

Getting Started Guide

Anritsu Company LANTest Control Package for Atheros AR5004/5/6 Based Designs



Chapter 1 — Introduction

In partnership with Atheros, Anritsu has developed a control package that provides a fully automated test solution for AR5004/5/6 designs. The control package uses a DLL containing commands that enable LANTest to configure the devices from within a test plan. These commands are sent to the device via a host processor interface. When the test plan is executed, both the MT8860B/C and device are simultaneously controlled, allowing the test plan to proceed to completion in a fully automated manner.

1-1 Software Requirements

Please ensure that the following software applications are installed:

- LANTest 4.0
- Atheros ART software revision 5.3 build 38. The files from the art\bin release directory must be copied to the location C:\Program Files\ART.

1-2 DUT Control Package Change History

Table 1-1. Change History

Control Package Version	System Requirements	Supported Functionality
0.09	LANTest 3.0 ART rev. 5.3 build 38 MT8860B or MT8860C fitted with firmware 8.02 or greater	First release. Supports 802.11b/g Tx/Rx validation using MT8860B. Supports 802.11a/b/g Tx/Rx validation using MT8860C.
0.14	LANTest 4.0 ART rev. 5.3 build 38 MT8860B or MT8860C fitted with 8.02 or greater	Supports 802.11b/g Tx/Rx validation using MT8860B. Supports 802.11a/b/g Tx/Rx validation using MT8860C.

Chapter 2 — Installation

2-1 Installing the Control Package

1. Unzip the control package installation files and run setup.exe to open the Welcome dialog.

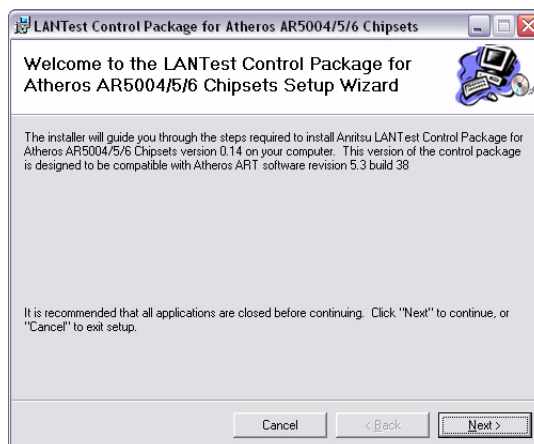


Figure 2-1. Welcome Dialog

- Ensure that the control package and Atheros ART software versions detailed in the dialog are the same as those in use. Click [Next] to continue.
2. Read the license agreement. If you accept the terms of the agreement select "I Agree" and click [Next]. Click [Cancel] if you do not accept the terms.

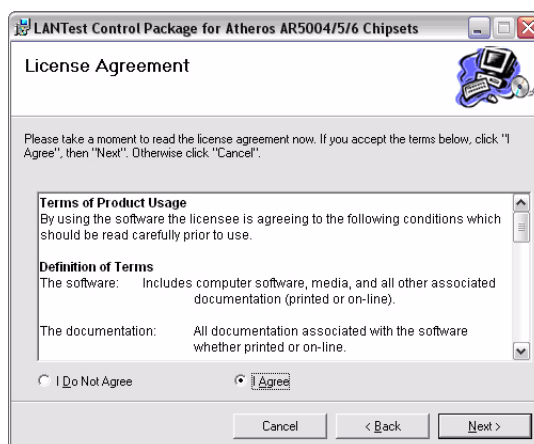


Figure 2-2. License Agreement

3. The control package will be installed to the location C:\Program Files\ART. To ensure correct operation the Atheros ART software must also be installed to this location. Click [Next] to continue.

