



TEST REPORT #: Q02142

DATE: August 19, 2002

TITLE: Harmonics and Flicker Test of the Uninterruptible Power System

Model: SUA1000RMI1U and SUA750RMI1U
Serial Number: N/A

STANDARDS:

EN61000-3-2, 1995, Section 2, Limits for Harmonic Current Emissions (Equipment Input Current \leq 16 Amps per Phase), Class A


EN61000-3-3, 1995, Section 3, Limitations of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current \leq 16 Amps


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SECTION 1 OVERVIEW

1.1 Purpose of Test

To determine if the Uninterruptible Power System will meet the EN61000-3-2 and EN61000-3-3 requirements for harmonics and flicker.

1.2 Date of Test

August 19, 2002

1.3 Statement of Compliance

The Uninterruptible Power System unit that was tested and referenced in this test report was found to comply with the requirements of:

EN61000-3-2, Class A
EN61000-3-3

SECTION 2 REFERENCES

2.1 Procedures/Standards

- EN61000-3-2, 1995, Section 2, Limits for Harmonic Current Emissions (Equipment Input Current \leq 16 Amps per Phase)
- EN61000-3-3, 1995, Section 3, Limitations of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current \leq 16 Amps

2.2 Deviations from Standards

None

SECTION 3 DETAILS

3.1 Description of Product

The Equipment Under Test (EUT) consisted of a single unit, the Uninterruptible Power System.

The EUT was configured as given in Appendix A.

3.2 Test Software / Operating Mode

No Software Required

3.3 Laboratory Test Configuration

The test setup was per the procedures and standards referenced in section 2.1. The voltage supplied to the EUT was 230 VAC, 50 Hz.

Harmonics and Flicker Test

Testing was performed in the Quest Immunity Lab. The power supplied to the EUT was 230VAC/50HZ from the Behlman ACP-3000-100 AC Source. The support equipment was supplied with 120VAC/60HZ. The IEC555 Impedance Box (required for Flicker testing) was bypassed during Harmonics testing.

Test Equipment Used

Date of Calibration

Voltek PM3000A Analyzer, s/n AI18/0990.....	11/29/01
Voltek IEC555 Source Impedance Box, s/n 6808.....	11/29/01
Behlman ACP-3000-100 AC Power Source, s/n 3209..	NO CALIBRATION REQUIRED

All test equipment used was calibrated and traceable to the U.S Department of Commerce, National Institute of Standards and Technology (NIST).

Test Environment: Temp.= 70°C, Relative Humidity = 46%

3.4 Pictures



Test Setup

SECTION 4 CONCLUSIONS

4.1 Summary of Test Results

EN61000-3-2, Class A: **Passed**

EN61000-3-3: **Passed**

4.2 Special Notes

The test engineer was F. Maglio.

The test results set forth in this report are expressly limited to the configuration and tests herein. Any changes in configuration may void test results. Quest agrees to quote charges for any retesting requested by the customer.

This report must not be used by the customer to claim product endorsement by NVLAP or any agency of the U.S. Government.

4.3 Required Compliance Modifications

None

SECTION 5 DATA

Product:		Aug 19 2002 12:32pm
Serial no:		Page 1 of 1
Description:		
Result Name: SUA1000RMI1U		
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 12:30pm
Type of Test: Repeatability Check - Table		
Power Analyzer: Voltech PM3000A v1.67 s/n 0990		
AC Source: Mains / Manual Source		
Overall Result:		
PASS		

Result Name	Time	Date	Duration	Class	Limit	Check
SUA1000RMI1U2	9:48am	8/19/02	00:02:30	Class A	Pass	Pass
SUA1000RMI1U3	9:52am	8/19/02	00:02:30	Class A	Pass	Pass

