FPS1000 - 12
TEST DATA
EN61000

<table>
<thead>
<tr>
<th>APPD</th>
<th>CHK</th>
<th>DWG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.05.07</td>
<td>27.05.07</td>
<td>21.05.07</td>
</tr>
</tbody>
</table>

△ NEMIC-LAMBDA LTD.
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The above data is typical value.  
The values are considered to be actual capability data.
1. ELECTRO-STATIC DISCHARGE TEST
(EN61000-4-2)

(1) Equipment used
SCHAEFFNER NSG435
Discharge resistance: 330 Ohm  Capacity: 150pF

(2) Test conditions
Input voltage: Rated  Output voltage: Rated
Output current: 100%  Polarity: -,+  Discharge interval: >1 Second
Number of tests: 10 times

(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.

(3) Test Result

<table>
<thead>
<tr>
<th>Contact Discharge (Kv)</th>
<th>FPS1000-12</th>
<th>Air Discharge (Kv)</th>
<th>FPS1000-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PASS</td>
<td>8</td>
<td>PASS</td>
</tr>
</tbody>
</table>
2. RADIATED SUSCEPTIBILITY TEST
(EN61000-4-3)

(1) Equipment used
Synthesized RF signal generator 10 kHz-1.05GHz: Fluke 6061A; Field Monitor: Amplifier Research FM1000; RF amplifier: Amplifier Research 150L; Antenna, biconical, high power 20-300 MHz: A.H. Systems Inc. SAS-200/543; Amplifier RF, 500MHz to 1000MHz: Hermon Labs A-120; Power sensor: Boonton 51075; Amplifier I to 4GHz: AS 0104-55/55B; Coupling-decoupling network: Hermon Lab. 50141S1; Power meter, RF: Boonton 4200; Antenna, double-ridged waveguide horn: EMC Test System 3115;

(2) Test conditions
Input voltage: Rated
Output current: 100%
Electromagnetic Frequency: 80-1000MHz
Distance: 2.4m
Sweep condition: 1.0% Step Up, 2.0 second Hold
Test Angle: Top/Botton, Both Sides, Front/Back

(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>Radiated Field Strength (V/m)</th>
<th>FPS1000-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>PASS</td>
</tr>
</tbody>
</table>

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3. ELECTRICAL FAST TRANSIENT BURST TEST  
(EN61000-4-4)

(1) Equipment used  
EFT/B Generator: SCHAFFNER NSG2025

(2) Test conditions  
<table>
<thead>
<tr>
<th>Input voltage:</th>
<th>Rated</th>
<th>Output voltage:</th>
<th>Rated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output current:</td>
<td>100%</td>
<td>Test time:</td>
<td>1 minute</td>
</tr>
<tr>
<td>Polarity:</td>
<td>-,+</td>
<td>Ambient temperature: 25°C</td>
<td></td>
</tr>
<tr>
<td>Number of tests:</td>
<td>3 times</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(3) Test method and Device test point: Neutral (N), Line (L), Ground (FG)  
Apply to N, L, FG separately, as well as, all at the same time.

(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 (kV)</th>
<th>Repitition Rate (kHz)</th>
<th>FPS1000 - 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>PASS</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>PASS</td>
</tr>
</tbody>
</table>
4. SURGE TEST
(EN61000-4-5)

(1) Equipment used
Surge Generator: SCHAFFNER-NSG651
Coupling impedance:
  Common - 12 OHm
  Normal - 2 OHm
Coupling capacitance:
  Common - 9 uF
  Normal - 18 uF
Coupling network: SCHAFFNER-CDN110

(2) Test method and devise test point
Input voltage: Rated
Output current: 100%
Output voltage: Rated
Number of tests: 5 times
Polarity: -, +
Mode: Common, Normal
Phase: 0, 90 DEG.
Ambient temperature: 25°C

(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 (kV)</th>
<th>FPS1000-12</th>
<th>Test Voltage (kV)</th>
<th>FPS1000-12</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>2.0</td>
<td>PASS</td>
</tr>
<tr>
<td>4.0</td>
<td>PASS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. CONDUCTED SUSCEPTIBILITY TEST
(EN61000-4-6)

(1) Equipment used
RF Signal Generator 10kHz-1050MHz: Fluke, 6061A
RF Amplifier 10kHz-220MHz, 150W: Amplifier Research, 150L
Coupling/Decoupling Network: HL CDN 801-M3

(2) Test Condition:
Input voltage: Rated
Output current: 100%
Output voltage: Rated
Electromagnetic Frequency: 150kHz~80MHz

Sweep Condition: 1.0% Step Up, 2.0 Seconds Hold
Ambient temperature: 25°C

(2) Test Method:

![Diagram of test setup]

*Used Analog Voltage Meter

(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>Voltage Level (V)</th>
<th>FPS1000-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PASS</td>
</tr>
<tr>
<td>2</td>
<td>PASS</td>
</tr>
<tr>
<td>3</td>
<td>PASS</td>
</tr>
</tbody>
</table>

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6. INPUT CURRENT HARMONICS TEST
(EN61000-3-2, Class A)

(1) Equipment used:
- AC Power Analyzer: PACS-1 (California Instruments)
- AC Source: 5001 IX (California Instruments)

(2) Test conditions:
- Input voltage: 115VAC, 230VAC
- Output current: 100%

(3) Test Method:

![Diagram of test setup]

**Harmonic Number**

<table>
<thead>
<tr>
<th>Vin</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
<th>11</th>
<th>13</th>
<th>15</th>
<th>17</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>115</td>
<td>4.6</td>
<td>2.28</td>
<td>1.54</td>
<td>0.8</td>
<td>0.66</td>
<td>0.43</td>
<td>0.3</td>
<td>0.26</td>
<td>0.24</td>
</tr>
<tr>
<td>VAC</td>
<td>0.369</td>
<td>0.035</td>
<td>0.023</td>
<td>0.019</td>
<td>0.017</td>
<td>0.014</td>
<td>0.013</td>
<td>0.006</td>
<td>0.006</td>
</tr>
<tr>
<td>230</td>
<td>2.3</td>
<td>1.14</td>
<td>0.77</td>
<td>0.4</td>
<td>0.33</td>
<td>0.21</td>
<td>0.15</td>
<td>0.13</td>
<td>0.12</td>
</tr>
<tr>
<td>VAC</td>
<td>0.317</td>
<td>0.043</td>
<td>0.039</td>
<td>0.035</td>
<td>0.043</td>
<td>0.038</td>
<td>0.050</td>
<td>0.037</td>
<td>0.030</td>
</tr>
</tbody>
</table>

- Red: Input Current Harmonics EN61000-3-2 Limit
- Gray: Input Current Harmonics-Measurement

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