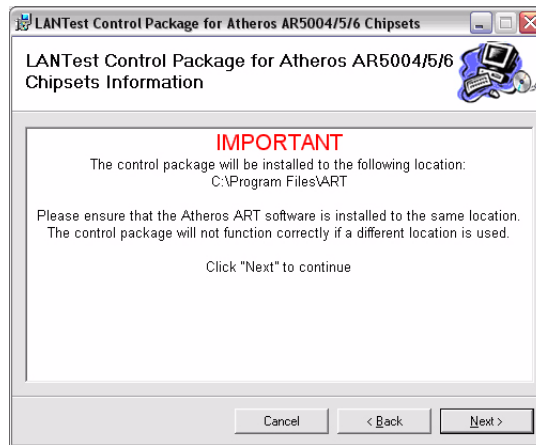


Figure 2-3. Install Location

4. Click [Next] to commence the installation.

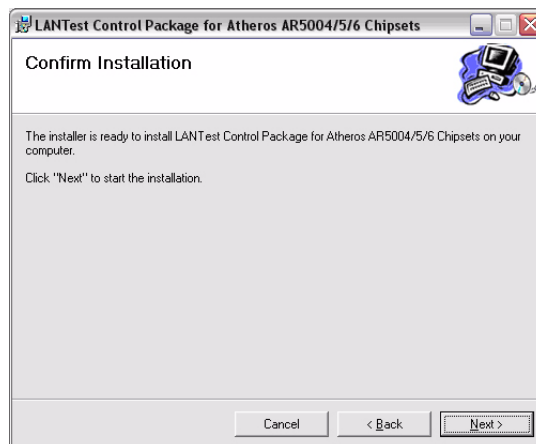


Figure 2-4. Confirm Installation

5. The installation begins and the status is shown in the progress bar.

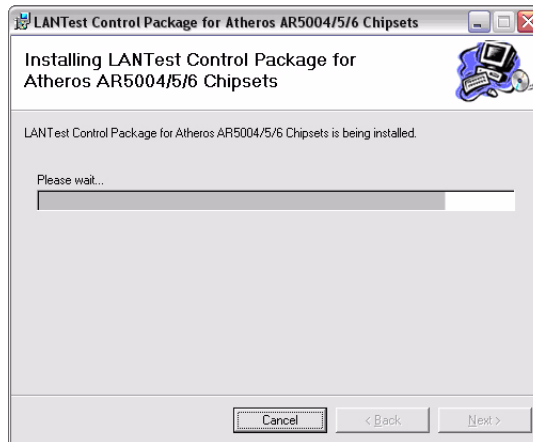


Figure 2-5. Installing LANTest

6. When the installation is complete click [Close].

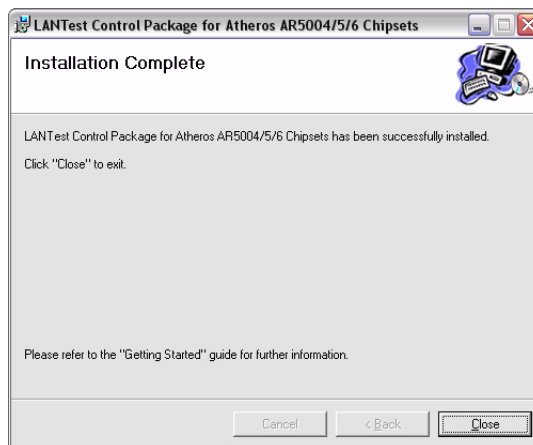


Figure 2-6. Installation Complete

Chapter 3 — Registration

3-1 Registering the DLL in LANTest

1. Launch LANTest.
 2. Select [Registered DUTs] from the [Tools] menu.
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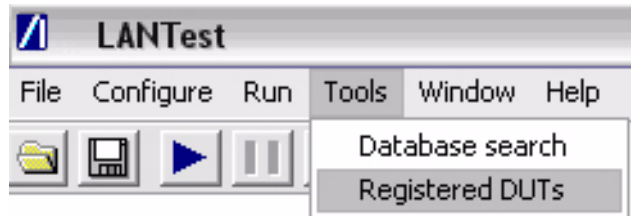


Figure 3-1. Select [Registered DUTs]