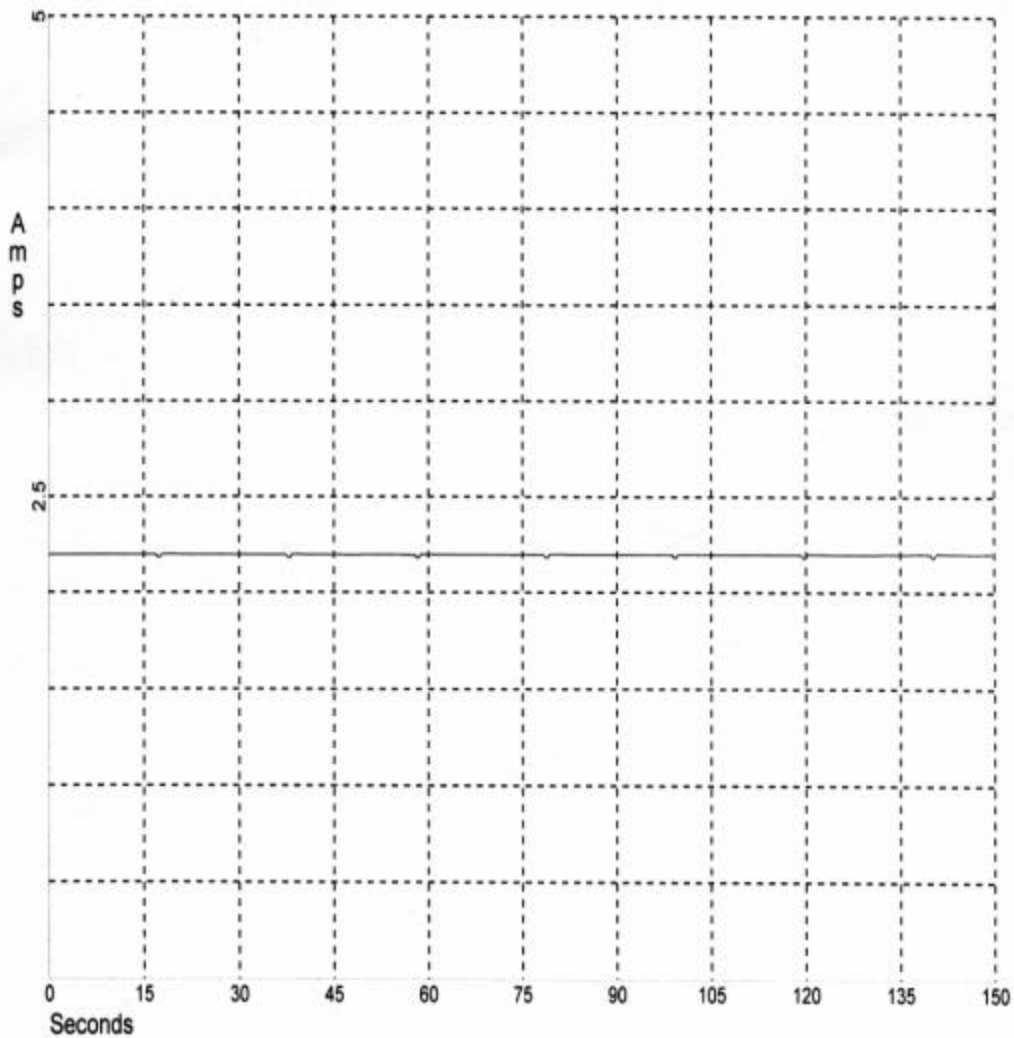
Maximum Differences :

Harm	First name	Amps	Second name	Amps	Difference
AH4	SUA1000RMI1U2	9.47mA	SUA1000RMI1U3	9.68mA	2.14%
AH2	SUA1000RMI1U2	50.68mA	SUA1000RMI1U3	51.67mA	1.93%

Product: SUA1000RMI1U		Aug 19 2002 12:33pm Page 1 of 1
Serial no: AS0230111529		
Description: APC ups		
Test Date: Aug 19 2002 9:48am		
Result Name: SUA1000RMI1U2		
Type of Test: EN61000:2001 Harmonics		
Limits: Class A		
Power Analyzer: Voltech PM3000A v1.67 s/n 0990		
AC Source: Mains / Manual Source		
Overall Result:	Notes:	
PASS		
Test Parameter Details	User Entered	Measured
Operating Frequency:	50	49.9941
Operating Voltage:	230	230.7000
Specified Power:	0.0000	506.6406
Fundamental Current:	0.0000	2.2035
Power Factor:	0.0000	0.9958
Average Input Current:		0.3478
Maximum POHC:		0.0020
POHC Limit:		0.0779
Maximum THC:		0.0107
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	

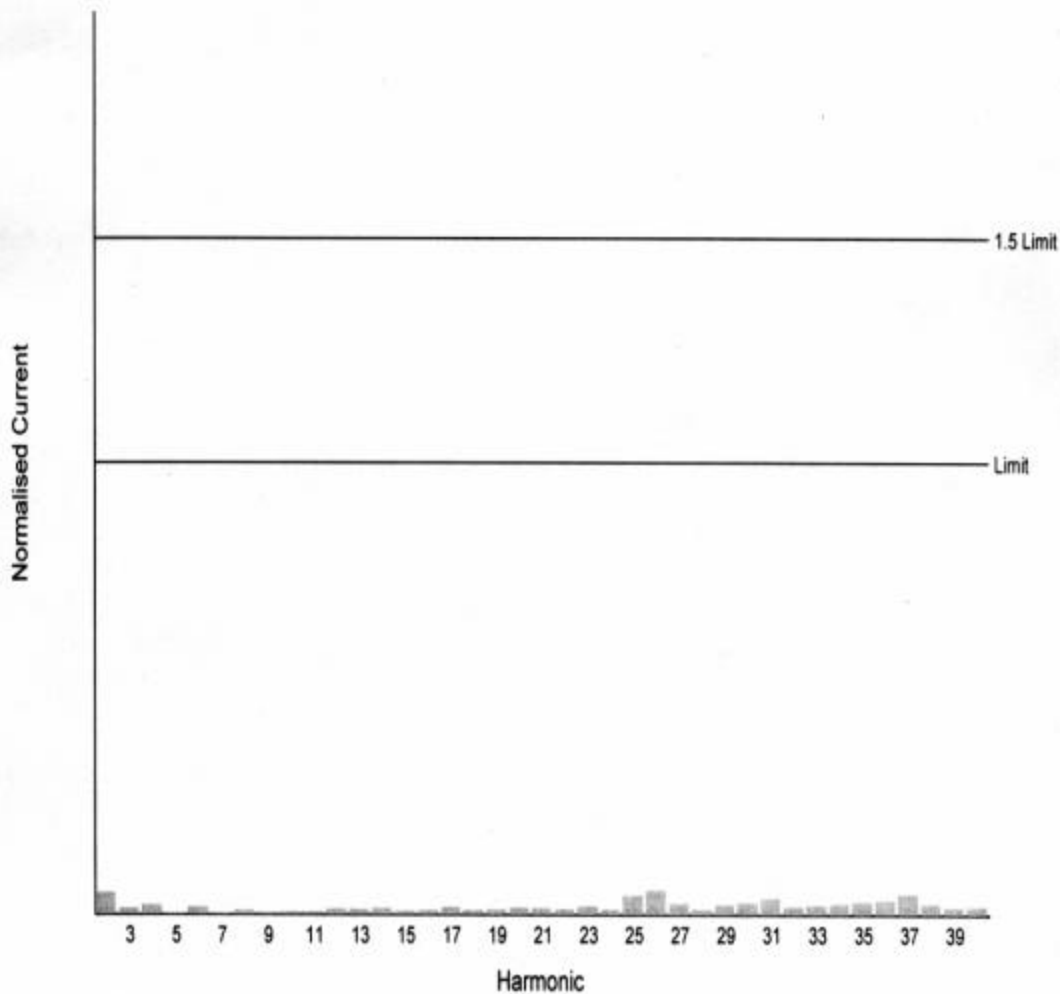
Product:	SUA1000RMI1U	Aug 19 2002 12:33pm Page 1 of 1
Serial no:	AS0230111529	
Description:	APC ups	
Result Name:	SUA1000RMI1U2	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:48am
Type of Test:	Fluctuating Harmonics Test - Single Harmonic Plot (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:		
PASS		

