

Getting Started Guide

Anritsu Company

LANTest Control Package for

Marvell 88W8688 SDIO Devices

The Anritsu logo consists of the word "Anritsu" in a bold, sans-serif font. The letter "A" is stylized with a diagonal slash through it. A horizontal line is positioned below the logo.

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Chapter 1 — Introduction

In partnership with Marvell, Anritsu has developed a control package that provides a fully automated test solution for 88W8688 devices with an SDIO interface. The control package uses a DLL containing commands that enable LANTest to configure the chips from within a test plan. These commands are sent to the device via an SDIO 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
- Marvell MFG software release, MFG-SD-8688-WIN-X86-1.0.8.0_1-10.0.1

The following files must be copied to C:\Program Files\Marvell

Table 1-1. Files to Copy

Marvell MFG Release Directory	Filename
\bin\mfgtool_src\mfgtool\MfgSuitexx_AB_fc\RfTestSD	DutApiSD8688Dll.dll Setup*.ini
\bin\lab_tool	eesd8688.sbin

1-2 DUT Control Package Change History

Table 1-2. Control Package History

Control Package Version	System Requirements	Supported Functionality
1.03	LANTest 4.0 Marvell MFG software release MFG-SD-8688-WIN-X86- 1.0.8.0_1-10.0.1 MT8860B or MT8860C fitted with firmware 9.00 or greater.	First release Supports 802.11b/g/a calibration, validation, and EEPROM update.

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 Marvell MFG 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\Marvell. To ensure correct operation the Marvell RD-88W MFG software must also be installed to this location. Click [Next] to continue.

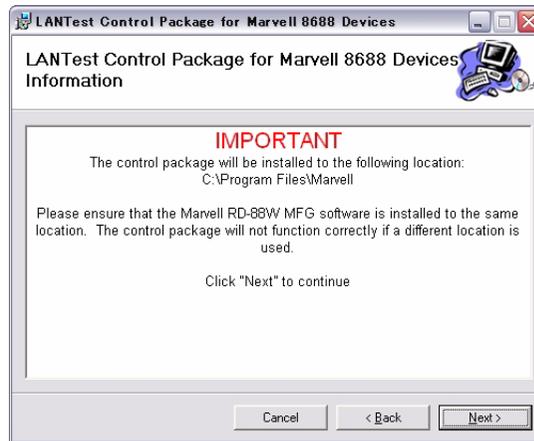


Figure 2-3. Install Location

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.



Figure 3-1. Select [Registered DUTs]

