

English Language Test Description

MIPR # M9545012MP24797
CDRL F001

for

Unit Under Test

UUT Nomenclature: Power Drive CCA, SLEP
UUT Part Number: 00004A2205-1

from

LAV-25A2

ATE SYSTEM

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

Developed by

U.S. Army RDECOM
Armament Research, Development and Engineering Center
Automated Test Systems Division
RDAR-WSF-A, Building 91
Picatinny, NJ 07806

Prepared By	Signature	Date Prepared	Date Submitted
Ryan Pickett		16 June 2015	
Bill Vivino		9 July 2015	

Approved By	Signature	Date Received	Date Approved
Thomas Bradford			
Rick Foyt			

DISTRIBUTION STATEMENT C.

Distribution authorized to U.S. Government agencies and their contractors only.

(Reason: Administrative Use). (Date: 12/1/11). Other requests for this document shall be referred to Marine Corps Systems Command.

ELTD REVISION SUMMARY

[illegible]

Table of Contents

1.0 Reference Documents	1
1.1 Virtual Instrument Portable Equipment Repair/Test (VIPER/T)	1
1.2 Third Echelon Test System (TETS-B)	1
1.3 Unit Under Test	1
1.4 Reference Drawings	2
2.0 English Language Test Description Steps	2
2.1 Interface ID.....	2
2.2 Safe To Turn On	3
2.3 Module 1 – Static Tests	5
2.4 Module 2 – BJT Tests.....	16
2.5 Module 3 – FET Tests	23
3. 0 Functional Flow Chart (FFC).....	29

1.0 Reference Documents

1.1 Virtual Instrument Portable Equipment Repair/Test (VIPER/T)

IEEE Std 716-1989	IEEE Standard Common Abbreviated Test Language for All Systems
TM TBD-CD	VIPER/T IETM (Interactive Electronic Technical Manual)
System Design Document Doc # 7992008	VIPER/T AN/USM-717
VIPER/T P/N 7992021	VIPER/T CPM (Computer Programming Manual)

1.2 Third Echelon Test System (TETS-B)

TM 10530A-CD	TETS IETM (Interactive Electronic Technical Manual)
System Design Description Doc # 93006A0018	Third Echelon Test System (TETS) AN/USM-657
TETS P/N 93006A0026	TETS CPM (Computer Programming Manual)

1.3 Unit Under Test

UUT P/N: 00004A2205-1
 UUT Nomenclature: Power Drive SLEP CCA, A2
 UUT Type: SRU

<u>DESCRIPTION</u>	<u>NUMBER</u>	<u>REVISION</u>	<u>DATE</u>
Parts List	None		
LRU QA Specification	ES12869	D	11-27-2007
Circuit Card Assy, Power Drive SLEP, A2	00004A2205-1		
Schematic Diagram, Power Drive SLEP CCA, A2	00004A2205-1		

1.4 Reference Drawings

Refer to the following schematics when diagnosing connection paths.

ID Schematic



13020A0001
(SYSTEM INTERCONN

W5 Schematic



13020A7501 (CABLE,
W5, SCHEMATIC).pdf

2.0 English Language Test Description Steps

2.1 Interface ID

Refer to [Reference Drawings](#) when diagnosing connection paths.

Step 1

Description:

Connect R111 (324 ohms) to Bus 5. Connect R109 (698 ohms) to Bus 6. R109 and R111 are now in series between Bus 5 and 6. Connect DMM HI to Bus 5. Connect DMM LO to Bus 6. Expected Resistance: 1022 ohms +/- 5%.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-137 (S503-7)	to ID A1P6.47
From ID A1J6.47	to ID BUS 5

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-170 (S503-8)	to ID A1P6.38
From ID A1J6.38	to ID BUS 6

From ID BUS 5	to ID A1J8.47
From ID A1P8.47	to ID P10-73 (S301-48)
From ID P10-7 (S301-47)	to ID A1P7.23

Date: 04 March 2016

From ID A1J7.23	to ID A1J4.15
From ID A1P4.15	to R111
From ID BUS 6	to ID A1J8.48
From ID A1P8.48	to ID P10-171 (S301-50)
From ID P10-42 (S301-49)	to ID A1P7.24
From ID A1J7.24	to ID A1J4.16
From ID A1P4.16	to R109

2.2 Safe To Turn On

Step 2

Description:

Connect TB1-1 to Bus 1. Connect TB1-3 to Bus 2. Connect DMM Hi to Bus 1. Connect DMM Lo to Bus 2. Verify resistance between TB1-1 and TB1-3. Resistance should be between 750 and 1100 ohms

Connection Path is as follows:

From W5 P2-1 (UUT TB1-1)	to W5 P1-1
From ID J3-1	to ID A1P3.27
From ID A1J3.27	to ID A1J12.23
From ID A1P12.23	to ID P12-85 (S201-45)
From ID P12-16 (S201-1)	to ID A1P11.42
From ID A1J11.42	to ID A1J10.6
From ID A1P10.6	to ID P11-203 (S508-1)
From ID P11-77 (S508-3)	to ID A1P9.15
From ID A1J9.15	to ID BUS 1
From W5 P2-3 (UUT TB1-3)	to W5 P1-5
From ID J3-5	to ID A1P3.31
From ID A1J3.31	to ID A1J12.27
From ID A1P12.27	to ID P12-55 (S201-47)
From ID P12-20 (S201-3)	to ID A1P11.46
From ID A1J11.46	to ID A1J10.2
From ID A1P10.2	to ID P11-39 (S507-1)
From ID P11-72 (S507-4)	to ID A1P9.27
From ID A1J9.27	to ID BUS 2
From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2

