

## 3110A Standards Waveform Generator

The AE Techron 3110A Standards Waveform Generator offers a comprehensive library of test waveforms and routines for Automotive and Aviation EMC testing. The list below shows the tests available in the 3110A Standards Library (V2.1.8).

### Automotive Tests

| ANSI ASAE EP455 |  |
|-----------------|--|
| 5.1.1           | Operating Temperature                    |
| 5.1.2           | Storage Temperature                      |
| 5.1.3           | Thermal Shock                            |
| 5.2.1           | Altitude, Operating                      |
| 5.2.2           | Altitude, Storage                        |
| 5.3             | Dust                                     |
| 5.5             | Immersion                                |
| 5.6             | Wash                                     |
| 5.7             | Particle Impact                          |
| 5.8.1           | Spray Exposure                           |
| 5.8.2           | Brush Exposure                           |
| 5.8.9           | Salt Exposure                            |
| 5.10.2          | Over-Voltage                             |
| 5.10.3          | Reverse Polarity                         |
| 5.10.4          | Short Circuit Protection                 |
| 5.10.5          | Memory Retention                         |
| 5.10.6          | Starting Voltage                         |
| 5.10.7          | Power-up Operational Requirements        |
| 5.11.1          | Accessory Noise                          |
| 5.13.1          | Humidity, Exposure                       |
| 5.13.2          | Humidity, Soak                           |
| 5.14            | Mechanical Shock                         |
| 5.15            | Mechanical Vibration                     |
| 5.17            | Combined Environments                    |
| Audi I-EE-32    |  |
| 1               | Test Voltage                             |
| 2               | Start Voltage Dip, 1                     |
| 2               | Start Voltage Dip, 2                     |
| 2               | Start Voltage Dip, 3                     |
| 2               | Start Voltage Dip, 4                     |
| 2               | Start Voltage Dip, 5                     |
| 6               | Generator Disorders (sine wave sweep)    |
| 11.1            | Load Analysis, Single Occupancy          |
| 11.2            | Load Analysis, Full Capacity Utilization |
| 11.3            | Load Analysis, Short Circuit Test        |
| 11.4            | Ground Potential Difference              |
| 11.5            | Overload Test                            |
| 13              | Voltage Ramp per VW80101                 |
| 13              | Fast Voltage Ramp                        |
| 14              | Overvoltage 26V                          |
| 15              | Overvoltage 17V                          |
| 17              | Contact Test, Bounce 1                   |
| 17              | Contact Test, Bounce 2                   |
| 17              | Contact Test, Bounce 3                   |
| 18              | Dips (Voltage Drops)                     |

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| BMW GS 95003-2 |  |
|----------------|--|
| 5.2.1.1        | Testing for Immunity to 18V Transient                                |
| 5.2.1.3.1      | Slow Decreasing and Increasing of Operating Voltage                  |
| 5.2.1.3.1      | Slow Decreasing and Increasing of Operating Voltage, alternate       |
| 5.2.1.3.2      | Slow Decreasing and Fast Rise of Operating Voltage                   |
| 5.2.1.3.3      | IGR, Development of Voltage  |
| 5.2.1.5        | Cranking Profile, Level I  |
| 5.2.1.5        | Cranking Profile, Level Ip   |
| 5.2.1.5        | Cranking Profile, Level II   |
| 5.2.1.5        | Cranking Profile, Level IIp  |
| 5.2.1.5        | Cranking Profile, Level III  |
| 5.2.1.6        | Very Brief Voltage Dip   |
| 5.2.1.7        | Brief Voltage Dip  |
| 5.3.2          | Load Dump Impulses 5A severity Level 3                               |
| 5.3.2          | Load Dump Impulses 5A severity Level 4                               |
| 5.3.2          | Load Dump Impulses 5B severity Level 3                               |
| 5.3.2          | Load Dump Impulses 5B severity Level 4                               |
| 5.3.3.1        | Protection Against Polarity Reversal                                 |
| 5.3.3.2        | Protection Against Polarity Reversal for Semiconductor Power Circuit |
| 5.3.4          | Interruption   |
| 5.3.5.1        | Testing of Inputs and Outputs without Load Circuits                  |
| BMW GS 95023   |  |
|                | 12V Power Supply   |
|                | 140V HV 1 Power Supply   |
|                | 205V HV 2a Power Supply  |
|                | 24V Power Supply   |
|                | 300V HV 2b Power Supply  |
| 9.2.1          | HV 1   |
| 9.2.1          | HV 2a  |
| 9.2.1          | HV 2b  |
| 9.2.2          | HV 1   |
| 9.2.2          | HV 2a  |
| 9.2.2          | HV 2b  |
| 9.2.3          | HV 1   |
| 9.2.3          | HV 2a  |
| 9.2.3          | HV 2b  |
| 9.2.4          | HV 1   |
| 9.2.4          | HV 2a  |
| 9.2.4          | HV 2b  |
| 9.2.5          | HV 1   |
| 9.2.5          | HV 2a  |
| 9.2.5          | HV 2b  |
| 9.2.6          | HV 1   |
| 9.2.6          | HV 2a  |
| 9.2.6          | HV 2b  |
| 9.2.7          | HV 1   |
| 9.2.7          | HV 2a  |
| 9.2.7          | HV 2b  |
| 9.2.8          | HV 1   |
| 9.2.8          | HV 2a  |
| 9.2.8          | HV 2b  |
| 9.2.9          | HV 1   |
| 9.2.9          | HV 2a  |
| 9.2.9          | HV 2b  |
| 9.2.10         | HV 1   |

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|-------------------------|---|
| 9.2.10                  | HV 2a   |
| 9.2.10                  | HV 2b   |
| 9.2.12                  | HV 1  |
| 9.2.12                  | HV 2a   |
| 9.2.12                  | HV 2b   |
| 9.2.13                  | 12V   |
| 9.2.13                  | 24V   |
| 9.3.2                   | 45V   |
| 9.3.3                   | 20V   |
| 9.3.4                   | HV 1  |
| 9.3.4                   | HV 2a   |
| 9.3.4                   | HV 2b   |
| 9.3.8                   | HV 1  |
| 9.3.8                   | HV 2a   |
| 9.3.8                   | HV 2b   |
| 9.3.10                  | HV 1  |
| 9.3.10                  | HV 2a   |
| 9.3.10                  | HV 2b   |
| 9.3.11                  | HV 1  |
| 9.3.11                  | HV 2a   |
| 9.3.11                  | HV 2b   |
| 9.3.17                  | HV 1  |
| 9.3.17                  | HV 2a   |
| 9.3.17                  | HV 2b   |
| 9.3.19                  | 12V   |
| 9.3.19                  | 24V   |
| 9.4.1                   | HV 1  |
| 9.4.1                   | HV 2a   |
| 9.4.1                   | HV 2b   |
| <b>BMW GS 95024-2-1</b> |   |
| 4.1                     | E-01 Long Term Surge  |
| 4.2                     | E-02 Transient Surge, Short                                     |
| 4.2                     | E-02 Transient Surge, Endurance Test                            |
| 4.3                     | E-03 Transient Undervoltage                                     |
| 4.4                     | E-04 Jump Start   |
| 4.6                     | E-06 Superimposed AC Voltage                                    |
| 4.7                     | E-07 Slow Decrease and Increase of Supply Voltage, code a       |
| 4.7                     | E-07 Slow Decrease and Increase of Supply Voltage, code b       |
| 4.7                     | E-07 Slow Decrease and Increase of Supply Voltage, code c       |
| 4.7                     | E-07 Slow Decrease and Increase of Supply Voltage, code d       |
| 4.8                     | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code a |
| 4.8                     | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code b |
| 4.8                     | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code c |
| 4.8                     | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code d |
| 4.9                     | E-09 Reset Behavior, code a, test sequence 1                    |
| 4.9                     | E-09 Reset Behavior, code a, test sequence 2                    |
| 4.9                     | E-09 Reset Behavior, code b, test sequence 1                    |
| 4.9                     | E-09 Reset Behavior, code b, test sequence 2                    |
| 4.9                     | E-09 Reset Behavior, code c, test sequence 1                    |
| 4.9                     | E-09 Reset Behavior, code c, test sequence 2                    |
| 4.9                     | E-09 Reset Behavior, code d, test sequence 1                    |
| 4.9                     | E-09 Reset Behavior, code d, test sequence 2                    |
| 4.1                     | E-10 Short Interruptions  |
| 4.11                    | E-11 Start Pulse, Cold Start, Normal                            |
| 4.11                    | E-11 Start Pulse, Cold Start, Sharp                             |

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|---------------------------------|---|
| 4.11                            | E-11 Start Pulse, Warm Start, Long Test Sequence                |
| 4.11                            | E-11 Start Pulse, Warm Start, Short Test Sequence               |
| 4.12                            | E-12 Voltage Curve with Intelligent Generator Control           |
| 4.13                            | E-13 Interrupt Pin, Loose Contact 1                             |
| 4.14                            | E-14 Connector Interruption                                     |
| 4.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code a    |
| 4.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code b    |
| 4.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code c    |
| 4.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code d    |
| 4.19                            | E-19 Quiescent Current  |
| 4.21                            | E-21 Reverse Power  |
| <b>BMW GS 95024-2-2</b>         |   |
| 8.1                             | E-01 Long Term Surge  |
| 8.2                             | E-02 Transient Surge, Short Test                                |
| 8.2                             | E-02 Transient Surge, Endurance Test                            |
| 8.3                             | E-03 Transient Undervoltage                                     |
| 8.4                             | E-04 Jump Start   |
| 8.6                             | E-06 Superimposed AC Voltage                                    |
| 8.7                             | E-07 Slow Decrease and Increase of Supply Voltage, code a       |
| 8.7                             | E-07 Slow Decrease and Increase of Supply Voltage, code b       |
| 8.7                             | E-07 Slow Decrease and Increase of Supply Voltage, code c       |
| 8.7                             | E-07 Slow Decrease and Increase of Supply Voltage, code d       |
| 8.8                             | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code a |
| 8.8                             | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code b |
| 8.8                             | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code c |
| 8.8                             | E-08 Slow Decrease and Rapid Increase of Supply Voltage, code d |
| 8.9                             | E-09 Reset Behavior, code a, test sequence 1                    |
| 8.9                             | E-09 Reset Behavior, code a, test sequence 2                    |
| 8.9                             | E-09 Reset Behavior, code b, test sequence 1                    |
| 8.9                             | E-09 Reset Behavior, code b, test sequence 2                    |
| 8.9                             | E-09 Reset Behavior, code c, test sequence 1                    |
| 8.9                             | E-09 Reset Behavior, code c, test sequence 2                    |
| 8.9                             | E-09 Reset Behavior, code d, test sequence 1                    |
| 8.9                             | E-09 Reset Behavior, code d, test sequence 2                    |
| 8.1                             | E-10 Short Interruptions  |
| 8.11                            | E-11 Start Pulse, Cold Start, Normal                            |
| 8.11                            | E-11 Start Pulse, Cold Start, Sharp                             |
| 8.11                            | E-11 Start Pulse, Warm Start, Long Test Sequence                |
| 8.11                            | E-11 Start Pulse, Warm Start, Short Test Sequence               |
| 8.12                            | E-12 Voltage Curve with Intelligent Generator Control           |
| 8.14                            | E-14 Connector Interruption                                     |
| 8.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code a    |
| 8.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code b    |
| 8.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code c    |
| 8.17                            | E-17 Short Circuit of Signal Lines and Load Circuits, code d    |
| 8.19                            | E-19 Quiescent Current  |
| 8.21                            | E-21 Reverse Power  |
| 9.1                             | E-40 Very Brief Voltage Drop                                    |
| 9.3.2                           | E-42b Low-Resistance Voltage Impulse on Charge Wire             |
| <b>Case New Holland ENS0310</b> |   |
| 9.1.1                           | High Temperature Soak Tests, 12 VDC                             |
| 9.1.1                           | High Temperature Soak Tests, 24 VDC                             |
| 9.1.2                           | Low Temperature Soak Tests, 12 VDC                              |
| 9.1.2                           | Low Temperature Soak Tests, 24 VDC                              |
| 9.1.4                           | Temperature Shock Tests, 12 VDC                                 |

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|--------------------------|--|
| 9.1.4                    | Temperature Shock Tests, 24 VDC  |
| 9.2.1                    | Shock Tests, 12 VDC  |
| 9.2.1                    | Shock Tests, 24 VDC  |
| 9.2.2                    | Vibration Tests, 12 VDC  |
| 9.2.2                    | Vibration Tests, 24 VDC  |
| 9.3.1                    | Altitude Tests, 12 VDC   |
| 9.3.1                    | Altitude Tests, 24 VDC   |
| 9.3.2                    | Dust Ingress Test, 12 VDC  |
| 9.3.2                    | Dust Ingress Test, 24 VDC  |
| 9.3.3                    | Water Ingress Test, 12 VDC   |
| 9.3.3                    | Water Ingress Test, 24 VDC   |
| 9.3.3.6                  | Water Ingress Test, Rain/Shine, 12VDC                                    |
| 9.3.3.6                  | Water Ingress Test, Rain/Shine, 24VDC                                    |
| 9.4.1                    | Humidity Test, 12 VDC  |
| 9.4.1                    | Humidity Test, 24 VDC  |
| 9.4.2                    | Salt Spray Test, 12 VDC  |
| 9.4.2                    | Salt Spray Test, 24 VDC  |
| 9.4.3                    | Chemical Resistance Test, 12 VDC   |
| 9.4.3                    | Chemical Resistance Test, 24 VDC   |
| 9.6.5                    | Electrical Steady State Tests, Over-Voltage, 12 VDC                      |
| 9.6.5                    | Electrical Steady State Tests, Over-Voltage, 24 VDC                      |
| 9.6.6                    | Electrical Steady State Tests, Reverse Polarity, 12 VDC                  |
| 9.6.6                    | Electrical Steady State Tests, Reverse Polarity, 24 VDC                  |
| 9.6.7                    | Electrical Steady State Tests, Short Circuit to Ground, 12 VDC           |
| 9.6.7                    | Electrical Steady State Tests, Short Circuit to Ground, 24 VDC           |
| 9.6.8                    | Electrical Steady State Tests, Short Circuit to Supply, 12 VDC           |
| 9.6.8                    | Electrical Steady State Tests, Short Circuit to Supply, 24 VDC           |
| 9.6.9                    | Electrical Steady State Tests, Short Circuit to Ground - Key On, 12 VDC  |
| 9.6.9                    | Electrical Steady State Tests, Short Circuit to Ground - Key On, 24 VDC  |
| 9.6.10                   | Electrical Steady State Tests, Short Circuit to Supply - Key On, 12 VDC  |
| 9.6.10                   | Electrical Steady State Tests, Short Circuit to Supply - Key On, 24 VDC  |
| 9.6.11                   | Electrical Steady State Tests, Power Up Operational Requirements, 12 VDC |
| 9.6.11                   | Electrical Steady State Tests, Power Up Operational Requirements, 24 VDC |
| 9.6.12                   | Electrical Steady State Tests, Quiescent Current Classification, 12VDC   |
| 9.6.12                   | Electrical Steady State Tests, Quiescent Current Classification, 24VDC   |
| 9.7.7                    | EMC Tests, Cranking Test, 12 VDC   |
| 9.7.7                    | EMC Tests, Cranking Test, 24 VDC   |
| 9.8.4                    | Combined Environment Tests, 12 VDC                                       |
| 9.8.4                    | Combined Environment Tests, Crawlers, 12 VDC                             |
| 9.8.4                    | Combined Environment Tests, Wheeled Vehicles, 12 VDC                     |
| 9.8.5                    | Combined Environment Tests, Cranking Combined Environment, 12 VDC        |
| 9.8.5                    | Combined Environment Tests, Cranking Combined Environment, 24 VDC        |
| <b>Chrysler CS-11809</b> |  |
| 4.1.1                    | Supply Voltage Range, 6-16VDC  |
| 4.1.1                    | Supply Voltage Range, 8-16VDC  |
| 4.1.1                    | Supply Voltage Range, 9-16VDC  |
| 4.1.2                    | Ignition Draw Off, 12VDC   |
| 4.2.1                    | Sneak Path, 12VDC  |
| 4.2.2                    | Supply Voltage Drop Out, 12VDC   |
| 4.2.3                    | Supply Voltage Dips, 12VDC   |
| 4.2.4                    | Engine Cranking Low Voltage, Cold Cranking, 12VDC                        |
| 4.2.6                    | Supply Voltage Ramp Up, 12VDC  |
| 4.2.7                    | Supply Voltage Ramp Down, 6VDC   |
| 4.2.7                    | Supply Voltage Ramp Down, 8VDC   |
| 4.2.7                    | Supply Voltage Ramp Down, 9VDC   |

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|--------------------------|---|
| 4.3.1                    | Defective Regulation (full-fielded alternator), 12VDC                               |
| 4.3.2                    | Jump Start, 12VDC   |
| 4.4.1                    | Immunity to Short Circuits in the Supply Voltage Input and Load Output Lines, 12VDC |
| 4.4.2                    | Immunity to Short Circuits in the I-O Signal Lines, 12VDC                           |
| 4.4.4                    | Ground Reference Offset, 12VDC  |
| <b>Chrysler CS-11979</b> |   |
| 4.1.1                    | Supply Voltage Range, 4.5-16VDC   |
| 4.1.1                    | Supply Voltage Range, 6-16VDC   |
| 4.1.1                    | Supply Voltage Range, 8-16VDC   |
| 4.1.1                    | Supply Voltage Range, 9-16VDC   |
| 4.1.1                    | Supply Voltage Range, 10-16VDC  |
| 4.1.2                    | Ignition Draw Off (IOD), 12VDC  |
| 4.1.3                    | Supply Voltage Ripple (superimposed alternating voltage), 12VDC                     |
| 4.2.1                    | Sneak Path, 12VDC   |
| 4.2.3                    | Power Supply Disconnection, 12VDC   |
| 4.2.4                    | Reset Behavior at Voltage Drop, 12VDC, Code A                                       |
| 4.2.4                    | Reset Behavior at Voltage Drop, 12VDC, Code B                                       |
| 4.2.4                    | Reset Behavior at Voltage Drop, 12VDC, Code C                                       |
| 4.2.4                    | Reset Behavior at Voltage Drop, 12VDC, Code D                                       |
| 4.2.6                    | Engine Cranking Low Voltage, Resembling Cold Cranking, 12VDC                        |
| 4.2.7                    | Engine Cranking Low Voltage, Warm Cranking Start-Stop, 12VDC                        |
| 4.2.8                    | Slow Decrease and Increase of Supply Voltage, 12VDC, Code A                         |
| 4.2.8                    | Slow Decrease and Increase of Supply Voltage, 12VDC, Code B                         |
| 4.2.8                    | Slow Decrease and Increase of Supply Voltage, 12VDC, Code C                         |
| 4.2.8                    | Slow Decrease and Increase of Supply Voltage, 12VDC, Code D                         |
| 4.2.8                    | Slow Decrease and Increase of Supply Voltage, 12VDC, Code A, B, C, D                |
| 4.3.1                    | Supply Over Voltage-Defective Regulation, 12VDC                                     |
| 4.3.1                    | Supply Over Voltage-Jump Start, 12VDC   |
| 4.3.2                    | Reverse Supply Voltage, 12VDC   |
| 4.4.1                    | Immunity to Short Circuits in the Supply Voltage Input and Load Output Lines, 12VDC |
| 4.4.2                    | Immunity to Short Circuits in I-O Signal Lines, 12VDC                               |
| <b>Claas CN 05 0215</b>  |   |
| 4.1.2                    | Slow Decrease and Increase of Supply Voltage, 12VDC                                 |
| 4.1.2                    | Slow Decrease and Increase of Supply Voltage, 24VDC                                 |
| 4.1.3                    | Reset Behavior on Voltage Drop, test level 1, 12VDC                                 |
| 4.1.3                    | Reset Behavior on Voltage Drop, test level 1, 24VDC                                 |
| 4.1.3                    | Reset Behavior on Voltage Drop, test level 1a, 12VDC                                |
| 4.1.3                    | Reset Behavior on Voltage Drop, test level 2, 12VDC                                 |
| 4.1.3                    | Reset Behavior on Voltage Drop, test level 2, 24VDC                                 |
| 4.1.4                    | Current Input, 12VDC  |
| 4.1.4                    | Current Input, 24VDC  |
| 4.1.5                    | Short Circuit Rating, 12VDC   |
| 4.1.5                    | Short Circuit Rating, 24VDC   |
| 4.1.6                    | Superimposed Alternating Voltage, 12VDC   |
| 4.1.6                    | Superimposed Alternating Voltage, 24VDC   |
| <b>Cummins 14269</b>     |   |
| 4.1                      | Overvoltage, 12VDC  |
| 4.1                      | Overvoltage, 24VDC  |
| 4.1                      | Overvoltage, Low Voltage  |
| 4.2                      | Reverse Voltage, 12VDC  |
| 4.2                      | Reverse Voltage, 24VDC  |
| 4.2                      | Reverse Voltage, Low Voltage  |
| 4.3                      | Short Circuit, 12VDC  |
| 4.3                      | Short Circuit, 24VDC  |
| 4.4                      | Open Circuits, 12VDC  |

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|----------------------------------|--|
| 4.4                              | Open Circuits, 24VDC                                   |
| 4.7                              | Electrical Isolation                                   |
| 5.3.8.2                          | Temperature Cycling, Heat Soak, 12VDC                  |
| 5.3.8.2                          | Temperature Cycling, Heat Soak, 24VDC                  |
| 5.7                              | Conducted Transient Immunity, Pulse 4, Cranking, 12VDC |
| 5.7                              | Conducted Transient Immunity, Pulse 4, Cranking, 24VDC |
| <b>Cummins 14387</b>             |  |
| 5.2.1                            | Miswiring Protection Tests, 12VDC                      |
| 5.2.1                            | Miswiring Protection Tests, 24VDC                      |
| 5.2.1.1                          | Loss of Power Return Connection, 12VDC                 |
| 5.2.1.1                          | Loss of Power Return Connection, 24VDC                 |
| 5.2.1.2                          | Loss of Power Supply Connection, 12VDC                 |
| 5.2.1.2                          | Loss of Power Supply Connection, 24VDC                 |
| 5.2.1.3                          | Reverse Polarity, 12VDC                                |
| 5.2.1.3                          | Reverse Polarity, 24VDC                                |
| 5.2.1.4                          | Miswiring Failures, 12VDC                              |
| 5.2.1.4                          | Miswiring Failures, 24VDC                              |
| 5.2.2.1                          | Continuous Operating Voltage, 12VDC                    |
| 5.2.2.1                          | Continuous Operating Voltage, 24VDC                    |
| 5.2.2.2                          | Under -Voltage, 12VDC                                  |
| 5.2.2.2                          | Under -Voltage, 24VDC                                  |
| 5.2.2.3                          | Over-Voltage, 12VDC                                    |
| 5.2.2.3                          | Over-Voltage, 24VDC                                    |
| 5.2.2.4                          | Survival Voltage, 12VDC                                |
| 5.2.2.4                          | Survival Voltage, 24VDC                                |
| 5.2.2.5                          | Power Supply Current, 12VDC                            |
| 5.2.2.5                          | Power Supply Current, 24VDC                            |
| 5.3.1.1                          | Water Intrusion Test - Atmospheric, 12VDC              |
| 5.3.1.1                          | Water Intrusion Test - Atmospheric, 24VDC              |
| 5.3.4                            | Steam, 12VDC   |
| 5.3.4                            | Steam, 24VDC   |
| 5.3.7.3                          | Short Duration Temperature Spikes, 12VDC               |
| 5.3.7.3                          | Short Duration Temperature Spikes, 24VDC               |
| 5.3.8.1.1                        | Temperature Cycling (Segments 1 & 3), 12VDC            |
| 5.3.8.1.2                        | Temperature Cycling (Segments 1 & 3), 12VDC            |
| 5.3.9                            | Combined Environment, 12VDC                            |
| 5.3.9                            | Combined Environment, 24VDC                            |
| 5.3.12                           | Salt Fog, 12VDC  |
| 5.3.12                           | Salt Fog, 24VDC  |
| <b>DAF BSL-003</b>               |  |
| 101.1                            | Supply Voltage Requirements                            |
| 101.2                            | Damage Level   |
| 102.1                            | Reversing Polarity                                     |
| 102.2                            | Open and Short Circuiting                              |
| <b>DAF BSL-006</b>               |  |
| 2.1                              | Minimum and Maximum Voltage                            |
| 2.2                              | Jump Start   |
| 2.3                              | Voltage Drain Test                                     |
| 3                                | Minimal Currents and Switches                          |
| 4.1                              | Reversing Polarity                                     |
| 4.2                              | Open and Short Circuiting                              |
| <b>Daimler Chrysler DC-10842</b> |  |
| 4.2                              | Overvoltage, 12VDC                                     |
| 4.2                              | Overvoltage, 24VDC                                     |
| 4.3.1                            | Failure of Alternator, 12VDC                           |