3. Click [Add...].

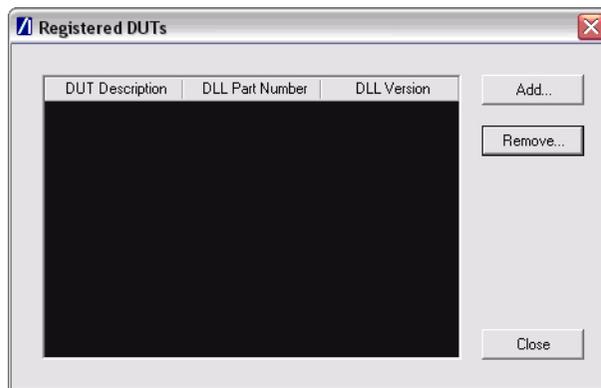


Figure 3-2. [Registered DUTs] Dialog

4. Navigate to the location C:\Program Files\Marvell, select the file "Marvell_8688_Control.dll" and click [Open].

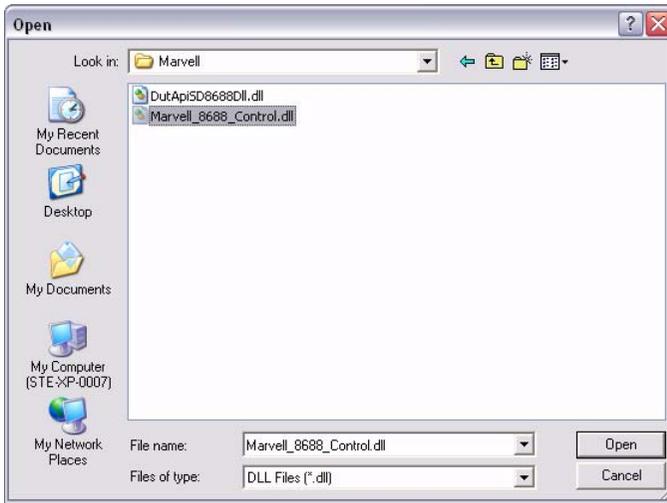


Figure 3-3. Select File

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

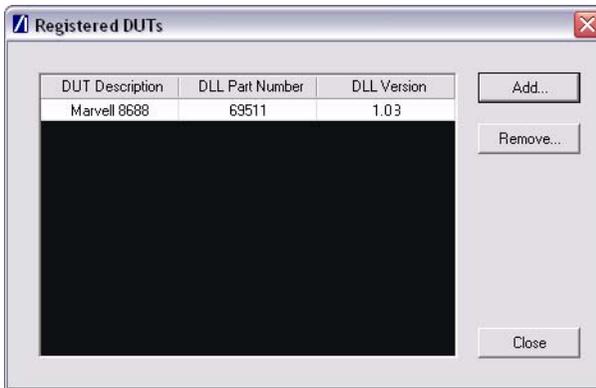


Figure 3-4. [Registered DUTs] Dialog

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 “Marvell 8688” at “DUT Configuration”.

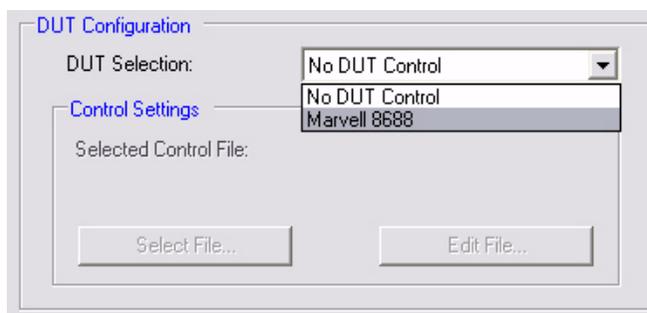


Figure 4-2. [Test Mode Setup]

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

- An example test plan is included as part of the installation. To select the test plan, click the open icon, select the file "Marvell_8688_example_test_plan.ltp" and then click [Open].

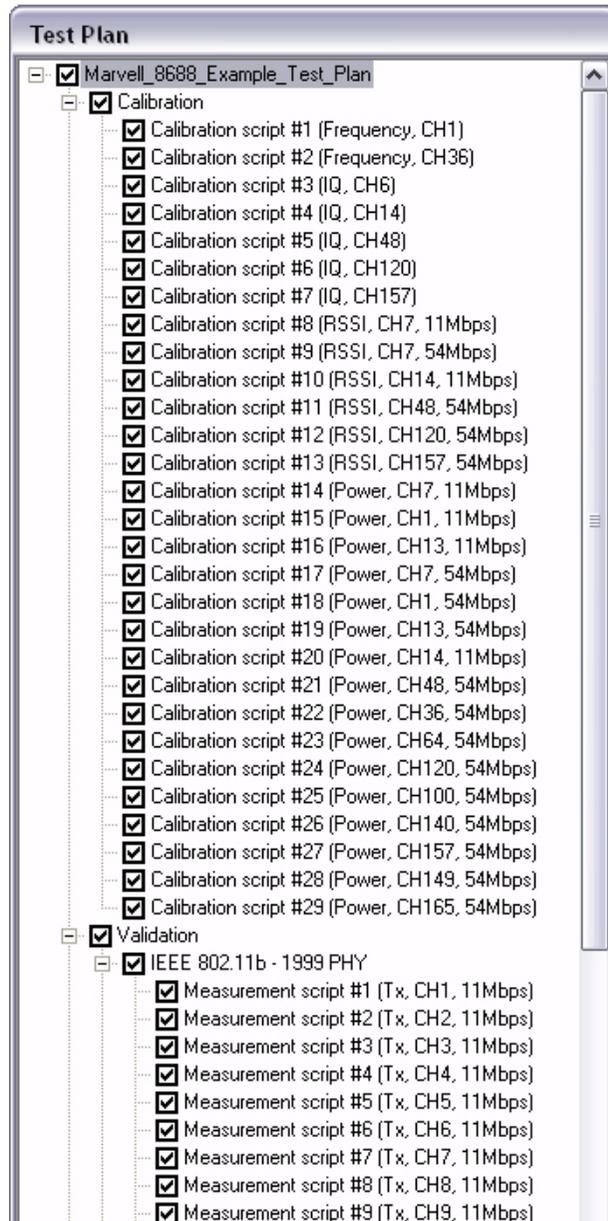


Figure 4-3. Example Test Plan

Chapter 5 — DUT Control Settings File

As part of the control package installation process, a DUT control settings file, "Marvell_8688_Control_Settings.txt" is provided. This can be accessed from within the [Test mode setup] dialog by clicking [Edit File...].