Fundamental



Product:	SUA1000RMI1U	Aug 19 2002 12:33pm
Serial no:	AS0230111529	Page 1 of 1
Description:	APC ups	
Result Name:	SUA1000RMI1U2	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:48am
Type of Test:	Fluctuating Harmonics Test - Normalised Worst Case Bar Chart (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:		
PASS		

Class	Class A
Class Multiplier	1



Product:	SUA1000RMI1U	Aug 19 2002 12:33pm
Serial no:	AS0230111529	Page 1 of 1
Description:	APC ups	
Result Name:	SUA1000RMI1U2	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:48am
Type of Test:	Fluctuating Harmonics Test - Worst Case Table (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:	PASS	

Class	Class A
Class Multiplier	1

Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL	Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL
2	1.08A	1.62A	50.68mA	✓ ✓	54.07mA	✓	Pass	3	2.30A	3.45A	35.58mA	✓ ✓	36.40mA	✓	Pass
4	430.00mA	645.00mA	9.47mA	✓ ✓	10.18mA	✓	Pass	5	1.14A	1.71A	4.73mA	✓ ✓	5.84mA	✓	NIA
6	300.00mA	450.00mA	5.23mA	✓ ✓	5.60mA	✓	Pass	7	770.00mA	1.15A	2.92mA	✓ ✓	3.77mA	✓	NIA
8	230.00mA	345.00mA	2.19mA	✓ ✓	2.54mA	✓	NIA	9	400.00mA	600.00mA	2.21mA	✓ ✓	2.74mA	✓	NIA
10	184.00mA	276.00mA	1.16mA	✓ ✓	1.40mA	✓	NIA	11	330.00mA	495.00mA	2.25mA	✓ ✓	2.97mA	✓	NIA
12	153.33mA	153.33mA	1.71mA	✓ ✓	2.18mA	✓	NIA	13	210.00mA	315.00mA	2.11mA	✓ ✓	2.62mA	✓	NIA
14	131.43mA	131.43mA	1.74mA	✓ ✓	2.05mA	✓	NIA	15	150.00mA	225.00mA	1.26mA	✓ ✓	1.58mA	✓	NIA
16	115.00mA	115.00mA	0.94mA	✓ ✓	1.35mA	✓	NIA	17	132.35mA	198.53mA	2.32mA	✓ ✓	2.58mA	✓	NIA
18	102.22mA	102.22mA	0.97mA	✓ ✓	1.22mA	✓	NIA	19	118.42mA	177.63mA	1.30mA	✓ ✓	1.58mA	✓	NIA
20	92.00mA	92.00mA	1.22mA	✓ ✓	1.53mA	✓	NIA	21	107.14mA	107.14mA	1.46mA	✓ ✓	1.78mA	✓	NIA
22	83.64mA	83.64mA	0.85mA	✓ ✓	1.13mA	✓	NIA	23	97.83mA	97.83mA	1.53mA	✓ ✓	1.97mA	✓	NIA
24	76.67mA	76.67mA	0.70mA	✓ ✓	0.97mA	✓	NIA	25	90.00mA	90.00mA	3.53mA	✓ ✓	3.88mA	✓	NIA
26	70.77mA	70.77mA	3.63mA	✓ ✓	3.92mA	✓	NIA	27	83.33mA	83.33mA	1.85mA	✓ ✓	2.16mA	✓	NIA
28	65.71mA	65.71mA	0.66mA	✓ ✓	0.83mA	✓	NIA	29	77.59mA	77.59mA	1.61mA	✓ ✓	1.83mA	✓	NIA
30	61.33mA	61.33mA	0.83mA	✓ ✓	1.69mA	✓	NIA	31	72.58mA	72.58mA	2.16mA	✓ ✓	2.65mA	✓	NIA
32	57.50mA	57.50mA	0.85mA	✓ ✓	1.09mA	✓	NIA	33	68.18mA	68.18mA	1.17mA	✓ ✓	1.47mA	✓	NIA
34	54.12mA	54.12mA	0.92mA	✓ ✓	1.33mA	✓	NIA	35	64.29mA	64.29mA	1.32mA	✓ ✓	1.89mA	✓	NIA
36	51.11mA	51.11mA	1.28mA	✓ ✓	1.64mA	✓	NIA	37	60.81mA	60.81mA	2.28mA	✓ ✓	2.84mA	✓	NIA
38	48.42mA	48.42mA	0.88mA	✓ ✓	1.18mA	✓	NIA	39	57.69mA	57.69mA	0.62mA	✓ ✓	0.97mA	✓	NIA
40	46.00mA	46.00mA	0.63mA	✓ ✓	0.85mA	✓	NIA								

<L1 : Reading is below limit 1.

