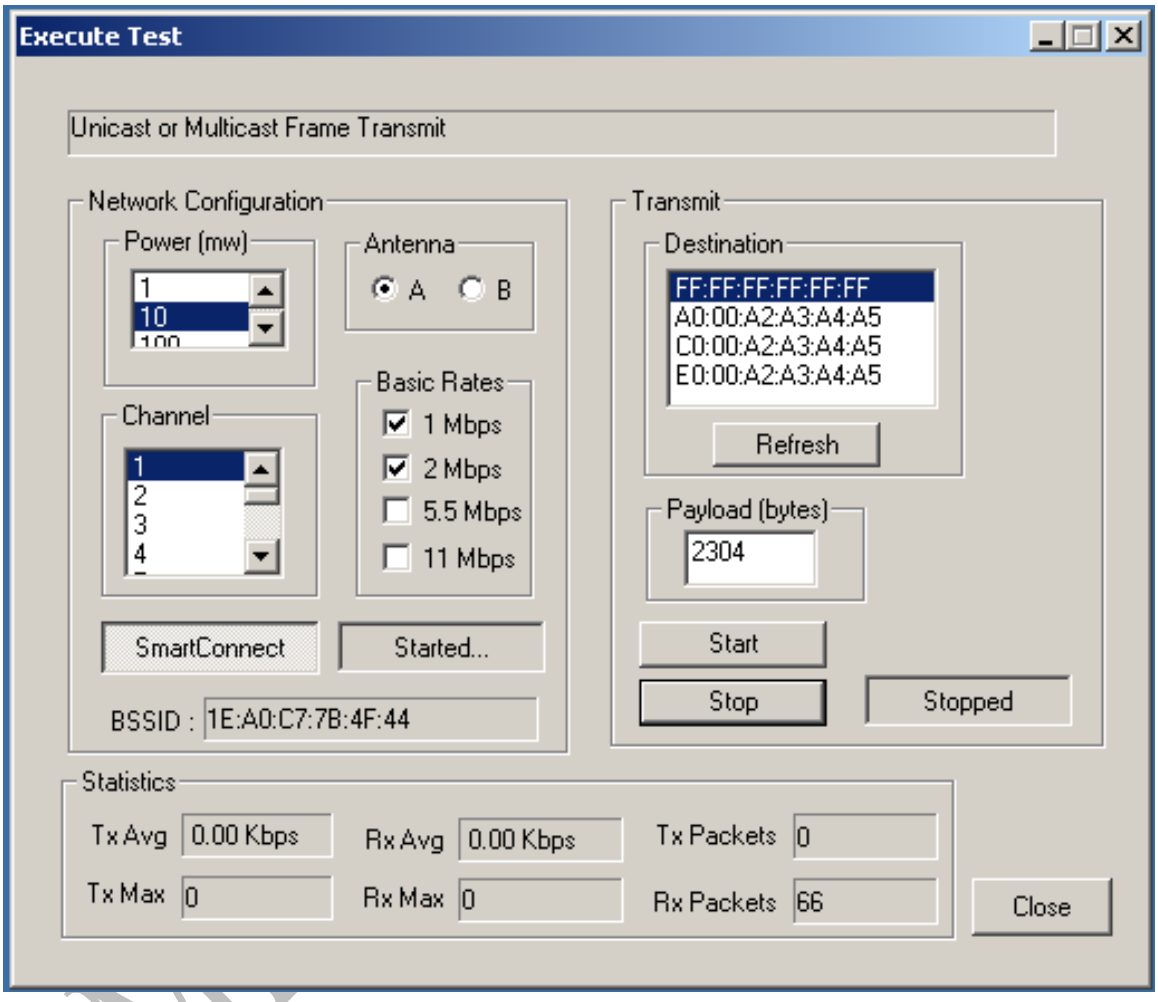
To change the configuration first click **Stop**, change the configuration, and then **Start** again. After the test, click **Close**.



Receive and Display PER

3.5 Unicast or Multicast Frame Transmit

Set up the required configuration first. Press the "Smart Connect" button. After activation the left button switches from "NO NETWORK" to "STARTED" mode. This means an Adhoc BSS has been started with SSID "AMD 802.11 MTS Network". Now setup the required PAYLOAD in bytes. Next, press "START" for start test mode, whereby after starting, the "IDLE" button switches to "RUNNING". Now validation over statistics is possible.