Date: 04 March 2016

Step 3

Description:

Connect TB1-3 to DC4-HI and TB1-4 to GND. Connect TB1-9 to DC10-LO. Connect S101-32 to DMM-Hi. Connect DMM-Lo to GND. Verify that TB1-3 is not shorted to TB1-4. Expected Resistance is greater than 10 MEG

Connection Path is as follows:

From W5 P2-3 (UUT TB1-3)	to W5 P1-28
From ID J3-28	to ID A1P3.20
From ID A1J3.20	to ID A1J2.37
From ID A1P2.37	to ID P11-152 (S101-31)
From ID P11-216 (S101-32)	to ID A1P2.30
From ID A1J2.30	to ID A1J7.13
From ID A1P7.13	to ID P10-226 (S301-3)
From ID P10-99 (S301-4)	to ID A1P7.44
From ID A1J7.44	to ID A1J15.49
From ID A1P15.49	to P20-2 (DMM-HI)

From W5 P2-4 (UUT TB1-4)	to W5 P1-27
From ID J3-27	to ID A1P3.21
From ID A1J3.21	to ID A1J2.36
From ID A1P2.36	to ID P11-24 (S101-29)
From ID P11-152 (S101-30)	to ID A1P2.22
From ID A1J2.22	to ID A1J1.4
From ID A1P1.4	to DC10-LO

From W5 P2-9 (UUT TB1-9)	to W5 P1-24
From ID J3-24	to ID A1P3.4
From ID A1J3.4	to ID A1J7.6
From ID A1P7.6	to ID P10-100 (S301-13)
From ID P10-228 (S301-14)	to ID A1P7.20
From ID A1J7.20	to ID A1J1.4
From ID A1P1.4	to DC10-LO

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J7.44
From ID A1P7.44	to ID P10-99 (S301-4)
From ID P10-226 (S301-3)	to ID A1P7.13
From ID A1J7.13	to ID A1J2.31
From ID A1P2.31	to ID P10-87 (S101-6)
From ID P10-23 (S101-5)	to ID A1P2.4
From ID A1J2.4	to ID A1J1.3
From ID A1P1.3	to ID P1-10 (DC4-HI)

From ID P20-3 (DMM-LO)	to ID A1J7.38
From ID A1P7.38	to ID P10-130 (S301-23)
From ID P10-229 (S301-24)	to ID A1P7.36
From ID A1J7.36	to DMM-GND

2.3 MODULE 1 - STATIC TESTS

Description:

This module verifies the static resistance between UUT pins. This will check for correct operation of all resistors, as well as, check for shorts in the semiconductors.

Refer to [Reference Drawings](#) when diagnosing connection paths.

Step 101

Description:

Verify the resistance between TB1-7 and TB1-9 is 100K \pm 5% Ohm.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-7 (UUT TB1-7)	to W5 P1-7
From ID J3-7	to ID A1P3.33
From ID A1J3.33	to ID A1J12.29
From ID A1P12.29	to ID P12-24 (S202-7)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-9 (UUT TB1-9)	to W5 P1-9
From ID J3-9	to ID A1P3.35
From ID A1J3.35	to ID A1J12.31
From ID A1P12.31	to ID P12-57 (S202-13)
From ID P13-93 (S202-3)	to ID A1P13.49
From ID A1J13.49	to ID A1J10.48
From ID A1P10.48	to ID P11-52 (S510-1)
From ID P11-147 (S510-4)	to ID A1P9.31
From ID A1J9.31	to ID BUS 2

Date: 04 March 2016

Step 102

Description:

Verify the resistance between TB1-7 and TB1-11 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-7 (UUT TB1-7)	to W5 P1-7
From ID J3-7	to ID A1P3.33
From ID A1J3.33	to ID A1J12.29
From ID A1P12.29	to ID P12-24 (S202-7)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-17 (S509-4)	to ID A1P9.29
From ID A1J9.29	to ID BUS 2
From W5 P2-11 (UUT TB1-11)	to W5 P1-8
From ID J3-8	to ID A1P3.32
From ID A1J3.32	to ID A1J12.30
From ID A1P12.30	to ID P12-56 (S202-8)
From ID P13-29 (S202-4)	to ID A1P13.50
From ID A1J13.50	to ID A1J10.50
From ID A1P10.50	to ID P11-244 (S510-2)
From ID P11-180 (S510-3)	to ID A1P9.21
From ID A1J9.21	to ID BUS 1

Step 103

Description:

Verify the resistance between TB1-8 and TB1-12 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13

Date: 04 March 2016

From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-8 (UUT TB1-8)	to W5 P1-11
From ID J3-11	to ID A1P3.37
From ID A1J3.37	to ID A1J12.33
From ID A1P12.33	to ID P12-26 (S202-15)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-17 (S509-4)	to ID A1P9.29
From ID A1J9.29	to ID BUS 2
From W5 P2-12 (UUT TB1-12)	to W5 P1-12
From ID J3-12	to ID A1P3.36
From ID A1J3.36	to ID A1J12.34
From ID A1P12.34	to ID P12-58 (S202-16)
From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1

