

<b>ELECTRONICS TEST &amp; DEVELOPMENT CENTER, PUNE.</b> Standardisation Testing and Quality Certification Directorate, Ministry of Communication and Information Technology, Government of India		<b>Test Report on:</b> 2 KVA On-Line UPS System.
Report No.: TG-166 (06-07)	Date:21/09/06	Page 1 of 3

1. **Service Request No. & Date** :TG-166, 14/9/06.
2. **Service Requested by** :OSKAR Engineers Pvt. Ltd.  
Prshant Nagar, PUNE-30
3. **Item Submitted on** :18/9/06.
4. **Job completed on** :19/9/06.
5. **Description and Identification of Item :**
  - Nomenclature** :2 KVA On-Line UPS System.
  - Type / Model No.** :OSOL 2000.
  - Sr. No.** :Not available
  - Make** :OSKAR
  - Quantity** :01.
6. **Condition of Item when received** :Working
7. **Purpose of testing** :Limited Electrical Performance Testing.
8. **Test specification columns** :As per the customers specifications in the  
“TEST”, “CONDITION”, “REQUIREMENT”  
on page nos. 2&3 of this report
9. **Major equipment used in the test** :1) 3-ph Power analyzer (TD/E/340)  
2) Oscilloscope (TDS 2024)  
3) DC Shunt (TD/E/178)  
4) DMM (F187)  
5) Variac (TD/E/81)

  
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**TEST SPECIFICATIONS / TEST RESULTS**

SR. NO.	TEST	CONDITION	REQUIREMENTS	OBSERVATIONS
1.	Capacity	Connect load of 2 KVA / 1600 W (resistive).	UPS should work	Complied
2.	Technology	PWM Technology using fully digitized microprocessor controlled	Physical Verification	Verified
3.	Inverter Technology	True online Double conversion must use IGBT	Physical Verification	Verified
4.	Input Voltage Range	Connect Load of 800 W (resistive), (50% capacity) to output & give Input voltage of 120VAC-275VA	UPS should work without transferring to batteries	Complied
5.	Input Frequency Range	Input of 230 VAC at 53 to 47 Hz Load: No load	UPS should work without transferring to batteries	Complied
6.	Input Power factor correction	Connect Load of 1600 W (resistive) to output with 230VAC input	Should be more than 0.95	Complied
7.	Input Power at full load	Connect Load of 1600 W (resistive) to output with 230VAC input	Measure Input Power	Input power 1.768KW.
8.	Output Voltage	Connect Load of 1600 W (resistive) to output & give Input of 230 VAC	UPS output should be 230 VAC +/- 1%	Complied
9.	Output Frequency	Connect Load of 1600 W (resistive) to output & give Input of 230 VAC	UPS output should be 50 Hz +/-0.5%	Complied
10.	Output Waveform	Connected 1600 W (resistive) load with 230 VAC Input	Output Wave form should be Pure Sine Wave	Complied
11.	Load Power Factor	Connect PC load of 0.8 P.F.	UPS Should not trip.	Complied
12.	Output Harmonic Distortion Total	Connect Load of 1600 W (resistive) & PC load of 0.8 P.F. at output & give Input of 230 VAC	THD should be less than 3% for linear load & less than 5% for non linear load	Complied

  
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**TEST SPECIFICATIONS / TEST RESULTS**

SR. NO.	TEST	CONDITION	REQUIREMENTS	OBSERVATIONS
13.	Output Over Load	Connect Load of 125%, 2000 W (resistive) for 1 minutes & 150%, 2400 W for 10 Sec. to output & give Input of 230 VAC	UPS Should not trip.	Complied
14.	Inverter Efficiency	Connect DC bank of 96 VDC +/-4 VDC & load UPS to 1600 W (resistive)	Inverter Efficiency should be more than 90%	Complied
15.	Static switch (Bi-Directional)	Connect Load of 2000 W (resistive) to output & give Input of 230 VAC & remove the load	UPS should transfer from Inverter to Bypass & restore to Inverter from Bypass when load is removed	Complied
16.	Crest Factor	Connect load of 0.8 P.F. lag to UPS Output	UPS should support 3:1	Complied
17.	Protection	UPS should shut down with a alarm and indication following condition 1) output over voltage 2) output under Voltage 3) Battery Low 4) Inverter over load 5) over temperature 6) Output short.	UPS Systems should Shut Down	Complied
18.	Isolation	Isolation of Power, Input should have MCB and output should be Electronically protected. Also battery connection to have MCB/ MCCB/ fuse & Manual Service Bypass Required for > 5KVA onwards and for 1 to 3 KVA Optional item.	Physical verification	Verified