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|--|---|
| 4.3.1                                    | Failure of Alternator, 24VDC                                    |
| 4.3.2                                    | Series Charging of Batteries, 12VDC                             |
| 4.4                                      | Superimposed Alternating Voltage, severity 1, 12VDC             |
| 4.4                                      | Superimposed Alternating Voltage, severity 1, 24VDC             |
| 4.4                                      | Superimposed Alternating Voltage, severity 2, 12VDC             |
| 4.4                                      | Superimposed Alternating Voltage, severity 2, 24VDC             |
| 4.4                                      | Superimposed Alternating Voltage, severity 3, 24VDC             |
| 4.5.4                                    | Test 3 - Starting Profile, 24VDC                                |
| 4.5.4                                    | Test 3 - Starting Profile, Level I, 12VDC                       |
| 4.5.4                                    | Test 3 - Starting Profile, Level II, 12VDC                      |
| 4.5.4                                    | Test 3 - Starting Profile, Level III, 12VDC                     |
| 4.5.4                                    | Test 3 - Starting Profile, Level IV, 12VDC                      |
| 4.6.2.1                                  | Reversed Voltage, Case 1, 12VDC                                 |
| 4.6.2.1                                  | Reversed Voltage, Case 3, 12VDC                                 |
| 4.6.2.1                                  | Reversed Voltage, Case 4, 12VDC                                 |
| 4.7                                      | Open Circuit Test, 12VDC  |
| 4.7                                      | Open Circuit Test, 24VDC  |
| 4.8                                      | Short Circuit Test, 12VDC                                       |
| 4.8                                      | Short Circuit Test, 24VDC                                       |
| 4.11                                     | Unintentional Current Flows and Voltage Potentials, 12VDC       |
| 4.11                                     | Unintentional Current Flows and Voltage Potentials, 24VDC       |
| 4.12                                     | Supply Voltage Ramp Up Test, 12VDC                              |
| 4.13                                     | Supply Voltage Ramp Down Test, code a, 12VDC                    |
| 4.13                                     | Supply Voltage Ramp Down Test, code b, 12VDC                    |
| 4.13                                     | Supply Voltage Ramp Down Test, code c, 12VDC                    |
| 4.13                                     | Supply Voltage Ramp Down Test, code d, 12VDC                    |
| 4.17                                     | Standby Mode - Sleep Mode - IOD Requirements, 12VDC             |
| 4.17                                     | Standby Mode - Sleep Mode - IOD Requirements, 24VDC             |
| <b>Daimler Chrysler PF-9326 Change D</b> |   |
| 3.2                                      | Operating Voltage Range, class A                                |
| 3.2                                      | Operating Voltage Range, class B                                |
| 3.2                                      | Operating Voltage Range, class C                                |
| 3.2                                      | Operating Voltage Range, class D                                |
| 3.3                                      | Ignition Off Current Draw                                       |
| 3.4                                      | Supply Voltage Extremes, A                                      |
| 3.4                                      | Supply Voltage Extremes, B                                      |
| 3.4                                      | Supply Voltage Extremes, C                                      |
| 3.5.7                                    | Supply Voltage Ramp Down Test                                   |
| 4.2                                      | Operating Voltage Range, class A                                |
| 4.2                                      | Operating Voltage Range, class B                                |
| 4.2                                      | Operating Voltage Range, class C                                |
| 4.2                                      | Operating Voltage Range, class D                                |
| <b>Fiat 9-90110 Issue 13</b>             |   |
| 3.9.5.1                                  | Reset Behavior at Voltage Drop, Class A1                        |
| 3.9.5.1                                  | Reset Behavior at Voltage Drop, Class A2                        |
| 3.9.5.1                                  | Reset Behavior at Voltage Drop, Class A3                        |
| 3.9.5.3                                  | Immunity to Micro Interruptions, Ref A                          |
| 3.9.5.3                                  | Immunity to Micro Interruptions, Ref B                          |
| 3.9.5.3                                  | Immunity to Micro Interruptions, Ref C                          |
| <b>Ford CS-2009.1</b>                    |   |
| CI210                                    | Immunity from Continuous Power Line Disturbances, 12VDC         |
| CI210                                    | Immunity from Continuous Power Line Disturbances, 12VDC (sweep) |
| CI220                                    | Pulse f1 (13.5V)  |
| CI220                                    | Pulse f2 (13.5V)  |
| CI220                                    | Pulse g1 (13.5V loaded condition)                               |



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|                     |  |
|---------------------|--|
| CI220               | Pulse g1 (13.5V open circuit condition)  |
| CI220               | Pulse g2-a (13.5) (unsuppressed)   |
| CI220               | Pulse g2-b (13.5V) (suppressed)  |
| CI230               | Immunity from Power Cycling, Waveform A  |
| CI230               | Immunity from Power Cycling, Waveform B  |
| CI230               | Immunity from Power Cycling, Waveform C  |
| CI230               | Immunity from Power Cycling, Waveform D  |
| <b>Ford FMC1278</b> |  |
| CI210               | Immunity from Continuous Power Line Disturbances, Level 1, 13.5V (requires attenuator) |
| CI210               | Immunity from Continuous Power Line Disturbances, Level 1, 27V (requires attenuator)   |
| CI210               | Immunity from Continuous Power Line Disturbances, Level 2, 13.5V (requires attenuator) |
| CI210               | Immunity from Continuous Power Line Disturbances, Level 2, 27V (requires attenuator)   |
| CI220               | Pulse 2b (24V)   |
| CI220               | Pulse 5a (12V)   |
| CI220               | Pulse 5a (24V)   |
| CI220               | Pulse 5b (12V)   |
| CI220               | Pulse A1 (12V)   |
| CI230               | Immunity from Power Cycling, Waveform A  |
| CI230               | Immunity from Power Cycling, Waveform B  |
| CI231               | Immunity from Power Cycling, 24VDC   |
| CI250               | Immunity to Ground Voltage Offset Continuous Disturbances                              |
| CI260               | Waveform ABD 27V Template  |
| CI260               | Waveform A, 13.5V, 100 usec  |
| CI260               | Waveform A, 13.5V, 300 usec  |
| CI260               | Waveform A, 13.5V, 500 usec  |
| CI260               | Waveform A, 13.5V, 2 msec  |
| CI260               | Waveform A, 13.5V, 5 msec  |
| CI260               | Waveform A, 13.5V, 10 msec   |
| CI260               | Waveform A, 13.5V, 30 msec   |
| CI260               | Waveform A, 13.5V, 50 msec   |
| CI260               | Waveform A, 27V, 100 usec  |
| CI260               | Waveform A, 27V, 300 usec  |
| CI260               | Waveform A, 27V, 500 usec  |
| CI260               | Waveform A, 27V, 2 msec  |
| CI260               | Waveform A, 27V, 5 msec  |
| CI260               | Waveform A, 27V, 10 msec   |
| CI260               | Waveform A, 27V, 30 msec   |
| CI260               | Waveform A, 27V, 50 msec   |
| CI260               | Waveform B, 13.5V, 100 usec  |
| CI260               | Waveform B, 13.5V, 300 usec  |
| CI260               | Waveform B, 13.5V, 500 usec  |
| CI260               | Waveform B, 13.5V, 2 msec  |
| CI260               | Waveform B, 13.5V, 5 msec  |
| CI260               | Waveform B, 13.5V, 10 msec   |
| CI260               | Waveform B, 13.5V, 30 msec   |
| CI260               | Waveform B, 13.5V, 50 msec   |
| CI260               | Waveform B, 27V, 100 usec  |
| CI260               | Waveform B, 27V, 300 usec  |
| CI260               | Waveform B, 27V, 500 usec  |
| CI260               | Waveform B, 27V, 2 msec  |
| CI260               | Waveform B, 27V, 5 msec  |
| CI260               | Waveform B, 27V, 10 msec   |
| CI260               | Waveform B, 27V, 30 msec   |
| CI260               | Waveform B, 27V, 50 msec   |
| CI260               | Waveform C, 13.5V, 100 usec  |

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|        |                             |
|--------|-----------------------------|
| CI260  | Waveform C, 13.5V, 300 usec |
| CI260  | Waveform C, 13.5V, 500 usec |
| CI260  | Waveform C, 27V, 100 usec   |
| CI260  | Waveform C, 27V, 300 usec   |
| CI260  | Waveform C, 27V, 500 usec   |
| CI260  | Waveform D, 13.5V, 100 usec |
| CI260  | Waveform D, 13.5V, 300 usec |
| CI260  | Waveform D, 13.5V, 500 usec |
| CI260  | Waveform D, 13.5V, 2 msec   |
| CI260  | Waveform D, 13.5V, 5 msec   |
| CI260  | Waveform D, 13.5V, 10 msec  |
| CI260  | Waveform D, 13.5V, 30 msec  |
| CI260  | Waveform D, 13.5V, 50 msec  |
| CI260  | Waveform D, 27V, 100 usec   |
| CI260  | Waveform D, 27V, 300 usec   |
| CI260  | Waveform D, 27V, 500 usec   |
| CI260  | Waveform D, 27V, 2 msec     |
| CI260  | Waveform D, 27V, 5 msec     |
| CI260  | Waveform D, 27V, 10 msec    |
| CI260  | Waveform D, 27V, 30 msec    |
| CI260  | Waveform D, 27V, 50 msec    |
| RI-140 | EST 6402m                   |
| RI-140 | ETS 7603                    |

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|        |   |
|--------|---|
| 8.2.1  | Jump Start  |
| 8.2.2  | Reverse Polarity  |
| 8.2.3  | Overvoltage (with overvoltage protection)   |
| 8.2.3  | Overvoltage (without overvoltage protection)  |
| 8.2.4  | State Change Waveform Characterization  |
| 9.2.1  | Parasitic Current   |
| 9.2.2  | Power Supply Interruptions, 12V, Code A   |
| 9.2.2  | Power Supply Interruptions, 12V, Code B   |
| 9.2.2  | Power Supply Interruptions, 12V, Code C & D   |
| 9.2.2  | Power Supply Interruptions, 12V, Code E   |
| 9.2.2  | Power Supply Interruptions, 12V, Code F   |
| 9.2.3  | Battery Voltage Dropout, 12VDC, Code A  |
| 9.2.3  | Battery Voltage Dropout, 12VDC, Code B  |
| 9.2.3  | Battery Voltage Dropout, 12VDC, Code C & D  |
| 9.2.3  | Battery Voltage Dropout, 12VDC, Code E  |
| 9.2.3  | Battery Voltage Dropout, 12VDC, Code F  |
| 9.2.4  | Sinusoidal Superimposed Voltage, 12VDC  |
| 9.2.5  | Pulse Superimposed Voltage, 12VDC, U(p) only  |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground, 12VDC, Code A                                |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground, 12VDC, Code B                                |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground, 12VDC, Code C                                |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground, 12VDC, Code D                                |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground, 12VDC, Code E                                |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground, 12VDC, Code F                                |
| 9.2.8  | Ground Interconnect Short to Battery, 12VDC, Code A, B, C, E, F                                 |
| 9.2.8  | Ground Interconnect Short to Battery, 12VDC, Code D   |
| 9.2.17 | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity I, Functional, 12VDC           |
| 9.2.17 | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity I, Durability, 12VDC           |
| 9.2.17 | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity II, Ua=2.5V, Functional, 12VDC |
| 9.2.17 | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity II, Ua=2.5V, Durability, 12VDC |
| 9.2.17 | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity II, Ua=3V, Functional, 12VDC   |

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|                                 |  |
|---------------------------------|--|
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity II, Ua=3V, Durability, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity III, Ua=2.5V, Functional, 12VDC             |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity III, Ua=2.5V, Durability, 12VDC             |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity III, Ua=3V, Functional, 12VDC               |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity III, Ua=3V, Durability, 12VDC               |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity III, Ua=4V, Functional, 12VDC               |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity III, Ua=4V, Durability, 12VDC               |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=2.5V, Functional, 12VDC              |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=2.5V, Durability, 12VDC              |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=3V, Functional, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=3V, Durability, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=4V, Functional, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=4V, Durability, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=4V, Durability, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=5V, Functional, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, GMW3097 pulse 4, Severity IV, Ua=5V, Durability, 12VDC                |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 1, Functional, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 1, Durability, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 2, Functional, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 2, Durability, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 3, Functional, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 3, Durability, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 4, Functional, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 4, Durability, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 5, Functional, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 5, Durability, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 6, Functional, 12VDC   |
| 9.2.17                          | Crank Pulse Capability and Durability, Waveform 6, Durability, 12VDC   |
| 9.3.1                           | Vibration with Thermal Cycling, 12VDC  |
| 9.3.2                           | Post Thermal Fatigue Vibration, 12VDC  |
| 9.3.3                           | Mechanical Shock - Pothole, 12VDC  |
| 9.3.5                           | Mechanical Shock - Closure Slam, 12VDC   |
| 9.3.9                           | Connector Installation Abuse - Side Force, 12VDC   |
| 9.3.10                          | Connector Installation Abuse - Foot Load, 12VDC  |
| 9.4.1                           | High Temperature Degradation, 12VDC  |
| 9.4.3                           | Power Temperature Cycle, 12VDC   |
| 9.4.5                           | Humid Heat Cyclic, 12VDC   |
| 9.4.6                           | Humid Heat Constant, 12VDC   |
| 9.4.8                           | Salt Spray, IP Water Code 3 or 6K, wet side of door interior, 12VDC  |
| 9.4.8                           | Salt Spray, IP Water Code 6K or 8 or 9K, non-interior component without direct exposure to salt spray, 12VDC |
| 9.4.8                           | Salt Spray, IP Water Code 6K or 8 or 9K, non-interior component with direct exposure to salt spray, 12VDC    |
| 9.4.8                           | Salt Spray, IP Water Code 6K or 8 or 9K, 12VDC   |
| 9.5.3                           | Seal, 12VDC  |
| 9.5.4                           | Water Freeze, 12VDC  |
| 9.5.5                           | Sugar Water Function Impairment, 12VDC   |
| <b>General Motors GMW3172  </b> |  |
|                                 | 12V DC Power Supply  |
|                                 | 24V DC Power Supply  |
| 8.2.1                           | Jump Start 26.5V   |
| 8.2.1                           | Jump Start 26V   |
| 8.2.2                           | Reverse Polarity   |
| 8.2.3                           | Over Voltage With Protection   |
| 8.2.3                           | Over Voltage Without Protection  |
| 8.2.4                           | State Change Waveform Characterization   |
| 8.4.2                           | Low Temperature Wakeup Code A-D Component  |

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|        |   |
|--------|---|
| 8.4.2  | Low Temperature Wakeup Code E-H Component   |
| 9.2.1  | Parasitic Current   |
| 9.2.2  | Power Supply Interruptions Code A Component   |
| 9.2.2  | Power Supply Interruptions Code B Component   |
| 9.2.2  | Power Supply Interruptions Code C Component   |
| 9.2.2  | Power Supply Interruptions Code D Component   |
| 9.2.2  | Power Supply Interruptions Code E Component   |
| 9.2.2  | Power Supply Interruptions Code F Component   |
| 9.2.2  | Power Supply Interruptions Code G Component   |
| 9.2.2  | Power Supply Interruptions Code H Component   |
| 9.2.3  | Battery Voltage Dropout Code A Component  |
| 9.2.3  | Battery Voltage Dropout Code B Component  |
| 9.2.3  | Battery Voltage Dropout Code C Component  |
| 9.2.3  | Battery Voltage Dropout Code D Component  |
| 9.2.4  | Sinusoidal Superimposed Voltage 12V   |
| 9.2.4  | Sinusoidal Superimposed Voltage 24V   |
| 9.2.5  | Pulse Superimposed Voltage U(p) only  |
| 9.2.6  | intermitent Short Circuit to Battery and to Ground Code A Component                       |
| 9.2.6  | intermitent Short Circuit to Battery and to Ground Code B Component                       |
| 9.2.6  | Intermitent Short Circuit to Battery and to Ground Code C Component                       |
| 9.2.6  | Intermitent Short Circuit to Battery and to Ground Code D Component                       |
| 9.2.6  | Intermitent Short Circuit to Battery and to Ground Code E Component                       |
| 9.2.6  | Intermitent Short Circuit to Battery and to Ground Code F Component                       |
| 9.2.6  | Intermitent Short Circuit to Battery and to Ground Code G Component                       |
| 9.2.6  | Intermitent Short Circuit to Battery and to Ground Code H Component                       |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code A Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code B Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code C Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code D Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code E Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code F Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code G Component                        |
| 9.2.7  | Continuous Short Circuit to Battery and to Ground Code H Component                        |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code A Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code B Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code C Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code D Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code E Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code F Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code G Component |
| 9.2.8  | Multiple Power and Multiple Ground Short Circuits Including Pass Through Code H Component |
| 9.2.11 | Ground Offset Code A Component  |
| 9.2.11 | Ground Offset Code B Component  |
| 9.2.11 | Ground Offset Code C Component  |
| 9.2.11 | Ground Offset Code D Component  |
| 9.2.11 | Ground Offset Code E Component  |
| 9.2.11 | Ground Offset Code F Component  |
| 9.2.11 | Ground Offset Code G Component  |
| 9.2.11 | Ground Offset Code H Component  |
| 9.2.12 | Power Offset Code A Component   |
| 9.2.12 | Power Offset Code B Component   |
| 9.2.12 | Power Offset Code C Component   |
| 9.2.12 | Power Offset Code D Component   |
| 9.2.12 | Power Offset Code E Component   |
| 9.2.12 | Power Offset Code F Component   |
| 9.2.12 | Power Offset Code G Component   |

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|        |   |
|--------|---|
| 9.2.12 | Power Offset Code H Component   |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code A Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code B Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code C Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code D Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code E Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code F Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code G Component                      |
| 9.2.13 | Discrete Digital Input Threshold Voltage (Us) Code H Component                      |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity I Ua=2.5V Durability test   |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity I Ua=2.5V Functional test   |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity II Ua=2.5V Durability test  |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity II Ua=2.5V Functional test  |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity II Ua=3V Durability test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity II Ua=3V Functional test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity III Ua=2.5V Durability test |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity III Ua=2.5V Functional test |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity III Ua=3V Durability test   |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity III Ua=3V Functional test   |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity III Ua=4V Durability test   |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity III Ua=4V Functional test   |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=2.5V Durability test  |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=2.5V Functional test  |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=3V Durability test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=3V Functional test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=4V Durability test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=4V Functional test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=5V Durability test    |
| 9.2.17 | Crank Pulse Capability and Durability Pulse 4 Serverity IV Ua=5V Functional test    |
| 9.2.17 | Crank Pulse Capability and Durability Waveform 1 Durability Test                    |
| 9.2.17 | Crank Pulse Capability and Durability Waveform 1 Functional Test                    |
| 9.2.17 | Crank Pulse Capability and Durability Waveform 2 Durability Test                    |
| 9.2.17 | Crank Pulse Capability and Durability Waveform 2 Functional Test                    |
| 9.2.17 | Crank Pulse Capability and Durability Waveform 3 Durability Test                    |
| 9.2.17 | Crank Pulse Capability and Durability Waveform 3 Functional Test                    |
| 9.2.18 | Switched Battery Lines  |
| 9.2.19 | Battery Line Transients   |
| 9.3.1  | Vibration with Thermal Cycling  |
| 9.3.2  | Mechanical Shock - Pothole  |
| 9.3.3  | Mechanical Shock - Collision  |
| 9.3.4  | Mechanical Shock - Closure Slam   |
| 9.3.8  | Connector Installation Abuse - Side Force   |
| 9.3.9  | Connector Installation Abuse - Foot Load  |
| 9.4.1  | High Temperature Degradation 2000 h Code A  |
| 9.4.1  | High Temperature Degradation 2000 h Code B  |
| 9.4.1  | High Temperature Degradation 2000 h Code C  |
| 9.4.1  | High Temperature Degradation 2000 h Code D  |
| 9.4.1  | High Temperature Degradation 2000 h Code E  |
| 9.4.1  | High Temperature Degradation 2000 h Code F  |
| 9.4.1  | High Temperature Degradation 2000 h Code G  |
| 9.4.1  | High Temperature Degradation 2000 h Code H  |
| 9.4.1  | High Temperature Degradation 500 h Code A   |
| 9.4.1  | High Temperature Degradation 500 h Code B   |
| 9.4.1  | High Temperature Degradation 500 h Code C   |
| 9.4.1  | High Temperature Degradation 500 h Code D   |
| 9.4.1  | High Temperature Degradation 500 h Code E   |
| 9.4.1  | High Temperature Degradation 500 h Code F   |
| 9.4.1  | High Temperature Degradation 500 h Code G   |



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|                                      |   |
|--------------------------------------|---|
| 9.4.1                                | High Temperature Degradation 500 h Code H       |
| 9.4.3                                | Power Temperature Cycle Code A                  |
| 9.4.3                                | Power Temperature Cycle Code B                  |
| 9.4.3                                | Power Temperature Cycle Code C                  |
| 9.4.3                                | Power Temperature Cycle Code D                  |
| 9.4.3                                | Power Temperature Cycle Code E                  |
| 9.4.3                                | Power Temperature Cycle Code F                  |
| 9.4.3                                | Power Temperature Cycle Code G                  |
| 9.4.3                                | Power Temperature Cycle Code H                  |
| 9.4.5                                | Humid Heat Cyclic                               |
| 9.4.6                                | Humid Heat Constant                             |
| 9.4.8                                | Salt Spray IP water Code 3 or 6K                |
| 9.4.8                                | Salt Spray IP water Code 6K or 8 or 9K          |
| 9.4.8                                | Salt Spray IP water Code 6K or 8K or 9K         |
| 9.5.3                                | Seal  |
| 9.5.5                                | Water Freeze                                    |
| 9.5.6                                | Sugar Water Function Impairment                 |
| <b>Harley Davidson EG-812 -22613</b> |   |
|                                      | Combined Temperature and Transient Voltage Test |
|                                      | Horn Noise Power Supply                         |
|                                      | Ignition Off Quiescent Current Test             |
|                                      | Ignition Pulse Power Supply                     |
|                                      | Intermediate Current Switching                  |
|                                      | Jump Start                                      |
|                                      | Loss Of Positive Battery Bus                    |
|                                      | Nominal Voltage Test for Non-Priority Items     |
|                                      | Nominal Voltage Test for Priority Items         |
|                                      | Open Connection Tests                           |
|                                      | Resistance In Parallel With Input               |
|                                      | Resistance in Series With Input                 |
|                                      | Reverse Battery                                 |
|                                      | Short to Battery                                |
|                                      | Spark Gap Noise Power Supply                    |
|                                      | Spark Noise Power Supply                        |
|                                      | Starting Voltage                                |
|                                      | Steady State Ripple                             |
|                                      | Switched Overcurrent                            |
|                                      | Turn Signal Noise                               |
|                                      | Voltage Drop                                    |
| <b>Honda 30AA</b>                    |   |
| 1-2                                  | ACC 0   |
| 1-2                                  | ACC 50  |
| 1-2                                  | ACC 100   |
| 1-2                                  | ACC 150   |
| 1-2                                  | ACC 200   |
| 1-2                                  | BATT  |
| 1-3                                  | test  |
| 1-4                                  | test 1  |
| 1-4                                  | test 2  |
| 1-5                                  | test 1  |
| 1-5                                  | test 2  |
| 1-5                                  | test 3  |
| 1-8                                  | test A-1  |
| 1-8                                  | Test B-1  |
| 1-8                                  | Test B-2  |
| 1-9                                  | Test 1  |
| 1-9                                  | Test 2  |

