English Language Test Description

Contract Number: N00244-09-C-0054

For

Unit Under Test

UUT Nomenclature: CONTROL INPUT/OUTPUT CCA
UUT Part Number: 2618572-1
UUT Reference Designator: CON A3

From

Assault Amphibious Vehicle
AN/PSM-115

ATE (Automated Test Equipment) SYSTEM

AN/USM-657B(V)2 Third Echelon Test System (TETS)
AN/USM-717(V)2 Virtual Instrument Portable Equipment Repair / Tester (VIPER/T)

Developed by

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Approved By	Signature	Date Received	Date Approved

ELTD REVISION SUMMARY

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-	03/25/2010	ORIGINAL ISSUE	N. Dhami – 03/25/2010
A	05/25/2010	Per ECO-AAV-2010-0007	N. Dhami – 05/25/2010
B	08/17/2010	Per ECO-AAV-2010-0037	

1. Introduction

The Unit Under Test (UUT) for this English Language Test Description (ELTD) is the Control Input/Output Circuit Card Assembly (CCA), Part Number 2618572-1. The CCA is reference designator CON A3 in the Controller C-10879/MSQ-115 Line Replaceable Unit (LRU) part number 2618506-1. The LRU resides in the Assault Amphibious Vehicle (AAV) Weapon System.

1.1. Scope

An ELTD is a detailed supplementary document consisting of textual test descriptions with graphical representation of signal interconnectivity and a functional flow chart.

1.2. Purpose

The purpose of this document is to provide English language test descriptions for the TP_AAV_CON_A3 test program, to a level of detail used for maintenance purposes. The TP_AAV_CON_A3 test program makes up part of the AN/PSM-115 Application Program Set (APS).

1.3. Content Arrangement

The document is laid out in the sequence the Test Program Set (TPS) would be executed when a 95 “Run All Mods” is entered in the main menu. A paragraph at the beginning of each module will describe the test description for that module. Each step will contain a description for that particular test followed by a graphical representation of the connections made from the receiver, through the Interface Test Adapter (ITA) and cable W10 to the Control Input/Output CCA. A Functional Flow Chart resides at the end of the document.

2. English Language Test Description (ELTD)

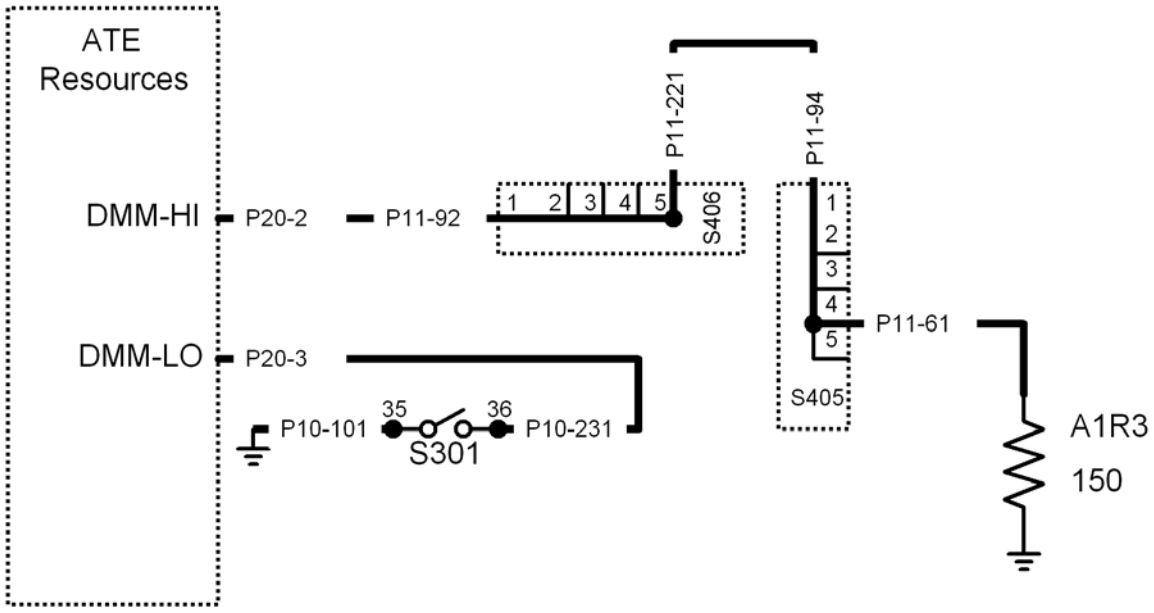
WEAPON SYSTEM: Assault Amphibious Vehicle (AAV)
UNIT UNDER TEST: 2618572-1
TEST PROGRAM SET: TP_AAV_CON_A3

