



# TEST REPORT

**MODEL NAME : UPF150S12CQ2**

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## 1. DESIGN VERIFY TEST

### 1-1. INPUT FUNCTION TEST

| TEST ITEM       | SPECIFICATION            | TEST CONDITION                                   | RESULT         | VERDICT |
|-----------------|--------------------------|--|----------------|---------|
| VOLTAGE RANGE   | 160~305VAC               | I/P: testing<br>O/P:full load<br>Ta:25 °C        | test ok        | P       |
| FREQUENCY RANGE | 47~63Hz<br>no damage osc | I/P:160~305VAC<br>O/P:full~min. load<br>Ta:25 °C | test ok        | P       |
| POWER FACTOR    | 0.95 min.                | I/P:230VAC<br>O/P:full load                      | PF=0.98/230VAC | P       |
| EFFICIENCY      | 88% typ.                 | I/P:230VAC<br>O/P:full load<br>Ta:25 °C          | 88.8%          | P       |
| AC CURRENT      | 0.76A/230VAC typ.        | I/P:230VAC<br>O/P:full load<br>Ta:25 °C          | 0.75A/230VAC   | P       |
| INRUSH CURRENT  | 40A typ.                 | I/P:230VAC<br>O/P:full load<br>Ta:25 °C          | 46.8A          | P       |
| LEAKAGE CURRENT | 2.5mA max.               | I/P:230VAC<br>O/P:min. load<br>Ta:25 °C          | 1.4mA          | P       |

### 1-2. OUTPUT FUNCTION TEST

| TEST ITEM         | SPECIFICATION | TEST CONDITION  | RESULT    | VERDICT |
|-------------------|---------------|---|-----------|---------|
| VOLTAGE Tolerance | 12V±3%        | I/P:230VAC<br>O/P:CV mode<br>Ta:25 °C<br>No variable resistance | test ok   | P       |
| RIPPLE&NOISE      | 150mVp-p max. | I/P:230VAC<br>O/P:full load<br>Ta:25 °C                         | 120mV p-p | P       |
| LINE REGULATION   | 12V±1%        | I/P:160~305VAC<br>O/P:full load<br>Ta:25 °C                     | ±0.1%     | P       |

|                        |                    |   |               |          |
|------------------------|--------------------|---|---------------|----------|
| <b>LOAD REGULATION</b> | 12V±2%             | I/P:230VAC<br>O/P:full load<br>Ta:25 °C | ±0.33%        | <b>P</b> |
| <b>SETUP TIME</b>      | 3000ms/230VAC max. | I/P:230VAC<br>O/P:full load<br>Ta:25 °C | 336ms/230VAC  | <b>P</b> |
| <b>RISE TIME</b>       | 100ms/230VAC max.  | I/P:230VAC<br>O/P:full load<br>Ta:25    | 37.2ms/230VAC | <b>P</b> |
| <b>HOLD UP TIME</b>    | 50ms/230VAC typ.   | I/P:230VAC<br>O/P:full load<br>Ta:25    | 18.6ms/230VAC | <b>P</b> |

### 1-3. PROTECTION FUNCTION TEST

| TEST ITEM                      | SPECIFICATION                          | TEST CONDITION                          | RESULT   | VERDICT  |
|--------------------------------|--|---|--|----------|
| <b>SHORT PROTECTION</b>        | short every output 1 hour<br>no damage | I/P:305VAC<br>O/P:full load<br>Ta:25 °C | no damage,<br>recovers automatically<br>after fault removed  | <b>P</b> |
| <b>OVER LOAD PROTECTION</b>    | 110% min                               | I/P:230VAC<br>O/P:testing<br>Ta:25 °C   | 142%/230VAC<br>recovers automatically<br>after fault removed | <b>P</b> |
| <b>OVER VOLTAGE PROTECTION</b> | 110~140%                               | I/P:230VAC<br>O/P:min. load<br>Ta:25 °C | 123%/230VAC<br>recovers automatically<br>after fault removed | <b>P</b> |

### 2. SAFETY & EMC TEST

| TEST ITEM                | SPECIFICATION  | TEST CONDITION  | RESULT   | VERDICT  |
|--------------------------|--|---|--|----------|
| <b>WITHSTAND VOLTAGE</b> | I/P-O/P:3.75KVAC/1min<10mA<br>I/P-F/G:2KVAC/1min<10mA<br>O/P-F/G:1.5KVAC/1min<10mA | I/P-O/P:3.75KVAC/1min<br>I/P-F/G:2KVAC/1min<br>O/P-F/G:1.5KVAC/1min<br>Ta:25 °C | I/P-O/P:2.6mA<br>I/P-F/G:2.0mA<br>O/P-F/G:3.6mA<br>no damage | <b>P</b> |

|                             |  |  |   |          |
|-----------------------------|--|--|---|----------|
| <b>ISOLATION RESISTANCE</b> | I/O-O/P:500VDC>100MΩ<br>I/O-F/G:500VDC>100MΩ<br>O/P-F/G:500VDC>100MΩ | I/P-O/P:500VDC<br>I/P-F/G:500VDC<br>O/P-F/G:500VDC<br>Ta:25℃ | I/P-O/P: ∞<br>I/P-F/G: ∞<br>O/P-F/G: ∞<br>no damage | <b>P</b> |
| <b>SURGE</b>                | IEC61000-4-5 industry<br>L-N:4KV<br>L,N-PE:6KV                       | I/P:230VAC/50Hz<br>O/P:full load<br>Ta:25℃                   | criteria A  | <b>P</b> |

**3. RELIABILITY TEST**

| TEST ITEM                                    | SPECIFICATION          | TEST CONDITION  | RESULT  | VERDICT  |
|--|------------------------|---|---------|----------|
| <b>LOW TEMP. TURN ON TEST</b>                | turn on after 2hour    | I/P:230VAC<br>O/P:full load<br>Ta:-40℃  | test ok | <b>P</b> |
| <b>STORAGE TEMP. TEST</b>                    | no damage              | 1.thermal shock temp.: -40~+80℃<br>2.test time<br>low & high temp.:30min/each<br>3.total cycle:5cycle<br>4.input/output condition:static  | test ok | <b>P</b> |
| <b>HIGH VOLT. HIGH TEMP. HIGH HUMI. TEST</b> | no damage after 12hour | I/P:305VAC<br>O/P:full load<br>Ta:70℃<br>HUMI.:95%RH  | test ok | <b>P</b> |
| <b>THERMAL SHOCK TEST</b>                    | no damage              | 1.thermal shock temp.: -40~+70℃<br>2.test time<br>low & high temp.:30min/each<br>3.total cycle:10cycle<br>4.input/output condition:<br>230VAC full load,<br>AC on/off test<br>(turn on 58sec,turn off 2sec) | test ok | <b>P</b> |
| <b>VIBRATION TEST</b>                        | no damage              | 1CATON&1SET<br>1.wave form:sine wave<br>2.frequency:10~500Hz<br>3.sweep time:12min./sweep cycle<br>4.acceleration:5G<br>5.test time:72min. in each(X,Y,Z)<br>6.Ta:25℃                                       | test ok | <b>P</b> |