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|                             |   |
|-----------------------------|---|
| 1-9                         | Test 3  |
| 1-12                        | Test 2  |
| <b>Honda 7794Z-SAAA-000</b> |   |
| 2                           | Temperature Characteristic Test   |
| 3                           | Test at Starting Voltage, Chattering Waveform Application A, 13.5VDC            |
| 3                           | Test at Starting Voltage, Chattering Waveform Application B, 13.5VDC            |
| 3                           | Test at Starting Voltage, Chattering Waveform Application C, 13.5VDC            |
| 3                           | Test at Starting Voltage, Gradual Increase Voltage Application, 8VDC            |
| 3                           | Test at Starting Voltage, Gradual Increase Voltage Application, 13.5VDC         |
| 3                           | Test at Starting Voltage, Gradual Increase Voltage Application, 16VDC           |
| 3                           | Test at Starting Voltage, Ignition Noise Overriding, 13.5VDC                    |
| 3                           | Test at Starting Voltage, Instantaneous Voltage, 8VDC                           |
| 3                           | Test at Starting Voltage, Instantaneous Voltage, 13.5VDC                        |
| 3                           | Test at Starting Voltage, Instantaneous Voltage, 16VDC                          |
| 3                           | Test at Starting Voltage, Sine Wave Application A, 13.5VDC                      |
| 3                           | Test at Starting Voltage, Sine Wave Application B, 13.5VDC                      |
| 3                           | Test at Starting Voltage, Sine Wave Application C, 13.5VDC                      |
| 3                           | Test at Starting Voltage, Sine Wave Application D, 13.5VDC                      |
| 13                          | Horn Function Noise Injection Test, 13.5VDC                                     |
| 15                          | Abnormal Power Supply Voltage, Excess Voltage Injection Test (Class A), 13.5VDC |
| 15                          | Abnormal Power Supply Voltage, Excess Voltage Injection Test (Class B), 13.5VDC |
| 15                          | Abnormal Power Supply Voltage, Excess Voltage Injection Test (Class C), 13.5VDC |
| 15                          | Abnormal Power Supply Voltage, Reverse Voltage Injection Test, 13.5VDC          |
| 18                          | Standard Moisture Test, 13.5VDC   |
| 19                          | High Temperature Functional Endurance Test, 13.5VDC                             |
| 20                          | Low Temperature Functional Endurance Test, 13.5VDC                              |
| 21                          | Dew Condensation Test, 13.5VDC  |
| 22                          | Temperature Cycle Test, 13.5VDC   |
| 24                          | Complex Endurance Test, 13.5VDC   |
| 25                          | Vibrating Test, 13.5VDC   |
| 29                          | Intermittent Function Durability Test, Test Waveform A, 8VDC                    |
| 29                          | Intermittent Function Durability Test, Test Waveform B, 13.5VDC                 |
| 29                          | Intermittent Function Durability Test, Test Waveform C, 16VDC                   |
| 32                          | Temperature and Humidity Cycle, 13.5VDC   |
| <b>Hyundai ES 39110-00</b>  |   |
| CI 210-B1                   | Abnormal Sinewave   |
| CI 230-A                    | Power Cycle, Run  |
| CI 230-B1                   | Power Cycle, Start  |
| CI 230-B2                   | Power Cycle, Battery via Relay  |
| CI 230-C                    | Power Cycle, Battery Direct   |
| CI 250-B                    | Conducted Immunity, Groundshift, Sinewave                                       |
| CI 260-A                    | Power Dropout High (T=100us)  |
| CI 260-A                    | Power Dropout High (T=200us)  |
| CI 260-A                    | Power Dropout High (T=400us)  |
| CI 260-A                    | Power Dropout High (T=700us)  |
| CI 260-A                    | Power Dropout High (T=1ms)  |
| CI 260-A                    | Power Dropout High (T=3ms)  |
| CI 260-A                    | Power Dropout High (T=5ms)  |
| CI 260-A                    | Power Dropout High (T=7ms)  |
| CI 260-A                    | Power Dropout High (T=10ms)   |
| CI 260-A                    | Power Dropout High (T=12ms)   |
| CI 260-A                    | Power Dropout High (T=18ms)   |
| CI 260-A                    | Power Dropout High (T=20ms)   |
| CI 260-A                    | Power Dropout High (T=25ms)   |
| CI 260-A                    | Power Dropout High (T=50ms)   |



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| CI 260-C                   | Power Dropout Single  |
| CI 260-D                   | Power Dip (Sag) (T=100us)   |
| CI 260-D                   | Power Dip (Sag) (T=200us)   |
| CI 260-D                   | Power Dip (Sag) (T=400us)   |
| CI 260-D                   | Power Dip (Sag) (T=700us)   |
| CI 260-D                   | Power Dip (Sag) (T=1ms)   |
| CI 260-D                   | Power Dip (Sag) (T=3ms)   |
| CI 260-D                   | Power Dip (Sag) (T=5ms)   |
| CI 260-D                   | Power Dip (Sag) (T=7ms)   |
| CI 260-D                   | Power Dip (Sag) (T=10ms)  |
| CI 260-D                   | Power Dip (Sag) (T=12ms)  |
| CI 260-D                   | Power Dip (Sag) (T=18ms)  |
| CI 260-D                   | Power Dip (Sag) (T=20ms)  |
| CI 260-D                   | Power Dip (Sag) (T=25ms)  |
| CI 260-D                   | Power Dip (Sag) (T=50ms)  |
| CI 260-E                   | Battery Recovery  |
| <b>Hyundai ES 95400-10</b> |   |
| 3.4.2                      | Dark Current  |
| 3.4.3                      | Reverse Polarity Test of Power                                    |
| 3.4.4                      | Over-Voltage Test 1   |
| 3.4.4                      | Over-Voltage Test 2   |
| 3.4.5                      | Change Test of Power Voltage When Starting, Test 1                |
| 3.4.5                      | Change Test of Power Voltage When Starting, Test 2                |
| 3.4.6                      | Change Test of Power Voltage When Operating Electric Load, Test 1 |
| 3.4.6                      | Change Test of Power Voltage When Operating Electric Load, Test 2 |
| 3.4.6                      | Change Test of Power Voltage When Operating Electric Load, Test 3 |
| 3.4.7                      | Power Voltage Interruption Test                                   |
| 3.4.8                      | Short Circuit Test  |
| 3.4.9                      | Intermittent Test of Power Voltage, Test 1                        |
| 3.4.9                      | Intermittent Test of Power Voltage, Test 2                        |
| 3.4.10                     | Charge and Discharge of Batteries                                 |
| 3.4.11                     | Overvoltage, Test 1   |
| 3.4.11                     | Overvoltage, Test 2   |
| 3.5.1                      | High-Temperature Exposure Operation Test                          |
| 3.5.2                      | Low-Temperature Exposure Operation Test                           |
| 3.5.3                      | 85-85 High Temperature & High Humidity Test on Bias               |
| 3.5.4                      | Temperature and Humidity Cycle Test                               |
| 3.5.5                      | Temperature Cycle Test  |
| 3.5.6                      | Dew Condensation Test   |
| 3.5.9-2                    | Dust Operation Test   |
| 3.5.12                     | Water Resistance Test   |
| 3.5.13-1                   | Salt Water Spray Test   |
| 3.5.13-2                   | Salt Water Spray Test   |
| 3.6.2-1                    | Vibration Endurance Test 1  |
| 3.6.3-2                    | Complex Environment Endurance Test                                |
| 3.8.2                      | Operation Test, High Limit  |
| 3.8.2                      | Operation Test, Low Limit   |
| <b>Hyundai ES 96100-02</b> |   |
| 4.5.1                      | Operating Voltage   |
| 4.5.3                      | Power Reverse Polarity Test                                       |
| 4.5.4                      | Over-Voltage, Test 1  |
| 4.5.4                      | Over-Voltage, Test 2  |
| 4.5.5                      | Power Voltage Fluctuation When Starting Up Engine, Test 1         |
| 4.5.5                      | Power Voltage Fluctuation When Starting Up Engine, Test 2         |
| 4.5.6                      | Power Voltage Fluctuation Test on Electric Load Operation         |

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| 4.5.7              | Power Voltage Interruption Test                             |
| 4.5.8              | Short Circuit Test  |
| 4.5.9              | Power Voltage Intermittent, Test 1                          |
| 4.5.9              | Power Voltage Intermittent, Test 2                          |
| 4.5.10             | Battery Charging-Discharging, Test 1                        |
| 4.5.10             | Battery Charging-Discharging, Test 2                        |
| 4.5.11             | AC Wave Inflow Test   |
| 4.6.3              | High Temperature Operation Test                             |
| 4.6.4              | Low Temperature Operation Test                              |
| 4.6.5              | Power Appl at High Temp-Humidity Test                       |
| 4.6.6              | Temperature-Humidity Cycle Test                             |
| 4.6.9              | Dew Condensation Test                                       |
| 4.8.2              | Endurance Test at Normal Temperature                        |
| <b>ISO 7637-2</b>  |   |
| 5.6.2              | Transient Immunity, Test Pulse 2B, 12VDC                    |
| 5.6.2              | Transient Immunity, Test Pulse 2B, 24VDC                    |
| 5.6.4              | Transient Immunity, Test Pulse 4, 12VDC                     |
| 5.6.4              | Transient Immunity, Test Pulse 4, 24VDC                     |
| 5.6.5              | Transient Immunity, Test Pulse 5A, 12VDC                    |
| 5.6.5              | Transient Immunity, Test Pulse 5B, 24VDC                    |
| <b>ISO 16750-2</b> |   |
| 4.1                | Short Circuit Protection, 12VDC                             |
| 4.1                | Short Circuit Protection, 24VDC                             |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code A                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code B                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code C                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code D                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code E                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code F                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code G                |
| 4.2                | Direct Current Supply Voltage, 12VDC, Code H                |
| 4.3.1.1            | Overvoltage, Hot, 12VDC                                     |
| 4.3.1.2            | Overvoltage, Room Temperature, 12VDC                        |
| 4.3.2.2            | Overvoltage, Hot, 24VDC                                     |
| 4.4                | Superimposed Alternating Current, 12VDC, Severity 1         |
| 4.4                | Superimposed Alternating Current, 12VDC, Severity 2         |
| 4.4                | Superimposed Alternating Current, 12VDC, Severity 4         |
| 4.4                | Superimposed Alternating Current, 24VDC, Severity 1         |
| 4.4                | Superimposed Alternating Current, 24VDC, Severity 2         |
| 4.4                | Superimposed Alternating Current, 24VDC, Severity 3         |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 12VDC, Code A |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 12VDC, Code B |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 12VDC, Code C |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 12VDC, Code D |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 24VDC, Code E |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 24VDC, Code F |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 24VDC, Code G |
| 4.5                | Slow Decrease and Increase of Supply Voltage, 24VDC, Code H |
| 4.6.1              | Momentary Drop in Supply Voltage, 12VDC, Code A             |
| 4.6.1              | Momentary Drop in Supply Voltage, 12VDC, Code B             |
| 4.6.1              | Momentary Drop in Supply Voltage, 12VDC, Code C             |
| 4.6.1              | Momentary Drop in Supply Voltage, 12VDC, Code D             |
| 4.6.1              | Momentary Drop in Supply Voltage, 24VDC, Code E             |
| 4.6.1              | Momentary Drop in Supply Voltage, 24VDC, Code F             |
| 4.6.1              | Momentary Drop in Supply Voltage, 24VDC, Code G             |

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| 4.6.1                     | Momentary Drop in Supply Voltage, 24VDC, Code H              |
| 4.6.3                     | Starting Profile, 12VDC, Level I                             |
| 4.6.3                     | Starting Profile, 12VDC, Level II                            |
| 4.6.3                     | Starting Profile, 12VDC, Level III                           |
| 4.6.3                     | Starting Profile, 12VDC, Level IV                            |
| 4.6.3                     | Starting Profile, 24VDC, Level I                             |
| 4.6.3                     | Starting Profile, 24VDC, Level II                            |
| 4.6.3                     | Starting Profile, 24VDC, Level III                           |
| 4.6.4.2.2                 | Load Dump Test A (without suppression) 12V                   |
| 4.6.4.2.2                 | Load Dump Test A (without suppression) 24V                   |
| 4.6.4.2.3                 | Load Dump Test B (with suppression) 12V                      |
| 4.6.4.2.3                 | Load Dump Test B (with suppression) 24V                      |
| 4.7.2.2                   | Reversed Voltage, 12VDC, Case 1                              |
| 4.7.2.3                   | Reversed Voltage, 12VDC, Case 2                              |
| 4.7.2.3                   | Reversed Voltage, 24VDC, Case 2                              |
| 4.8.2                     | Ground Reference and Supply Offset, 12VDC                    |
| 4.8.2                     | Ground Reference and Supply Offset, 24VDC                    |
| 4.9                       | Open Circuit Test, 12VDC                                     |
| 4.9                       | Open Circuit Test, 24VDC                                     |
| 4.11                      | Withstand Voltage, 12VDC                                     |
| 4.11                      | Withstand Voltage, 24VDC                                     |
| A.3.1                     | Load Dump Pulse Verification 12V 2ohm Load                   |
| A.3.1                     | Load Dump Pulse Verification 12V No Load                     |
| A.3.1                     | Load Dump Pulse Verification 24V 2ohm Load                   |
| A.3.1                     | Load Dump Pulse Verification 24V No Load                     |
| <b>ISO 16750-2 (2023)</b> |  |
| Code A                    | 4.2 - DC Supply Voltage Test (6-16 V DC)                     |
| Code A                    | 4.3.1.1 - Long Term Overvoltage (18 V DC)                    |
| Code A                    | 4.3.1.2 - Jump Start Transient (26 V DC)                     |
| Code A                    | 4.3.2 - Transient Overvoltage x5 (18 V DC)                   |
| Code A                    | 4.5 - Slow Decrease and Increase of Supply Voltage (14 V DC) |
| Code A                    | 4.6.1.1 - Short Voltage Drop (4,5-6 V DC)                    |
| Code A                    | 4.6.2 - Reset Behavior at Voltage Drop (6 V DC)              |
| Code A                    | 4.6.3 (Level I) - Starting Profile x10 (8-12 V DC)           |
| Code A                    | 4.6.3 (Level II) - Starting Profile x10 (4,5-12 V DC)        |
| Code A                    | 4.6.3 (Level III) - Starting Profile x10 (3-12 V DC)         |
| Code A                    | 4.6.3 (Level IV) - Starting Profile x10 (6-12 V DC)          |
| Code A                    | 4.7 (Test Case 1) - Reversed Voltage (6 to -4 V DC)          |
| Code A                    | 4.7 (Test Case 2) - Reversed Voltage (0 to -14 V DC)         |
| Code B                    | 4.2 - DC Supply Voltage Test (8-16 V DC)                     |
| Code B                    | 4.3.1.1 - Long Term Overvoltage (18 V DC)                    |
| Code B                    | 4.3.1.2 - Jump Start Transient (26 V DC)                     |
| Code B                    | 4.3.2 - Transient Overvoltage x5 (18 V DC)                   |
| Code B                    | 4.5 - Slow Decrease and Increase of Supply Voltage (14 V DC) |
| Code B                    | 4.6.1.1 - Short Voltage Drop (4,5-8 V DC)                    |
| Code B                    | 4.6.2 - Reset Behavior at Voltage Drop (8 V DC)              |
| Code B                    | 4.6.3 (Level I) - Starting Profile x10 (8-12 V DC)           |
| Code B                    | 4.6.3 (Level II) - Starting Profile x10 (4,5-12 V DC)        |
| Code B                    | 4.6.3 (Level III) - Starting Profile x10 (3-12 V DC)         |
| Code B                    | 4.6.3 (Level IV) - Starting Profile x10 (6-12 V DC)          |
| Code B                    | 4.7 (Test Case 1) - Reversed Voltage (8 to -4 V DC)          |
| Code B                    | 4.7 (Test Case 2) - Reversed Voltage (0 to -14 V DC)         |
| Code C                    | 4.2 - DC Supply Voltage Test (9-16 V DC)                     |

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| Code C | 4.3.1.1 - Long Term Overvoltage (18 V DC)                    |
| Code C | 4.3.1.2 - Jump Start Transient (26 V DC)                     |
| Code C | 4.3.2 - Transient Overvoltage x5 (18 V DC)                   |
| Code C | 4.5 - Slow Decrease and Increase of Supply Voltage (14 V DC) |
| Code C | 4.6.1.1 - Short Voltage Drop (4,5-9 V DC)                    |
| Code C | 4.6.2 - Reset Behavior at Voltage Drop (9 V DC)              |
| Code C | 4.6.3 (Level I) - Starting Profile x10 (8-12 V DC)           |
| Code C | 4.6.3 (Level II) - Starting Profile x10 (4,5-12 V DC)        |
| Code C | 4.6.3 (Level III) - Starting Profile x10 (3-12 V DC)         |
| Code C | 4.6.3 (Level IV) - Starting Profile x10 (6-12 V DC)          |
| Code C | 4.7 (Test Case 1) - Reversed Voltage (9 to -4 V DC)          |
| Code C | 4.7 (Test Case 2) - Reversed Voltage (0 to -14 V DC)         |
| Code D | 4.2 - DC Supply Voltage Test (10,5-16 V DC)                  |
| Code D | 4.3.1.1 - Long Term Overvoltage (18 V DC)                    |
| Code D | 4.3.1.2 - Jump Start Transient (26 V DC)                     |
| Code D | 4.3.2 - Transient Overvoltage x5 (18 V DC)                   |
| Code D | 4.5 - Slow Decrease and Increase of Supply Voltage (14 V DC) |
| Code D | 4.6.1.1 - Short Voltage Drop (4,5-10,5 V DC)                 |
| Code D | 4.6.2 - Reset Behavior at Voltage Drop (10,5 V DC)           |
| Code D | 4.6.3 (Level I) - Starting Profile x10 (8-12 V DC)           |
| Code D | 4.6.3 (Level II) - Starting Profile x10 (4,5-12 V DC)        |
| Code D | 4.6.3 (Level III) - Starting Profile x10 (3-12 V DC)         |
| Code D | 4.6.3 (Level IV) - Starting Profile x10 (6-12 V DC)          |
| Code D | 4.7 (Test Case 1) - Reversed Voltage (10,5 to -4 V DC)       |
| Code D | 4.7 (Test Case 2) - Reversed Voltage (0 to -14 V DC)         |
| Code E | 4.2 - DC Supply Voltage Test (10-32 V DC)                    |
| Code E | 4.3.1 - Long Term Overvoltage (36 V DC)                      |
| Code E | 4.3.2 - Transient Overvoltage x5 (36 V DC)                   |
| Code E | 4.5 - Slow Decrease and Increase of Supply Voltage (28 V DC) |
| Code E | 4.6.1.1 - Short Voltage Drop (9-10 V DC)                     |
| Code E | 4.6.2 - Reset Behavior at Voltage Drop (10 V DC)             |
| Code E | 4.6.3 (Level I) - Starting Profile x10 (10-24 V DC)          |
| Code E | 4.6.3 (Level II) - Starting Profile x10 (8-24 V DC)          |
| Code E | 4.6.3 (Level III) - Starting Profile x10 (6-24 V DC)         |
| Code E | 4.7 (Test Case 2) - Reversed Voltage (0 to -26 V DC)         |
| Code F | 4.2 - DC Supply Voltage Test (16-32 V DC)                    |
| Code F | 4.3.1 - Long Term Overvoltage (36 V DC)                      |
| Code F | 4.3.2 - Transient Overvoltage x5 (36 V DC)                   |
| Code F | 4.5 - Slow Decrease and Increase of Supply Voltage (28 V DC) |
| Code F | 4.6.1.1 - Short Voltage Drop (9-16 V DC)                     |
| Code F | 4.6.2 - Reset Behavior at Voltage Drop (16 V DC)             |
| Code F | 4.6.3 (Level I) - Starting Profile x10 (10-24 V DC)          |
| Code F | 4.6.3 (Level II) - Starting Profile x10 (8-24 V DC)          |
| Code F | 4.6.3 (Level III) - Starting Profile x10 (6-24 V DC)         |
| Code F | 4.7 (Test Case 2) - Reversed Voltage (0 to -26 V DC)         |
| Code G | 4.2 - DC Supply Voltage Test (22-32 V DC)                    |
| Code G | 4.3.1 - Long Term Overvoltage (36 V DC)                      |
| Code G | 4.3.2 - Transient Overvoltage x5 (36 V DC)                   |
| Code G | 4.5 - Slow Decrease and Increase of Supply Voltage (28 V DC) |
| Code G | 4.6.1.1 - Short Voltage Drop (9-22 V DC)                     |
| Code G | 4.6.2 - Reset Behavior at Voltage Drop (22 V DC)             |
| Code G | 4.6.3 (Level I) - Starting Profile x10 (10-24 V DC)          |

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| Code G               | 4.6.3 (Level II) - Starting Profile x10 (8-24 V DC)                          |
| Code G               | 4.6.3 (Level III) - Starting Profile x10 (6-24 V DC)                         |
| Code G               | 4.7 (Test Case 2) - Reversed Voltage (0 to -26 V DC)                         |
| Code H               | 4.2 - DC Supply Voltage Test (18-32 V DC)                                    |
| Code H               | 4.3.1 - Long Term Overvoltage (36 V DC)                                      |
| Code H               | 4.3.2 - Transient Overvoltage x5 (36 V DC)                                   |
| Code H               | 4.5 - Slow Decrease and Increase of Supply Voltage (28 V DC)                 |
| Code H               | 4.6.1.1 - Short Voltage Drop (9-18 V DC)                                     |
| Code H               | 4.6.2 - Reset Behavior at Voltage Drop (18 V DC)                             |
| Code H               | 4.6.3 (Level I) - Starting Profile x10 (10-24 V DC)                          |
| Code H               | 4.6.3 (Level II) - Starting Profile x10 (8-24 V DC)                          |
| Code H               | 4.6.3 (Level III) - Starting Profile x10 (6-24 V DC)                         |
| Code H               | 4.7 (Test Case 2) - Reversed Voltage (0 to -26 V DC)                         |
| <b>ISO 21780</b>     |  |
| 10.1                 | Nominal Voltage Range  |
| 10.2                 | Lower Nominal Transitory Voltages  |
| 10.2                 | Upper Nominal Transitory Voltages  |
| 10.3                 | Momentary Overvoltage  |
| 10.4                 | Load Dump  |
| 10.5                 | Starting Profile   |
| 10.6                 | Long Term Overvoltage  |
| 10.7                 | Overvoltage with Consumer Components   |
| 10.8                 | Decrease and Increase with Voltage Immunity                                  |
| 10.9                 | Ripple Immunity  |
| 10.10                | Re-installation  |
| 10.11                | Discontinuous Supply Voltage   |
| 10.12                | Ground Loss  |
| 10.13                | Fault Current  |
| <b>ISO 21848</b>     |  |
| 4.5.3                | Starting Profile   |
| <b>JASO D 001-94</b> |  |
| 5.1                  | Normal Power Supply Voltage Test, 12VDC                                      |
| 5.1                  | Normal Power Supply Voltage Test, 24VDC                                      |
| 5.2                  | Test for Power Supply Voltage upon Engine Starting, Method 1, Class 1, 12VDC |
| 5.2                  | Test for Power Supply Voltage upon Engine Starting, Method 1, Class 2, 12VDC |
| 5.2                  | Test for Power Supply Voltage upon Engine Starting, Method 1, 24VDC          |
| 5.2                  | Test for Power Supply Voltage upon Engine Starting, Method 2, Class 1, 12VDC |
| 5.2                  | Test for Power Supply Voltage upon Engine Starting, Method 2, Class 2, 12VDC |
| 5.2                  | Test for Power Supply Voltage upon Engine Starting, Method 2, 24VDC          |
| 5.3                  | Power Source Micro Interruption Test, 12VDC                                  |
| 5.3                  | Power Source Micro Interruption Test, 24VDC                                  |
| 5.4                  | Power Supply Inverse Polarity Connection Test, 12VDC                         |
| 5.4                  | Power Supply Inverse Polarity Connection Test, 24VDC                         |
| 5.5                  | Overvoltage Test (A Method), 12VDC   |
| 5.5                  | Overvoltage Test (A Method), 24VDC   |
| 5.6                  | Overvoltage Test (B Method), 12VDC   |
| 5.6                  | Overvoltage Test (B Method), 24VDC   |
| 5.11                 | Temperature Characteristic Test, 12VDC                                       |
| 5.11                 | Temperature Characteristic Test, 24VDC                                       |
| 5.13                 | Low Temperature Operation Test, 12VDC  |
| 5.13                 | Low Temperature Operation Test, 24VDC  |
| 5.15                 | High Temperature Operation Test, 12VDC                                       |
| 5.15                 | High Temperature Operation Test, 24VDC                                       |
| 5.16                 | Heat Cycle Test, 12VDC   |
| 5.16                 | Heat Cycle Test, 24VDC   |