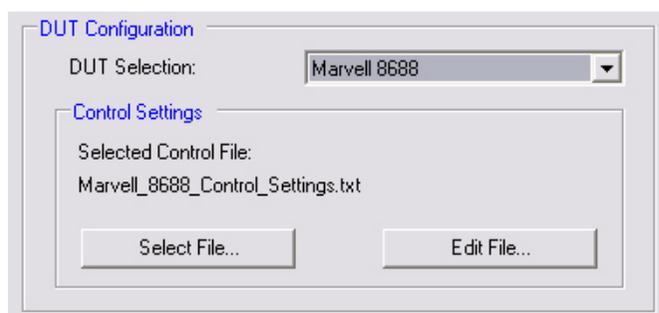


Figure 5-1. DUT Configuration

The DUT control settings file contains configuration settings that are specific to the 8688 SDIO device. 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 parameters

EEPROM_ERASE_BEFORE_CAL, EEPROM_IMAGE_FILE_PATH

Before proceeding with the calibration process, Marvell recommends that the EEPROM is first erased and initialized with a default image. EEPROM_ERASE_BEFORE_CAL allows a user to specify whether the EEPROM is erased before the calibration.

EEPROM_IMAGE_FILE_PATH is used to specify the location and the name of a file containing a default EEPROM image that is written to the EEPROM after an erase operation.

Note	MAC address information previously saved to EEPROM will be lost when an EEPROM erase operation is performed. EEPROM information will not be restored if the test plan fails to complete.
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5-2 Test Plan execution parameters

TX_DELAY

This allows settling time to be specified between the 8688 SDIO 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 8688 SDIO device being configured to receive mode and 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 8688 SDIO 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 constraints / limitations imposed by the selected DUT must be taken into account by the user when creating a test plan. For Marvell 88W8688 SDIO devices the following guidelines apply.

6-1 Calibration Scripts

For a Marvell 8688 SDIO device, the following calibration flow is recommended by Marvell:

- Frequency (Xtal) Calibration
- IQ Calibration (CH 6)
- IQ Calibration (CH14)
- Power Calibration

Due to the architecture of the Marvell MFG Test Suite software, it has been necessary to integrate the Test Suite into the actual 8688 SDIO control package. Consequently, the sequence in which the calibration scripts are ordered must match the calibration flow used by Marvell. In addition, certain settings defined in the calibration scripts (e.g. target power levels) must match those values defined in the "Setup.ini" file used by the Marvell Test Suite software. Therefore, it is essential that a user has an understanding of the calibration flow defined by Marvell and is familiar with the information contained within the Setup.ini file.

The Marvell application note "8686 Fast Cal and EEPROM Structure 0xC" gives a complete background on calibration and provides an in-depth description of setup. The document also contains setup.ini file and test log results.

Details of the settings defined in the "Setup.ini" file are provided below:

NO_EEPROM

The above flag is used to control calibration and validation with or without an EEPROM. Setting this flag to 0 (default) stores calibration data to the device. Setting this flag to 1 performs calibration and validation using an external calibration file.

CalOption_G, CalOption_A

The above flags determine the calibration method. A setting of 0 (default) performs a closed loop calibration. A setting of 1 performs an open loop (thermal) calibration.

MaxBPower_8686, MaxGPower_8686

The above flags clamp the target output power when performing 802.11b and 802.11g transmitter testing. To prevent unwanted output level clamping, these values should be equal to, or higher than, the power level specified in the LANTest Tx scripts.

MaxBPowerCh14_8686

The above flag limits the target output power level when performing 802.11b transmitter testing on CH 14. To prevent unwanted output level clamping, this value should be equal to, or higher than, the power level specified in a LANTest Tx script that uses CH 14.

[BANDG_GRP1] - CH1 to CH13

HighFreq, LowFreq

The above values are stored with the calibration power table for 2.4GHz.

TopPwr_Rng1, BtmPwr_Rng1, Ppa1_Rng1

These values should match the maximum (TopPwr_Rng1) and minimum (BtmPwr_Rng1) calibrated power levels for the upper range in the calibration script configuration. For the PPA range setting, leave at default or consult Marvell if modifying the power levels at which calibration is to be performed.

TopPwr_Rng2, BtmPwr_Rng2, Ppa1_Rng2

These values should correspond with the maximum (TopPwr_Rng2) and minimum (BtmPwr_Rng2) calibrated power levels for the lower range in the calibration script configuration. Leave the PPA range at the default setting or consult Marvell if modifying the power levels at which calibration is to be performed.

[BANDG_GRP2] - CH14

HighFreq, LowFreq

The above values are stored with the calibration power table for 2.4GHz.