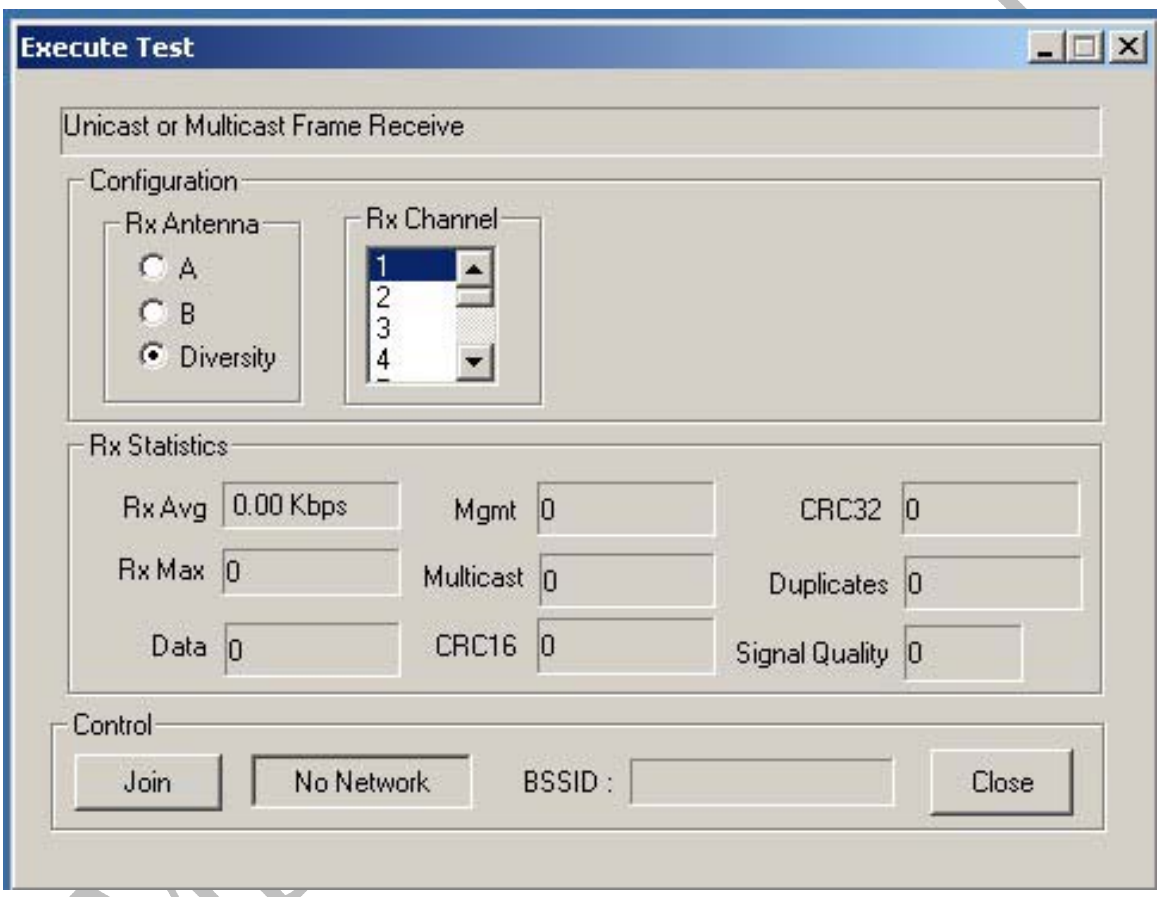


Unicast or Multicast Frame Transmit.

Note that this is a two-machine test. Start this mode on one machine and on another machine run the MTS test "Unicast or Multicast Frame Transmit" and see it "Joining" the network started by this test, that is, the "AMD 802.11 MTS Network".

3.6 Unicast or Multicast Frame Receive

This is part of a two-machine test. Use the MTS mode "Unicast or Multicast Transmit" on another machine to start an Adhoc BSS. (See previous section.) Now, set up the required configuration first (make sure the Rx Channel is the same as that on the second machine on which a BSS Start was done using Unicast or Multicast Transmit mode). Now push the "JOIN" button, whereby after activation, the "No Network" button switches to "Joined…". Now validation over statistics is possible.