SAFE TO TURN ON TESTS

Step 1 ITA Identification

Test step 1 verifies the correct ITA is installed by using the DMM to measure the resistance of ITA A1R3. The resistance should be from 149 ohms to 160 ohms.

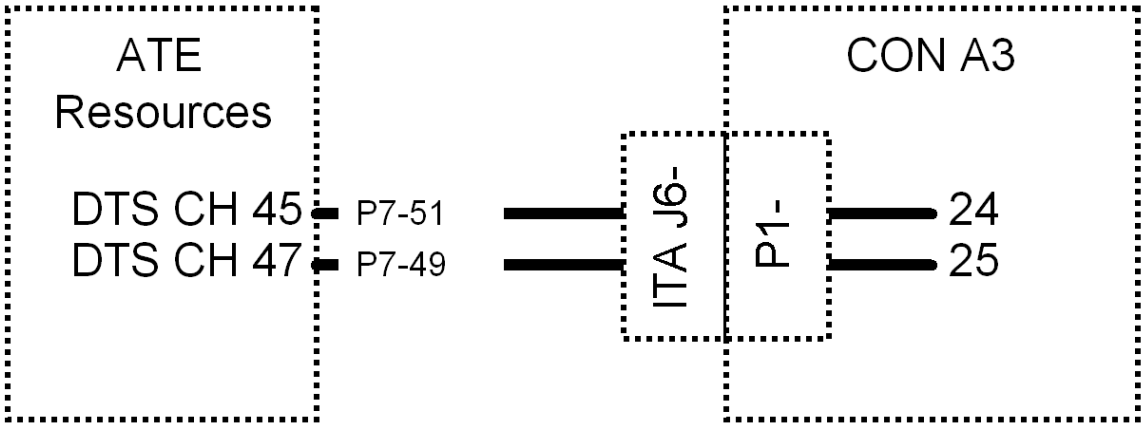
Connection Path as follows:



Step 2 UUT Identification

Test step 2 verifies the correct UUT is connected to the ITA by setting the DTS active load pull-ups to 5V by applying 1mA to P1-24 and P1-25. Each digital channel should be less than 4 Vdc.