<L2 : Reading is below limit 2.

NIA : Harmonic current below 0.6% of rated current or 5mA, whichever is greater, are disregarded.

Product:	SUA1000RMI1U	Aug 19 2002 12:33pm Page 1 of 1
Serial no:	AS0230111529	
Description:	APC ups	
Result Name:	SUA1000RMI1U2	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:48am
Type of Test:	Fluctuating Harmonics Test - Source Qualification (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:	PASS	

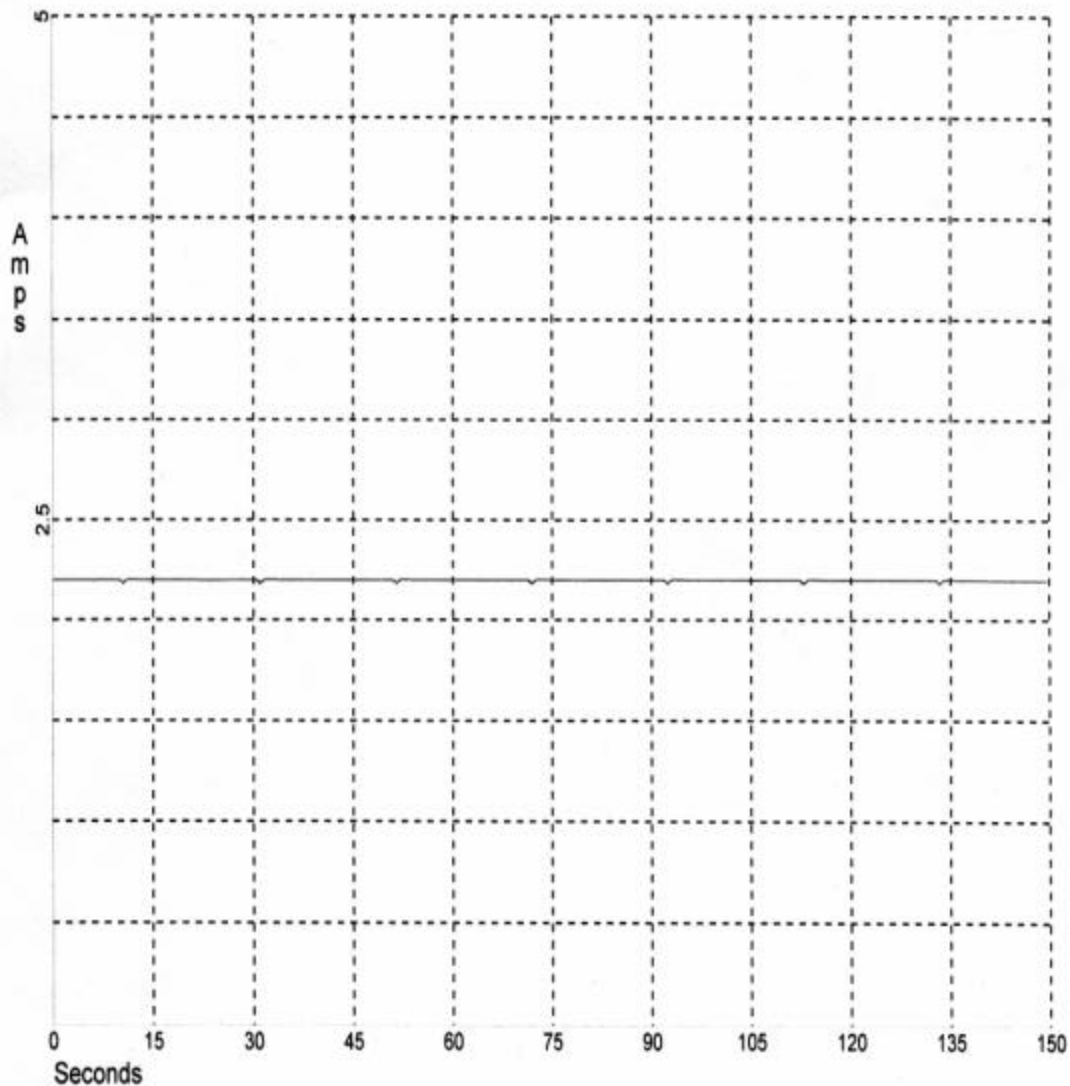
	Nominal	Measured	Deviation	Allowed Deviation	Result
Supply Voltage	230.00V	230.70V	0.70V	4.60V	Pass
Supply Frequency	50.00Hz	49.99Hz	0.01Hz	0.25Hz	Pass