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| 5.18  | Temperature and Humidity Cycle Test, 12VDC                                    |
| 5.18  | Temperature and Humidity Cycle Test, 24VDC                                    |
| 5.19  | Constant High Humidity Test, 12VDC  |
| 5.19  | Constant High Humidity Test, 24VDC  |
| <b>JLR-EMC-CS v1 Amendment 4 (Nov 2013)</b> |   |
| CI 210                                      | Immunity from Continuous Power Line Disturbances 13.5 V (requires Attenuator) |
| CI 210                                      | Immunity from Continuous Power Line Disturbances 27 V                         |
| CI 230                                      | Power Cycling - A   |
| CI 230                                      | Power Cycling - B   |
| CI 230                                      | Power Cycling - C   |
| CI 230                                      | Power Cycling - D   |
| CI 250                                      | Immunity to Ground Voltage Offset - Continuous Disturbances                   |
| <b>Mazda MES PW67600</b>                    |   |
| 7.2.1                                       | Low Temperature Exposure, 12 VDC  |
| 7.2.1                                       | Low Temperature Exposure, 24 VDC  |
| 7.2.2                                       | Low Temperature Operation, 12VDC  |
| 7.2.2                                       | Low Temperature Operation, 24 VDC   |
| 7.2.3                                       | High Temperature Exposure, 12VDC  |
| 7.2.3                                       | High Temperature Exposure, 24 VDC   |
| 7.2.4                                       | High Temperature Operation, 12VDC   |
| 7.2.4                                       | High Temperature Operation, 24 VDC  |
| 7.2.5                                       | Thermal Cycle, 12VDC  |
| 7.2.5                                       | Thermal Cycle, 24 VDC   |
| 7.2.6                                       | Thermal Shock Resistance, 12VDC   |
| 7.2.6                                       | Thermal Shock Resistance, 24 VDC  |
| 7.2.8                                       | Humidity-Temperature Cycle, 12VDC   |
| 7.2.8                                       | Humidity-Temperature Cycle, 24 VDC  |
| 7.2.9                                       | Water/Fluids Ingress, 12VDC   |
| 7.2.9                                       | Water/Fluids Ingress, 24 VDC  |
| 7.2.10                                      | Dust, 12VDC   |
| 7.2.10                                      | Dust, 24 VDC  |
| 7.3.1                                       | Vibration, 12VDC  |
| 7.3.1                                       | Vibration, 24 VDC   |
| 7.3.3                                       | Mechanical Shock, 12VDC   |
| 7.3.3                                       | Mechanical Shock, 24 VDC  |
| 7.3.4                                       | Connector & Lead/Lock Strength, 12VDC   |
| 7.3.4                                       | Connector & Lead/Lock Strength, 24 VDC  |
| 7.4   | Chemical Environment, 12VDC   |
| 7.4   | Chemical Environment, 24VDC   |
| 7.5   | Endurance, 12VDC  |
| 7.5   | Endurance, 24 VDC   |
| 7.7.1                                       | Power Line Ripple Noise, C101-1a, 12VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-1a, 24VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-1b, 12VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-1b, 24VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-1c, 12VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-1c, 24VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-2a, 12VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-2a, 24VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-2b, 12VDC                                       |
| 7.7.1                                       | Power Line Ripple Noise, C101-2b, 24VDC                                       |
| 7.7.2.1                                     | Inductive Switching, C102-1a, 12VDC   |
| 7.7.2.1                                     | Inductive Switching, C102-1a, 24VDC   |
| 7.7.2.1                                     | Inductive Switching, C102-1b, 12VDC   |
| 7.7.2.1                                     | Inductive Switching, C102-1b, 24VDC   |



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|-----------------------------------|--|
| 7.7.2.1                           | Inductive Switching, C102-1c, 12VDC  |
| 7.7.2.1                           | Inductive Switching, C102-1c, 24VDC  |
| 7.7.6                             | Stress, C103-1 Reverse Battery, 12VDC  |
| 7.7.6                             | Stress, C103-1 Reverse Battery, 24VDC  |
| 7.7.6                             | Stress, C103-2 Overvoltage, 12VDC  |
| 7.7.6                             | Stress, C103-2 Overvoltage, 24VDC  |
| 7.7.6                             | Stress, C103-3 Jump Start, 12VDC   |
| 7.7.6                             | Stress, C103-3 Jump Start, 24VDC   |
| 7.7.6                             | Stress, C103-4 Offset Supply Voltage, 12VDC                                  |
| 7.7.6                             | Stress, C103-4 Offset Supply Voltage, 24VDC                                  |
| 7.7.8                             | Stress, Ignition Spark Arc over, 12VDC                                       |
| 7.7.8                             | Stress, Ignition Spark Arc over, 24VDC                                       |
| <b>Mitsubishi ES-X82010 Rev Q</b> |  |
| 4.1                               | Normal Power Supply Voltage Test   |
| 4.2.1                             | Voltage Fluctuation Under Electric Load (Waveform 1-1)                       |
| 4.2.1                             | Voltage Fluctuation Under Electric Load (Waveform 1-2), 12VDC                |
| 4.2.1                             | Voltage Fluctuation Under Electric Load (Waveform 1-2), 14VDC                |
| 4.2.1                             | Voltage Fluctuation Under Electric Load (Waveform 1-3), 12VDC                |
| 4.2.2                             | Voltage Fluctuation upon Engine Starting, Waveform 2-1, 12VDC                |
| 4.2.2                             | Voltage Fluctuation upon Engine Starting, Waveform 2-2, 12VDC                |
| 4.2.3                             | Keeping Memory Contents (clocks and displays)                                |
| 4.3.1                             | Battery Power Supply Chattering Test (Waveform 3-1), 12VDC                   |
| 4.4                               | Supply Voltage Reverse Connection Test                                       |
| 4.6                               | Supply Voltage Instantaneous Interruption                                    |
| 4.7.4                             | Transient Voltage Impression Test, 12VDC                                     |
| <b>Mitsubishi ES-X82115 Rev C</b> |  |
| 6.1                               | Supply Voltage Range, Group A  |
| 6.1                               | Supply Voltage Range, Group B  |
| 6.1                               | Supply Voltage Range, Group C  |
| 6.1                               | Supply Voltage Range, Group D  |
| 6.2                               | Ignition Off Draw  |
| 6.3                               | Supply Voltage Ripple  |
| 7.2                               | Supply Voltage Drop Out  |
| 7.4                               | Engine Cranking Low Voltage  |
| 8.1                               | Defective Regulation (Full-Fielded Alternator)                               |
| 8.2                               | Jump Start   |
| 8.4                               | Reverse Supply Voltage   |
| 8.4                               | Reverse Supply Voltage (with Reverse Voltage Isolation)                      |
| 9.1                               | Immunity to Short Circuits in the Supply Voltage Input and Load Output Lines |
| 9.2                               | Immunity to Short Circuits in I/O Signal Lines                               |
| 10.1                              | Operating and Voltage Stress, Group A  |
| 10.1                              | Operating and Voltage Stress, Group B  |
| 10.1                              | Operating and Voltage Stress, Group C  |
| 10.1                              | Operating and Voltage Stress, Group D  |
| 10.2                              | Stall  |
| <b>Nissan 28400NDS02 Rev 3</b>    |  |
| 3                                 | Resistance to Power Source Voltage Fluctuation (step fluctuation)            |
| <b>Nissan 28400NDS03 Rev 3</b>    |  |
| 1                                 | Low Frequency Surge Resistance (battery dump surge), Test Method A, AP-1     |
| 1                                 | Low Frequency Surge Resistance (battery dump surge), Test Method A, AP-2     |
| 1                                 | Low Frequency Surge Resistance (battery dump surge), Test Method B, AP-1     |
| 1                                 | Low Frequency Surge Resistance (battery dump surge), Test Method B, AP-2     |
| <b>Nissan 28401NDS02 Rev 4</b>    |  |
| 6.1.2                             | EQ/TE 02: Resistance to slow Decrease and Increase of Power Supply Voltages  |
| 6.1.4                             | EQ/TE 04: Resistance to Non-Usual Power Supply Voltages                      |



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|---|---|
| 6.1.5                                   | EQ/TE 05: Resistance to Ground and positive Supply Voltages Short Circuit           |
| 6.1.10                                  | EQ/IC 04: Resistance to Power Supply Micro-Interruptions, 10us                      |
| 6.1.10                                  | EQ/IC 04: Resistance to Power Supply Micro-Interruptions, 100us                     |
| 6.1.10                                  | EQ/IC 04: Resistance to Power Supply Micro-Interruptions, 5ms                       |
| 6.1.10                                  | EQ/IC 04: Resistance to Power Supply Micro-Interruptions, 50ms, EUT not Operational |
| 6.1.10                                  | EQ/IC 04: Resistance to Power Supply Micro-Interruptions, 300ms                     |
| 6.1.11                                  | EQ/IC 05: Resistance to Starting Profile, No. I                                     |
| 6.1.11                                  | EQ/IC 05: Resistance to Starting Profile, No. II                                    |
| 6.1.11                                  | EQ/IC 05: Resistance to Starting Profile, No. III                                   |
| 6.1.12                                  | EQ/IC 06: Resistance to On-Board Power System Voltage Ripples, 2Vpp                 |
| 6.1.12                                  | EQ/IC 06: Resistance to On-Board Power System Voltage Ripples, 4Vpp                 |
| <b>SAE J1113-2</b>                      |   |
| Appendix B                              | Level 1, Ripple Only, Requires Attenuator   |
| Appendix B                              | Level 2, Ripple Only, Requires Attenuator   |
| Appendix B                              | Level 3, Ripple Only, Requires Attenuator   |
| Appendix B                              | Level 4, Ripple Only, Requires Attenuator   |
| <b>SAE J1113-11</b>                     |   |
| Test Pulse 4                            | Single Pulse, Single Pulse, 12VDC   |
| Test Pulse 4                            | Single Pulse, Single Pulse, 24VDC   |
| <b>SAE J1113-11-202303 (March 2023)</b> |   |
| Test Pulse 4                            | Single Pulse, Single Pulse, 12VDC (March 2023)                                      |
| Test Pulse 4                            | Single Pulse, Single Pulse, 24VDC (March 2023)                                      |
| <b>SAE J2139</b>                        |   |
| 4.8                                     | Voltage Regulation Tolerance Testing, 12VDC   |
| 4.8                                     | Voltage Regulation Tolerance Testing, 24VDC   |
| <b>SAE J2139-201412 (December 2014)</b> |   |
| 4.8                                     | Voltage Regulation Tolerance Testing, 12VDC (December 2014)                         |
| 4.8                                     | Voltage Regulation Tolerance Testing, 24VDC (December 2014)                         |
| <b>SAE J2628</b>                        |   |
| 4.3                                     | Voltage Dropouts and Dips, Test A   |
| 4.3                                     | Voltage Dropouts and Dips, Test C   |
| <b>SAE J2628</b>                        |   |
| 4.3                                     | Test A, 5 ms  |
| 4.3                                     | Test A, 50 ms   |
| 4.3                                     | Test A, 500 us  |
| 4.3                                     | Test B, 5 ms  |
| 4.3                                     | Test B, 50 ms   |
| 4.3                                     | Test B, 500 us  |
| 4.3                                     | Test C, 500 us  |
| 4.3                                     | Test D, 5 ms  |
| 4.3                                     | Test D, 50 ms   |
| 4.3                                     | Test D, 500 us  |
| <b>Toyota TSC70212G</b>                 |   |
| 5.2                                     | Waveform 1 (ACC & IG) Battery Connect and Disconnect, Test Pattern I, 12VDC         |
| 5.2                                     | Waveform 1 (ACC & IG) Battery Connect and Disconnect, Test Pattern I, 24VDC         |
| 5.2                                     | Waveform 1 (B+) Battery Connect and Disconnect, Test Pattern I, 12VDC               |
| 5.2                                     | Waveform 1 (B+) Battery Connect and Disconnect, Test Pattern I, 24VDC               |
| 5.2                                     | Waveform 1 (ACC & IG) Battery Connect and Disconnect, Test Pattern 2, 12VDC         |
| 5.2                                     | Waveform 1 (ACC & IG) Battery Connect and Disconnect, Test Pattern 2, 24VDC         |
| 5.2                                     | Waveform 1 (B+) Battery Connect and Disconnect, Test Pattern 2, 12VDC               |
| 5.2                                     | Waveform 1 (B+) Battery Connect and Disconnect, Test Pattern 2, 24VDC               |
| 5.2                                     | Waveform 2 Battery Terminal Chattering, 12VDC                                       |
| 5.2                                     | Waveform 2 Battery Terminal Chattering, 24VDC                                       |
| 5.2                                     | Waveform 3 Repeated Turning On-Off of IG Switch, Test Pattern 1, 12VDC              |

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| 5.2 | Waveform 3 Repeated Turning On-Off of IG Switch, Test Pattern 1, 24VDC                           |
| 5.2 | Waveform 3 Repeated Turning On-Off of IG Switch, Test Pattern 2, 12VDC                           |
| 5.2 | Waveform 3 Repeated Turning On-Off of IG Switch, Test Pattern 2, 24VDC                           |
| 5.2 | Waveform 4 Instantaneous Disconnection of IG Switch Connector and IG 1 and 2, 12VDC              |
| 5.2 | Waveform 4 Instantaneous Disconnection of IG Switch Connector and IG 1 and 2, 24VDC              |
| 5.2 | Waveform 5 Instantaneous Disconnect when switching on IGN, 12VDC                                 |
| 5.2 | Waveform 5 Instantaneous Disconnect when switching on IGN, 24VDC                                 |
| 5.2 | Waveform 6 ON-OFF Operation of IGN Switch, 12VDC   |
| 5.2 | Waveform 6 ON-OFF Operation of IGN Switch, 24VDC   |
| 5.2 | Waveform 8 (ACC & IG) Cranking 1, 12VDC  |
| 5.2 | Waveform 8 (ACC & IG) Cranking 1, 24VDC  |
| 5.2 | Waveform 8 (+B) Cranking 1, 12VDC  |
| 5.2 | Waveform 8 (+B) Cranking 1, 24VDC  |
| 5.2 | Waveform 9 (ACC & IGN) Cranking 2, 12VDC   |
| 5.2 | Waveform 9 (ACC & IGN) Cranking 2, 24VDC   |
| 5.2 | Waveform 9 (B+) Cranking 2, 12VDC  |
| 5.2 | Waveform 9 (B+) Cranking 2, 24VDC  |
| 5.2 | Waveform 10, Cranking 3, 12VDC   |
| 5.2 | Waveform 10, Cranking 3, 24VDC   |
| 5.2 | Waveform 11 (ACC & IGN) Cranking 4, 13VDC  |
| 5.2 | Waveform 11 (B+) Cranking 4, 13VDC   |
| 5.2 | Waveform 12 (ACC & IGN) Dead Batt, 12VDC   |
| 5.2 | Waveform 12 (ACC & IGN) Dead Batt, 24VDC   |
| 5.2 | Waveform 12 (B+) Dead Batt, 12VDC  |
| 5.2 | Waveform 12 (B+) Dead Batt, 24VDC  |
| 5.2 | Waveform 13 Jump-Start part 1 (t=0) 12VDC  |
| 5.2 | Waveform 13 Jump-Start part 2 (t=50, 100 ms) 12VDC   |
| 5.2 | Waveform 13 Jump-Start part 3 (t=1000 ms) 12VDC  |
| 5.2 | Waveform 14 (ACC & IG) IG Operation When Battery Voltage Dropped, 12VDC                          |
| 5.2 | Waveform 14 (ACC & IG) IG Operation When Battery Voltage Dropped, 24VDC                          |
| 5.2 | Waveform 14 (+B) IG Operation When Battery Voltage Dropped, 12VDC                                |
| 5.2 | Waveform 14 (+B) IG Operation When Battery Voltage Dropped, 24VDC                                |
| 5.2 | Waveform 15 (ACC) Switching over IG1 and 2, 12VDC  |
| 5.2 | Waveform 15 (ACC) Switching over IG1 and 2, 24VDC  |
| 5.2 | Waveform 15 (IG1) Switching over IG1 and 2, 12VDC  |
| 5.2 | Waveform 15 (IG1) Switching over IG1 and 2, 24VDC  |
| 5.2 | Waveform 15 (IG2) Switching over IG1 and 2, 12VDC  |
| 5.2 | Waveform 15 (IG2) Switching over IG1 and 2, 24VDC  |
| 5.2 | Waveform 16 (ACC) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 1,      |
| 5.2 | Waveform 16 (ACC) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 1,      |
| 5.2 | Waveform 16 (ACC) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 2,      |
| 5.2 | Waveform 16 (ACC) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 2,      |
| 5.2 | Waveform 16 (+B) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 1, 12VDC |
| 5.2 | Waveform 16 (+B) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 1, 24VDC |
| 5.2 | Waveform 16 (+B) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 2, 12VDC |
| 5.2 | Waveform 16 (+B) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 2, 24VDC |
| 5.2 | Waveform 16 (IG1, 2) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 1,   |
| 5.2 | Waveform 16 (IG1, 2) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 1,   |
| 5.2 | Waveform 16 (IG1, 2) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 2,   |
| 5.2 | Waveform 16 (IG1, 2) Battery Connect and Disconnect, Instantaneous Disconnect, Test Pattern 2,   |
| 5.2 | Waveform 17 (SW) Repeated Turning ON-OFF of Switch, 12VDC  |
| 5.2 | Waveform 19 (ACC) Cranking 1, 12VDC  |
| 5.2 | Waveform 19 (ACC) Cranking 1, 24VDC  |
| 5.2 | Waveform 19 (+B) Cranking 1, 12VDC   |

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| 5.2                        | Waveform 19 (+B) Cranking 1, 24VDC   |
| 5.2                        | Waveform 19 (IG1) Cranking 1, 12VDC  |
| 5.2                        | Waveform 19 (IG1) Cranking 1, 24VDC  |
| 5.2                        | Waveform 19 (IG2) Cranking 1, 12VDC  |
| 5.2                        | Waveform 19 (IG2) Cranking 1, 24VDC  |
| 5.2                        | Waveform 19 (SW) Cranking 1, 12VDC   |
| 5.2                        | Waveform 19 (SW) Cranking 1, 24VDC   |
| 5.2                        | Waveform 20 (ACC) Cranking 2, 12VDC  |
| 5.2                        | Waveform 20 (ACC) Cranking 2, 24VDC  |
| 5.2                        | Waveform 20 (+B) Cranking 2, 12VDC   |
| 5.2                        | Waveform 20 (+B) Cranking 2, 24VDC   |
| 5.2                        | Waveform 20 (IG1) Cranking 2, 12VDC  |
| 5.2                        | Waveform 20 (IG1) Cranking 2, 24VDC  |
| 5.2                        | Waveform 20 (IG2) Cranking 2, 12VDC  |
| 5.2                        | Waveform 20 (IG2) Cranking 2, 24VDC  |
| 5.2                        | Waveform 20 (SW) Cranking 2, 12VDC   |
| 5.2                        | Waveform 20 (SW) Cranking 2, 24VDC   |
| 5.2                        | Waveform 21 (ACC) Cranking 3, 12VDC  |
| 5.2                        | Waveform 21 (ACC) Cranking 3, 24VDC  |
| 5.2                        | Waveform 21 (+B) Cranking 3, 12VDC   |
| 5.2                        | Waveform 21 (+B) Cranking 3, 24VDC   |
| 5.2                        | Waveform 21 (IG1) Cranking 3, 12VDC  |
| 5.2                        | Waveform 21 (IG1) Cranking 3, 24VDC  |
| 5.2                        | Waveform 21 (IG2) Cranking 3, 12VDC  |
| 5.2                        | Waveform 21 (IG2) Cranking 3, 24VDC  |
| 5.2                        | Waveform 21 (SW) Cranking 3, 12VDC   |
| 5.2                        | Waveform 21 (SW) Cranking 3, 24VDC   |
| 5.2                        | Waveform 22 (+B, ACC, IG1 & IG2) ST Operation When Battery Voltage is Dropped, 12VDC |
| 5.2                        | Waveform 22 (+B, ACC, IG1, IG2) ST Operation When Battery Voltage is Dropped, 12VDC  |
| 5.2                        | Waveform 22 (+B, ACC, IG1, IG2) ST Operation When Battery Voltage is Dropped, 24VDC  |
| 5.2                        | Waveform 22 (SW) ST Operation When Battery Voltage is Dropped, 12VDC                 |
| 5.2                        | Waveform 22 (SW) ST Operation When Battery Voltage is Dropped, 24VDC                 |
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| 3.2                        | Operating Voltage Dips, Curve 1, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 1, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 2, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 2, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 3, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 3, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 4, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 4, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 5, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 5, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 6, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 6, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 7, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 7, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 8, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 8, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 9, 12VDC   |
| 3.2                        | Operating Voltage Dips, Curve 9, 24VDC   |
| 3.2                        | Operating Voltage Dips, Curve 10, 12VDC  |
| 3.2                        | Operating Voltage Dips, Curve 10, 24VDC  |