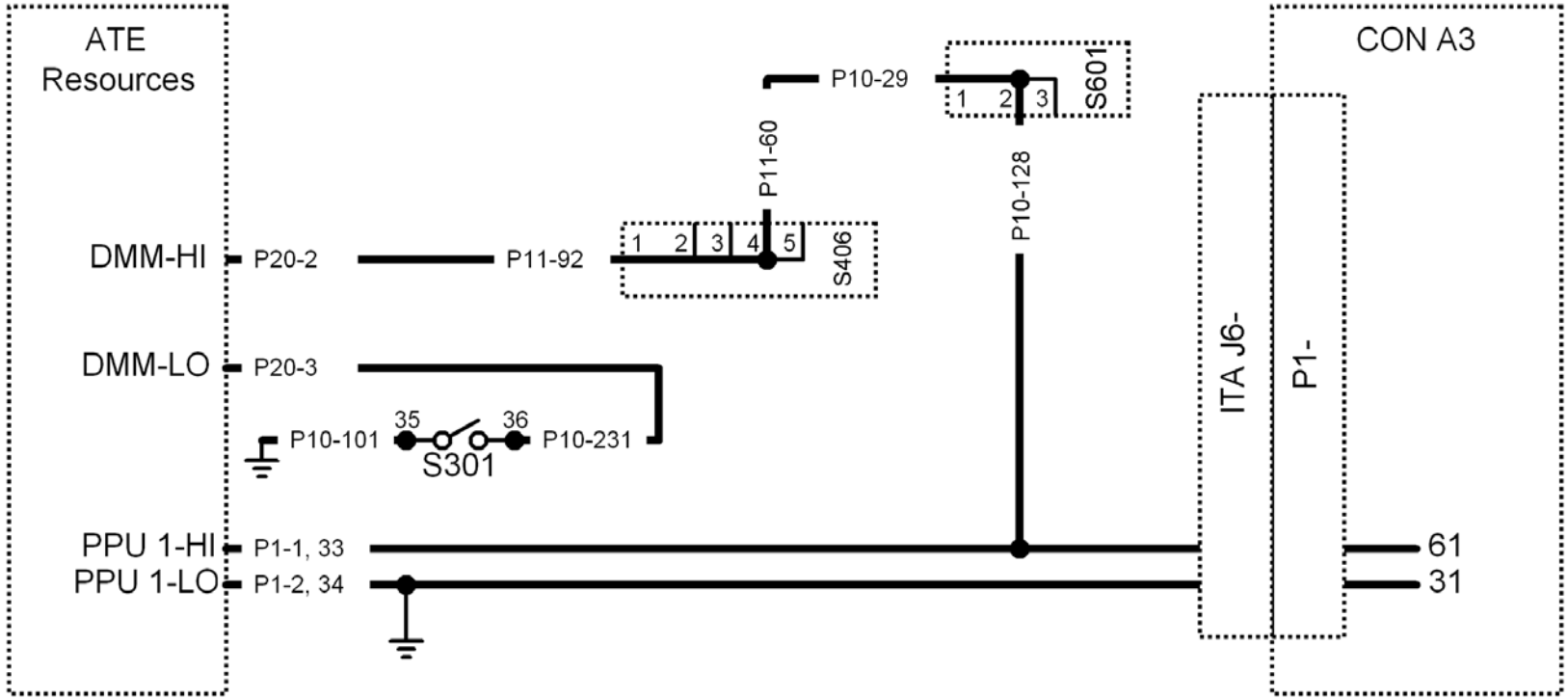
Connection Path as follows:



Step 3 Safe-To-Turn-On

Test step 3 verifies the +5 Vdc is safe to apply power by connecting PPU1 to the UUT but only applying +1.0 Vdc at 0.075 A. The DMM is used to measure the voltage from P1-61 to GND. The voltage should be from 0.75 Vdc to 1.1 Vdc. If an overload condition is present PPU1 will exceed its current limit and turn off before the measurement causing the test to fail.

Connection Path as follows:


ATE
Resources
DMM-HI
P20-2
P11-92
DMM-LO
P20-3
P10-101
35
36
P10-231
S301
PPU 1-HI
P1-1, 33
PPU 1-LO
P1-2, 34
P10-29
P11-60
P10-128
1 2 3
S601
1 2 3 4 5
S406
ITA J6-
P1-
CON A3
61
31