Step 104

Description:

Verify the resistance between TB1-6 and TB1-3 is from 500 to 787ohms.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-6 (UUT TB1-6)	to W5 P1-4
From ID J3-4	to ID A1P3.28
From ID A1J3.28	to ID A1J12.26
From ID A1P12.26	to ID P12-25 (S202-6)

From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-3 (UUT TB1-3)	to W5 P1-5
From ID J3-5	to ID A1P3.31
From ID A1J3.31	to ID A1J12.27
From ID A1P12.27	to ID P12-55 (S201-47)
From ID P12-16 (S201-1)	to ID A1P11.42
From ID A1J11.42	to ID A1J10.6
From ID A1P10.6	to ID P11-203 (S508-1)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 105

Description:

Verify the resistance between TB1-1 and TB1-3 is from 750 to 1100 Ohm.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-1 (UUT TB1-1)	to W5 P1-1
From ID J3-1	to ID A1P3.27
From ID A1J3.27	to ID A1J12.23
From ID A1P12.23	to ID P12-85 (S201-45)
From ID P12-20 (S201-3)	to ID A1P11.46
From ID A1J11.46	to ID A1J10.2
From ID A1P10.2	to ID P11-39 (S507-1)
From ID P11-168 (S507-3)	to ID A1P9.17
From ID A1J9.17	to ID BUS 1
From W5 P2-3 (UUT TB1-3)	to W5 P1-5
From ID J3-5	to ID A1P3.31
From ID A1J3.31	to ID A1J12.27
From ID A1P12.27	to ID P12-55 (S201-47)

Date: 04 March 2016

From ID P12-16 (S201-1)	to ID A1P11.42
From ID A1J11.42	to ID A1J10.6
From ID A1P10.6	to ID P11-203 (S508-1)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 106

Description:

Verify the resistance between TB1-2 and TB1-3 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2

From W5 P2-2 (UUT TB1-2)	to W5 P1-2
From ID J3-2	to ID A1P3.26
From ID A1J3.26	to ID A1J12.24
From ID A1P12.24	to ID P12-21 (S201-46)

From ID P12-52 (S201-4)	to ID A1P11.44
From ID A1J11.44	to ID A1J10.4
From ID A1P10.4	to ID P11-71 (S507-2)
From ID P11-72 (S507-4)	to ID A1P9.27
From ID A1J9.27	to ID BUS 2

From W5 P2-3 (UUT TB1-3)	to W5 P1-5
From ID J3-5	to ID A1P3.31
From ID A1J3.31	to ID A1J12.27
From ID A1P12.27	to ID P12-55 (S201-47)

From ID P12-16 (S201-1)	to ID A1P11.42
From ID A1J11.42	to ID A1J10.6
From ID A1P10.6	to ID P11-203 (S508-1)
From ID P11-77 (S508-3)	to ID A1P9.15
From ID A1J9.15	to ID BUS 1

Step 107

Description:

Verify the resistance between TB1-5 and TB1-3 is greater than 10 MEG.

Date: 04 March 2016

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-5 (UUT TB1-5)	to W5 P1-3
From ID J3-3	to ID A1P3.29
From ID A1J3.29	to ID A1J12.25
From ID A1P12.25	to ID P12-89 (S202-5)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-17 (S509-4)	to ID A1P9.29
From ID A1J9.29	to ID BUS 2
From W5 P2-3 (UUT TB1-3)	to W5 P1-5
From ID J3-5	to ID A1P3.31
From ID A1J3.31	to ID A1J12.27
From ID A1P12.27	to ID P12-55 (S201-47)
From ID P12-16 (S201-1)	to ID A1P11.42
From ID A1J11.42	to ID A1J10.6
From ID A1P10.6	to ID P11-203 (S508-1)
From ID P11-77 (S508-3)	to ID A1P9.15
From ID A1J9.15	to ID BUS 1

Step 108

Description:

Verify the resistance between TB1-5 and TB1-4 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23

Date: 04 March 2016

From ID A1J6.23	to ID BUS 2
From W5 P2-5 (UUT TB1-5)	to W5 P1-3
From ID J3-3	to ID A1P3.29
From ID A1J3.29	to ID A1J12.25
From ID A1P12.25	to ID P12-89 (S202-5)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)
From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 109

Description:

Verify the resistance between TB1-2 and TB1-4 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-2 (UUT TB1-2)	to W5 P1-2
From ID J3-2	to ID A1P3.26
From ID A1J3.26	to ID A1J12.24
From ID A1P12.24	to ID P12-21 (S201-46)
From ID P12-52 (S201-4)	to ID A1P11.44
From ID A1J11.44	to ID A1J10.4
From ID A1P10.4	to ID P11-71 (S507-2)
From ID P11-168 (S507-3)	to ID A1P9.17
From ID A1J9.17	to ID BUS 1

Date: 04 March 2016

From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)
From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 110

Description:

Verify the resistance between TB1-5 and TB1-6 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-5 (UUT TB1-5)	to W5 P1-3
From ID J3-3	to ID A1P3.29
From ID A1J3.29	to ID A1J12.25
From ID A1P12.25	to ID P12-89 (S202-5)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-17 (S509-4)	to ID A1P9.29
From ID A1J9.29	to ID BUS 2
From W5 P2-6 (UUT TB1-6)	to W5 P1-4
From ID J3-4	to ID A1P3.28
From ID A1J3.28	to ID A1J12.26
From ID A1P12.26	to ID P12-25 (S202-6)
From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1

Date: 04 March 2016

Step 111

Description:

Verify the resistance between TB1-1 and TB1-2 is greater than 10 MEG.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2

From W5 P2-1 (UUT TB1-1)	to W5 P1-1
From ID J3-1	to ID A1P3.27
From ID A1J3.27	to ID A1J12.23
From ID A1P12.23	to ID P12-85 (S201-45)

From ID P12-16 (S201-1)	to ID A1P11.42
From ID A1J11.42	to ID A1J10.6
From ID A1P10.6	to ID P11-203 (S508-1)
From ID P11-77 (S508-3)	to ID A1P9.15
From ID A1J9.15	to ID BUS 1

From W5 P2-2 (UUT TB1-2)	to W5 P1-2
From ID J3-2	to ID A1P3.26
From ID A1J3.26	to ID A1J12.24
From ID A1P12.24	to ID P12-21 (S201-46)

From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 112

Description:

Verify the resistance between TB1-11 and TB1-12 is less than 5 ohms.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

Date: 04 March 2016

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-11 (UUT TB1-11)	to W5 P1-8
From ID J3-8	to ID A1P3.32
From ID A1J3.32	to ID A1J12.30
From ID A1P12.30	to ID P12-56 (S202-8)
From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-12 (UUT TB1-12)	to W5 P1-12
From ID J3-12	to ID A1P3.36
From ID A1J3.36	to ID A1J12.34
From ID A1P12.34	to ID P12-58 (S202-16)
From ID P13-29 (S202-4)	to ID A1P13.50
From ID A1J13.50	to ID A1J10.50
From ID A1P10.50	to ID P11-244 (S510-2)
From ID P11-147 (S510-4)	to ID A1P9.31
From ID A1J9.31	to ID BUS 2

Step 113

Description:

Verify the resistance between TB1-9 and TB1-10 is less than 5 ohms.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-9 (UUT TB1-9)	to W5 P1-9
From ID J3-9	to ID A1P3.35
From ID A1J3.35	to ID A1J12.31
From ID A1P12.31	to ID P12-57 (S202-13)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10

Date: 04 March 2016

From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-10 (UUT TB1-10)	to W5 P1-10
From ID J3-10	to ID A1P3.34
From ID A1J3.34	to ID A1J12.32
From ID A1P12.32	to ID P12-88 (S202-14)
From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-17 (S509-4)	to ID A1P9.29
From ID A1J9.29	to ID BUS 2

Step 114

Description:

Verify the resistance between TB1-8 and TB1-9 is 100K \pm 5% Ohm.

Connection Path is as follows:

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-8 (UUT TB1-8)	to W5 P1-11
From ID J3-11	to ID A1P3.37
From ID A1J3.37	to ID A1J12.33
From ID A1P12.33	to ID P12-26 (S202-15)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-9 (UUT TB1-9)	to W5 P1-9
From ID J3-9	to ID A1P3.35
From ID A1J3.35	to ID A1J12.31
From ID A1P12.31	to ID P12-57 (S202-13)
From ID P13-93 (S202-3)	to ID A1P13.49
From ID A1J13.49	to ID A1J10.48
From ID A1P10.48	to ID P11-52 (S510-1)
From ID P11-147 (S510-4)	to ID A1P9.31

From ID A1J9.31

to ID BUS 2

2.4 MODULE 2 - BJT TESTS**Description:**

This module will verify the on and off characteristics of the BJTs, as well as their protection devices.

Refer to [Reference Drawings](#) when diagnosing connection paths.

Step 201**Description:**

This test verifies the correct behavior of DIODE CR1 in the forward current path. Current is passed through CR1 from Anode to Cathode using DC10 as a source in series with a 280 ohm resistor - a Voltage drop of ≤ 1 volts is expected while current is flowing and is verified using the DMM.

Connection Path is as follows:

From W5 P2-5 (UUT TB1-5)	to W5 P1-23
From ID J3-23	to ID A1P3.3
From ID A1J3.3	to ID A1J7.8
From ID A1P7.8	to ID P10-227 (S301-21)
From ID P10-37 (S301-22)	to ID A1P7.30
From ID A1J7.30	to ID A1J4.20
From ID A1P4.20	to R101

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2

From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)

From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-77 (S508-3)	to ID A1P9.15
From ID A1J9.15	to ID BUS 1

From W5 P2-5 (UUT TB1-5)	to W5 P1-3
From ID J3-3	to ID A1P3.29

Date: 04 March 2016

From ID A1J3.29	to ID A1J12.25
From ID A1P12.25	to ID P12-89 (S202-5)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-17 (S509-4)	to ID A1P9.29
From ID A1J9.29	to ID BUS 2
From W5 P2-4 (UUT TB1-4)	to W5 P1-17
From ID J3-17	to ID A1P3.5
From ID A1J3.5	to ID A1J2.29
From ID A1P2.29	to ID P10-153 (S101-15)
From ID P10-217 (S101-16)	to ID A1P2.21
From ID A1J2.21	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)

Step 202

Description:

This test verifies the correct behavior of DIODE CR2 in the forward current path. Current is passed through CR2 from Anode to Cathode using DC10 as a source in series with a 280 ohm resistor - a Voltage drop of ≤ 1 volts is expected while current is flowing and is verified using the DMM.