3. Click [Add...].
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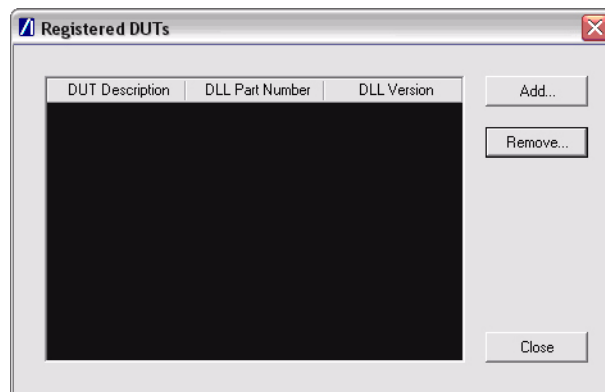


Figure 3-2. [Registered DUTs] Dialog

4. Navigate to the location C:\Program Files\ART, select the file “Atheros_AR500(4_5_6)_Control.dll” and click [Open].

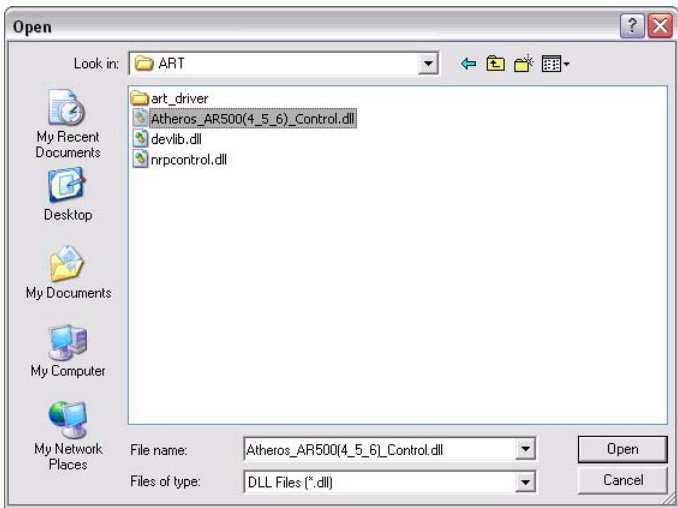


Figure 3-3. Select File

5. The selected file now displays in the [Registered DUTs] dialog. Click [close] to exit.

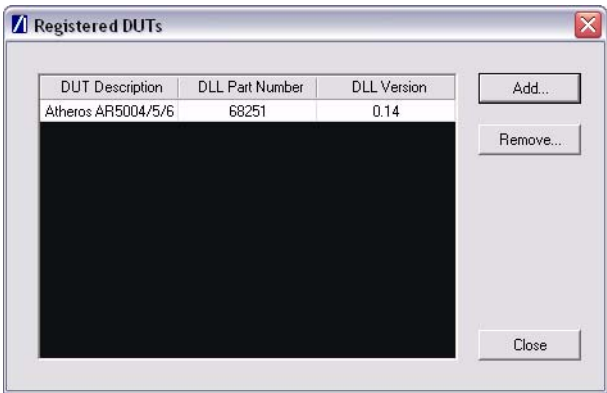


Figure 3-4. [Registered DUTs] Dialog

Before registering the Atheros control package, ensure that the Atheros ART software has been copied to C:\Program Files\ART. If control package registration is attempted without the Atheros ART software being present, the following errors are reported:

Note

Chapter 4 — Selection

4-1 Selecting the Control Package

1. Within LANTest right-click the test plan name in the menu tree and select [Setup test mode] from the pop-up menu.

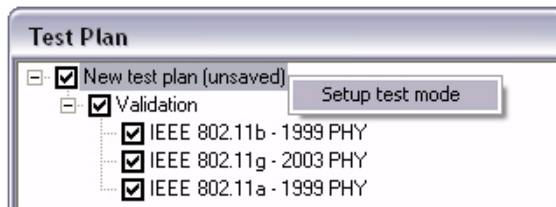


Figure 4-1. [Setup Test Mode]

2. From [Test Mode Setup] set “Test Mode” to “Direct” and select “Atheros AR5004/5/6” at “DUT Configuration”.

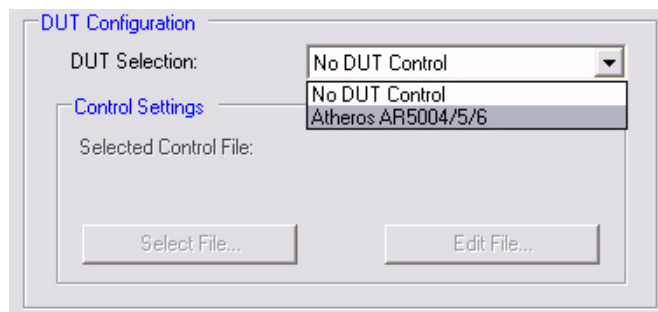


Figure 4-2. [Test Mode Setup]

3. Click [OK] to close the [Test Mode Setup] dialog.

4. An example test plan is included as part of the installation. To select the test plan, click the open icon, select the file "Atheros_AR500(4_5_6)_example_test_plan.ltp" and click [Open].