UUT POWER UP

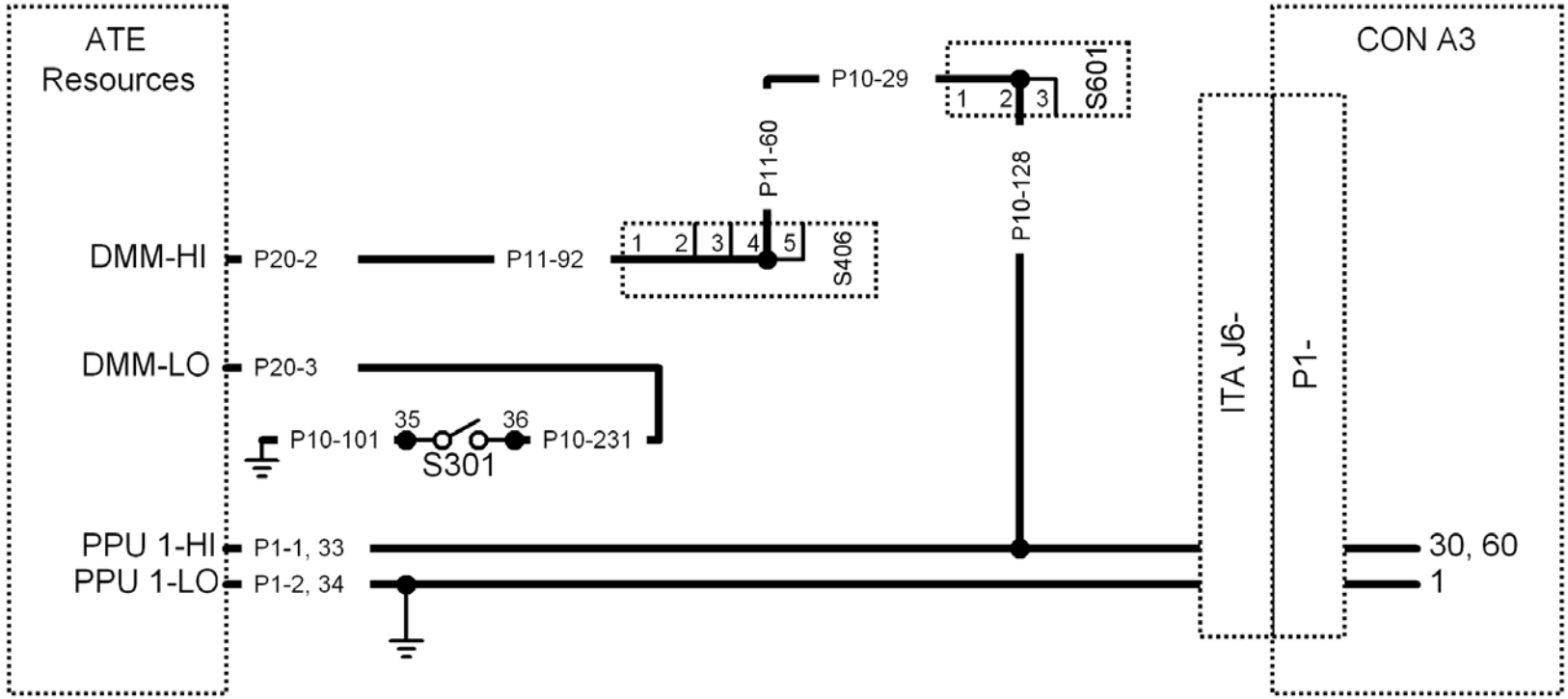
+5 Vdc at 1.5 A with a tolerance of ±0.3 Vdc is required to power the UUT.

UUT POWER UP TEST

Step 4 +5VDC Power On Test

Test step 4 verifies PPU1 can deliver +5 Vdc to the UUT by using the DMM to measure the voltage between P1-60 and GND. The voltage should be from 4.7 Vdc to 5.3 Vdc. PPU1 remains connected to the UUT for the remainder of testing.

Connection Path as follows:


ATE
Resources
DMM-HI
P20-2
P11-92
DMM-LO
P20-3
P10-101
35
36
P10-231
S301
PPU 1-HI
P1-1, 33
PPU 1-LO
P1-2, 34
P10-29
P11-60
P10-128
1 2 3
S601
1 2 3 4 5
S406
ITA J6-
P1-
CON A3
30, 60
1