Harmonic	Reading	Limit	Result	Harmonic	Reading	Limit	Result
2	0.06%	0.20%	Pass	3	0.34%	0.90%	Pass
4	0.05%	0.20%	Pass	5	0.16%	0.40%	Pass
6	0.03%	0.20%	Pass	7	0.08%	0.30%	Pass
8	0.03%	0.20%	Pass	9	0.08%	0.20%	Pass
10	0.03%	0.20%	Pass	11	0.08%	0.10%	Pass
12	0.04%	0.10%	Pass	13	0.06%	0.10%	Pass
14	0.03%	0.10%	Pass	15	0.03%	0.10%	Pass
16	0.02%	0.10%	Pass	17	0.04%	0.10%	Pass
18	0.03%	0.10%	Pass	19	0.01%	0.10%	Pass
20	0.03%	0.10%	Pass	21	0.03%	0.10%	Pass
22	0.01%	0.10%	Pass	23	0.03%	0.10%	Pass
24	0.02%	0.10%	Pass	25	0.05%	0.10%	Pass
26	0.05%	0.10%	Pass	27	0.03%	0.10%	Pass
28	0.01%	0.10%	Pass	29	0.01%	0.10%	Pass
30	0.03%	0.10%	Pass	31	0.02%	0.10%	Pass
32	0.01%	0.10%	Pass	33	0.02%	0.10%	Pass
34	0.01%	0.10%	Pass	35	0.02%	0.10%	Pass
36	0.02%	0.10%	Pass	37	0.02%	0.10%	Pass
38	0.01%	0.10%	Pass	39	0.01%	0.10%	Pass
40	0.01%	0.10%	Pass				

Product: SUA1000RMI1U Serial no: AS0230111529 Description: APC ups Test Date: Aug 19 2002 9:52am Result Name: SUA1000RMI1U3		Aug 19 2002 12:34pm Page 1 of 1
Type of Test: EN61000:2001 Harmonics Limits: Class A Power Analyzer: Voltech PM3000A v1.67 s/n 0990 AC Source: Mains / Manual Source		
Overall Result: <div style="font-size: 2em; font-weight: bold; text-align: center;">PASS</div>	Notes:	
Test Parameter Details	User Entered	Measured
Operating Frequency:	50	49.9941
Operating Voltage:	230	230.7000
Specified Power:	0.0000	506.4297
Fundamental Current:	0.0000	2.2026
Power Factor:	0.0000	0.9957
Average Input Current:		0.3481
Maximum POHC:		0.0020
POHC Limit:		0.0779
Maximum THC:		0.0108
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	

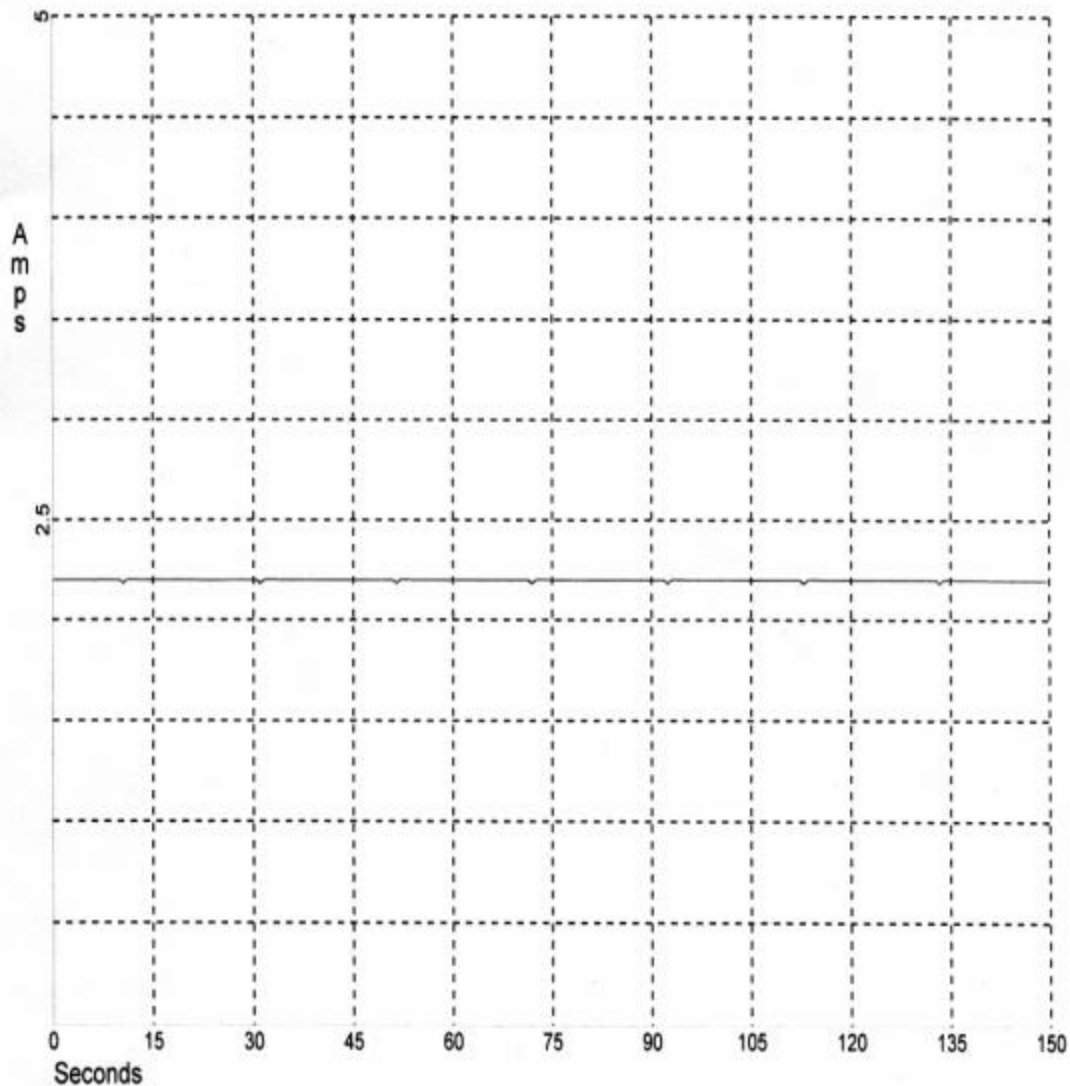
Product:	SUA1000RMI1U	Aug 19 2002 12:34pm
Serial no:	AS0230111529	Page 1 of 1
Description:	APC ups	
Result Name:	SUA1000RMI1U3	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:52am
Type of Test:	Fluctuating Harmonics Test - Single Harmonic Plot (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:		
PASS		