Connection Path is as follows:

From W5 P2-2 (UUT TB1-2)	to W5 P1-22
From ID J3-22	to ID A1P3.2
From ID A1J3.2	to ID A1J7.10
From ID A1P7.10	to ID P10-3 (S301-19)
From ID P10-132 (S301-20)	to ID A1P7.28
From ID A1J7.28	to ID A1J4.20
From ID A1P4.20	to R101
From W5 P2-4 (UUT TB1-4)	to W5 P1-17
From ID J3-17	to ID A1P3.5
From ID A1J3.5	to ID A1J2.29
From ID A1P2.29	to ID P10-153 (S101-15)
From ID P10-217 (S101-16)	to ID A1P2.21
From ID A1J2.21	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)
From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23

Date: 04 March 2016

From ID A1J6.23	to ID BUS 2
From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)
From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-77 (S508-3)	to ID A1P9.15
From ID A1J9.15	to ID BUS 1
From W5 P2-2 (UUT TB1-2)	to W5 P1-2
From ID J3-2	to ID A1P3.26
From ID A1J3.26	to ID A1J12.24
From ID A1P12.24	to ID P12-21 (S201-46)
From ID P12-52 (S201-4)	to ID A1P11.44
From ID A1J11.44	to ID A1J10.4
From ID A1P10.4	to ID P11-71 (S507-2)
From ID P11-72 (S507-4)	to ID A1P9.27
From ID A1J9.27	to ID BUS 2

Step 203

Description:

This test verifies Q1 is open without base drive applied. The collector voltage is measured with a collector load resistor connected to GND.

Connection Path is as follows:

From W5 P2-5 (UUT TB1-5)	to W5 P1-20
From ID J3-20	to ID A1P3.23
From ID A1J3.23	to ID A1J2.34
From ID A1P2.34	to ID P11-151 (S101-27)
From ID P11-215 (S101-28)	to ID A1P2.8
From ID A1J2.8	to ID A1J4.4
From ID A1P4.4	to R104
From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-5 (UUT TB1-5)	to W5 P1-3

Date: 04 March 2016

From ID J3-3	to ID A1P3.29
From ID A1J3.29	to ID A1J12.25
From ID A1P12.25	to ID P12-89 (S202-5)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)
From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2
From W5 P2-3 (UUT TB1-3)	to W5 P1-28
From ID J3-28	to ID A1P3.20
From ID A1J3.20	to ID A1J2.37
From ID A1P2.37	to ID P11-152 (S101-31)
From ID P11-216 (S101-32)	to ID A1P2.30
From ID A1J2.30	to ID A1J2.31
From ID A1P2.31	to ID P10-87 (S101-6)
From ID P10-23 (S101-5)	to ID A1P2.4
From ID A1J2.4	to ID A1J1.3
From ID A1P1.3	to P1-11 (DC4-HI)

Step 204

Description:

This test verifies operation of Q1 with base drive applied. The voltage from collector to GND is verified with a collector load resistor connected to GND to be VCC minus Emitter to Collector drop.

Connection Path is as follows:

From W5 P2-5 (UUT TB1-5)	to W5 P1-20
From ID J3-20	to ID A1P3.23
From ID A1J3.23	to ID A1J2.34
From ID A1P2.34	to ID P11-151 (S101-27)
From ID P11-215 (S101-28)	to ID A1P2.8
From ID A1J2.8	to ID A1J4.4
From ID A1P4.4	to R104
From W5 P2-3 (UUT TB1-3)	to W5 P1-28
From ID J3-28	to ID A1P3.20
From ID A1J3.20	to ID A1J2.37
From ID A1P2.37	to ID P11-152 (S101-31)
From ID P11-216 (S101-32)	to ID A1P2.30

Date: 04 March 2016

From ID A1J2.30	to ID A1J2.31
From ID A1P2.31	to ID P10-87 (S101-6)
From ID P10-23 (S101-5)	to ID A1P2.4
From ID A1J2.4	to ID A1J1.3
From ID A1P1.3	to P1-11 (DC4-HI)
From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-5 (UUT TB1-5)	to W5 P1-3
From ID J3-3	to ID A1P3.29
From ID A1J3.29	to ID A1J12.25
From ID A1P12.25	to ID P12-89 (S202-5)
From ID P12-59 (S202-1)	to ID A1P11.38
From ID A1J11.38	to ID A1J10.10
From ID A1P10.10	to ID P11-177 (S509-1)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)
From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 205

Description:

This test verifies Q2 is open without base drive applied. The voltage from collector to GND is measured with a collector load resistor connected to GND.