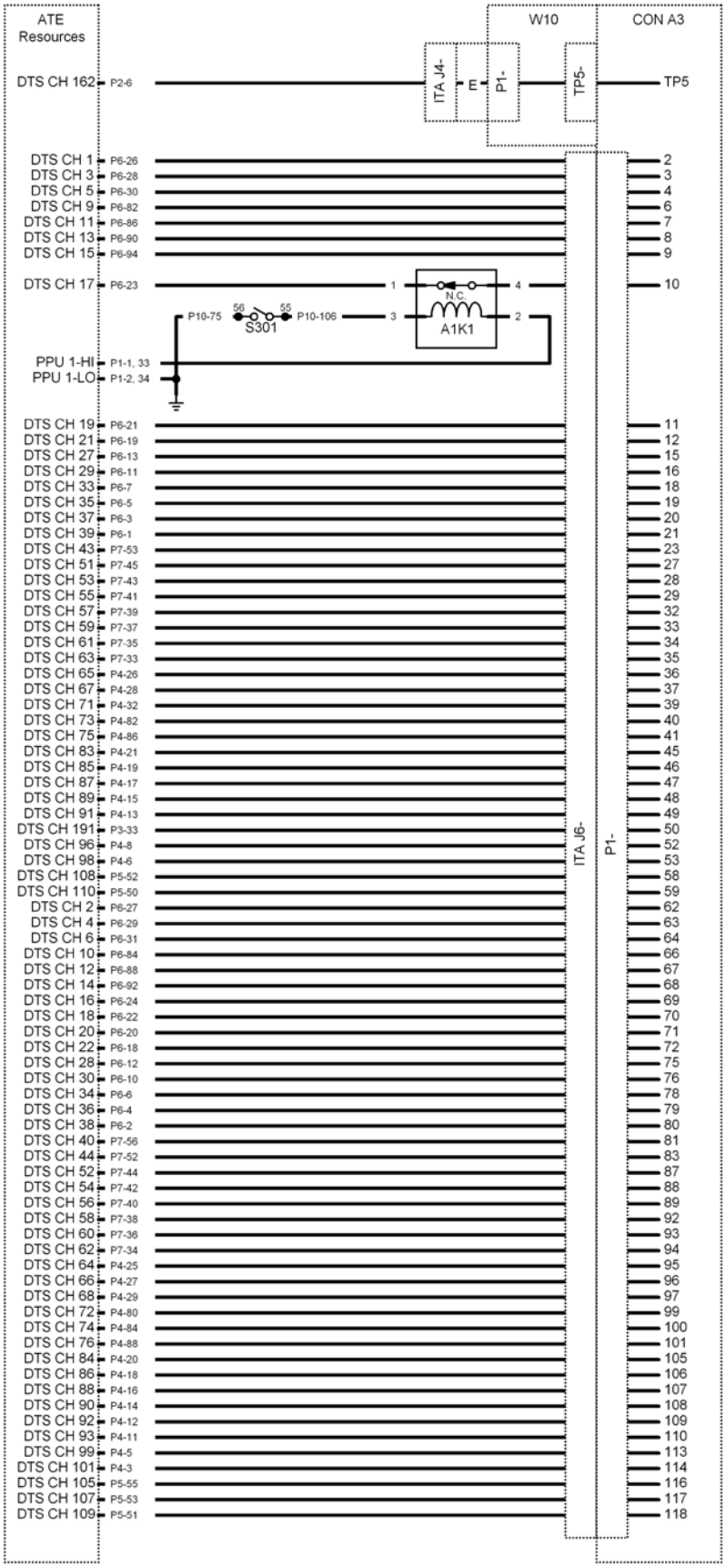
MODULE 1 LASAR – MAIN TEST

Module 1 verifies the functionality of 100% of the circuit sans the line receiver input capacitors. Test Step 101 is generated using a digital simulation and fault analysis tool called LASAR. The test data stored in these test files in conjunction with an external software diagnostic algorithm called M9-Series Diagnostics will facilitate guided probe diagnostics seeded by fault dictionary diagnostics. LASAR processing generates detailed information about the quality of fault detection that is given by a particular test including a list of detected faults and statistics of percent detection.

Step 101 Digital Simulation

Test step 101 verifies the functionality of most of the UUT by connecting the input and output pins to digital channels and running the digital test file CON_A3.DTB. One connection made, DTS Channel 17 to P1-10, is connected via A1K1. This is a relay that is Normally Closed (N.C.) and provides a direct connection when A1K1 is not energized. The test should pass without any errors.