TopPwr_Rng1, BtmPwr_Rng1, Ppa1_Rng1

These values should match the maximum (TopPwr_Rng1) and minimum (BtmPwr_Rng1) calibrated power levels for the upper range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

TopPwr_Rng2, BtmPwr_Rng2, Ppa1_Rng2

These values should match the maximum (TopPwr_Rng2) and minimum (BtmPwr_Rng2) calibrated power levels for the lower range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

[BANDA_GRP2] - CH36 to CH64

HighFreq, LowFreq

The above values are stored with the calibration power table for 5GHz.

TopPwr_Rng1, BtmPwr_Rng1, Ppa1_Rng1

These values should match the maximum (TopPwr_Rng1) and minimum (BtmPwr_Rng1) calibrated power levels for the upper range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

TopPwr_Rng2, BtmPwr_Rng2, Ppa1_Rng2

These values should match the maximum (TopPwr_Rng2) and minimum (BtmPwr_Rng2) calibrated power levels for the lower range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

[BANDA_GRP3] - CH100 to CH140**HighFreq, LowFreq**

The above values are stored with the calibration power table for 5GHz.

TopPwr_Rng1, BtmPwr_Rng1, Ppa1_Rng1

These values should match the maximum (TopPwr_Rng1) and minimum (BtmPwr_Rng1) calibrated power levels for the upper range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

TopPwr_Rng2, BtmPwr_Rng2, Ppa1_Rng2

These values should match the maximum (TopPwr_Rng2) and minimum (BtmPwr_Rng2) calibrated power levels for the lower range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

[BANDA_GRP4] - CH149 to CH165**HighFreq, LowFreq**

The above values are stored with the calibration power table for 5GHz.

TopPwr_Rng1, BtmPwr_Rng1, Ppa1_Rng1

These values should match the maximum (TopPwr_Rng1) and minimum (BtmPwr_Rng1) calibrated power levels for the upper range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

TopPwr_Rng2, BtmPwr_Rng2, Ppa1_Rng2

These values should match the maximum (TopPwr_Rng2) and minimum (BtmPwr_Rng2) calibrated power levels for the lower range in the calibration script configuration. Leave the PPA range setting at the default value or consult Marvell if modifying the power levels at which calibration is to be performed.

6-2 Tx Measurements Scripts

When configuring the Tx characteristics of the Marvell 88W8688 SDIO device, the settings in the [Tx and Analysis Configuration] dialog must match those in the table below.

Table 6-1. Configuration Settings

Parameter	Permitted Settings
Packet Preamble	Long
Packet Length	Fixed length based on data rate (see table below)
Packet Payload	ZEROS, ONES, 01010, 1010
Transmission Type	Framed

Table 6-2. Packet and Analysis Lengths

Data Rate (Mbps)	Packet Length (Bytes)	Maximum EVM Analysis Length
1	256	24992 chips
2	256	12496 chips
5.5	511	8624 chips
11	511	4312 chips
6	511	181 symbols
9	511	121 symbols
12	511	91 symbols
18	511	61 symbols
24	511	46 symbols
36	511	31 symbols
48	511	23 symbols
54	511	21 symbols

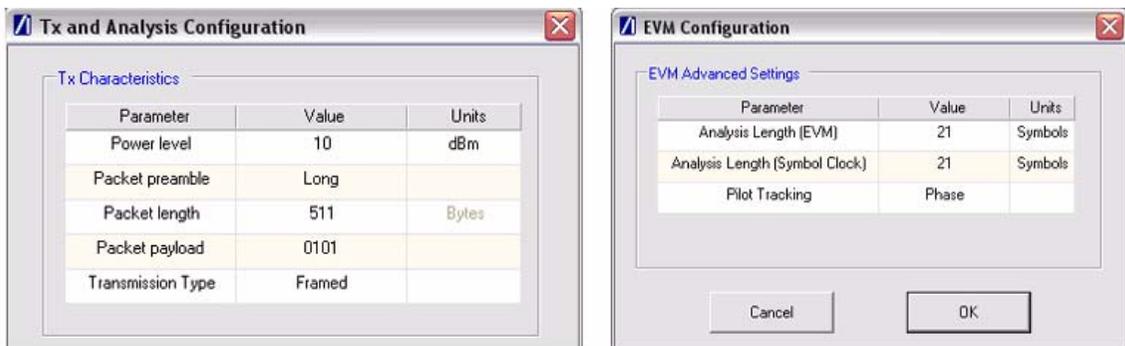


Figure 6-1. 54 Mbps Example Screen Shot

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

6-3 RF Carrier Suppression (IEEE 802.11b 18.4.7.7)

To evaluate the RF carrier suppression performance of a Marvell 88W8688 device, 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 match those in the table below.

Table 6-3. Parameter Settings

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

Note On completion of a test plan, a Marvell 88W8688 SDIO reference design must be ejected and reinserted into the SD slot.

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