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| 3.4                        | Backfeed to Terminal 15, 12VDC                                      |
| <b>Volkswagen VW 80000</b> |   |
| 2.6.1                      | Parameter Test (small), a   |
| 2.6.1                      | Parameter Test (small), b   |
| 2.6.1                      | Parameter Test (small), c   |
| 2.6.1                      | Parameter Test (small), d   |
| 2.6.2                      | Parameter Test (large), a   |
| 2.6.2                      | Parameter Test (large), b   |
| 2.6.2                      | Parameter Test (large), c   |
| 2.6.2                      | Parameter Test (large), d   |
| 2.6.3                      | Parameter Test (functional), a                                      |
| 2.6.3                      | Parameter Test (functional), b                                      |
| 2.6.3                      | Parameter Test (functional), c                                      |
| 2.6.3                      | Parameter Test (functional), d                                      |
| 4.1                        | E-01 Long Term Overvoltage  |
| 4.2                        | E-02 Transient Overvoltage, short test                              |
| 4.2                        | E-02 Transient Overvoltage, endurance test                          |
| 4.3                        | E-03 Transient Undervoltage   |
| 4.4                        | E-04 Jump Start   |
| 4.6                        | E-06 Superimposed Alternating Voltage, Severity 1                   |
| 4.6                        | E-06 Superimposed Alternating Voltage, Severity 2                   |
| 4.7                        | E-07 Slow Decrease and Increase of the Supply Voltage, a            |
| 4.7                        | E-07 Slow Decrease and Increase of the Supply Voltage, b            |
| 4.7                        | E-07 Slow Decrease and Increase of the Supply Voltage, c            |
| 4.7                        | E-07 Slow Decrease and Increase of the Supply Voltage, d            |
| 4.8                        | E-08 Slow Decrease, Quick Increase of the Supply Voltage, a         |
| 4.8                        | E-08 Slow Decrease, Quick Increase of the Supply Voltage, b         |
| 4.8                        | E-08 Slow Decrease, Quick Increase of the Supply Voltage, c         |
| 4.8                        | E-08 Slow Decrease, Quick Increase of the Supply Voltage, d         |
| 4.10                       | E-10 Short Interruptions  |
| 4.11                       | E-11 Start Pulses, Cold Start, Normal                               |
| 4.11                       | E-11 Start Pulses, Cold Start, Severe                               |
| 4.11                       | E-11 Start Pulses, Warm Start, Short                                |
| 4.11                       | E-11 Start Pulses, Warm Start, Long                                 |
| 4.12                       | E-12 Voltage Curve with Intelligent Generator Control, Test Setup 2 |
| 4.12.2                     | Parameter Test (small), a, (2013-06)                                |
| 4.12.2                     | Parameter Test (small), b, (2013-06)                                |
| 4.12.2                     | Parameter Test (small), c, (2013-06)                                |
| 4.12.2                     | Parameter Test (small), d, (2013-06)                                |
| 4.12.3                     | Parameter Test (large), a, (2013-06)                                |
| 4.12.3                     | Parameter Test (large), b, (2013-06)                                |
| 4.12.3                     | Parameter Test (large), c, (2013-06)                                |
| 4.12.3                     | Parameter Test (large), d, (2013-06)                                |
| 4.12.3b                    | Parameter Test (functional), a, (2013-06)                           |
| 4.12.3b                    | Parameter Test (functional), b, (2013-06)                           |
| 4.12.3b                    | Parameter Test (functional), c, (2013-06)                           |
| 4.12.3b                    | Parameter Test (functional), d, (2013-06)                           |
| 4.17                       | E-17 Short Circuit in Signal Circuit and Load Circuits, a           |
| 4.17                       | E-17 Short Circuit in Signal Circuit and Load Circuits, b           |
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| 4.19                       | E-19 Closed Circuit Current   |
| 4.20                       | E-20 Dielectric Strength  |
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| 5.5.2 | Parameter Test (large), a   |
| 5.5.2 | Parameter Test (large), b   |
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| 5.5.2 | Parameter Test (large), d   |
| 5.5.3 | Parameter Test (functional), a  |
| 5.5.3 | Parameter Test (functional), b  |
| 5.5.3 | Parameter Test (functional), c  |
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| 6.2   | E-02 Transient Overvoltage, Test Case 3, (2013-06)                      |
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| 6.8   | E-08 Slow Decrease, Quick Increase of the Supply Voltage, a, (2013-06)  |
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| 6.15  | E-15 Reverse Polarity, Dynamic Reverse Polarity, (2013-06)              |
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| 8.1   | M-01 Free Fall, a   |
| 8.1   | M-01 Free Fall, b   |
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| 8.1    | M-01 Free Fall, d                                 |
| 8.2    | M-02 Stone Impact Test                            |
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| 9.1    | K-01 High-Low Temperature Storage, c              |
| 9.1    | K-01 High-Low Temperature Storage, d              |
| 9.2    | K-02 Incremental Temperature Test, a              |
| 9.2    | K-02 Incremental Temperature Test, b              |
| 9.2    | K-02 Incremental Temperature Test, c              |
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| 9.3    | K-03 Low Temperature Operation                    |
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| 9.6    | K-06 Salt Spray Test with Operation, Exterior     |
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| 9.8    | K-08 Humid Heat, Cyclic                           |
| 9.9    | K-09 Humid Heat, Cyclic (with frost)              |
| 9.1    | K-10 Water Protection - IPX0 to IPX6              |
| 9.11   | K-11 High-Pressure Cleaning                       |
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| 9.13   | K-13 Temperature Shock - Immersion                |
| 9.14   | K-14 Humid Heat - Constant                        |
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| 9.17   | K-17 Sun Radiation, a                             |
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| 9.18   | K-18 Harmful Gas Test, d                          |
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| 10.4.2 | Parameter Test (large), a, (2013-06)              |
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| 10.4.3 | Parameter Test (functional), a, (2013-06)         |
| 10.4.3 | Parameter Test (functional), b, (2013-06)         |
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| 13.1   | M-01 Free Fall, a, (2013-06)                      |
| 13.1   | M-01 Free Fall, b, (2013-06)                      |
| 13.1   | M-01 Free Fall, c, (2013-06)                      |
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| 13.2   | M-02 Stone Impact Test, (2013-06)                 |
| 13.3   | M-03 Dust, (2013-06)                              |
| 13.4   | M-04 Vibration, (2013-06)                         |

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| 13.5  | M-05 Mechanical Shock, (2013-06)                                   |
| 13.6  | M-06 Endurance Shock Test, (2013-06)                               |
| 14.1  | K-01 High-Low Temperature Storage, a, (2013-06)                    |
| 14.1  | K-01 High-Low Temperature Storage, b, (2013-06)                    |
| 14.1  | K-01 High-Low Temperature Storage, c, (2013-06)                    |
| 14.1  | K-01 High-Low Temperature Storage, d, (2013-06)                    |
| 14.2  | K-02 Incremental Temperature Test, a, (2013-06)                    |
| 14.2  | K-02 Incremental Temperature Test, b, (2013-06)                    |
| 14.2  | K-02 Incremental Temperature Test, c, (2013-06)                    |
| 14.2  | K-02 Incremental Temperature Test, d, (2013-06)                    |
| 14.3  | K-03 Low Temperature Operation, (2013-06)                          |
| 14.4  | K-04 Repainting Temperature, (2013-06)                             |
| 14.5  | K-05 Temperature Shock (component), a, (2013-06)                   |
| 14.5  | K-05 Temperature Shock (component), b, (2013-06)                   |
| 14.5  | K-05 Temperature Shock (component), c, (2013-06)                   |
| 14.5  | K-05 Temperature Shock (component), d, (2013-06)                   |
| 14.6  | K-06 Salt Spray Test with Operation, Exterior, (2013-06)           |
| 14.7  | K-07 Salt Spray Test with Operation, Interior, (2013-06)           |
| 14.8  | K-08 Humid Heat, Cyclic, (2013-06)                                 |
| 14.9  | K-09 Humid Heat, Cyclic (with frost), (2013-06)                    |
| 14.10 | K-10 Water Protection - IPX0-IPX6, (2013-06)                       |
| 14.11 | K-11 High Pressure Cleaning, (2013-06)                             |
| 14.12 | K-12 Temperature Shock with Splash Water, (2013-06)                |
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| 14.16 | K-16 Temperature Shock (without housing), (2013-06)                |
| 14.17 | K-17 Sun Radiation, a, (2013-06)                                   |
| 14.17 | K-17 Sun Radiation, b, (2013-06)                                   |
| 14.17 | K-17 Sun Radiation, c, (2013-06)                                   |
| 14.17 | K-17 Sun Radiation, d, (2013-06)                                   |
| 14.18 | K-18 Harmful Gas Test, a, (2013-06)                                |
| 14.18 | K-18 Harmful Gas Test, b, (2013-06)                                |
| 14.18 | K-18 Harmful Gas Test, c, (2013-06)                                |
| 14.18 | K-18 Harmful Gas Test, d, (2013-06)                                |
| 15.1  | C-01 Chemical Tests, (2013-06)                                     |
| 16.1  | L-01 Life Test - Mechanical-Hydraulic Endurance Test, (2013-06)    |
| 16.1  | L-01 Life Test - Mechanical-Hydraulic Endurance Test, a, (2013-06) |
| 16.1  | L-01 Life Test - Mechanical-Hydraulic Endurance Test, b, (2013-06) |
| 16.1  | L-01 Life Test - Mechanical-Hydraulic Endurance Test, c, (2013-06) |
| 16.1  | L-01 Life Test - Mechanical-Hydraulic Endurance Test, d, (2013-06) |
| 16.2  | L-02 Life Test - High Temperature Endurance Test, (2013-06)        |
| 16.2  | L-02 Life Test - High Temperature Endurance Test, a, (2013-06)     |
| 16.2  | L-02 Life Test - High Temperature Endurance Test, b, (2013-06)     |
| 16.2  | L-02 Life Test - High Temperature Endurance Test, c, (2013-06)     |
| 16.2  | L-02 Life Test - High Temperature Endurance Test, d, (2009-10)     |

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| 5.2.5 | Pulse 5B 42V |
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## Aviation Tests

### Airbus ABD0100.1.8 .1 Issue C

|         |                                   |
|---------|-----------------------------------|
| LDC 101 | Steady State Voltage, 28VDC       |
| LDC 102 | Voltage Transients, Test 1, 28VDC |
| LDC 102 | Voltage Transients, Test 2, 28VDC |
| LDC 102 | Voltage Transients, Test 3, 28VDC |



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|            |   |
|------------|---|
| LDC 102    | Voltage Transients, Test 4, 28VDC                               |
| LDC 103    | Voltage Ripple, 28VDC   |
| LDC 105    | Inrush Current, 28VDC   |
| LDC 106    | Voltage Variation Due to APU Starting, 28VDC                    |
| LDC 107    | Equipment Current Ripple, 28VDC                                 |
| LDC 108    | Voltage Spike Due to Equipment Load Switching, 28VDC            |
| LDC 109    | Compatibility with EPDC Voltage Clamping Devices, 28VDC         |
| LDC 201    | Steady-State Voltage, 28VDC                                     |
| LDC 202    | Voltage Transients, 28VDC                                       |
| LDC 203    | Voltage Ripple, 28VDC   |
| LDC 301    | Steady-State Voltage, 28VDC                                     |
| LDC 302    | Voltage Ripple, 28VDC   |
| LDC 303    | Inrush Current, 28VDC   |
| LDC 304    | Equipment Current Ripple, 28VDC                                 |
| LDC 401    | Transparency Time, 28VDC  |
| SCF 101    | Steady State, 115V  |
| SCF 102    | Voltage Transients, 115V, (SYS GAIN = 40)                       |
| SCF 105    | Current Distortion, 115V  |
| SCF 106    | Voltage Distortion, 115V  |
| SCF 106    | Voltage Distortion, Endurance w Motor, 115V                     |
| SCF 106    | Voltage Distortion, Endurance w out Motor, 115V                 |
| SCF 108    | Voltage Distortion Transients, 115V                             |
| SCF 109    | Inrush Current 115V   |
| SCF 111    | Voltage DC Content 115V   |
| SCF 112    | Voltage Modulation 115V   |
| SCF 113    | Voltage Spike Load Switching 115V                               |
| SCF 201    | Steady State V & F 115V   |
| SCF 202    | Voltage Transients 115V (SYS GAIN = 40)                         |
| SCF 204    | Frequency Transients, Test 1, 115V                              |
| SCF 204    | Frequency Transients, Test 2, 115V                              |
| SCF 401    | Transparency Time, 115V   |
| SCF 403    | Voltage Switching Transients 2, 115V                            |
| SCF 501    | Power Line Disconnection, 115V + 28VDC                          |
| SCF 501    | Power Line Disconnection, 115V                                  |
| SCFH 101   | Steady-State V&F (SYS GAIN = 40)                                |
| SCFH 102   | Voltage Transients 230V, (SYS GAIN = 60)                        |
| SCFH 105   | Current Distortion, 230V (SYS GAIN = 40)                        |
| SCFH 106   | Voltage Distortion, 230V (SYS GAIN = 40)                        |
| SCFH 106   | Voltage Distortion, Endurance w Motor, 230V (SYS GAIN = 40)     |
| SCFH 106   | Voltage Distortion, Endurance w out Motor, 230V (SYS GAIN = 40) |
| SCFH 108   | Voltage Distortion Transients, 230V (SYS GAIN = 40)             |
| SCFH 109   | Inrush Current 230V (SYS GAIN = 40)                             |
| SCFH 111   | Voltage DC Content (SYS GAIN = 40)                              |
| SCFH 112   | Voltage Modulation 230V, (SYS GAIN = 40)                        |
| SCFH 113   | Voltage Spike Load Switching, 230V (SYS GAIN = 40)              |
| SCFH 201   | Steady-State V & F 230V, (SYS GAIN = 40)                        |
| SCFH 202   | Voltage Transients 230V (SYS GAIN = 60)                         |
| SCFH 204   | Abnormal Operation (1), 230V, (SYS GAIN = 40)                   |
| SCFH 204   | Abnormal Operation (2), 230V, (SYS GAIN = 40)                   |
| SCFH 204   | Frequency Transients, Parts 1 & 2 (GAIN = 40)                   |
| SCFH 401   | Transparency Time, 230V (SYS GAIN = 40)                         |
| SCFH 402-1 | Voltage Switching Transients 1, 230V                            |
| SCFH 402-2 | Voltage Switching Transients 1, 230V                            |
| SCFH 402-3 | Voltage Switching Transients 1, 230V                            |
| SCFH 402-4 | Voltage Switching Transients 1, 230V                            |

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|-------------|---|
| SCFH 402-5  | Voltage Switching Transients 1, 230V  |
| SCFH 402-6  | Voltage Switching Transients 1, 230V  |
| SCFH 402-7  | Voltage Switching Transients 1, 230V  |
| SCFH 402-8  | Voltage Switching Transients 1, 230V  |
| SCFH 402-9  | Voltage Switching Transients 1, 230V  |
| SCFH 402-10 | Voltage Switching Transients 1, 230V  |
| SCFH 402-11 | Voltage Switching Transients 1, 230V  |
| SCFH 402-12 | Voltage Switching Transients 1, 230V  |
| SCFH 402-13 | Voltage Switching Transients 1, 230V  |
| SCFH 402-14 | Voltage Switching Transients 1, 230V  |
| SCFH 402-15 | Voltage Switching Transients 1, 230V  |
| SCFH 402-16 | Voltage Switching Transients 1, 230V  |
| SCFH 402-17 | Voltage Switching Transients 1, 230V  |
| SCFH 402-18 | Voltage Switching Transients 1, 230V  |
| SCFH 402-19 | Voltage Switching Transients 1, 230V  |
| SCFH 402-20 | Voltage Switching Transients 1, 230V  |
| SCFH 402-21 | Voltage Switching Transients 1, 230V  |
| SCFH 402-22 | Voltage Switching Transients 1, 230V  |
| SCFH 402-23 | Voltage Switching Transients 1, 230V  |
| SCFH 402-24 | Voltage Switching Transients 1, 230V  |
| SCFH 402-25 | Voltage Switching Transients 1, 230V  |
| SCFH 402-26 | Voltage Switching Transients 1, 230V  |
| SCFH 402-27 | Voltage Switching Transients 1, 230V  |
| SCFH 402-28 | Voltage Switching Transients 1, 230V  |
| SCFH 402-29 | Voltage Switching Transients 1, 230V  |
| SCFH 402-30 | Voltage Switching Transients 1, 230V  |
| SCFH 402-31 | Voltage Switching Transients 1, 230V  |
| SCFH 402-32 | Voltage Switching Transients 1, 230V  |
| SCFH 402-33 | Voltage Switching Transients 1, 230V  |
| SCFH 402-34 | Voltage Switching Transients 1, 230V  |
| SCFH 402-35 | Voltage Switching Transients 1, 230V  |
| SCFH 402-36 | Voltage Switching Transients 1, 230V  |
| SCFH 402-37 | Voltage Switching Transients 1, 230V  |
| SCFH 402-38 | Voltage Switching Transients 1, 230V  |
| SCFH 402-39 | Voltage Switching Transients 1, 230V  |
| SCFH 402-40 | Voltage Switching Transients 1, 230V  |
| SCFH 402-41 | Voltage Switching Transients 1, 230V  |
| SCFH 402-42 | Voltage Switching Transients 1, 230V  |
| SCFH 403    | Voltage Switching Transients 2, 230V (SYS GAIN = 40)                        |
| SCFH 501    | Power Line Disconnection, 230V + 28VDC                                      |
| SCFH 501    | Power Line Disconnection, 230V  |
| SVF 101     | Steady-state Voltage and Frequency, 115V                                    |
| SVF 102     | Voltage Transients, 115V  |
| SVF 105     | Current Distortion, 115V  |
| SVF 106     | Voltage Distortion1, Table 1, 115V  |
| SVF 106     | Voltage Distortion1, Table 2 (endurance), equip not including a motor, 115V |
| SVF 106     | Voltage Distortion1, Table 2 (endurance), equip including a motor, 115V     |
| SVF 108     | Voltage Distortion Transients, Test Condition 1, 115V                       |
| SVF 108     | Voltage Distortion Transients, Test Condition 2, 115V                       |
| SVF 108     | Voltage Distortion Transients, Test Condition 3, 115V                       |
| SVF 109     | Inrush Current, 115V  |
| SVF 110     | Frequency Variations, 115V  |
| SVF 112     | Voltage DC Content, 115V  |
| SVF 113     | Voltage Modulation Due to Equipment, 115V                                   |
| SVF 114     | Voltage Spike Due to Equipment Load Switching, 115V                         |

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|-----------------------------------|---|
| SVF 201                           | Steady-State Voltage and Frequency, 115V                                  |
| SVF 202                           | Voltage Transients, 115V  |
| SVF 301                           | Steady-State Voltage and Frequency, 115V                                  |
| SVF 302                           | Voltage Distortion1, Table 1, 115V  |
| SVF 302                           | Voltage Distortion1, Table 2 (endurance), equip not including motor, 115V |
| SVF 302                           | Voltage Distortion1, Table 2 (endurance), equip including a motor, 115V   |
| SVF 304                           | Voltage Distortion Transients, Test Condition 1, 115V                     |
| SVF 304                           | Voltage Distortion Transients, Test Condition 2, 115V                     |
| SVF 304                           | Voltage Distortion Transients, Test Condition 3, 115V                     |
| SVF 304                           | Voltage Distortion Transients, Test Condition 3, 230V (SYS GAIN = 40)     |
| SVF 305                           | Inrush Current, 115V  |
| SVF 306                           | Frequency Variations, 115V  |
| SVF 307                           | Voltage Modulation Due to Equipment, 115V                                 |
| SVF 401                           | Transparency Time, 115V   |
| SVF 403                           | Voltage Switching Transients 2, 115V                                      |
| SVF 404                           | Voltage Switching Transients with Frequency Change, 115V                  |
| SVF 501                           | Power Line Disconnection, 115V + 28VDC, 360Hz                             |
| SVF 501                           | Power Line Disconnection, 115V + 28VDC, 800Hz                             |
| SVF 501                           | Power Line Disconnection, 115V, 360Hz                                     |
| SVF 501                           | Power Line Disconnection, 115V, 800Hz                                     |
| SVFH 101                          | Steady-State Voltage and Frequency, 230V (SYS GAIN = 40)                  |
| SVFH 102                          | Voltage Transients, 230V (SYS GAIN = 60)                                  |
| SVFH 105                          | Current Distortion, 230V, (SYS GAIN = 40)                                 |
| SVFH 106                          | Volt Distort1, Table 2 (endur), equip inc motor, 230V (SYS GAIN = 40)     |
| SVFH 106                          | Volt Distort1, Table 2 (endur), equip not inc motor, 230V (SYS GAIN = 40) |
| SVFH 106                          | Volt Distortion1, Table 1 (endur), 230V (SYS GAIN = 40)                   |
| SVFH 108                          | Volt Distortion Transients, Test Cond 1, 230V (SYS GAIN = 40)             |
| SVFH 108                          | Volt Distortion Transients, Test Cond 2, 230V (SYS GAIN = 40)             |
| SVFH 108                          | Volt Distortion Transients, Test Cond 3, 230V (SYS GAIN = 40)             |
| SVFH 109                          | Inrush Current 230V, (SYS GAIN = 40)                                      |
| SVFH 110                          | Freq Variations 230V, (SYS GAIN = 40)                                     |
| SVFH 112                          | DC Voltage Content, VF, 230V, (SYS GAIN = 40)                             |
| SVFH 113                          | Voltage Modulation, 230V, (SYS GAIN = 40)                                 |
| SVFH 114                          | Voltage Spike Load Switching, 230V, (SYS GAIN = 40)                       |
| SVFH 201                          | Steady State V&F, 230V, (SYS GAIN = 40)                                   |
| SVFH 202                          | Voltage Transients 230V, (SYS GAIN = 60)                                  |
| SVFH 301                          | Steady-state V&F 230V, (SYS GAIN = 40)                                    |
| SVFH 302                          | Volt Distort1, Table 2 (endur), equip inc motor, 230V (SYS GAIN = 40)     |
| SVFH 302                          | Volt Distort1, Table 2 (endur), equip not inc motor, 230V (SYS GAIN = 40) |
| SVFH 302                          | Volt Distortion1, Table 1, 230V (SYS GAIN = 40)                           |
| SVFH 304                          | Voltage Distortion Transients, Test Condition 1, 230V (SYS GAIN = 40)     |
| SVFH 304                          | Voltage Distortion Transients, Test Condition 2, 230V (SYS GAIN = 40)     |
| SVFH 305                          | Inrush current 230V, (SYS GAIN = 40)                                      |
| SVFH 306                          | Freq Variations 230V, (SYS GAIN = 40)                                     |
| SVFH 307                          | Voltage Modulation 230V, (SYS GAIN = 40)                                  |
| SVFH 401                          | Switching Transients 230V, (SYS GAIN = 40)                                |
| SVFH 403                          | Switching Transients 2, 230V, (SYS GAIN = 40)                             |
| SVFH 404                          | Switching Transients (SYS GAIN = 40)                                      |
| SVFH 501                          | Power Line Disconnection, 230V + 28VDC, 360Hz (SYS GAIN = 40)             |
| SVFH 501                          | Power Line Disconnection, 230V + 28VDC, 800Hz (SYS GAIN = 40)             |
| SVFH 501                          | Power Line Disconnection, 230V, 360Hz (SYS GAIN = 40)                     |
| SVFH 501                          | Power Line Disconnection, 230V, 800Hz (SYS GAIN = 40)                     |
| <b>Airbus ABD0100.1.8 Issue E</b> |   |
| A 1                               | Steady State Voltage and Frequency, Single-Phase, 115V, 400Hz, Emerg Op   |
| A 1                               | Steady State Voltage and Frequency, Single-Phase, 115V, 400Hz, Normal Op  |

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| A 2   | Abnormal Steady State Volt and Freq, Single-Phase, 115V, 400Hz          |
| A 3.1 | Voltage Surge, Normal Transients, 115V, 400Hz                           |
| A 3.2 | Voltage Surge, Normal Transients, 115V, 400Hz                           |
| A 3.3 | Voltage Surge, Normal Transients, 115V, 400Hz                           |
| A 3.4 | Voltage Surge, Normal Transients, 115V, 400Hz                           |
| A 4.1 | Voltage Surge, Abnormal Transients, 115V, 400Hz                         |
| A 4.2 | Voltage Surge, Abnormal Transients, 115V, 400Hz                         |
| A 4.3 | Voltage Surge, Abnormal Transients, 115V, 400Hz                         |
| A 6   | Switching Transients, Additional Requirements (a), 115V, 400Hz          |
| A 8   | Frequency Excursions in Abnormal Operation, Test 1, 115V, 400Hz         |
| A 8   | Frequency Excursions in Abnormal Operation, Test 2, 115V, 400Hz         |
| A 10  | Distorted Voltage, 115V, 400Hz  |
| A 11  | Voltage DC Content, 115V, 400Hz   |
| B 1   | Steady State Voltage and Frequency, Single-Phase, 26V, 400Hz, Emerg Op  |
| B 1   | Steady State Voltage and Frequency, Single-Phase, 26V, 400Hz, Normal Op |
| B 2   | Abnormal Steady State Volt and Freq, Single-Phase, 26V, 400Hz           |
| B 3.1 | Voltage Surge, Normal Transients, 26V, 400Hz                            |
| B 3.2 | Voltage Surge, Normal Transients, 26V, 400Hz                            |
| B 3.3 | Voltage Surge, Normal Transients, 26V, 400Hz                            |
| B 3.4 | Voltage Surge, Normal Transients, 26V, 400Hz                            |
| B 4.1 | Voltage Surge, Abnormal Transients, 26V, 400Hz                          |
| B 4.2 | Voltage Surge, Abnormal Transients, 26V, 400Hz                          |
| B 4.3 | Voltage Surge, Abnormal Transients, 26V, 400Hz                          |
| B 6   | Switching Transients, Additional Requirements (a), 26V, 400Hz           |
| B 8   | Frequency Excursions in Abnormal Operation, Test 1, 26V, 400Hz          |
| B 8   | Frequency Excursions in Abnormal Operation, Test 2, 26V, 400Hz          |
| B 10  | Distorted Voltage, 26V, 400Hz   |
| B 11  | Voltage DC Content, 26V, 400Hz  |
| C 1   | Steady State Voltage, Normal Operations 115V (VF)                       |
| C 2   | Abnormal Steady State Voltage, 115V (VF), 360Hz                         |
| C 2   | Abnormal Steady State Voltage, 115V (VF), 800Hz                         |
| C 3.1 | Voltage Surge, Normal Transients, 115V (VF), 360Hz                      |
| C 3.1 | Voltage Surge, Normal Transients, 115V (VF), 800Hz                      |
| C 3.2 | Voltage Surge, Normal Transients, 115V (VF), 360Hz                      |
| C 3.2 | Voltage Surge, Normal Transients, 115V (VF), 800Hz                      |
| C 3.3 | Voltage Surge, Normal Transients, 115V (VF), 360Hz                      |
| C 3.3 | Voltage Surge, Normal Transients, 115V (VF), 800Hz                      |
| C 3.4 | Voltage Surge, Normal Transients, 115V (VF), 360Hz                      |
| C 3.4 | Voltage Surge, Normal Transients, 115V (VF), 800Hz                      |
| C 4.1 | Voltage Surge, Abnormal Transients, 115V (VF), 360Hz                    |
| C 4.1 | Voltage Surge, Abnormal Transients, 115V (VF), 800Hz                    |
| C 4.2 | Voltage Surge, Abnormal Transients, 115V (VF), 360Hz                    |
| C 4.2 | Voltage Surge, Abnormal Transients, 115V (VF), 800Hz                    |
| C 4.3 | Voltage Surge, Abnormal Transients, 115V (VF), 360Hz                    |
| C 4.3 | Voltage Surge, Abnormal Transients, 115V (VF), 800Hz                    |
| C 6   | Switching Transients, Additional Requirements (c), 115V (VF)            |
| C 6   | Switching Transients, Addl Reqmts (a), 115V (VF), 360Hz                 |
| C 6   | Switching Transients, Addl Reqmts (a), 115V (VF), 800Hz                 |
| C 8   | Normal Frequency Variations, Emergency Operations, 115V, 360Hz          |
| C 8   | Normal Frequency Variations, Emergency Operations, 115V, 800Hz          |
| C 8   | Normal Frequency Variations, Normal Operations, 115V, 360Hz             |
| C 8   | Normal Frequency Variations, Normal Operations, 115V, 800Hz             |
| C 10  | Distorted Voltage, 115V (VF), 360Hz                                     |
| C 10  | Distorted Voltage, 115V (VF), 800Hz                                     |
| C 11  | Voltage DC Content, 115V (VF), 360Hz                                    |