Connection Path is as follows:

From W5 P2-2 (UUT TB1-2)	to W5 P1-19
From ID J3-19	to ID A1P3.11
From ID A1J3.11	to ID A1J2.19
From ID A1P2.19	to ID P11-23 (S101-25)
From ID P11-87 (S101-26)	to ID A1P2.9

Date: 04 March 2016

From ID A1J2.9	to ID A1J4.3
From ID A1P4.3	to R105
From W5 P2-3 (UUT TB1-3)	to W5 P1-28
From ID J3-28	to ID A1P3.20
From ID A1J3.20	to ID A1J2.37
From ID A1P2.37	to ID P11-152 (S101-31)
From ID P11-216 (S101-32)	to ID A1P2.30
From ID A1J2.30	to ID A1J2.31
From ID A1P2.31	to ID P10-87 (S101-6)
From ID P10-23 (S101-5)	to ID A1P2.4
From ID A1J2.4	to ID A1J1.3
From ID A1P1.3	to P1-11 (DC4-HI)
From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-2 (UUT TB1-2)	to W5 P1-2
From ID J3-2	to ID A1P3.26
From ID A1J3.26	to ID A1J12.24
From ID A1P12.24	to ID P12-21 (S201-46)
From ID P12-52 (S201-4)	to ID A1P11.44
From ID A1J11.44	to ID A1J10.4
From ID A1P10.4	to ID P11-71 (S507-2)
From ID P11-168 (S507-3)	to ID A1P9.17
From ID A1J9.17	to ID BUS 1
From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)
From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Step 206

Description:

This test verifies operation of Q2 with base drive applied. The voltage from collector to GND is verified with a collector load resistor connected to GND to be VCC minus Emitter to Collector drop.

Date: 04 March 2016

Connection Path is as follows:

From W5 P2-2 (UUT TB1-2)	to W5 P1-19
From ID J3-19	to ID A1P3.11
From ID A1J3.11	to ID A1J2.19
From ID A1P2.19	to ID P11-23 (S101-25)
From ID P11-87 (S101-26)	to ID A1P2.9
From ID A1J2.9	to ID A1J4.3
From ID A1P4.3	to R105

From W5 P2-3 (UUT TB1-3)	to W5 P1-28
From ID J3-28	to ID A1P3.20
From ID A1J3.20	to ID A1J2.37
From ID A1P2.37	to ID P11-152 (S101-31)
From ID P11-216 (S101-32)	to ID A1P2.30
From ID A1J2.30	to ID A1J2.31
From ID A1P2.31	to ID P10-87 (S101-6)
From ID P10-23 (S101-5)	to ID A1P2.4
From ID A1J2.4	to ID A1J1.3
From ID A1P1.3	to P1-11 (DC4-HI)

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2

From W5 P2-2 (UUT TB1-2)	to W5 P1-2
From ID J3-2	to ID A1P3.26
From ID A1J3.26	to ID A1J12.24
From ID A1P12.24	to ID P12-21 (S201-46)

From ID P12-52 (S201-4)	to ID A1P11.44
From ID A1J11.44	to ID A1J10.4
From ID A1P10.4	to ID P11-71 (S507-2)
From ID P11-168 (S507-3)	to ID A1P9.17
From ID A1J9.17	to ID BUS 1

From W5 P2-4 (UUT TB1-4)	to W5 P1-6
From ID J3-6	to ID A1P3.30
From ID A1J3.30	to ID A1J12.28
From ID A1P12.28	to ID P12-86 (S201-48)

From ID P12-80 (S201-2)	to ID A1P11.40
From ID A1J11.40	to ID A1J10.8
From ID A1P10.8	to ID P11-139 (S508-2)
From ID P11-12 (S508-4)	to ID A1P9.25
From ID A1J9.25	to ID BUS 2

Date: 04 March 2016

From W5 P2-1 (UUT TB1-1)	to W5 P1-1
From ID J3-1	to ID A1P3.27
From ID A1J3.27	to ID A1J12.23
From ID A1P12.23	to ID P12-85 (S201-45)
From ID P12-20 (S201-3)	to ID A1P11.46
From ID A1J11.46	to ID A1J10.2
From ID A1P10.2	to ID P11-39 (S507-1)
From ID P11-5 (S507-8)	to ID A1P9.24
From ID A1J9.24	to ID BUS 6
From ID BUS 6	to ID A1J8.50
From ID A1P8.50	to ID P10-138 (S301-54)
From ID P10-9 (S301-53)	to ID A1P7.26
From ID A1J7.26	to ID A1J4.18
From ID A1P4.18	to R108

2.5 MODULE 3 - FET TESTS

Description:

This module will verify the on and off characteristics of the FETs, as well as their protection devices.

Refer to [Reference Drawings](#) when diagnosing connection paths.

Step 301

Description:

This step will verify that VR1 has the proper voltage drop of 43 +/- 10%. DC10 will be used as a source through R102 of 280 Ohms. DC10 is set to 52 volts.

