Z400 Series
IEC 61000
DATA

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<tr>
<th>APPD</th>
<th>CHK</th>
<th>DWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doron P.</td>
<td>![Checkmark]</td>
<td>Yanir</td>
</tr>
<tr>
<td>Jan - 8 - 2012</td>
<td>5/1/12</td>
<td>05.01.2012</td>
</tr>
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* Test results are typical data. Nevertheless the following results are considered to be actual capability data because all units have nearly the same characteristics.
1. Electrostatic Discharge Immunity Test (IEC61000-4-2)

(1) Equipment used

Electrostatic discharge simulator: ESS-2000 (NOISEKEN)
Discharge resistance: 330Ω  Capacitor: 150pF

(2) Test conditions

Input voltage: 115,230Vac  Output voltage: 100%
Output current: 100%  Polarity: -,+n
Number of tests: 10 times  T: 25°C
Discharge interval: >1 Second

(3) Test method and Device test point

Contact discharge: FG, Case screw
Air discharge: Input and Output terminal

(4) Acceptable conditions

1. Output voltage regulation not to exceed ±5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

<table>
<thead>
<tr>
<th>Contact Discharge (KV)</th>
<th>Z100-4</th>
<th>Air Discharge (KV)</th>
<th>Z100-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PASS</td>
<td>8</td>
<td>PASS</td>
</tr>
</tbody>
</table>
2. Radiated Radio-Frequency Electromagnetic Field Immunity Test (IEC61000-4-3)

(1) Equipment used

Test Laboratory: Hermon Laboratories Ltd.

(2) Test conditions

Input voltage: 115,230Vac
Output current: 100%
Electromagnetic Frequency: 80~1000MHz
Distance: 2.4m
Sweep condition: 1.0% Step Up, 2.8 second Hold
Test Angle: Top/Bottom, Both Sides, Front/Back

Output voltage: 100%
Amplitude Modulated: 80%, 1kHz
Ambient temperature: 25°C
Wave Angle: Horizontal and Vertical

(3) Test Method:

(4) Acceptable conditions

1. Output voltage regulation not to exceed ±5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

<table>
<thead>
<tr>
<th>Radiated Field Strength (V/m)</th>
<th>Z60-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>PASS</td>
</tr>
</tbody>
</table>

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3. Electrical Fast Transient / Burst Immunity Test (IEC61000-4-4)

(1) Equipment used

EFT/B Generator: SCHAEFFNER NSG2025

(2) Test conditions

Input voltage: 115,230Vac  Output voltage: 100%
Output current: 100%  Test time: 1 minute
Polarity: -,+  Ambient temperature: 25°C
Number of tests: 3 times

(3) Test method and Device test point

Neutral (N), Line (L), Ground (FG) apply pulses from EFT/B Generator to N, L, FG separately, as well as, all at the same time.

(5) Acceptable conditions
1. Output voltage regulation not to exceed ± 5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

<table>
<thead>
<tr>
<th>Test Voltage (kV)</th>
<th>Repetition Rate (kHz)</th>
<th>Z60-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5</td>
<td>PASS</td>
</tr>
</tbody>
</table>
4. Surge Immunity Test (IEC61000-4-5)

(1) Equipment used

Surge Generator: NSG851 (SCHAFFNER)
Coupling impedance: Common - 12Ω Normal - 2Ω
Coupling capacitance: Common - 9 uF Normal - 18 uF
Coupling network: CDN110 (SCHAFFNER)

(2) Test method and devise test point

Input voltage: 115,230Vac
Output voltage: 100%
Output current: 100%
Number of tests: 5 times
Polarity: -,+ Ambient temperature: 25°C
Phase: 0°, 90°

(3) Acceptable conditions

1. Output voltage regulation not to exceed ±5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(4) Test Result

<table>
<thead>
<tr>
<th>Test Voltage (kV)</th>
<th>Z60-7</th>
<th>Test Voltage (kV)</th>
<th>Z60-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td></td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>PASS</td>
<td>1.0</td>
<td>PASS</td>
</tr>
<tr>
<td>2.0</td>
<td>PASS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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5. Conducted Disturbances Induced by Radio-Frequency Field Immunity Test (IEC61000-4-6)

(1) Equipment used

- RF Signal Generator 10kHz-1050MHz: Fluke, 6081A
- RF Amplifier 10kHz-220MHz, 150W: Amplifier Research, 150L
- Coupling/Decoupling Network: HL CDN 801-M3

(2) Test Condition:

- Output voltage: 100%
- Input voltage: 115, 230Vac
- Output current: 100%
- Electromagnetic Frequency: 150kHz~80MHz
- Type of modulation: AM 80% @ 1khz
- Test Voltage: 3Vrms prior to modulation
- Dwell Time: 3s
- Frequency Step: 1.0% of current frequency
- Ambient temperature: 25°C

(3) Test Method:

![Diagram of test setup]

(4) Acceptable conditions

1. Output voltage regulation not to exceed ±5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

<table>
<thead>
<tr>
<th>Test Voltage Level (V)</th>
<th>Z60-7</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Voltage Level (V)</td>
<td>Z60-7</td>
<td>PASS</td>
</tr>
</tbody>
</table>

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6. Power Frequency Magnetic Field Immunity Test (IEC61000-4-8)

(1) Equipment used
Test Laboratory: Hermon Laboratories Ltd.

(2) Test Condition:
- Input voltage: 115,230Vac
- Output voltage: 100%
- Output current: 100%
- Frequency: 50Hz
- Magnetic Field Strength: 30A/m
- Direction: X, Y, Z
- Duration Time: 10min.
- Ambient temperature: 25°C

(3) Test Method:

(4) Acceptable conditions
1. Output voltage regulation not to exceed ±5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

<table>
<thead>
<tr>
<th>EUT positions</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>PASS</td>
</tr>
<tr>
<td>Y</td>
<td>PASS</td>
</tr>
<tr>
<td>Z</td>
<td>PASS</td>
</tr>
</tbody>
</table>
7. Voltage Dips, Short Interruptions Immunity Test (IEC61000-4-11)

(1) Equipment used

AC Source: 6590 (CHROMA)
Oscilloscope: DL1740EL (Yokogawa)

(2) Test Condition:

Input voltage: 115,230Vac
Output current: 100%
Repetition: 0.1Hz
Number of tests: 3 times

Output voltage: 100%
Frequency: 50Hz
Ambient temperature: 25°C

(3) Test Method:

![Test Diagram]

(4) Acceptable conditions

1. Output voltage to be within output voltage regulation specification after the test.
2. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

<table>
<thead>
<tr>
<th>Test level</th>
<th>Dip rate</th>
<th>Continue time (s)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%</td>
<td>30%</td>
<td>500ms</td>
<td>PASS</td>
</tr>
<tr>
<td>40%</td>
<td>60%</td>
<td>200ms</td>
<td>PASS</td>
</tr>
<tr>
<td>0%</td>
<td>100%</td>
<td>5000ms</td>
<td>PASS</td>
</tr>
</tbody>
</table>
8. Input Current Harmonics Test (IEC61000-3-2)

(1) Equipment used

AC Power Analyzer: WT110 (Yokogawa)

AC Source: 6590 (CHROMA)

(2) Test conditions:

Input voltage: 115, 230Vac  Output current: 100%

Output Voltage: 100%

(3) Test Method:

VIN: 115Vac

VIN: 230Vac