Fundamental



Product:	SUA1000RMI1U	Aug 19 2002 12:34pm
Serial no:	AS0230111529	Page 1 of 1
Description:	APC ups	
Result Name:	SUA1000RMI1U3	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:52am
Type of Test:	Fluctuating Harmonics Test - Single Harmonic Plot (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:		
PASS		

Fundamental



Product:	SUA1000RMI1U	Aug 19 2002 12:35pm Page 1 of 1
Serial no:	AS0230111529	
Description:	APC ups	
Result Name:	SUA1000RMI1U3	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:52am
Type of Test:	Fluctuating Harmonics Test - Worst Case Table (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:	<div style="text-align: center; font-size: 1.5em; font-weight: bold;">PASS</div>	

Class	Class A
Class Multiplier	1

Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL	Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL
2	1.08A	1.62A	51.67mA	✓✓	54.41mA	✓	Pass	3	2.30A	3.45A	35.76mA	✓✓	36.19mA	✓	Pass
4	430.00mA	645.00mA	9.68mA	✓✓	10.35mA	✓	Pass	5	1.14A	1.71A	4.73mA	✓✓	5.92mA	✓	N/A
6	300.00mA	450.00mA	5.15mA	✓✓	5.43mA	✓	Pass	7	770.00mA	1.15A	2.84mA	✓✓	3.62mA	✓	N/A
8	230.00mA	345.00mA	2.17mA	✓✓	2.37mA	✓	N/A	9	400.00mA	600.00mA	2.28mA	✓✓	2.69mA	✓	N/A
10	184.00mA	276.00mA	1.09mA	✓✓	1.28mA	✓	N/A	11	330.00mA	495.00mA	2.22mA	✓✓	2.79mA	✓	N/A
12	153.33mA	153.33mA	1.80mA	✓✓	2.16mA	✓	N/A	13	210.00mA	315.00mA	2.05mA	✓✓	2.70mA	✓	N/A
14	131.43mA	131.43mA	1.78mA	✓✓	2.11mA	✓	N/A	15	150.00mA	225.00mA	1.28mA	✓✓	1.47mA	✓	N/A
16	115.00mA	115.00mA	0.86mA	✓✓	1.16mA	✓	N/A	17	132.35mA	198.53mA	2.34mA	✓✓	2.55mA	✓	N/A
18	102.22mA	102.22mA	1.05mA	✓✓	1.30mA	✓	N/A	19	118.42mA	177.63mA	1.43mA	✓✓	1.62mA	✓	N/A
20	92.00mA	92.00mA	1.09mA	✓✓	1.45mA	✓	N/A	21	107.14mA	107.14mA	1.46mA	✓✓	1.77mA	✓	N/A
22	83.64mA	83.64mA	0.64mA	✓✓	0.97mA	✓	N/A	23	97.83mA	97.83mA	1.39mA	✓✓	1.87mA	✓	N/A
24	76.67mA	76.67mA	0.65mA	✓✓	1.02mA	✓	N/A	25	90.00mA	90.00mA	3.45mA	✓✓	3.86mA	✓	N/A
26	70.77mA	70.77mA	3.55mA	✓✓	3.90mA	✓	N/A	27	83.33mA	83.33mA	1.83mA	✓✓	2.15mA	✓	N/A
28	65.71mA	65.71mA	0.71mA	✓✓	0.91mA	✓	N/A	29	77.59mA	77.59mA	1.44mA	✓✓	1.69mA	✓	N/A
30	61.33mA	61.33mA	0.88mA	✓✓	1.56mA	✓	N/A	31	72.58mA	72.58mA	2.09mA	✓✓	2.41mA	✓	N/A
32	57.50mA	57.50mA	0.87mA	✓✓	1.14mA	✓	N/A	33	68.18mA	68.18mA	1.28mA	✓✓	1.51mA	✓	N/A
34	54.12mA	54.12mA	0.98mA	✓✓	1.22mA	✓	N/A	35	64.29mA	64.29mA	1.60mA	✓✓	2.19mA	✓	N/A
36	51.11mA	51.11mA	1.19mA	✓✓	1.65mA	✓	N/A	37	60.81mA	60.81mA	2.53mA	✓✓	2.96mA	✓	N/A
38	48.42mA	48.42mA	0.71mA	✓✓	0.97mA	✓	N/A	39	57.69mA	57.69mA	0.65mA	✓✓	1.05mA	✓	N/A
40	46.00mA	46.00mA	0.69mA	✓✓	0.96mA	✓	N/A								

<L1 : Reading is below limit 1.