Connection Path is as follows:

From W5 P2-9 (UUT TB1-9)	to W5 P1-24
From ID J3-24	to ID A1P3.4
From ID A1J3.4	to ID A1J7.6
From ID A1P7.6	to ID P10-100 (S301-13)
From ID P10-228 (S301-14)	to ID A1P7.20
From ID A1J7.20	to ID A1J1.4
From ID A1P1.4	to DC10-LO
From W5 P2-11 (UUT TB1-11)	to W5 P1-21
From ID J3-21	to ID A1P3.1
From ID A1J3.1	to ID A1J4.14
From ID A1P4.14	to R102
From R102	to ID A1P4.19
From ID A1J4.19	to ID A1J7.27
From ID A1P7.27	to ID P10-67 (S301-17)
From ID P10-4 (S301-18)	to ID A1P7.11
From ID A1J7.11	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)

Date: 04 March 2016

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2

From W5 P2-11 (UUT TB1-11)	to W5 P1-8
From ID J3-8	to ID A1P3.32
From ID A1J3.32	to ID A1J12.30
From ID A1P12.30	to ID P12-56 (S202-8)

From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1

From W5 P2-9 (UUT TB1-9)	to W5 P1-9
From ID J3-9	to ID A1P3.35
From ID A1J3.35	to ID A1J12.31
From ID A1P12.31	to ID P12-57 (S202-13)

From ID P13-93 (S202-3)	to ID A1P13.49
From ID A1J13.49	to ID A1J10.48
From ID A1P10.48	to ID P11-52 (S510-1)
From ID P11-147 (S510-4)	to ID A1P9.31
From ID A1J9.31	to ID BUS 2

Step 302

Description:

This step will verify operation of Q3 in the off state Q3 Drain Source Voltage will be measured to verify that is it off. R103 will be tied from VCC (using DC10) to the Drain of the FET.

Connection Path is as follows:

From W5 P2-9 (UUT TB1-9)	to W5 P1-24
From ID J3-24	to ID A1P3.4
From ID A1J3.4	to ID A1J7.6
From ID A1P7.6	to ID P10-100 (S301-13)
From ID P10-228 (S301-14)	to ID A1P7.20
From ID A1J7.20	to ID A1J1.4
From ID A1P1.4	to DC10-LO

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.30
From ID A1P8.30	to ID P10-41 (S301-42)

Date: 04 March 2016

From ID P10-199 (S301-41)	to ID A1P7.2
From ID A1J7.2	to ID A1J2.29
From ID A1P2.29	to ID P10-153 (S101-15)
From ID P10-217 (S101-16)	to ID A1P2.11
From ID A1J2.11	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)
From ID P20-3 (DMM-LO)	to ID A1J7.38
From ID A1P7.38	to ID P10-130 (S301-23)
From ID P10-229 (S301-24)	to ID A1P7.36
From ID A1J7.36	to DMM-GND
From W5 P2-12 (UUT TB1-12)	to W5 P1-18
From ID J3-18	to ID A1P3.22
From ID A1J3.22	to ID A1J2.35
From ID A1P2.35	to ID P10-214 (S101-4)
From ID P10-150 (S101-3)	to ID A1P2.12
From ID A1J2.12	to ID A1J4.13
From ID A1P4.13	to R103
From R103	to ID A1P4.1
From ID A1J4.1	to ID A1J2.11
From ID A1P2.11	to ID P10-26 (S101-17)
From ID P10-90 (S101-18)	to ID A1P2.1
From ID A1J2.1	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)
From W5 P2-7 (UUT TB1-7)	to W5 P1-7
From ID J3-7	to ID A1P3.33
From ID A1J3.33	to ID A1J12.29
From ID A1P12.29	to ID P12-24 (S202-7)
From W5 P2-8 (UUT TB1-8)	to W5 P1-11
From ID J3-11	to ID A1P3.37
From ID A1J3.37	to ID A1J12.33
From ID A1P12.33	to ID P12-26 (S202-15)
From ID P13-93 (S202-3)	to ID A1P13.49
From ID A1J13.49	to ID A1J10.48
From ID A1P10.48	to ID P11-52 (S510-1)
From ID P11-20 (S510-8)	to ID A1P9.28
From ID A1J9.28	to ID BUS 6
From ID BUS 6	to ID A1J8.48
From ID A1P8.48	to ID P10-171 (S301-50)
From ID P10-42 (S301-49)	to ID A1P7.24
From ID A1J7.24	to ID A1J4.16
From ID A1P4.16	to R109

Step 303

Description:

Date: 04 March 2016

This step will verify operation of Q3 by turning it on. Q3 Drain Source Voltage will be measured to verify that is it on. R103 will be tied from VCC (using DC10) to the Drain of the FET.

Connection Path is as follows:

From W5 P2-9 (UUT TB1-9)	to W5 P1-24
From ID J3-24	to ID A1P3.4
From ID A1J3.4	to ID A1J7.6
From ID A1P7.6	to ID P10-100 (S301-13)
From ID P10-228 (S301-14)	to ID A1P7.20
From ID A1J7.20	to ID A1J1.4
From ID A1P1.4	to DC10-LO

From W5 P2-12 (UUT TB1-12)	to W5 P1-18
From ID J3-18	to ID A1P3.22
From ID A1J3.22	to ID A1J2.35
From ID A1P2.35	to ID P10-214 (S101-4)
From ID P10-150 (S101-3)	to ID A1P2.12
From ID A1J2.12	to ID A1J4.13
From ID A1P4.13	to R103

From R103	to ID A1P4.1
From ID A1J4.1	to ID A1J2.11
From ID A1P2.11	to ID P10-26 (S101-17)
From ID P10-90 (S101-18)	to ID A1P2.1
From ID A1J2.1	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)