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| C 11                       | Voltage DC Content, 115V (VF), 800Hz                                     |
| D 1                        | Steady State Voltage, Normal and Emergency Operations, 28.8VDC           |
| D 2                        | Abnormal Steady State Voltage, 28.8VDC                                   |
| D 3.1                      | Voltage Surge, Normal Transients, 28.8VDC                                |
| D 3.2                      | Voltage Surge, Normal Transients, 28.8VDC                                |
| D 3.3                      | Voltage Surge, Normal Transients, 28.8VDC                                |
| D 3.4                      | Voltage Surge, Normal Transients, 28.8VDC                                |
| D 4.1                      | Voltage Surge, Abnormal Transients, 28.8VDC                              |
| D 4.2                      | Voltage Surge, Abnormal Transients, 28.8VDC                              |
| D 4.3                      | Voltage Surge, Abnormal Transients, 28.8VDC                              |
| D 6                        | Switching Transients, Additional Requirements (a), 28.8VDC               |
| D 6                        | Switching Transients, Additional Requirements (d), 28.8VDC               |
| D 7A                       | Square Waves due to Lg Load Variations in Norm Cond, 28.8VDC             |
| D 7B                       | Square Waves due to Lg Load Variations in Norm Cond, 28.8VDC             |
| E 1                        | Steady State Voltage, Norm, Abn, Emer Op, NBPT DC Network (28VDC)        |
| E 2.1                      | Voltage Surge, Normal Transients, NBPT DC Network (28VDC)                |
| E 2.2                      | Voltage Surge, Normal Transients, NBPT DC Network (28VDC)                |
| E 2.3                      | Voltage Surge, Normal Transients, NBPT DC Network (28VDC)                |
| E 2.4                      | Voltage Surge, Normal Transients, NBPT DC Network (28VDC)                |
| E 3.1                      | Voltage Surge, Abnormal Transients, NBPT DC Network (28VDC)              |
| E 3.2                      | Voltage Surge, Abnormal Transients, NBPT DC Network (28VDC)              |
| E 3.3                      | Voltage Surge, Abnormal Transients, NBPT DC Network (28VDC)              |
| E 3.4                      | Voltage Surge, Abnormal Transients, NBPT DC Network (28VDC)              |
| E 5                        | Switching Transients, Addl Reqmnts (b) NBPT DC Network (28VDC)           |
| <b>Boeing D6-36440E</b>    |  |
| 7.3.3.3                    | Ripple Voltage Cat Z 14VDC Continuous                                    |
| 7.3.3.3                    | Ripple Voltage Cat Z 14VDC Discrete                                      |
| 7.3.3.3                    | Ripple Voltage Cat. Z 28VDC Continuous                                   |
| 7.3.3.3                    | Ripple Voltage Cat Z 28VDC Discrete                                      |
| <b>Boeing D6-16050-5 C</b> |  |
| 7                          | Fig 7.2-2  |
| <b>DO160G</b>              |  |
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| 16                         | (Table 16-7) All Test Conditions   |
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| 16.5.1.1                   | Voltage and Frequency (ac), A(CF), 230V                                  |
| 16.5.1.1                   | Voltage and Frequency (ac), A(NF), 115V                                  |
| 16.5.1.1                   | Voltage and Frequency (ac), A(NF), 230V                                  |
| 16.5.1.1                   | Voltage and Frequency (ac), A(WF), 115V                                  |
| 16.5.1.1                   | Voltage and Frequency (ac), A(WF), 230V                                  |
| 16.5.1.1                   | Voltage and Frequency, Emergency Operations (single-phase), A(CF), 115V  |
| 16.5.1.1                   | Voltage and Frequency, Emergency Operations (single-phase), A(CF), 230V  |
| 16.5.1.4                   | Momentary Power Interruptions, 360Hz, A(NF), A(WF), 115V                 |
| 16.5.1.4                   | Momentary Power Interruptions, 360Hz, A(NF), A(WF), 230V                 |
| 16.5.1.4                   | Momentary Power Interruptions, 400Hz, A(CF), 115V                        |
| 16.5.1.4                   | Momentary Power Interruptions, 400Hz, A(CF), 230V                        |
| 16.5.1.4                   | Momentary Power Interruptions, 650Hz, A(NF), 115V                        |
| 16.5.1.4                   | Momentary Power Interruptions, 650Hz, A(NF), 230V                        |
| 16.5.1.4                   | Momentary Power Interruptions, 800Hz, A(WF), 115V                        |
| 16.5.1.4                   | Momentary Power Interruptions, 800Hz, A(WF), 230V                        |
| 16.5.1.4                   | Momentary Power Interruptions, Addl Requirements, 360-650Hz, A(NF), 115V |
| 16.5.1.4                   | Momentary Power Interruptions, Addl Requirements, 360-650Hz, A(NF), 230V |
| 16.5.1.4                   | Momentary Power Interruptions, Addl Requirements, 360-800Hz, A(WF), 115V |
| 16.5.1.4                   | Momentary Power Interruptions, Addl Requirements, 360-800Hz, A(WF), 230V |
| 16.5.1.5.1                 | Normal Surge Voltage, 360-650Hz, A(NF), 115V                             |



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| 16.5.1.5.1 | Normal Surge Voltage, 360-650Hz, A(NF), 230V  |
| 16.5.1.5.1 | Normal Surge Voltage, 360-800Hz, A(WF), 115V  |
| 16.5.1.5.1 | Normal Surge Voltage, 360-800Hz, A(WF), 230V  |
| 16.5.1.5.1 | Normal Surge Voltage, 400Hz, A(CF), 115V  |
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| 16.5.1.7   | Voltage DV Content, 360-650Hz, A(NF), 115V  |
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| 16.5.1.7   | Voltage DV Content, 360-800Hz, A(WF), 115V  |
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| 16.5.2.1   | Abnormal Voltage and Frequency Limits in Steady State (ac), A(CF), 115V                     |
| 16.5.2.1   | Abnormal Voltage and Frequency Limits in Steady State (ac), A(CF), 230V                     |
| 16.5.2.1   | Abnormal Voltage and Frequency Limits in Steady State (ac), A(NF), 115V                     |
| 16.5.2.1   | Abnormal Voltage and Frequency Limits in Steady State (ac), A(NF), 230V                     |
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| 16.5.2.2   | Momentary Undervoltage Operation (ac), A(CF), 115V  |
| 16.5.2.2   | Momentary Undervoltage Operation (ac), A(CF), 230V  |
| 16.5.2.2   | Momentary Undervoltage Operation (ac), A(NF), 115V  |
| 16.5.2.2   | Momentary Undervoltage Operation (ac), A(NF), 230V  |
| 16.5.2.2   | Momentary Undervoltage Operation (ac), A(WF), 115V  |
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| 16.5.2.3.1 | Abnormal Surge Voltage (ac), A(CF), 115V  |
| 16.5.2.3.1 | Abnormal Surge Voltage (ac), A(CF), 230V  |
| 16.5.2.3.1 | Abnormal Surge Voltage (ac), A(NF), 115V  |
| 16.5.2.3.1 | Abnormal Surge Voltage (ac), A(NF), 230V  |
| 16.5.2.3.1 | Abnormal Surge Voltage (ac), A(WF), 115V  |
| 16.5.2.3.1 | Abnormal Surge Voltage (ac), A(WF), 230V  |
| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 1, 115V  |
| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 1, 230V  |
| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 2, 115V  |
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| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 3, A(NF), 115V                                     |
| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 3, A(NF), 230V                                     |
| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 3, A(WF), 115V                                     |
| 16.5.2.3.2 | Abnormal Frequency Transients (ac), test 3, A(WF), 230V                                     |
| 16.5.2.3.3 | Abnormal Frequency Variations, A(NF), 115V  |
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| 16.6.1.1   | Voltage (Average Value at DC), Cat A, B, and Z, 28VDC                                       |
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| 16.6.1.3   | Momentary Power Interruptions (dc) Test B (equipment with digital circuits), Cat. A, 28VDC  |
| 16.6.1.3   | Momentary Power Interruptions (dc) Test B (equipment with digital circuits), Cat. B, 14VDC  |
| 16.6.1.3   | Momentary Power Interruptions (dc) Test B (equipment with digital circuits), Cat. B, 28VDC  |
| 16.6.1.3   | Momentary Power Interruptions (dc) Test B (equipment with digital circuits), Cat. D, 270VDC |
| 16.6.1.3   | Momentary Power Interruptions (dc) Test B (equipment with digital circuits), Cat. Z, 28VDC  |



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| 16.6.1.3 | Momentary Power Interruptions (dc) Test C (all equipment), Cat. A, 28VDC  |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test C (all equipment), Cat. B, 14VDC  |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test C (all equipment), Cat. B, 28VDC  |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test C (all equipment), Cat. D, 270VDC                                       |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test C (all equipment), Cat. Z, 28VDC  |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test D (double interrupt for digital or memory devices), Cat. A and Z, 28VDC |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test D (double interrupt for digital or memory devices), Cat. B, 14VDC       |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test D (double interrupt for digital or memory devices), Cat. B, 28VDC       |
| 16.6.1.3 | Momentary Power Interruptions (dc) Test D (double interrupt for digital or memory devices), Cat. D, 270VDC      |
| 16.6.1.4 | Normal Surge Voltage (dc), Cat. A, 28VDC  |
| 16.6.1.4 | Normal Surge Voltage (dc), Cat. B, 14VDC  |
| 16.6.1.4 | Normal Surge Voltage (dc), Cat. D, 270VDC   |
| 16.6.1.4 | Normal Surge Voltage (dc), Cat. Z, 28VDC  |
| 16.6.1.5 | Engine Starting Under Voltage Operation (dc), Cat. Z and 28VDC Cat. B   |
| 16.6.1.6 | Exposed Voltage Decay Time (dc), Cat. D, 270VDC   |
| 16.6.2.1 | Voltage Steady State (dc), 14VDC  |
| 16.6.2.1 | Voltage Steady State (dc), 28VDC  |
| 16.6.2.1 | Voltage Steady State (dc), 270VDC   |
| 16.6.2.2 | Low Voltage Conditions (dc), Cat B, 14VDC   |
| 16.6.2.2 | Low Voltage Conditions (dc), Cat B, 28VDC   |
| 16.6.2.3 | Momentary Undervoltage Operation (dc), 14VDC  |
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| 16.6.2.3 | Momentary Undervoltage Operation (dc), 270VDC   |
| 16.6.2.4 | Abnormal Surge Voltage (dc), Cat A, 28VDC   |
| 16.6.2.4 | Abnormal Surge Voltage (dc), Cat B, 14VDC   |
| 16.6.2.4 | Abnormal Surge Voltage (dc), Cat B, 28VDC   |
| 16.6.2.4 | Abnormal Surge Voltage (dc), Cat D, 270VDC  |
| 16.6.2.4 | Abnormal Surge Voltage (dc), Cat Z, 28VDC   |
| 16.7.1.2 | Current Distortion Verification Requirements (ac), A(CF), test condition 1, 115V                                |
| 16.7.1.2 | Current Distortion Verification Requirements (ac), A(CF), test condition 1, 230V                                |
| 16.7.1.2 | Current Distortion Verification Requirements (ac), A(NF), test condition 1, 115V                                |
| 16.7.1.2 | Current Distortion Verification Requirements (ac), A(NF), test condition 1, 230V                                |
| 16.7.1.2 | Current Distortion Verification Requirements (ac), A(WF), test condition 1, 115V                                |
| 16.7.1.2 | Current Distortion Verification Requirements (ac), A(WF), test condition 1, 230V                                |
| 16.7.1.3 | Current Distortion Verification Requirements (ac), A(CF), 115V  |
| 16.7.1.3 | Current Distortion Verification Requirements (ac), A(CF), 230V  |
| 16.7.1.3 | Current Distortion Verification Requirements (ac), A(NF), 115V  |
| 16.7.1.3 | Current Distortion Verification Requirements (ac), A(NF), 230V  |
| 16.7.1.3 | Current Distortion Verification Requirements (ac), A(WF), 115V  |
| 16.7.1.3 | Current Distortion Verification Requirements (ac), A(WF), 230V  |
| 16.7.3.2 | DC Current Content in Steady-State Operation, A(CF), 115V   |
| 16.7.3.2 | DC Current Content in Steady-State Operation, A(CF), 230V   |
| 16.7.3.2 | DC Current Content in Steady-State Operation, A(NF), 115V   |
| 16.7.3.2 | DC Current Content in Steady-State Operation, A(NF), 230V   |
| 16.7.3.2 | DC Current Content in Steady-State Operation, A(WF), 115V   |
| 16.7.3.2 | DC Current Content in Steady-State Operation, A(WF), 230V   |
| 16.7.4.2 | Regenerated Energy (dc) Category D, 270V  |
| 16.7.5.2 | Inrush Current Requirement (ac), A(CF), 115V  |
| 16.7.5.2 | Inrush Current Requirement (ac), A(CF), 230V  |
| 16.7.5.2 | Inrush Current Requirement (ac), A(NF), 115V  |
| 16.7.5.2 | Inrush Current Requirement (ac), A(NF), 230V  |
| 16.7.5.2 | Inrush Current Requirement (ac), A(WF), 115V  |

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| 16.7.5.2            | Inrush Current Requirement (ac), A(WF), 230V               |
| 16.7.5.2            | Inrush Current Requirement (dc), 14VDC                     |
| 16.7.5.2            | Inrush Current Requirement (dc), 28VDC                     |
| 16.7.5.2            | Inrush Current Requirement (dc), 270VDC                    |
| 16.7.8.2            | Power Factor (all ac equipment) Designation P, A(CF), 115V |
| 16.7.8.2            | Power Factor (all ac equipment) Designation P, A(CF), 230V |
| 16.7.8.2            | Power Factor (all ac equipment) Designation P, A(NF), 115V |
| 16.7.8.2            | Power Factor (all ac equipment) Designation P, A(NF), 230V |
| 16.7.8.2            | Power Factor (all ac equipment) Designation P, A(WF), 115V |
| 16.7.8.2            | Power Factor (all ac equipment) Designation P, A(WF), 230V |
| 18                  | Ripple Voltage (dc), Cat. B 14VDC                          |
| 18                  | Ripple Voltage (dc), Cat. B, 28VDC                         |
| 18                  | Ripple Voltage (dc), Cat. R, K, Z, 14VDC                   |
| 18                  | Ripple Voltage (dc), Cat. R, K, Z, 28VDC                   |
| 18                  | Ripple Voltage (dc), Cat. R, K, Z, 270VDC                  |
| 19                  | Fig 19-1 (d) Cat AC L=3m                                   |
| 19                  | Fig 19-1 (d) Cat CC L=3m                                   |
| 19                  | Fig 19-1 (d) Cat ZC L=3m                                   |
| 19                  | Fig 19-1 (e) Cat AN L=3m                                   |
| 19                  | Fig 19-1 (e) Cat CN L=3m                                   |
| 19                  | Fig 19-1 (e) Cat ZN L=3m                                   |
| 19                  | Fig 19-1 (f) Cat AW L=3m                                   |
| 19                  | Fig 19-1 (f) Cat CW L=3m                                   |
| 19                  | Fig 19-1 (f) Cat ZW L=3m                                   |
| <b>MIL STD 461G</b> |  |
| RS101               | Army   |
| RS101               | Navy   |
| CS101               | 5.7.2 Fig CS101-1 Curve 1 120 Hz                           |
| CS101               | 5.7.2 Fig CS101-1 Curve 1                                  |
| CS101               | 5.7.2 Fig CS101-1 Curve 2 120 Hz                           |
| CS101               | 5.7.2 Fig CS101-1 Curve 2                                  |
| CS101               | 5.7.2 Fig CS101-2 Power Limits 120 Hz                      |
| CS101               | 5.7.2 Fig CS101-2 Power Limits                             |
| <b>MIL STD 704F</b> |  |
| HDC101              | Load Measurements - 270 V DC                               |
| HDC102 - A          | Nominal (270 V DC)   |
| HDC102 - B          | NLSS (250 V DC)  |
| HDC102 - C          | NHSS (280 V DC)  |
| HDC103              | Template   |
| HDC105              | (270 VDC) - Repetitive Transient                           |
| HDC105              | AA (280 VDC) - Overvoltage Transient (330 VDC)             |
| HDC105              | BB (280 VDC) - Overvoltage Transient (330 VDC)             |
| HDC105              | CC (280 VDC) - Overvoltage Transient (305 VDC)             |
| HDC105              | DD (280 VDC) - Overvoltage Transient (305 VDC)             |
| HDC105              | EE (280 VDC) - Overvoltage Transient x3 (330 VDC)          |
| HDC105              | FF (250 VDC) - Overvoltage Transient (330 VDC)             |
| HDC105              | GG (250 VDC) - Overvoltage Transient (330 VDC)             |
| HDC105              | HH (250 VDC) - Overvoltage Transient (305 VDC)             |
| HDC105              | II (250 VDC) - Overvoltage Transient (305 VDC)             |
| HDC105              | JJ (250 VDC) - Overvoltage Transient x3 (330 VDC)          |
| HDC105              | KK (280 VDC) - Undervoltage Transient (200 VDC)            |
| HDC105              | LL (280 VDC) - Undervoltage Transient (200 VDC)            |
| HDC105              | MM (280 VDC) - Undervoltage Transient x3 (200 VDC)         |
| HDC105              | NN (250 VDC) - Undervoltage Transient (200 VDC)            |

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| HDC105 | OO (250 VDC) - Undervoltage Transient (200 VDC)                      |
| HDC105 | PP (250 VDC) - Undervoltage Transient x3 (200 VDC)                   |
| HDC105 | QQ (280 VDC) - Combined Transient (200-330 VDC)                      |
| HDC105 | RR (250 VDC) - Combined Transient (200-330 VDC)                      |
| HDC201 | A (270V) - Transfer Interrupt - Nominal Voltage (50 ms)              |
| HDC201 | B (250V) - Transfer Interrupt - NLSS Voltage (50 ms)                 |
| HDC201 | C (280V) - Transfer Interrupt - NHSS Voltage (50 ms)                 |
| HDC201 | D (270V) - Transfer Interrupt - Nominal Voltage (30 ms)              |
| HDC201 | E (250V) - Transfer Interrupt - NLSS Voltage (30 ms)                 |
| HDC201 | F (280V) - Transfer Interrupt - NHSS Voltage (30 ms)                 |
| HDC201 | G (270V) - Transfer Interrupt - Nominal Voltage (10 ms)              |
| HDC201 | H (250V) - Transfer Interrupt - NLSS Voltage (10 ms)                 |
| HDC201 | I (280V) - Transfer Interrupt - NHSS Voltage (10 ms)                 |
| HDC201 | J (270V) - Transfer Interrupt x3 - Nominal Voltage                   |
| HDC201 | K (270V) - Transfer Interrupt - Overvoltage (330 VDC)                |
| HDC201 | L (270V) - Transfer Interrupt - Undervoltage (200 VDC)               |
| HDC301 | A (270 V DC) - Undervoltage Transients (240 V DC)                    |
| HDC301 | B (270 V DC) - Overvoltage Transients (290 V DC)                     |
| HDC302 | AA (280 V DC) - Overvoltage Transients (350 V DC)                    |
| HDC302 | BB (280 V DC) - Overvoltage Transients (350 V DC)                    |
| HDC302 | CC (280 V DC) - Overvoltage Transients x3 (350 V DC)                 |
| HDC302 | DD (250 V DC) - Overvoltage Transients (350 V DC)                    |
| HDC302 | EE (250 V DC) - Overvoltage Transients (350 V DC)                    |
| HDC302 | FF (250 V DC) - Overvoltage Transients x3 (350 V DC)                 |
| HDC302 | GG (280 V DC) - Undervoltage Transients (180 V DC)                   |
| HDC302 | HH (280 V DC) - Undervoltage Transients (180 V DC)                   |
| HDC302 | II (280 V DC) - Undervoltage Transients x3 (180 V DC)                |
| HDC302 | JJ (250 V DC) - Undervoltage Transients (180 V DC)                   |
| HDC302 | KK (250 V DC) - Undervoltage Transients (180 V DC)                   |
| HDC302 | LL (250 V DC) - Undervoltage Transients x3 (180 V DC)                |
| HDC302 | MM (280 V DC) - Combined Transients (180-350 V DC)                   |
| HDC302 | NN (250 V DC) - Combined Transients (180-350 V DC)                   |
| HDC401 | A (270 V DC) - Steady State Limits for Voltage (250 V DC)            |
| HDC401 | A (704B,C,D) (270 V DC) - Steady State Limits for Voltage (240 V DC) |
| HDC401 | B (270 V DC) - Steady State Limits for Voltage (280 V DC)            |
| HDC401 | B (704B,C,D) (270 V DC) - Steady State Limits for Voltage (290 V DC) |
| HDC501 | A (704B,C) (270 V DC) - Starting Voltage Transients (155 V DC)       |
| HDC501 | AA (270 V DC) - Starting Voltage Transients (115 V DC)               |
| HDC601 | A (270 V DC) - Power Failures (100 ms)                               |
| HDC601 | B (270 V DC) - Power Failures (500 ms)                               |
| HDC601 | C (270 V DC) - Power Failures (3000 ms)                              |
| HDC601 | D (270 V DC) - Power Failures (7000 ms)                              |
| HDC602 | Correct Phase Connection (270 V DC)                                  |
| HDC602 | Phase Reversal (270 V DC)  |
| LDC101 | Load Measurements - 28 V DC  |
| LDC102 | A - Nominal (28 V DC)  |
| LDC102 | B - NLSS (22 V DC)   |
| LDC102 | C - NLSS (29 V DC)   |
| LDC103 | Template   |
| LDC105 | (28.5 VDC) - Repetitive Transient                                    |
| LDC105 | AA (29 VDC) - Overvoltage Transient (50 VDC)                         |
| LDC105 | BB (29 VDC) - Overvoltage Transient (50 VDC)                         |