Connection Path as follows:


ATE Resources
W10
CON A3
ITA J4-
E
P1-
TP5-
DTS CH 162 P2-6
TP5
DTS CH 1 P6-26
DTS CH 3 P6-28
DTS CH 5 P6-30
DTS CH 9 P6-82
DTS CH 11 P6-86
DTS CH 13 P6-90
DTS CH 15 P6-94
DTS CH 17 P6-23
N.C.
A1K1
P10-75
56
S301
55
P10-106
PPU 1-HI P1-1, 33
PPU 1-LO P1-2, 34
DTS CH 19 P6-21
DTS CH 21 P6-19
DTS CH 27 P6-13
DTS CH 29 P6-11
DTS CH 33 P6-7
DTS CH 35 P6-5
DTS CH 37 P6-3
DTS CH 39 P6-1
DTS CH 43 P7-53
DTS CH 51 P7-45
DTS CH 53 P7-43
DTS CH 55 P7-41
DTS CH 57 P7-39
DTS CH 59 P7-37
DTS CH 61 P7-35
DTS CH 63 P7-33
DTS CH 65 P4-26
DTS CH 67 P4-28
DTS CH 71 P4-32
DTS CH 73 P4-82
DTS CH 75 P4-86
DTS CH 83 P4-21
DTS CH 85 P4-19
DTS CH 87 P4-17
DTS CH 89 P4-15
DTS CH 91 P4-13
DTS CH 191 P3-33
DTS CH 96 P4-8
DTS CH 98 P4-6
DTS CH 108 P5-52
DTS CH 110 P5-50
DTS CH 2 P6-27
DTS CH 4 P6-29
DTS CH 6 P6-31
DTS CH 10 P6-84
DTS CH 12 P6-88
DTS CH 14 P6-92
DTS CH 16 P6-24
DTS CH 18 P6-22
DTS CH 20 P6-20
DTS CH 22 P6-18
DTS CH 28 P6-12
DTS CH 30 P6-10
DTS CH 34 P6-6
DTS CH 36 P6-4
DTS CH 38 P6-2
DTS CH 40 P7-56
DTS CH 44 P7-52
DTS CH 52 P7-44
DTS CH 54 P7-42
DTS CH 56 P7-40
DTS CH 58 P7-38
DTS CH 60 P7-36
DTS CH 62 P7-34
DTS CH 64 P4-25
DTS CH 66 P4-27
DTS CH 68 P4-29
DTS CH 72 P4-80
DTS CH 74 P4-84
DTS CH 76 P4-88
DTS CH 84 P4-20
DTS CH 86 P4-18
DTS CH 88 P4-16
DTS CH 90 P4-14
DTS CH 92 P4-12
DTS CH 93 P4-11
DTS CH 99 P4-5
DTS CH 101 P4-3
DTS CH 105 P5-55
DTS CH 107 P5-53
DTS CH 109 P5-51
ITA J6-
P1-
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8
9
10
11
12
15
16
18
19
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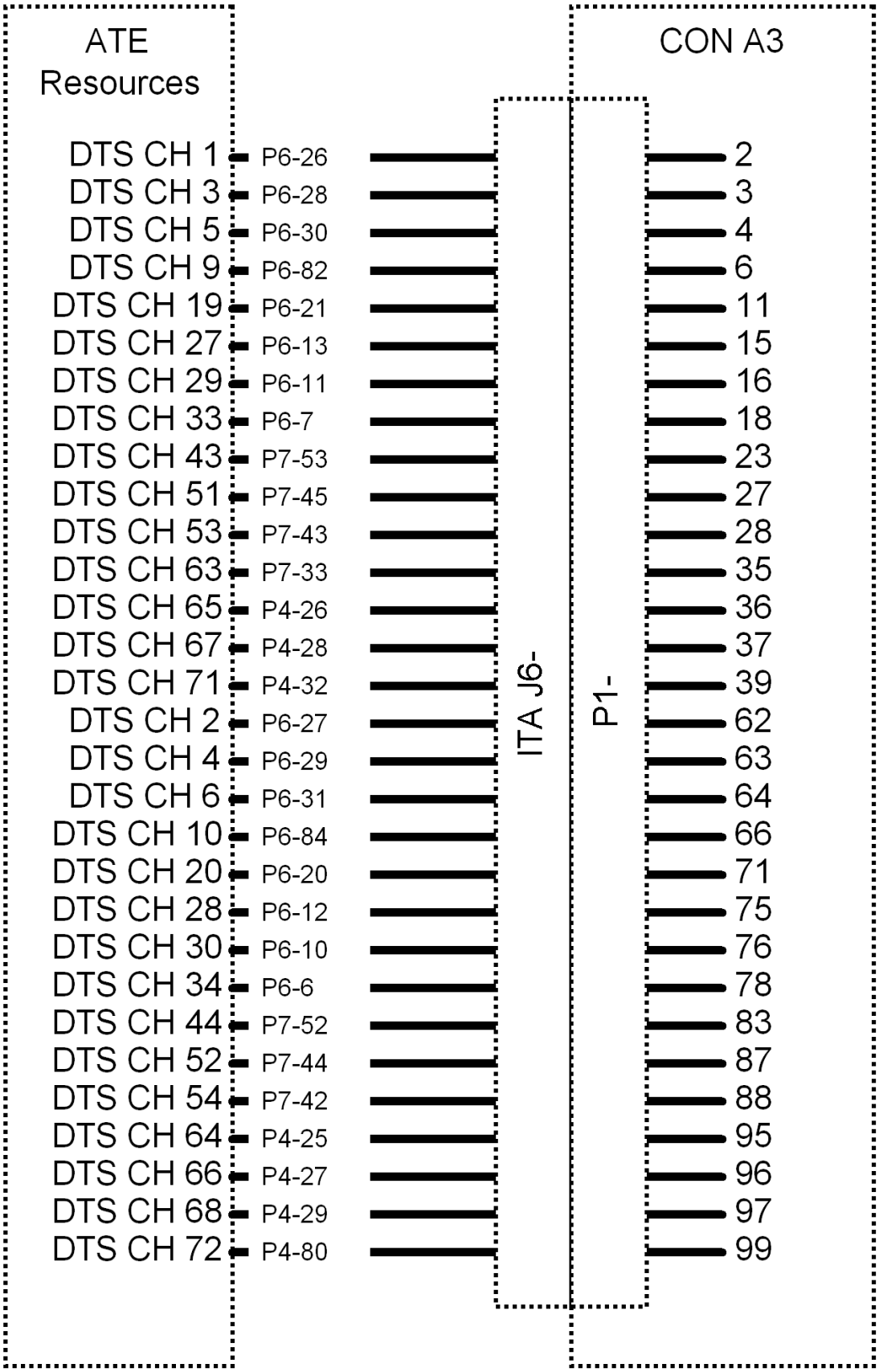
MODULE 2 LASAR LINE RCVR COMPONENTS