<L2 : Reading is below limit 2.

N/A : Harmonic current below 0.6% of rated current or 5mA, whichever is greater, are disregarded.

Product:	SUA1000RMI1U	Aug 19 2002 12:35pm Page 1 of 1
Serial no:	AS0230111529	
Description:	APC ups	
Result Name:	SUA1000RMI1U3	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 9:52am
Type of Test:	Fluctuating Harmonics Test - Worst Case Table (2001)	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:	PASS	

Class	Class A
Class Multiplier	1

Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL	Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL
2	1.08A	1.62A	51.67mA	✓✓	54.41mA	✓	Pass	3	2.30A	3.45A	35.76mA	✓✓	36.19mA	✓	Pass
4	430.00mA	645.00mA	9.68mA	✓✓	10.35mA	✓	Pass	5	1.14A	1.71A	4.73mA	✓✓	5.92mA	✓	N/A
6	300.00mA	450.00mA	5.15mA	✓✓	5.43mA	✓	Pass	7	770.00mA	1.15A	2.84mA	✓✓	3.62mA	✓	N/A
8	230.00mA	345.00mA	2.17mA	✓✓	2.37mA	✓	N/A	9	400.00mA	600.00mA	2.28mA	✓✓	2.69mA	✓	N/A
10	184.00mA	276.00mA	1.09mA	✓✓	1.28mA	✓	N/A	11	330.00mA	495.00mA	2.22mA	✓✓	2.79mA	✓	N/A
12	153.33mA	153.33mA	1.80mA	✓✓	2.16mA	✓	N/A	13	210.00mA	315.00mA	2.05mA	✓✓	2.70mA	✓	N/A
14	131.43mA	131.43mA	1.78mA	✓✓	2.11mA	✓	N/A	15	150.00mA	225.00mA	1.28mA	✓✓	1.47mA	✓	N/A
16	115.00mA	115.00mA	0.86mA	✓✓	1.16mA	✓	N/A	17	132.35mA	198.53mA	2.34mA	✓✓	2.55mA	✓	N/A
18	102.22mA	102.22mA	1.05mA	✓✓	1.30mA	✓	N/A	19	118.42mA	177.63mA	1.43mA	✓✓	1.62mA	✓	N/A
20	92.00mA	92.00mA	1.09mA	✓✓	1.45mA	✓	N/A	21	107.14mA	107.14mA	1.46mA	✓✓	1.77mA	✓	N/A
22	83.64mA	83.64mA	0.64mA	✓✓	0.97mA	✓	N/A	23	97.83mA	97.83mA	1.39mA	✓✓	1.87mA	✓	N/A
24	76.67mA	76.67mA	0.65mA	✓✓	1.02mA	✓	N/A	25	90.00mA	90.00mA	3.45mA	✓✓	3.86mA	✓	N/A
26	70.77mA	70.77mA	3.55mA	✓✓	3.90mA	✓	N/A	27	83.33mA	83.33mA	1.83mA	✓✓	2.15mA	✓	N/A
28	65.71mA	65.71mA	0.71mA	✓✓	0.91mA	✓	N/A	29	77.59mA	77.59mA	1.44mA	✓✓	1.69mA	✓	N/A
30	61.33mA	61.33mA	0.88mA	✓✓	1.56mA	✓	N/A	31	72.58mA	72.58mA	2.09mA	✓✓	2.41mA	✓	N/A
32	57.50mA	57.50mA	0.87mA	✓✓	1.14mA	✓	N/A	33	68.18mA	68.18mA	1.28mA	✓✓	1.51mA	✓	N/A
34	54.12mA	54.12mA	0.98mA	✓✓	1.22mA	✓	N/A	35	64.29mA	64.29mA	1.60mA	✓✓	2.19mA	✓	N/A
36	51.11mA	51.11mA	1.19mA	✓✓	1.65mA	✓	N/A	37	60.81mA	60.81mA	2.53mA	✓✓	2.96mA	✓	N/A
38	48.42mA	48.42mA	0.71mA	✓✓	0.97mA	✓	N/A	39	57.69mA	57.69mA	0.65mA	✓✓	1.05mA	✓	N/A
40	46.00mA	46.00mA	0.69mA	✓✓	0.96mA	✓	N/A								