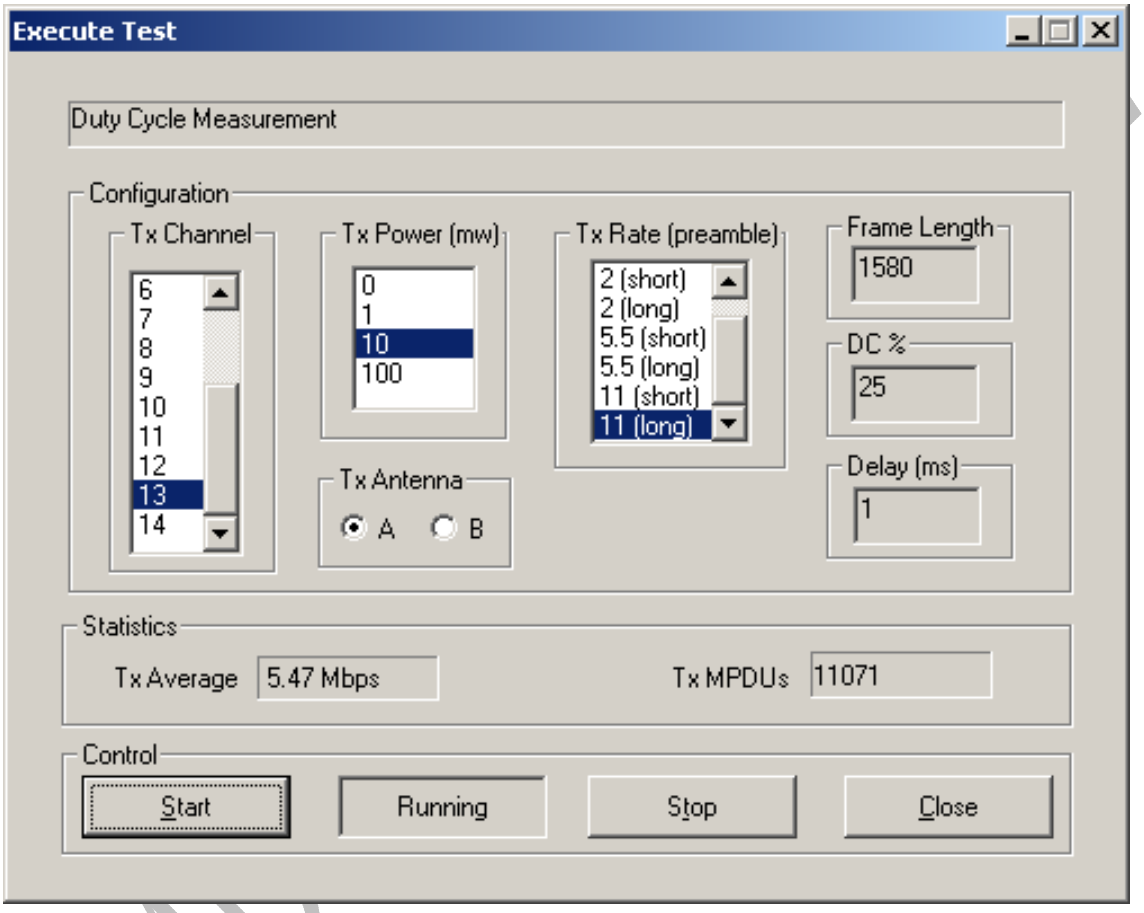


Unicast or Multicast Frame Receive.

Note, if "Started !" is displayed instead of "Joined…", it means either the Rx channel was not selected properly or the Adhoc BSS "AMD 802.11 MTS Network" was not started or is out-of-range on the second machine. Please click the Join button again to disconnect, verify setup and Join again.

3.7 Duty Cycle Measurement

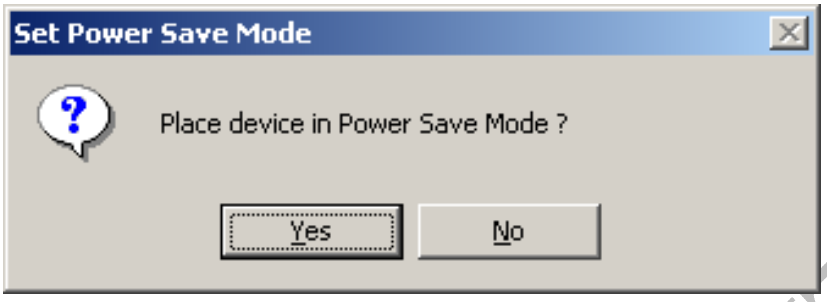
Set up the required configuration first. Press the "START" button next for the test, whereby the "IDLE" button switches to "RUNNING". Now validation over statistics is possible.



Duty cycle measurement

3.8 Power Save and Awake

This mode configures the power save mode for various system-level measurements.



After finalization of the test series, pressing the “OK” button wakes the system.