Module 2 verifies 100% functionality of the line receiver inputs. Test Step 201 is generated using a digital simulation and fault analysis tool called LASAR. The test data stored in these test files in conjunction with an external software diagnostic algorithm called M9-Series Diagnostics will facilitate guided probe diagnostics seeded by fault dictionary diagnostics. LASAR processing generates detailed information about the quality of fault detection that is given by a particular test including a list of detected faults and statistics of percent detection.

Step 201 Line RCVR Components Test

Test step 201 verifies the functionality of the UUT not covered by test step 101 by connecting the input and output pins to digital channels and running the digital test file CON_A3B.DTB. The test should pass without any errors.

Connection Path as follows:


ATE
Resources
DTS CH 1 P6-26
DTS CH 3 P6-28
DTS CH 5 P6-30
DTS CH 9 P6-82
DTS CH 19 P6-21
DTS CH 27 P6-13
DTS CH 29 P6-11
DTS CH 33 P6-7
DTS CH 43 P7-53
DTS CH 51 P7-45
DTS CH 53 P7-43
DTS CH 63 P7-33
DTS CH 65 P4-26
DTS CH 67 P4-28
DTS CH 71 P4-32
DTS CH 2 P6-27
DTS CH 4 P6-29
DTS CH 6 P6-31
DTS CH 10 P6-84
DTS CH 20 P6-20
DTS CH 28 P6-12
DTS CH 30 P6-10
DTS CH 34 P6-6
DTS CH 44 P7-52
DTS CH 52 P7-44
DTS CH 54 P7-42
DTS CH 64 P4-25
DTS CH 66 P4-27
DTS CH 68 P4-29
DTS CH 72 P4-80
ITA J6-
P1-
CON A3
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FUNCTIONAL FLOW CHART (FFC)