  
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<b>ELECTRONICS TEST &amp; DEVELOPMENT CENTER, PUNE.</b> Standardisation Testing and Quality Certification Directorate, Ministry of Communication and Information Technology, Government of India		<b>Test Report on:</b> 6 KVA On-Line UPS System.
Report No.: TG-167 (06-07)	Date:21/09/06	Page 1 of 3

1. **Service Request No. & Date** :TG-167, 14/9/06.
2. **Service Requested by** :OSKAR Engineers Pvt. Ltd.  
Prshant Nagar, PUNE-30
3. **Item Submitted on** :18/9/06.
4. **Job completed on** :19/9/06.
10. **Description and Identification of Item :**
  - Nomenclature** :6 KVA On-Line UPS System.
  - Type / Model No.** :OSOL 6000.
  - Sr. No.** :Not available
  - Make** :OSKAR
  - Quantity** :01.
11. **Condition of Item when received** :Working
12. **Purpose of testing** :Limited Electrical Performance Testing.
13. **Test specification columns** :As per the customers specifications in the  
“TEST”, “CONDITION”, “REQUIREMENT”  
on page nos. 2&3 of this report
14. **Major equipment used in the test** :1) 3-ph Power analyzer (TD/E/340)  
2) Oscilloscope (TDS 2024)  
3) DC Shunt (TD/E/178)  
4) DMM (F187)  
5) Variac (TD/E/081)

  
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**TEST SPECIFICATIONS / TEST RESULTS**

SR. NO.	TEST	CONDITION	REQUIREMENTS	OBSERVATIONS
1.	Capacity	Connect load of 6 KVA / 4800 W (resistive).	UPS should work	Complied
2.	Technology	PWM Technology using fully digitized microprocessor controlled	Physical Verification	Verified
3.	Inverter Technology	True online Double conversion must use IGBT	Physical Verification	Verified
4.	Input Voltage Range	Connect Load of 2400 W (resistive), (50% capacity) to output & give 120VAC- 275VAC at Typical Load	UPS should work without transferring to batteries	Complied
5.	Input Frequency Range	Input of 230 VAC at 53 Hz to 47 Hz Load : No load	UPS should work without transferring to batteries	Complied
6.	Input Power factor correction	Connect Load of 4800 W (resistive) to output with 230VAC input	Should be more than 0.95	Complied
7.	Input Power at full load	Connect Load of 4800 W (resistive) to output with 230VAC input	Measure Input Power	5.272 KW
8.	Output Voltage	Connect Load of 4800 W (resistive) to output with 230VAC input	UPS output should be 230 VAC +/- 1%	Complied
9.	Output Frequency	Connect Load of 4800 W (resistive) to output with 230VAC input	UPS output should be 50 Hz +/-0.5%	Complied
10.	Output Waveform	Connect Load of 4800 W (resistive) to output with 230VAC input	Output Wave form should be Pure Sine Wave	Complied
11.	Load Power Factor	Connect PC load of 0.8 P.F.	UPS Should not trip.	Complied
12.	Output Harmonic Distortion Total	Connect Load of 4800 W (resistive) & PC load of 0.8 P.F. at output & give Input of 230 VAC	THD should be less than 3% for linear load & less than 5% for non linear load	Complied

  
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**TEST SPECIFICATIONS / TEST RESULTS**

SR. NO.	TEST	CONDITION	REQUIREMENTS	OBSERVATIONS
13.	Output Over Load	Connect Load of 125% 6000 W (resistive) for 1 minutes & 150% 7200 W for 10 Sec. to output & give Input of 230 VAC	UPS Should not trip.	Complied
14.	Inverter Efficiency	Connect battery bank of 240 VDC +/-10 VDC & load UPS to 4800 W (resistive).	Should be more than 90%	Complied
15.	Static switch (Bi-Directional)	Connect Load of 6500 W (resistive) to output & give Input of 230 VAC & remove the load	UPS should transfer from Inverter to Bypass & restore to Inverter from Bypass when load is removed	Complied
16.	Crest Factor	Connect load of 0.8 P.F. lag to UPS Output	UPS should support 3:1	Complied
17.	Protection	UPS should shut down with a alarm and indication following condition 1) output over voltage 2) output under Voltage 3) Battery Low 4) Inverter over load 5) over temperature 6) Output short.	UPS Systems should Shut Down	Complied
18.	Isolation	Isolation of Power, Input should have MCB and output should be Electronically protected. Also battery connection to have MCB/ MCCB/ fuse & Manual Service Bypass Required for > 5KVA onwards and for 1 to 3 KVA Optional item.	Physical verification	Verified

  
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<b>ELECTRONICS TEST &amp; DEVELOPMENT CENTER, PUNE.</b> Standardisation Testing and Quality Certification Directorate, Ministry of Communication and Information Technology, Government of India		<b>Test Report on:</b> 60 KVA On-Line UPS System.
Report No.: TG-207 (06-07)	Date:31/10/06	Page 1 of 3