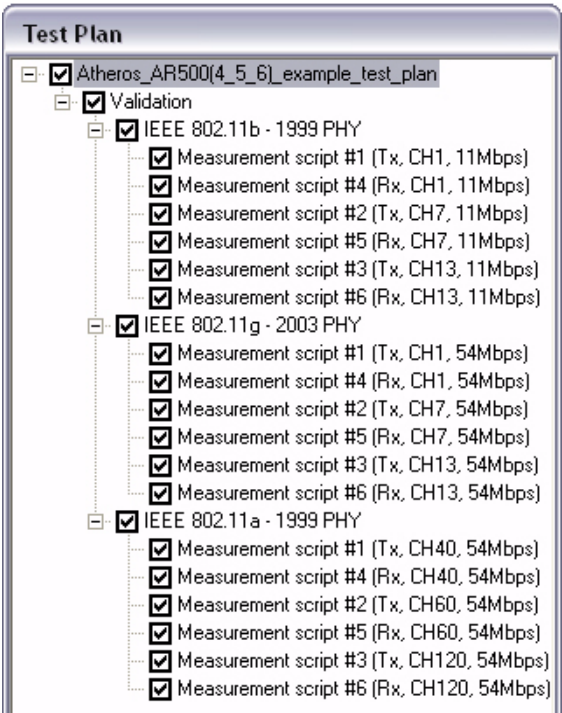


Figure 4-3. Example Test Plan

Chapter 5 — DUT Control Settings File

As part of the control package installation process, a DUT control settings file, "Atheros_AR500(4_5_6)_Control_Settings.txt" is provided. This can be accessed from within the [Test Mode Setup] dialog by clicking [Edit File...].

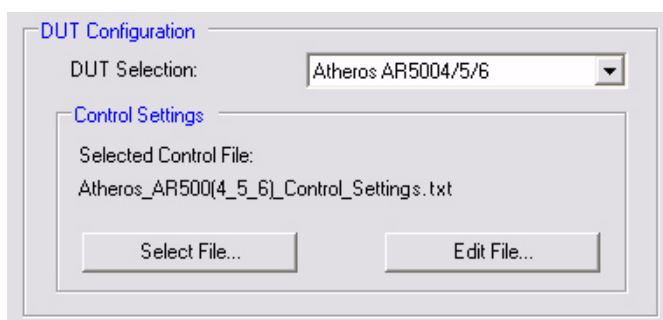


Figure 5-1. Control Settings

The DUT control settings file contains configuration settings that are specific to Atheros AR5004/5/6-based devices. These settings allow a user to:

- Define how the device is initialized at the beginning of a test sequence.
- Define settling times.

Details of these settings are provided below.

5-1 Device Initialization parameter

CMD_OPT

Atheros AR5004/5/6-based devices are configured and controlled using commands that are communicated using a host processor interface (e.g., USB, PCI). This interface must be specified and initialized correctly to successfully establish a connection with the target device. For correct device initialization, command line arguments appropriate to a particular test environment must be specified. CMD_OPT is used to specify the command line arguments as follows:

For Atheros AR5004/5/6 cardbus, miniPCI, and AP reference designs, the command line argument should be specified using the appropriate subsystem ID from those shown in the table below. For example, for an AR5004X 802.11a.b.g Cardbus reference design, the command line would be set to; CMD_OPT,\id=1042.

Table 5-1. Subsystem ID List

Reference Board Description	Subsystem ID
AR5004X 802.11a/b/g Cardbus Reference Design	1042
AR5004G 802.11b/g Cardbus Reference Design	1041
AR5004G 802.11b/g Cardbus Reference Design (cost reduced)	1043
AR5004X 802.11a/b/g Mini PCI Reference Design	2042
AR5004G 802.11b/g Min PCI Reference Design	2041
AR5004AP 802.11a/b/g AP Bridge	a048
AR5004AP 802.11b/g AP with Ethernet Router	a043
AR5005g 802.11g Cardbus Reference Design with Super G	1051
AR5005gs 802.11g Cardbus Reference Design	1052
AR5005g 802.11g Mini PCI Reference Design with Super G	2051
AR5005gs 802.11g Mini PCI Reference Design	2052
AR5006x 802.11a/g Cardbus Reference Design with Super A/G	1062
AR5006x 802.11a/g Cardbus Reference Design	1063
AR5006x 802.11a/g Mini PCI Reference Design with Super A/G	2062
AR5006x 802.11a/g Mini PCI Reference Design	2063
AR5006g 802.11g AP Reference Design with Super G	a051
AR5006g 802.11g AP Reference Design	a052
AR5006x 802.11a/g PCI Express Reference Design with Super A/G	3062
AR5006x 802.11a/g PCI Express Reference Design	3063

