Chapter 7

TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

Types of Tests

- **Unit testing**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

- **Integration testing**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Test Cases

TC#	Description	Expected Result	Actual Result	Status of execution (Pass/Fail)
Client(Sampling Module)				
TC01	Enter valid key	Generate signal	Signal generated	pass
TC02	Enter invalid key	Print error message	Error message printed	pass
TC03	Send samples to server	Transfer file to server	File transferred	pass
TC04	Do not send samples to server	Abort program	Program aborted	pass
TC05	Check number of samples taken	Number of samples=500	Number of samples=500	pass
Server(Reconstruction Module)				
TC06	Echo values of parameters read from the file	Parameter values read properly	Parameter values read properly	pass
TC07	Check for successful reconstruction of signal	Reconstruction successful	Reconstruction successful	pass

Table 7.1 Test Cases