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| LDC105 | CC (29 VDC) - Overvoltage Transient (40 VDC)                       |
| LDC105 | DD (29 VDC) - Overvoltage Transient (40 VDC)                       |
| LDC105 | EE (29 VDC) - Overvoltage Transient x 3 (50 VDC)                   |
| LDC105 | FF (22 VDC) - Overvoltage Transient (50 VDC)                       |
| LDC105 | GG (22 VDC) - Overvoltage Transient (50 VDC)                       |
| LDC105 | HH (22 VDC) - Overvoltage Transient (40 VDC)                       |
| LDC105 | II (22 VDC) - Overvoltage Transient (40 VDC)                       |
| LDC105 | JJ (22 VDC) - Overvoltage Transient x 3 (50 VDC)                   |
| LDC105 | KK (29 VDC) - Undervoltage Transient (18 VDC)                      |
| LDC105 | LL (29 VDC) - Undervoltage Transient (18 VDC)                      |
| LDC105 | MM (29 VDC) - Undervoltage Transient x3 (18 VDC)                   |
| LDC105 | NN (22 VDC) - Undervoltage Transient (18 VDC)                      |
| LDC105 | OO (22 VDC) - Undervoltage Transient (18 VDC)                      |
| LDC105 | PP (22 VDC) - Undervoltage Transient x3 (18 VDC)                   |
| LDC105 | QQ (29 VDC) - Combined Transient (18-50 VDC)                       |
| LDC105 | RR (22 VDC) - Combined Transient (18-50 VDC)                       |
| LDC201 | A (28V) - Transfer Interrupt - Nominal Voltage (50 ms)             |
| LDC201 | B (22V) - Transfer Interrupt - NLSS Voltage (50 ms)                |
| LDC201 | C (29V) - Transfer Interrupt - NHSS Voltage (50 ms)                |
| LDC201 | D (28V) - Transfer Interrupt - Nominal Voltage (30 ms)             |
| LDC201 | E (22V) - Transfer Interrupt - NLSS Voltage (30 ms)                |
| LDC201 | F (29V) - Transfer Interrupt - NHSS Voltage (30 ms)                |
| LDC201 | G (28V) - Transfer Interrupt - Nominal Voltage (10 ms)             |
| LDC201 | H (22V) - Transfer Interrupt - NLSS Voltage (10 ms)                |
| LDC201 | I (29V) - Transfer Interrupt - NHSS Voltage (10 ms)                |
| LDC201 | J (28V) - Transfer Interrupt x3 - Nominal Voltage                  |
| LDC201 | K (28V) - Transfer Interrupt - Overvoltage (50 VDC)                |
| LDC201 | L (28V) - Transfer Interrupt - Undervoltage (18 VDC)               |
| LDC301 | A (28 V DC) - Undervoltage Transients (20 V DC)                    |
| LDC301 | B (28 V DC) - Overvoltage Transients (31,5 V DC)                   |
| LDC302 | AAA (29 V DC) - Overvoltage Transients (50 V DC)                   |
| LDC302 | BBB (29 V DC) - Overvoltage Transients (50 V DC)                   |
| LDC302 | CCC (29 V DC) - Overvoltage Transients x3 (50 V DC)                |
| LDC302 | DDD (22 V DC) - Overvoltage Transients (50 V DC)                   |
| LDC302 | EEE (22 V DC) - Overvoltage Transients (50 V DC)                   |
| LDC302 | FFF (22 V DC) - Overvoltage Transients x3 (50 V DC)                |
| LDC302 | GGG (29 V DC) - Undervoltage Transients (7 V DC)                   |
| LDC302 | HHH (29 V DC) - Undervoltage Transients (7 V DC)                   |
| LDC302 | III (29 V DC) - Undervoltage Transients x3 (7 V DC)                |
| LDC302 | JJJ (22 V DC) - Undervoltage Transients (7 V DC)                   |
| LDC302 | KKK (22 V DC) - Undervoltage Transients (7 V DC)                   |
| LDC302 | LLL (22 V DC) - Undervoltage Transients x3 (7 V DC)                |
| LDC302 | MMM (29 V DC) - Combined Transients (7-50 V DC)                    |
| LDC302 | NNN (22 V DC) - Combined Transients (7-50 V DC)                    |
| LDC302 | Template for A-V (704A) and AA-NN (704B-704D)                      |
| LDC401 | A (28 V DC) - Steady State Limits for Voltage (18 V DC)            |
| LDC401 | A (704A,C,D) (28 V DC) - Steady State Limits for Voltage (16 V DC) |
| LDC401 | A (704B) (28 V DC) - Steady State Limits for Voltage (18 V DC)     |
| LDC401 | B (28 V DC) - Steady State Limits for Voltage (29 V DC)            |
| LDC401 | B (704B) (28 V DC) - Steady State Limits for Voltage (29 V DC)     |
| LDC401 | B (704C) (28 V DC) - Steady State Limits for Voltage (30 V DC)     |
| LDC401 | B (704D) (28 V DC) - Steady State Limits for Voltage (29 V DC)     |

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| LDC501          | A (704A,B,C) (28,5 V DC) - Starting Voltage Transients (16 V DC) |
| LDC501          | AA (29 V DC) - Starting Voltage Transients (12 V DC)             |
| LDC601          | A (28 V DC)- Power Failures (100 ms)                             |
| LDC601          | B (28 V DC)- Power Failures (500 ms)                             |
| LDC601          | C (28 V DC)- Power Failures (3000 ms)                            |
| LDC601          | D (28 V DC)- Power Failures (7000 ms)                            |
| LDC602          | Correct Phase Connection (28 V DC)                               |
| LDC602          | Phase Reversal (28 V DC)   |
| SAC101          | Load Measurements - 115 V, 400Hz                                 |
| SAC102          | A - Nominal Voltage, Nominal Frequency                           |
| SAC102          | B - Nominal Voltage, NLSS Frequency                              |
| SAC102          | C - Nominal Voltage, NHSS Frequency                              |
| SAC102          | D - NLSS Voltage, Nominal Frequency                              |
| SAC102          | E - NLSS Voltage, NLSS Frequency                                 |
| SAC102          | F - NLSS Voltage, NHSS Frequency                                 |
| SAC102          | G - NHSS Voltage, Nominal Frequency                              |
| SAC102          | H - NHSS Voltage, NLSS Frequency                                 |
| SAC102          | I - NHSS Voltage, NHSS Frequency                                 |
| SAC105          | A - 1Hz per second   |
| SAC105          | B - 5Hz per second   |
| SAC105          | C - 10Hz per second  |
| SAC105          | D - 25Hz per second  |
| SAC105          | E - 100Hz per second   |
| SAC106 (Ripple) | A - 316 mVrms with 50 Hz Voltage Distortion                      |
| SAC106 (Ripple) | B - 316 mVrms with 100 Hz Voltage Distortion                     |
| SAC106 (Ripple) | C - 1580 mVrms with 500 Hz Voltage Distortion                    |
| SAC106 (Ripple) | D - 3160 mVrms with 1 kHz Voltage Distortion                     |
| SAC106 (Ripple) | E - 3160 mVrms with 2 kHz Voltage Distortion                     |
| SAC106 (Ripple) | F - 3160 mVrms with 3 kHz Voltage Distortion                     |
| SAC106 (Ripple) | G - 1900 mVrms with 5 kHz Voltage Distortion                     |
| SAC106 (Ripple) | H - 950 mVrms with 10 kHz Voltage Distortion                     |
| SAC108          | A - 115 Vrms with +100 mV DC offset                              |
| SAC108          | B - 115 Vrms with -100 mV DC offset                              |
| SAC109          | (MIL-STD-704A version) Test Conditions A-O Template              |
| SAC109          | AA - Overvoltage Transients (140 Vrms)                           |
| SAC109          | A-O Template (for MIL-STD-704A version)                          |
| SAC109          | BB - Overvoltage Transients (140 Vrms)                           |
| SAC109          | CC - Overvoltage Transients (160 Vrms)                           |
| SAC109          | DD - Overvoltage Transients (160 Vrms)                           |
| SAC109          | EE - Overvoltage Transients (180 Vrms)                           |
| SAC109          | FF - Overvoltage Transients (180 Vrms)                           |
| SAC109          | GG - Overvoltage Transients x3 (180 Vrms)                        |
| SAC109          | HH - Undervoltage Transients (90 Vrms)                           |
| SAC109          | II - Undervoltage Transients (90 Vrms)                           |
| SAC109          | JJ - Undervoltage Transients (80 Vrms)                           |
| SAC109          | KK - Undervoltage Transients (80 Vrms)                           |
| SAC109          | LL - Undervoltage Transients x3 (80 Vrms)                        |
| SAC109          | MM - Combined Transients (80-180 Vrms)                           |
| SAC109          | Repetitive Normal Voltage Transients                             |
| SAC110          | (MIL-STD-704A version) Test Conditions A-I Template              |
| SAC110          | AA - Overfrequency Transients (410 Hz)                           |
| SAC110          | BB - Overfrequency Transients (420 Hz)                           |



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| SAC110 | CC - Overfrequency Transients (425 Hz)                  |
| SAC110 | DD - Overfrequency Transients (425-410 Hz)              |
| SAC110 | EE - Underfrequency Transients (390 Hz)                 |
| SAC110 | FF - Underfrequency Transients (380 Hz)                 |
| SAC110 | GG - Underfrequency Transients (375 Hz)                 |
| SAC110 | HH - Underfrequency Transients (375-390 Hz)             |
| SAC110 | II - Combined Frequency Transients (375-425 Hz)         |
| SAC201 | A - Transfer Interrupt - Nominal Voltage (50 ms)        |
| SAC201 | B - Transfer Interrupt - NLSS Voltage (50 ms)           |
| SAC201 | C - Transfer Interrupt - NHSS Voltage (50 ms)           |
| SAC201 | D - Transfer Interrupt - Nominal Voltage (30 ms)        |
| SAC201 | E - Transfer Interrupt - NLSS Voltage (30 ms)           |
| SAC201 | F - Transfer Interrupt - NHSS Voltage (30 ms)           |
| SAC201 | G - Transfer Interrupt - Nominal Voltage (10 ms)        |
| SAC201 | H - Transfer Interrupt - NLSS Voltage (10 ms)           |
| SAC201 | I - Transfer Interrupt - NHSS Voltage (10 ms)           |
| SAC201 | J - Transfer Interrupt x3 - Nominal Voltage (50 ms)     |
| SAC201 | K - Transfer Interrupt - Nominal Voltage + Overvoltage  |
| SAC201 | L - Transfer Interrupt - Nominal Voltage + Undervoltage |
| SAC301 | A - Abnormal Steady State Limits (115 Vrms, 380 Hz)     |
| SAC301 | B - Abnormal Steady State Limits (115 Vrms, 420 Hz)     |
| SAC301 | C - Abnormal Steady State Limits (100 Vrms, 400 Hz)     |
| SAC301 | D - Abnormal Steady State Limits (100 Vrms, 380 Hz)     |
| SAC301 | E - Abnormal Steady State Limits (100 Vrms, 420 Hz)     |
| SAC301 | F - Abnormal Steady State Limits (125 Vrms, 400 Hz)     |
| SAC301 | G - Abnormal Steady State Limits (125 Vrms, 380 Hz)     |
| SAC301 | H - Abnormal Steady State Limits (125 Vrms, 420 Hz)     |
| SAC302 | A (704A only) - Overvoltage Transients (140 Vrms)       |
| SAC302 | AA - Overvoltage Transients (140 Vrms)                  |
| SAC302 | B (704A only) - Overvoltage Transients (140 Vrms)       |
| SAC302 | BB - Overvoltage Transients (140 Vrms)                  |
| SAC302 | C (704A only) - Overvoltage Transients (160 Vrms)       |
| SAC302 | CC - Overvoltage Transients (160 Vrms)                  |
| SAC302 | D (704A only) - Overvoltage Transients (160 Vrms)       |
| SAC302 | DD - Overvoltage Transients (160 Vrms)                  |
| SAC302 | E (704A only) - Overvoltage Transients (180 Vrms)       |
| SAC302 | EE - Overvoltage Transients (180 Vrms)                  |
| SAC302 | F (704A only) - Overvoltage Transients (180 Vrms)       |
| SAC302 | FF - Overvoltage Transients (180 Vrms)                  |
| SAC302 | G (704A only) - Overvoltage Transients x3 (180 Vrms)    |
| SAC302 | GG - Overvoltage Transients x3 (180 Vrms)               |
| SAC302 | H (704A only) - Undervoltage Transients (85 Vrms)       |
| SAC302 | HH - Undervoltage Transients (85 Vrms)                  |
| SAC302 | I (704A only) - Undervoltage Transients (85 Vrms)       |
| SAC302 | II - Undervoltage Transients (85 Vrms)                  |
| SAC302 | J (704A only) - Undervoltage Transients (75 Vrms)       |
| SAC302 | JJ - Undervoltage Transients (66 Vrms)                  |
| SAC302 | K (704A only) - Undervoltage Transients (75 Vrms)       |
| SAC302 | KK - Undervoltage Transients (65 Vrms)                  |
| SAC302 | L (704A only) - Undervoltage Transients (45 Vrms)       |
| SAC302 | LL - Undervoltage Transients (45 Vrms)                  |
| SAC302 | M (704A only) - Undervoltage Transients (45 Vrms)       |



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| SAC302 | MM - Undervoltage Transients (45 Vrms)                       |
| SAC302 | N (704A only) - Undervoltage Transients x3 (45 Vrms)         |
| SAC302 | NN - Undervoltage Transients x3 (45 Vrms)                    |
| SAC302 | O (704A only) - Combined Transients (45-180 Vrms)            |
| SAC302 | OO - Combined Transients (180 Vrms)                          |
| SAC303 | A (704A) - Overfrequency Transients (480 Hz)                 |
| SAC303 | AA - Overfrequency Transients (480 Hz)                       |
| SAC303 | B (704A) - Overfrequency Transients (480 Hz)                 |
| SAC303 | BB - Overfrequency Transients (480 Hz)                       |
| SAC303 | C (704A) - Underfrequency Transients (320 Hz)                |
| SAC303 | CC - Underfrequency Transients (320 Hz)                      |
| SAC303 | D (704A) - Underfrequency Transients (320 Hz)                |
| SAC303 | DD - Underfrequency Transients (320 Hz)                      |
| SAC303 | E (704A) - Combined Transients (320-480 Hz)                  |
| SAC303 | EE - Combined Transients (320-480 Hz)                        |
| SAC401 | A - Emergency Steady State Limits - 115 V, 393 Hz            |
| SAC401 | A (704A-D) - Emergency Steady State Limits - 115 V, 360 Hz   |
| SAC401 | B - Emergency Steady State Limits - 115 V, 407 Hz            |
| SAC401 | B (704A-D) - Emergency Steady State Limits - 115 V, 440 Hz   |
| SAC401 | C - Emergency Steady State Limits - 104 V, 400 Hz            |
| SAC401 | C (704A,C,D) - Emergency Steady State Limits - 104 V, 400 Hz |
| SAC401 | C (704B) - Emergency Steady State Limits - 102 V, 400 Hz     |
| SAC401 | D - Emergency Steady State Limits - 104 V, 393 Hz            |
| SAC401 | D (704A,C,D) - Emergency Steady State Limits - 104 V, 360 Hz |
| SAC401 | D (704B) - Emergency Steady State Limits - 102 V, 360 Hz     |
| SAC401 | E - Emergency Steady State Limits - 104 V, 407 Hz            |
| SAC401 | E (704A,C,D) - Emergency Steady State Limits - 104 V, 440 Hz |
| SAC401 | E (704B) - Emergency Steady State Limits - 102 V, 440 Hz     |
| SAC401 | F - Emergency Steady State Limits - 118 V, 400 Hz            |
| SAC401 | F (704A,C,D) - Emergency Steady State Limits - 122 V, 400 Hz |
| SAC401 | F (704B) - Emergency Steady State Limits - 124 V, 400 Hz     |
| SAC401 | G - Emergency Steady State Limits - 118 V, 393 Hz            |
| SAC401 | G (704A,C,D) - Emergency Steady State Limits - 122 V, 360 Hz |
| SAC401 | G (704B) - Emergency Steady State Limits - 124 V, 360 Hz     |
| SAC401 | H - Emergency Steady State Limits - 118 V, 407 Hz            |
| SAC401 | H (704A,C,D) - Emergency Steady State Limits - 122 V, 440 Hz |
| SAC401 | H (704B) - Emergency Steady State Limits - 124 V, 440 Hz     |
| SAC601 | A - Power Failures (100 ms)                                  |
| SAC601 | B - Power Failures (500 ms)                                  |
| SAC601 | C - Power Failures (3000 ms)                                 |
| SAC601 | D - Power Failures (7000 ms)                                 |
| SAC603 | Correct Phase Connection                                     |
| SAC603 | Phase Reversal   |
| SVF101 | Load Measurements - 115 V, 360Hz                             |
| SVF101 | Load Measurements - 115 V, 400Hz                             |
| SVF101 | Load Measurements - 115 V, 600Hz                             |
| SVF101 | Load Measurements - 115 V, 800Hz                             |
| SVF102 | Template   |
| SVF105 | A (362 Hz) - 1Hz per second                                  |
| SVF105 | A (400 Hz) - 1Hz per second                                  |
| SVF105 | A (600 Hz) - 1Hz per second                                  |
| SVF105 | A (798 Hz) - 1Hz per second                                  |

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| SVF105          | B (362 Hz) - 5Hz per second                    |
| SVF105          | B (400 Hz) - 5Hz per second                    |
| SVF105          | B (600 Hz) - 5Hz per second                    |
| SVF105          | B (798 Hz) - 5Hz per second                    |
| SVF105          | C (362 Hz) - 10Hz per second                   |
| SVF105          | C (400 Hz) - 10Hz per second                   |
| SVF105          | C (600 Hz) - 10Hz per second                   |
| SVF105          | C (798 Hz) - 10Hz per second                   |
| SVF105          | D (362 Hz) - 25Hz per second                   |
| SVF105          | D (400 Hz) - 25Hz per second                   |
| SVF105          | D (600 Hz) - 25Hz per second                   |
| SVF105          | D (798 Hz) - 25Hz per second                   |
| SVF105          | E (362 Hz) - 100Hz per second                  |
| SVF105          | E (400 Hz) - 100Hz per second                  |
| SVF105          | E (600 Hz) - 100Hz per second                  |
| SVF105          | E (798 Hz) - 100Hz per second                  |
| SVF106 (Ripple) | A - 316 mVrms with 50 Hz Voltage Distortion    |
| SVF106 (Ripple) | B - 316 mVrms with 100 Hz Voltage Distortion   |
| SVF106 (Ripple) | C - 1580 mVrms with 500 Hz Voltage Distortion  |
| SVF106 (Ripple) | D - 3160 mVrms with 1 kHz Voltage Distortion   |
| SVF106 (Ripple) | E - 3160 mVrms with 2 kHz Voltage Distortion   |
| SVF106 (Ripple) | F - 3160 mVrms with 3 kHz Voltage Distortion   |
| SVF106 (Ripple) | G - 1900 mVrms with 5 kHz Voltage Distortion   |
| SVF106 (Ripple) | H - 950 mVrms with 10 kHz Voltage Distortion   |
| SVF108          | A (360 Hz) - 115 Vrms with +100 mV DC offset   |
| SVF108          | A (400 Hz) - 115 Vrms with +100 mV DC offset   |
| SVF108          | A (600 Hz) - 115 Vrms with +100 mV DC offset   |
| SVF108          | A (800 Hz) - 115 Vrms with +100 mV DC offset   |
| SVF108          | B (360 Hz) - 115 Vrms with -100 mV DC offset   |
| SVF108          | B (400 Hz) - 115 Vrms with -100 mV DC offset   |
| SVF108          | B (600 Hz) - 115 Vrms with -100 mV DC offset   |
| SVF108          | B (800 Hz) - 115 Vrms with -100 mV DC offset   |
| SVF109          | A (360 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | A (400 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | A (600 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | A (800 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | B (360 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | B (400 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | B (600 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | B (800 Hz) - Overvoltage Transients (140 Vrms) |
| SVF109          | C (360 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | C (400 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | C (600 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | C (800 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | D (360 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | D (400 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | D (600 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | D (800 Hz) - Overvoltage Transients (160 Vrms) |
| SVF109          | E (360 Hz) - Overvoltage Transients (180 Vrms) |
| SVF109          | E (400 Hz) - Overvoltage Transients (180 Vrms) |
| SVF109          | E (600 Hz) - Overvoltage Transients (180 Vrms) |
| SVF109          | E (800 Hz) - Overvoltage Transients (180 Vrms) |

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| SVF109 | F (360 Hz) - Overvoltage Transients (180 Vrms)            |
| SVF109 | F (400 Hz) - Overvoltage Transients (180 Vrms)            |
| SVF109 | F (600 Hz) - Overvoltage Transients (180 Vrms)            |
| SVF109 | F (800 Hz) - Overvoltage Transients (180 Vrms)            |
| SVF109 | G (360 Hz) - Overvoltage Transients x3 (180 Vrms)         |
| SVF109 | G (400 Hz) - Overvoltage Transients x3 (180 Vrms)         |
| SVF109 | G (600 Hz) - Overvoltage Transients x3 (180 Vrms)         |
| SVF109 | G (800 Hz) - Overvoltage Transients x3 (180 Vrms)         |
| SVF109 | H (360 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | H (400 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | H (600 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | H (800 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | I (360 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | I (400 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | I (600 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | I (800 Hz) - Undervoltage Transients (90 Vrms)            |
| SVF109 | J (360 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | J (400 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | J (600 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | J (800 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | K (360 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | K (400 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | K (600 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | K (800 Hz) - Undervoltage Transients (80 Vrms)            |
| SVF109 | L (360 Hz) - Undervoltage Transients x3 (80 Vrms)         |
| SVF109 | L (400 Hz) - Undervoltage Transients x3 (80 Vrms)         |
| SVF109 | L (600 Hz) - Undervoltage Transients x3 (80 Vrms)         |
| SVF109 | L (800 Hz) - Undervoltage Transients x3 (80 Vrms)         |
| SVF109 | M (360 Hz) - Combined Transients (80-180 Vrms)            |
| SVF109 | M (400 Hz) - Combined Transients (80-180 Vrms)            |
| SVF109 | M (600 Hz) - Combined Transients (80-180 Vrms)            |
| SVF109 | M (800 Hz) - Combined Transients (80-180 Vrms)            |
| SVF109 | Repetitive Normal Voltage Transients (360 Hz)             |
| SVF109 | Repetitive Normal Voltage Transients (400 Hz)             |
| SVF109 | Repetitive Normal Voltage Transients (600 Hz)             |
| SVF109 | Repetitive Normal Voltage Transients (800 Hz)             |
| SVF110 | A - Overfrequency Transients (360-800 Hz)                 |
| SVF110 | B - Overfrequency Transients (360-800 Hz)                 |
| SVF110 | C - Overfrequency Transients (360-600 Hz)                 |
| SVF110 | D - Overfrequency Transients (360-600 Hz)                 |
| SVF110 | E - Underfrequency Transients (800-360 Hz)                |
| SVF110 | F - Underfrequency Transients (800-360 Hz)                |
| SVF110 | G - Underfrequency Transients (800-600 Hz)                |
| SVF110 | H - Underfrequency Transients (800-600 Hz)                |
| SVF110 | I - Combined Frequency Transients (800-360 Hz)            |
| SVF201 | A (360 Hz) - Transfer Interrupt - Nominal Voltage (50 ms) |
| SVF201 | A (400 Hz) - Transfer Interrupt - Nominal Voltage (50 ms) |
| SVF201 | A (600 Hz) - Transfer Interrupt - Nominal Voltage (50 ms) |
| SVF201 | A (800 Hz) - Transfer Interrupt - Nominal Voltage (50 ms) |
| SVF201 | B (360 Hz) - Transfer Interrupt - NLSS Voltage (50 ms)    |
| SVF201 | B (400 Hz) - Transfer Interrupt - NLSS Voltage (50 ms)    |
| SVF201 | B (600 Hz) - Transfer Interrupt - NLSS Voltage (50 ms)    |