From W5 P2-8 (UUT TB1-8)	to W5 P1-11
From ID J3-11	to ID A1P3.37
From ID A1J3.37	to ID A1J12.33
From ID A1P12.33	to ID P12-26 (S202-15)

From ID P13-93 (S202-3)	to ID A1P13.49
From ID A1J13.49	to ID A1J10.48
From ID A1P10.48	to ID P11-52 (S510-1)
From ID P11-20 (S510-8)	to ID A1P9.28
From ID A1J9.28	to ID BUS 6

From ID BUS 6	to ID A1J8.48
From ID A1P8.48	to ID P10-171 (S301-50)
From ID P10-42 (S301-49)	to ID A1P7.24
From ID A1J7.24	to ID A1J4.16
From ID A1P4.16	to R109

From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1

From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26

Date: 04 March 2016

From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-12 (UUT TB1-12)	to W5 P1-12
From ID J3-12	to ID A1P3.36
From ID A1J3.36	to ID A1J12.34
From ID A1P12.34	to ID P12-58 (S202-16)
From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-10 (UUT TB1-10)	to W5 P1-10
From ID J3-10	to ID A1P3.34
From ID A1J3.34	to ID A1J12.32
From ID A1P12.32	to ID P12-88 (S202-14)
From ID P13-29 (S202-4)	to ID A1P13.50
From ID A1J13.50	to ID A1J10.50
From ID A1P10.50	to ID P11-244 (S510-2)
From ID P11-147 (S510-4)	to ID A1P9.31
From ID A1J9.31	to ID BUS 2

Step 304

Description:

This step will verify operation of Q4 by turning it on. Q4 Drain Source Voltage will be measured to verify that is it on. R103 will be tied from VCC (using DC10) to the Drain of both FETs.

Connection Path is as follows:

From W5 P2-9 (UUT TB1-9)	to W5 P1-24
From ID J3-24	to ID A1P3.4
From ID A1J3.4	to ID A1J7.6
From ID A1P7.6	to ID P10-100 (S301-13)
From ID P10-228 (S301-14)	to ID A1P7.20
From ID A1J7.20	to ID A1J1.4
From ID A1P1.4	to DC10-LO
From W5 P2-12 (UUT TB1-12)	to W5 P1-18
From ID J3-18	to ID A1P3.22
From ID A1J3.22	to ID A1J2.35
From ID A1P2.35	to ID P10-214 (S101-4)
From ID P10-150 (S101-3)	to ID A1P2.12
From ID A1J2.12	to ID A1J4.13
From ID A1P4.13	to R103
From R103	to ID A1P4.1
From ID A1J4.1	to ID A1J2.11
From ID A1P2.11	to ID P10-26 (S101-17)

Date: 04 March 2016

From ID P10-90 (S101-18)	to ID A1P2.1
From ID A1J2.1	to ID A1J1.6
From ID A1P1.6	to ID P1-28 (DC10-HI)
From W5 P2-7 (UUT TB1-7)	to W5 P1-7
From ID J3-7	to ID A1P3.33
From ID A1J3.33	to ID A1J12.29
From ID A1P12.29	to ID P12-24 (S202-7)
From ID P13-93 (S202-3)	to ID A1P13.49
From ID A1J13.49	to ID A1J10.48
From ID A1P10.48	to ID P11-52 (S510-1)
From ID P11-20 (S510-8)	to ID A1P9.28
From ID A1J9.28	to ID BUS 6
From ID BUS 6	to ID A1J8.48
From ID A1P8.48	to ID P10-171 (S301-50)
From ID P10-42 (S301-49)	to ID A1P7.24
From ID A1J7.24	to ID A1J4.16
From ID A1P4.16	to R109
From ID P20-2 (DMM-HI)	to ID A1P14.49
From ID A1J14.49	to ID A1J8.28
From ID A1P8.28	to ID P10-203 (S503-1)
From ID P10-77 (S503-3)	to ID A1P6.13
From ID A1J6.13	to ID BUS 1
From ID P20-3 (DMM-LO)	to ID A1P14.50
From ID A1J14.50	to ID A1J8.26
From ID A1P8.26	to ID P10-139 (S503-2)
From ID P10-12 (S503-4)	to ID A1P6.23
From ID A1J6.23	to ID BUS 2
From W5 P2-12 (UUT TB1-12)	to W5 P1-12
From ID J3-12	to ID A1P3.36
From ID A1J3.36	to ID A1J12.34
From ID A1P12.34	to ID P12-58 (S202-16)
From ID P12-90 (S202-2)	to ID A1P11.36
From ID A1J11.36	to ID A1J10.12
From ID A1P10.12	to ID P11-242 (S509-2)
From ID P11-18 (S509-3)	to ID A1P9.19
From ID A1J9.19	to ID BUS 1
From W5 P2-10 (UUT TB1-10)	to W5 P1-10
From ID J3-10	to ID A1P3.34
From ID A1J3.34	to ID A1J12.32
From ID A1P12.32	to ID P12-88 (S202-14)
From ID P13-29 (S202-4)	to ID A1P13.50
From ID A1J13.50	to ID A1J10.50
From ID A1P10.50	to ID P11-244 (S510-2)
From ID P11-147 (S510-4)	to ID A1P9.31
From ID A1J9.31	to ID BUS 2

3. 0 Functional Flow Chart (FFC)