1. **Service Request No. & Date** :TG-207, 26/10/06.
2. **Service Requested by** :OSKAR Engineers Pvt. Ltd.  
Prshant Nagar, PUNE-30
3. **Item Submitted on** :27/10/06.
4. **Job completed on** :28/10/06.
15. **Description and Identification of Item :**
  - Nomenclature** :60 KVA On-Line UPS System.
  - Type / Model No.** :OSOL 60000.
  - Sr. No.** :Not available
  - Make** :OSKAR
  - Quantity** :02.
16. **Condition of Item when received** :Working
17. **Purpose of testing** :Limited Electrical Performance Testing.
18. **Test specification** :As per the customers specifications in the columns  
"TEST", "CONDITION", "REQUIREMENT"  
on page nos. 2&3 of this report
19. **Major equipment used in the test**
  - :1) 3-ph Power analyzer (TD/E/340)
  - 2) Oscilloscope (TDS 2024)
  - 3) DC Shunt (TD/E/178)
  - 4) DMM (F187)
  - 5) Variac (TD/E/81)

  
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**TEST SPECIFICATIONS / TEST RESULTS**

SR. NO.	TEST	CONDITION	REQUIREMENTS	OBSERVATIONS
1.	Capacity	Connect load of 60 KVA / 48000 W (resistive).	UPS should work	Complied
2.	Technology	PWM Technology using fully digitized microprocessor controlled	Physical Verification	Verified
3.	Inverter Technology	True online Double conversion must use IGBT	Physical Verification	Verified
4.	Input Voltage Range	Connect Load of 48000 W (resistive), to output & give Input voltage of 290VAC-480VA	UPS should work without transferring to batteries	Complied
5.	Input Frequency Range	Input of 415 VAC at 53 to 47 Hz Load: No load	UPS should work without transferring to batteries	Complied
6.	Input Power factor correction	Connect Load of 48000 W (resistive) to output with 415VAC input	Should be more than 0.95	Complied
7.	Input Power at full load	Connect Load of 48000 W (resistive) to output with 415VAC input	Measure Input Power	Input power 52.630KW.
8.	Output Voltage	Connect Load of 48000 W (resistive) to output & give Input of 415 VAC	UPS output should be 415 VAC +/- 1%	Complied
9.	Output Frequency	Connect Load of 48000 W (resistive) to output & give Input of 415 VAC	UPS output should be 50 Hz +/-0.5%	Complied
10.	Output Waveform	Connected 48000 W (resistive) load with 415 VAC Input	Output Wave form should be Pure Sine Wave	Complied
11.	Load Power Factor	Connect PC load of 0.8 P.F.	UPS Should not trip.	Complied
12.	Output Total Harmonic Distortion	Connect Load of 48000 W (resistive) & PC load of 0.8 P.F. at output & give Input of 415 VAC	THD should be less than 3% for linear load & less than 5% for non linear load	Complied

  
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**TEST SPECIFICATIONS / TEST RESULTS**

SR. NO.	TEST	CONDITION	REQUIREMENTS	OBSERVATIONS
13.	Output Over Load	Connect Load of 125%, 60000 W (resistive) for 1 minutes & 150%, 72000 W for 10 Sec. to output & give Input of 415 VAC	UPS Should not trip.	Complied
14.	Inverter Efficiency	Connect DC bank of 480 VDC +/-10 VDC & load UPS to 48000 W (resistive)	Inverter Efficiency should be more than 90%	Complied
15.	Static switch (Bi-Directional)	Connect Load of 72000 W (resistive) to output & give Input of 415 VAC & remove the load	UPS should transfer from Inverter to Bypass & restore to Inverter from Bypass when load is removed	Complied
16.	Crest Factor	Connect load of 0.8 P.F. lag to UPS Output	UPS should support 3:1	Complied
17.	Protection	UPS should shut down with a alarm and indication following condition 1) output over voltage 2) output under Voltage 3) Battery Low 4) Inverter over load 5) over temperature 6) Output short.	UPS Systems should Shut Down	Complied
18.	Isolation	Isolation of Power, Input should have MCB and output should be Electronically protected. Also battery connection to have MCB/ MCCB/ fuse & Manual Service Bypass Required for > 5KVA onwards and for 1 to 3 KVA Optional item.	Physical verification	Verified
19.	Scalability	Connect output of two 60 KVA UPS System to each other and load to 96000W	UPS should work without transferring to batteries without tripping	Complied
20.	Redundancy	Connect Load of 48000 W (resistive) to output of Master UPS & give Input of 415 VAC to both UPS & give output of slave UPS to reserve input of Master UPS switch off Master UPS & load should not trip	Slave UPS should get transfer from Master UPS Static Bypass	Complied

  
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