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|--------|---|
| SVF201 | B (800 Hz) - Transfer Interrupt - NLSS Voltage (50 ms)    |
| SVF201 | C (360 Hz) - Transfer Interrupt - NHSS Voltage (50 ms)    |
| SVF201 | C (400 Hz) - Transfer Interrupt - NHSS Voltage (50 ms)    |
| SVF201 | C (600 Hz) - Transfer Interrupt - NHSS Voltage (50 ms)    |
| SVF201 | C (800 Hz) - Transfer Interrupt - NHSS Voltage (50 ms)    |
| SVF201 | D (360 Hz) - Transfer Interrupt - Nominal Voltage (30 ms) |
| SVF201 | D (400 Hz) - Transfer Interrupt - Nominal Voltage (30 ms) |
| SVF201 | D (600 Hz) - Transfer Interrupt - Nominal Voltage (30 ms) |
| SVF201 | D (800 Hz) - Transfer Interrupt - Nominal Voltage (30 ms) |
| SVF201 | E (360 Hz) - Transfer Interrupt - NLSS Voltage (30 ms)    |
| SVF201 | E (400 Hz) - Transfer Interrupt - NLSS Voltage (30 ms)    |
| SVF201 | E (600 Hz) - Transfer Interrupt - NLSS Voltage (30 ms)    |
| SVF201 | E (800 Hz) - Transfer Interrupt - NLSS Voltage (30 ms)    |
| SVF201 | F (360 Hz) - Transfer Interrupt - NHSS Voltage (30 ms)    |
| SVF201 | F (400 Hz) - Transfer Interrupt - NHSS Voltage (30 ms)    |
| SVF201 | F (600 Hz) - Transfer Interrupt - NHSS Voltage (30 ms)    |
| SVF201 | F (800 Hz) - Transfer Interrupt - NHSS Voltage (30 ms)    |
| SVF201 | G (360 Hz) - Transfer Interrupt - Nominal Voltage (10 ms) |
| SVF201 | G (400 Hz) - Transfer Interrupt - Nominal Voltage (10 ms) |
| SVF201 | G (600 Hz) - Transfer Interrupt - Nominal Voltage (10 ms) |
| SVF201 | G (800 Hz) - Transfer Interrupt - Nominal Voltage (10 ms) |
| SVF201 | H (360 Hz) - Transfer Interrupt - NLSS Voltage (10 ms)    |
| SVF201 | H (400 Hz) - Transfer Interrupt - NLSS Voltage (10 ms)    |
| SVF201 | H (600 Hz) - Transfer Interrupt - NLSS Voltage (10 ms)    |
| SVF201 | H (800 Hz) - Transfer Interrupt - NLSS Voltage (10 ms)    |
| SVF201 | I (360 Hz) - Transfer Interrupt - NHSS Voltage (10 ms)    |
| SVF201 | I (400 Hz) - Transfer Interrupt - NHSS Voltage (10 ms)    |
| SVF201 | I (600 Hz) - Transfer Interrupt - NHSS Voltage (10 ms)    |
| SVF201 | I (800 Hz) - Transfer Interrupt - NHSS Voltage (10 ms)    |
| SVF201 | J (360 Hz) - Transfer Interrupt x3 - Nominal Voltage      |
| SVF201 | J (400 Hz) - Transfer Interrupt x3 - Nominal Voltage      |
| SVF201 | J (600 Hz) - Transfer Interrupt x3 - Nominal Voltage      |
| SVF201 | J (800 Hz) - Transfer Interrupt x3 - Nominal Voltage      |
| SVF201 | K (360 Hz) - Transfer Interrupt - Overvoltage             |
| SVF201 | K (400 Hz) - Transfer Interrupt - Overvoltage             |
| SVF201 | K (600 Hz) - Transfer Interrupt - Overvoltage             |
| SVF201 | K (800 Hz) - Transfer Interrupt - Overvoltage             |
| SVF201 | L (360 Hz) - Transfer Interrupt - Undervoltage            |
| SVF201 | L (400 Hz) - Transfer Interrupt - Undervoltage            |
| SVF201 | L (600 Hz) - Transfer Interrupt - Undervoltage            |
| SVF201 | L (800 Hz) - Transfer Interrupt - Undervoltage            |
| SVF301 | A - Abnormal Steady State Limits (100 Vrms, 400 Hz)       |
| SVF301 | B - Abnormal Steady State Limits (100 Vrms, 360 Hz)       |
| SVF301 | C - Abnormal Steady State Limits (100 Vrms, 600 Hz)       |
| SVF301 | D - Abnormal Steady State Limits (100 Vrms, 800 Hz)       |
| SVF301 | E - Abnormal Steady State Limits (125 Vrms, 400 Hz)       |
| SVF301 | F - Abnormal Steady State Limits (125 Vrms, 360 Hz)       |
| SVF301 | G - Abnormal Steady State Limits (125 Vrms, 600 Hz)       |
| SVF301 | H - Abnormal Steady State Limits (125 Vrms, 800 Hz)       |
| SVF302 | Abnormal Transients Template (360 Hz)                     |
| SVF302 | Abnormal Transients Template (400 Hz)                     |
| SVF302 | Abnormal Transients Template (600 Hz)                     |

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| SVF302          | Abnormal Transients Template (800 Hz)                 |
| SVF303          | A (360 Hz) - Overfrequency Transients (800 Hz)        |
| SVF303          | B (360 Hz) - Overfrequency Transients (800 Hz)        |
| SVF303          | C (360 Hz) - Overfrequency Transients (600 Hz)        |
| SVF303          | D (360 Hz) - Overfrequency Transients (600 Hz)        |
| SVF303          | E (800 Hz) - Underfrequency Transients (360 Hz)       |
| SVF303          | F (800 Hz) - Underfrequency Transients (360 Hz)       |
| SVF303          | G (800 Hz) - Underfrequency Transients (600 Hz)       |
| SVF303          | H (800 Hz) - Underfrequency Transients (600 Hz)       |
| SVF303          | I (600 Hz) - Combined Transients (360-800 Hz)         |
| SVF401          | Template  |
| SVF601          | A (360 Hz) - Power Failures (100 ms)                  |
| SVF601          | A (400 Hz) - Power Failures (100 ms)                  |
| SVF601          | A (600 Hz) - Power Failures (100 ms)                  |
| SVF601          | A (800 Hz) - Power Failures (100 ms)                  |
| SVF601          | B (360 Hz) - Power Failures (500 ms)                  |
| SVF601          | B (400 Hz) - Power Failures (500 ms)                  |
| SVF601          | B (600 Hz) - Power Failures (500 ms)                  |
| SVF601          | B (800 Hz) - Power Failures (500 ms)                  |
| SVF601          | C (360 Hz) - Power Failures (3000 ms)                 |
| SVF601          | C (400 Hz) - Power Failures (3000 ms)                 |
| SVF601          | C (600 Hz) - Power Failures (3000 ms)                 |
| SVF601          | C (800 Hz) - Power Failures (3000 ms)                 |
| SVF601          | D (360 Hz) - Power Failures (7000 ms)                 |
| SVF601          | D (400 Hz) - Power Failures (7000 ms)                 |
| SVF601          | D (600 Hz) - Power Failures (7000 ms)                 |
| SVF601          | D (800 Hz) - Power Failures (7000 ms)                 |
| SVF603          | Correct Phase Configuration (800 Hz)                  |
| SVF603          | Phase Reversal (360 Hz)                               |
| SVF603          | Phase Reversal (400 Hz)                               |
| SVF603          | Phase Reversal (600 Hz)                               |
| SXF101          | Load Measurements - 115 V, 60Hz                       |
| SXF102          | A - 115 V, 60Hz                                       |
| SXF102          | B - 115 V, 59.5Hz                                     |
| SXF102          | C - 115 V, 60.5Hz                                     |
| SXF102          | D - 105 V, 60Hz                                       |
| SXF102          | E - 105 V, 59.5Hz                                     |
| SXF102          | F - 105 V, 60.5Hz                                     |
| SXF102          | G - 125 V, 60Hz                                       |
| SXF102          | H - 125 V, 59.5Hz                                     |
| SXF102          | I - 125 V, 60.5Hz                                     |
| SXF105          | A (60 Hz) - 0.1Hz per second                          |
| SXF105          | B (60 Hz) - 0.5Hz per second                          |
| SXF105          | C (60 Hz) - 4Hz per second                            |
| SXF105          | D (60 Hz) - 25Hz per second                           |
| SXF105          | E (60 Hz) - 15Hz per second                           |
| SXF106 (Ripple) | A (60 Hz) - 1000 mVrms with 50 Hz Voltage Distortion  |
| SXF106 (Ripple) | B (60 Hz) - 3162 mVrms with 150 Hz Voltage Distortion |
| SXF106 (Ripple) | C (60 Hz) - 3162 mVrms with 450 Hz Voltage Distortion |
| SXF106 (Ripple) | D (60 Hz) - 1333 mVrms with 1 kHz Voltage Distortion  |
| SXF106 (Ripple) | E (60 Hz) - 473 mVrms with 3 kHz Voltage Distortion   |
| SXF106 (Ripple) | F (60 Hz) - 282 mVrms with 5 kHz Voltage Distortion   |



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| SXF106 (Ripple) | G (60 Hz) - 150 mVrms with 10 kHz Voltage Distortion     |
| SXF108          | A (60 Hz) - 115 Vrms with +100 mV DC offset              |
| SXF108          | B (60 Hz) - 115 Vrms with -100 mV DC offset              |
| SXF109          | A (60 Hz) - Overvoltage Transients (152 Vrms)            |
| SXF109          | B (60 Hz) - Overvoltage Transients (130 Vrms)            |
| SXF109          | C (60 Hz) - Overvoltage Transients (130 Vrms)            |
| SXF109          | D (60 Hz) - Overvoltage Transients x3 (130 Vrms)         |
| SXF109          | E (60 Hz) - Undervoltage Transients (70 Vrms)            |
| SXF109          | F (60 Hz) - Undervoltage Transients (70 Vrms)            |
| SXF109          | G (60 Hz) - Undervoltage Transients (70 Vrms)            |
| SXF109          | H (60 Hz) - Undervoltage Transients x3 (70 Vrms)         |
| SXF109          | I (60 Hz) - Combined Transients (70-130 Vrms)            |
| SXF109          | Repetitive Normal Voltage Transients (100-128 Vrms)      |
| SXF110          | A - Overfrequency Transients (61 Hz)                     |
| SXF110          | B - Overfrequency Transients (61 Hz)                     |
| SXF110          | C - Underfrequency Transients (59 Hz)                    |
| SXF110          | D - Underfrequency Transients (59 Hz)                    |
| SXF110          | E - Combined Frequency Transients (59-61 Hz)             |
| SXF201          | A (60 Hz) - Transfer Interrupt - Nominal Voltage (50 ms) |
| SXF201          | B (60 Hz) - Transfer Interrupt - NLSS Voltage (50 ms)    |
| SXF201          | C (60 Hz) - Transfer Interrupt - NHSS Voltage (50 ms)    |
| SXF201          | D (60 Hz) - Transfer Interrupt - Nominal Voltage (30 ms) |
| SXF201          | E (60 Hz) - Transfer Interrupt - NLSS Voltage (30 ms)    |
| SXF201          | F (60 Hz) - Transfer Interrupt - NHSS Voltage (30 ms)    |
| SXF201          | G (60 Hz) - Transfer Interrupt - Nominal Voltage (10 ms) |
| SXF201          | H (60 Hz) - Transfer Interrupt - NLSS Voltage (10 ms)    |
| SXF201          | I (60 Hz) - Transfer Interrupt - NHSS Voltage (10 ms)    |
| SXF201          | J (60 Hz) - Transfer Interrupt x3 - Nominal Voltage      |
| SXF201          | K (60 Hz) - Transfer Interrupt - Overvoltage             |
| SXF201          | L (60 Hz) - Transfer Interrupt - Undervoltage            |
| SXF301          | A - Abnormal Steady State Limits (115 Vrms, 59,5 Hz)     |
| SXF301          | B - Abnormal Steady State Limits (115 Vrms, 60,5 Hz)     |
| SXF301          | C - Abnormal Steady State Limits (100 Vrms, 60 Hz)       |
| SXF301          | D - Abnormal Steady State Limits (100 Vrms, 59,5 Hz)     |
| SXF301          | E - Abnormal Steady State Limits (100 Vrms, 60,5 Hz)     |
| SXF301          | F - Abnormal Steady State Limits (128 Vrms, 60 Hz)       |
| SXF301          | G - Abnormal Steady State Limits (128 Vrms, 59,5 Hz)     |
| SXF301          | H - Abnormal Steady State Limits (128 Vrms, 60,5 Hz)     |
| SXF302          | A (60 Hz) - Overvoltage Transients (180 Vrms)            |
| SXF302          | B (60 Hz) - Overvoltage Transients (180 Vrms)            |
| SXF302          | C (60 Hz) - Overvoltage Transients (160 Vrms)            |
| SXF302          | D (60 Hz) - Overvoltage Transients (160 Vrms)            |
| SXF302          | E (60 Hz) - Overvoltage Transients x3 (180 Vrms)         |
| SXF302          | F (60 Hz) - Undervoltage Transients (50 Vrms)            |
| SXF302          | G (60 Hz) - Undervoltage Transients (50 Vrms)            |
| SXF302          | H (60 Hz) - Undervoltage Transients (70 Vrms)            |
| SXF302          | I (60 Hz) - Undervoltage Transients (70 Vrms)            |
| SXF302          | J (60 Hz) - Undervoltage Transients x3 (50 Vrms)         |
| SXF302          | K (60 Hz) - Combined Transients (50-180 Vrms)            |
| SXF303          | A (60 Hz) - Overfrequency Transients (61 Hz)             |
| SXF303          | B (60 Hz) - Overfrequency Transients (61 Hz)             |
| SXF303          | C (60 Hz) - Underfrequency Transients (50 Hz)            |

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| SXF303                | D (60 Hz) - Underfrequency Transients (50 Hz)        |
| SXF303                | E (60 Hz) - Combined Frequency Transients (50-61 Hz) |
| SXF401                | A - 115 V, 60Hz                                      |
| SXF401                | B - 115 V, 59.5Hz                                    |
| SXF401                | C - 115 V, 60.5Hz                                    |
| SXF401                | D - 105 V, 60Hz                                      |
| SXF401                | E - 105 V, 59.5Hz                                    |
| SXF401                | F - 105 V, 60.5Hz                                    |
| SXF401                | G - 125 V, 60Hz                                      |
| SXF401                | H - 125 V, 59.5Hz                                    |
| SXF401                | I - 125 V, 60.5Hz                                    |
| SXF601                | A (60 Hz) - Power Failures (100 ms)                  |
| SXF601                | B (60 Hz) - Power Failures (500 ms)                  |
| SXF601                | C (60 Hz) - Power Failures (2000 ms)                 |
| SXF603                | Correct Phase Connection (60 Hz)                     |
| SXF603                | Phase Reversal (60 Hz)                               |
| <b>MIL-HDBK-704-8</b> |  |
| LDC101                | 28VDC, Characterization                              |
| LDC102                | 28VDC, Steady State Limits for Voltage               |
| LDC102                | NHSS Voltage 704A Test C                             |
| LDC102                | NHSS Voltage 704B-F Test C                           |
| LDC102                | NHSS Voltage 704B-F Test B                           |
| LDC102                | NHSS Voltage 704A Test B                             |
| LDC102                | Nominal Voltage Test A                               |
| LDC103-1              | 10 & 25Hz (levels for 704A, C, D & F)                |
| LDC103-2              | (50Hz-10KHz) XFMR Primary for 704A                   |
| LDC103-2              | (50Hz-10KHz) XFMR Primary for 704B, C & D            |
| LDC103-2              | (50Hz-10KHz) XFMR Primary for 704F                   |
| LDC105                | Test AA  |
| LDC105                | Test BB  |
| LDC105                | Test CC  |
| LDC105                | Test DD  |
| LDC105                | Test EE  |
| LDC105                | Test FF  |
| LDC105                | Test GG  |
| LDC105                | Test HH  |
| LDC105                | Test II  |
| LDC105                | Test JJ  |
| LDC105                | Test KK  |
| LDC105                | Test LL  |
| LDC105                | Test MM  |
| LDC105                | Test NN  |
| LDC105                | Test OO  |
| LDC105                | Test PP  |
| LDC105                | Test QQ  |
| LDC105                | Test RR  |
| LDC105                | Transient A 704A                                     |
| LDC105                | Transient B 704A                                     |
| LDC105                | Transient C 704A                                     |
| LDC105                | Transient D 704A                                     |
| LDC105                | Transient E 704A                                     |
| LDC105                | Transient F 704A                                     |
| LDC105                | Transient G 704A                                     |
| LDC105                | Transient H 704A                                     |

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| LDC105  | Transient I 704A   |
| LDC105  | Transient J 704A   |
| LDC105  | Transient K 704A   |
| LDC105  | Transient L 704A   |
| LDC105  | Transient M 704A   |
| LDC105  | Transient N 704A   |
| LDC105  | Transient O 704A   |
| LDC105  | Transient P 704A   |
| LDC105  | Transient Q 704A   |
| LDC105  | Transient R 704A   |
| LDC105  | Transient S 704A   |
| LDC105  | Transient T 704A   |
| LDC105  | Transient U 704A   |
| LDC105  | Transient V 704A   |
| LDC201A | Test A             |
| LDC201A | Test B             |
| LDC201A | Test C             |
| LDC201A | Test D             |
| LDC201A | Test E             |
| LDC201A | Test F             |
| LDC201A | Test G             |
| LDC201A | Test H             |
| LDC201A | Test I             |
| LDC201A | Test J             |
| LDC201A | Test K             |
| LDC201A | Test L             |
| LDC201B | Test A             |
| LDC201B | Test B             |
| LDC201B | Test C             |
| LDC201B | Test D             |
| LDC201B | Test E             |
| LDC201B | Test F             |
| LDC201B | Test G             |
| LDC201B | Test H             |
| LDC201B | Test I             |
| LDC201B | Test J             |
| LDC201B | Test K             |
| LDC201B | Test L             |
| LDC301  | 704A AHSS Test B   |
| LDC301  | 704A ALSS Test A   |
| LDC301  | 704B-F AHSS Test B |
| LDC301  | 704B-F ALSS Test A |
| LDC301  | Test A             |
| LDC301  | Test B             |
| LDC302  | Test A             |
| LDC302  | Test AA            |
| LDC302  | Test B             |
| LDC302  | Test BB            |
| LDC302  | Test BBB           |
| LDC302  | Test C             |
| LDC302  | Test CC            |
| LDC302  | Test CCC           |
| LDC302  | Test D             |
| LDC302  | Test DD            |
| LDC302  | Test E             |

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| LDC302               | Test EE                                     |
| LDC302               | Test EEE                                    |
| LDC302               | Test F                                      |
| LDC302               | Test FF                                     |
| LDC302               | Test FFF                                    |
| LDC302               | Test G                                      |
| LDC302               | Test GG                                     |
| LDC302               | Test H                                      |
| LDC302               | Test HH                                     |
| LDC302               | Test HHH                                    |
| LDC302               | Test I                                      |
| LDC302               | Test II                                     |
| LDC302               | Test III                                    |
| LDC302               | Test J                                      |
| LDC302               | Test K                                      |
| LDC302               | Test KK                                     |
| LDC302               | Test KKK                                    |
| LDC302               | Test L                                      |
| LDC302               | Test LL                                     |
| LDC302               | Test LLL                                    |
| LDC302               | Test M                                      |
| LDC302               | Test MM                                     |
| LDC302               | Test MMM                                    |
| LDC302               | Test N                                      |
| LDC302               | Test NN                                     |
| LDC302               | Test NNN                                    |
| LDC302               | Test O                                      |
| LDC302               | Test P                                      |
| LDC302               | Test Q                                      |
| LDC302               | Test R                                      |
| LDC302               | Test S                                      |
| LDC302               | Test T                                      |
| LDC302               | Test U                                      |
| LDC302               | Test V                                      |
| LDC401               | 704A ELSS Test B                            |
| LDC401               | 704A, C, D EHSS Test A                      |
| LDC401               | 704B EHSS Test B                            |
| LDC401               | 704B, D, E, F EHSS Test B                   |
| LDC401               | 704B, E, F ELSS Test B                      |
| LDC501               | Test A                                      |
| LDC501               | Test C                                      |
| LDC601               | Test A                                      |
| LDC601               | Test B                                      |
| LDC601               | Test C                                      |
| LDC601               | Test D                                      |
| LDC602               | 28VDC                                       |
| LDC704A              | AHSS Test B                                 |
| LDC704A              | ALSS Test A                                 |
| LDC704B-F            | AHSS Test B                                 |
| LDC704B-F            | ALSS Test A                                 |
| <b>IEC 6100-4-16</b> |   |
| 5.2                  | Continuous Disturbance at 16.66 Hz, Level 1 |
| 5.2                  | Continuous Disturbance at 16.66 Hz, Level 2 |
| 5.2                  | Continuous Disturbance at 16.66 Hz, Level 3 |
| 5.2                  | Continuous Disturbance at 16.66 Hz, Level 4 |

|                       |   |
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| 5.2                   | Continuous Disturbance at 16.67 Hz, Level 1     |
| 5.2                   | Continuous Disturbance at 16.67 Hz, Level 2     |
| 5.2                   | Continuous Disturbance at 16.67 Hz, Level 3     |
| 5.2                   | Continuous Disturbance at 16.67 Hz, Level 4     |
| 5.2                   | Continuous Disturbance at 50 Hz, Level 1        |
| 5.2                   | Continuous Disturbance at 50 Hz, Level 2        |
| 5.2                   | Continuous Disturbance at 50 Hz, Level 3        |
| 5.2                   | Continuous Disturbance at 50 Hz, Level 4        |
| 5.2                   | Continuous Disturbance at 60 Hz, Level 1        |
| 5.2                   | Continuous Disturbance at 60 Hz, Level 2        |
| 5.2                   | Continuous Disturbance at 60 Hz, Level 3        |
| 5.2                   | Continuous Disturbance at 60 Hz, Level 4        |
| 5.2                   | Continuous Disturbance at DC, Level 1           |
| 5.2                   | Continuous Disturbance at DC, Level 2           |
| 5.2                   | Continuous Disturbance at DC, Level 3           |
| 5.2                   | Continuous Disturbance at DC, Level 4           |
| 5.2                   | Short Duration Disturbance at 16.66 Hz, Level 1 |
| 5.2                   | Short Duration Disturbance at 16.66 Hz, Level 2 |
| 5.2                   | Short Duration Disturbance at 16.66 Hz, Level 3 |
| 5.2                   | Short Duration Disturbance at 16.66 Hz, Level 4 |
| 5.2                   | Short Duration Disturbance at 16.67 Hz, Level 1 |
| 5.2                   | Short Duration Disturbance at 16.67 Hz, Level 2 |
| 5.2                   | Short Duration Disturbance at 16.67 Hz, Level 3 |
| 5.2                   | Short Duration Disturbance at 50 Hz, Level 1    |
| 5.2                   | Short Duration Disturbance at 50 Hz, Level 2    |
| 5.2                   | Short Duration Disturbance at 50 Hz, Level 3    |
| 5.2                   | Short Duration Disturbance at 50 Hz, Level 4    |
| 5.2                   | Short Duration Disturbance at 60 Hz, Level 1    |
| 5.2                   | Short Duration Disturbance at 60 Hz, Level 2    |
| 5.2                   | Short Duration Disturbance at 60 Hz, Level 3    |
| 5.2                   | Short Duration Disturbance at 60 Hz, Level 4    |
| 5.2                   | Short Duration Disturbance at DC, Level 1       |
| 5.2                   | Short Duration Disturbance at DC, Level 2       |
| 5.2                   | Short Duration Disturbance at DC, Level 3       |
| 5.2                   | Short Duration Disturbance at DC, Level 4       |
| 5.3                   | 15 Hz to 150 kHz Frequency Range Test, Level 1  |
| 5.3                   | 15 Hz to 150 kHz Frequency Range Test, Level 2  |
| 5.3                   | 15 Hz to 150 kHz Frequency Range Test, Level 3  |
| 5.3                   | 15 Hz to 150 kHz Frequency Range Test, Level 4  |
| <b>IEC 61000-4-19</b> |   |
| 5.1.2                 | CW Pulse with Pause Level 1 2kHz-9kHz           |
| 5.1.2                 | CW Pulse with Pause Level 1 9kHz-95kHz          |
| 5.1.2                 | CW Pulse with Pause Level 1 95kHz-150kHz        |
| 5.1.2                 | CW Pulse with Pause Level 2 2kHz-9kHz           |
| 5.1.2                 | CW Pulse with Pause Level 2 9kHz-95kHz          |
| 5.1.2                 | CW Pulse with Pause Level 2 95kHz-150kHz        |
| 5.1.2                 | CW Pulse with Pause Level 3 2kHz-9kHz           |
| 5.1.2                 | CW Pulse with Pause Level 3 9kHz-95kHz          |
| 5.1.2                 | CW Pulse with Pause Level 3 95kHz-150kHz        |
| 5.1.2                 | CW Pulse with Pause Level 4 2kHz-9kHz           |
| 5.1.2                 | CW Pulse with Pause Level 4 9kHz-95kHz          |
| 5.1.2                 | CW Pulse with Pause Level 4 95kHz-150kHz        |



# ***AETECHRON***

Although AE Techron has made substantial effort to ensure the accuracy of the Standards' test files (SWG files), which are included with the 3110 unit, no warranty, expressed or implied, is made regarding accuracy, adequacy, completeness, legality, reliability or usefulness of the information provided. It is the responsibility of the user to ensure the accuracy and applicability of these test files for their intended purposes.