For Atheros AR5005 based USB devices, the command line would be be set to CMD_OPT,\remote=USB

5-2 Test Plan execution parameters

TX_DELAY

This allows settling time to be specified between the Atheros device being configured to transmit mode and a Tx measurement being performed by the MT8860. The value is an integer in ms resolution.

RX_DELAY

This allows a settling time to be specified between the Atheros device being configured to receive mode and the MT8860 transmitting packets to the device. The value is an integer in ms resolution.

DEBUG

This parameter can be used for diagnostic purposes. When debug is turned-on, pop-up messages are displayed during test execution. The messages contain the function calls (and related parameters) that are sent to the Atheros device.

Note

Ensure that any changes are saved and the DUT control settings file is closed before running the test plan.

Chapter 6 — Script Configuration Guidelines

LANTest is designed to support the full configuration capabilities of the MT8860B and MT8860C WLAN Test Sets. Any constraint / limitation imposed by the selected DUT must be taken into account by the user when creating a test plan. For Atheros AR5004/5/6 devices the following limitations apply.

6-1 Tx Measurements Scripts

When configuring the Tx characteristics of the Atheros AR5004/5/6 device, the ‘Transmission Type’ setting in the [Tx and Analysis Configuration] dialog must be set to ‘Framed’. An example screen shot is shown below.

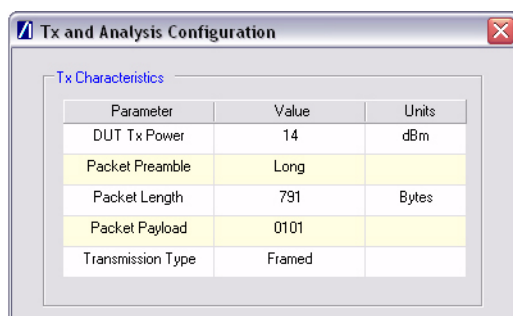


Figure 6-1. [Tx and Analysis Configuration] Dialog

Note It is important that the Tx characteristics are set correctly when using the auto-configure function.

Users familiar with the Atheros Radio Test (ART) utility may wish to use the following packet length configurations.

DSSS/CCK Data Rates

Table 6-1. DSSS/CCK Data Rates

Data Rate (Mbps)	Packet Preamble	Packet Length (Bytes)	Max EVM analysis length (chips)
1	Long	41	6072
2	Long	116	6336
2	Short	140	7392
5.5	Long	379	6512
5.5	Short	445	7568
11	Long	791	6552
11	Short	923	7608

OFDM Data Rates

Table 6-2. OFDM Data Rates

Data Rate (Mbps)	Packet Length (Bytes)	Maximum EVM analysis length (symbols)
6	224	85
9	353	85
12	482	85
18	740	85
24	998	85
36	1514	85
48	2030	85
54	2288	85

6-2 RF Carrier Suppression (IEEE 802.11b 18.4.7.7)

To evaluate the RF carrier suppression performance, the device must transmit a different signal characteristic to that used for the other Tx measurements.

In order for LANTest to configure the device correctly, a Tx measurement script must be created with only the RF carrier suppression measurement enabled.

In addition, the Tx and analysis parameters must be configured as detailed in the table below.

Table 6-3. Parameter Configurations

Parameter	Setting
Transmission Type	Continuous
Trigger Source	FR (Free Run)
Pre-trigger	0 ms

6-3 Rx Measurements Scripts

When configuring the Tx characteristics of the MT8860B/C, the number of packets must be set to 1000 in the [Tx Configuration] dialog.

Note

An Atheros UB52 reference design must be unplugged and re-inserted after four test plan operations.

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