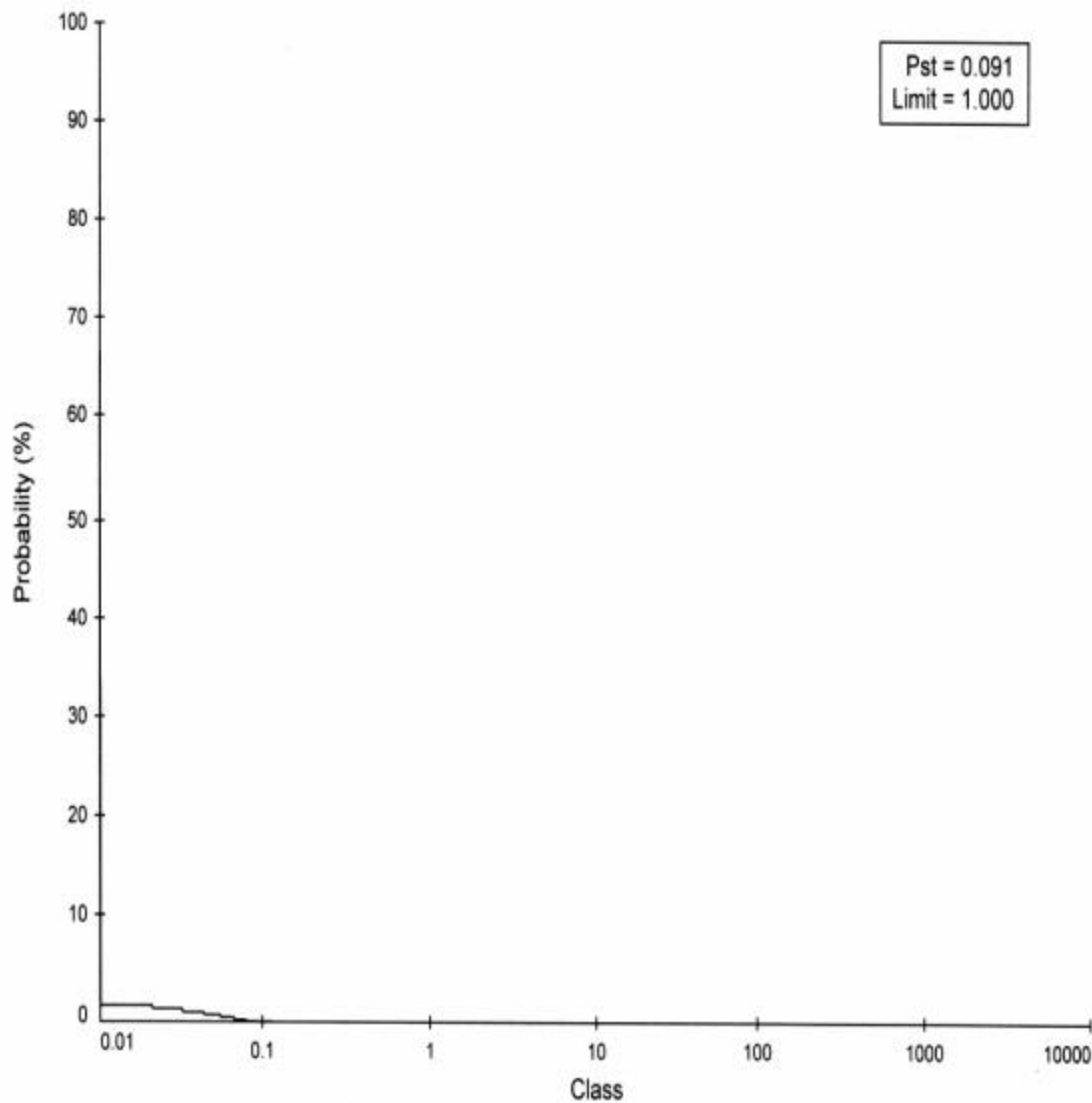
<L1 : Reading is below limit 1.

<L2 : Reading is below limit 2.

N/A : Harmonic current below 0.6% of rated current or 5mA, whichever is greater, are disregarded.

Product:	SUA1000RMI1U	Aug 19 2002 12:31pm Page 1 of 1
Serial no:	AS0230111529	
Description:	APC ups	
Result Name:	SUA1000RMI1U	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 7:23am
Type of Test:	Flickermeter Test - Pst Curve	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:	Notes:	
PASS	Measurement method - Voltage	

Pst Curve 1



Product:	SUA1000RMI1U	Aug 19 2002 12:31pm
Serial no:	AS0230111529	Page 1 of 1
Description:	APC ups	
Result Name:	SUA1000RMI1U	
Voltech IEC1000-3 Windows Software 3.01.03		Test Date: Aug 19 2002 7:23am
Type of Test:	Flickermeter Test - Table	
Power Analyzer:	Voltech PM3000A v1.67 s/n 0990	
AC Source:	Mains / Manual Source	
Overall Result:	Notes:	
PASS	Plt test duration 120 minutes Measurement method - Voltage	

	Plt
Limit	0.650
Reading	0.103

	Pst	dc (%)	dmax (%)	d(t) > 3%(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.091	0.038	0.261	0
Reading 2	0.103	0.032	0.291	0
Reading 3	0.101	0.024	0.278	0
Reading 4	0.103	0.024	0.278	0
Reading 5	0.103	0.032	0.293	0
Reading 6	0.106	0.032	0.285	0
Reading 7	0.104	0.024	0.285	0
Reading 8	0.104	0.024	0.270	0
Reading 9	0.106	0.032	0.293	0
Reading 10	0.105	0.024	0.262	0
Reading 11	0.105	0.032	0.285	0
Reading 12	0.106	0.032	0.285	0

APPENDIX A

PRODUCT INFORMATION

The information contained in this Appendix was provided by Rick Everett of American Power Conversion.
It contains specific configuration details of the system as tested.

Quest Engineering Solutions EMI Emissions and Immunity Test Form

Please complete all that applies for the equipment under test (EUT). Include a block diagram showing the EUT and all support equipment.

Date: 07/18/02
Company: American Power Conversion **Contact:** Bryce Capodieci, Rick Everett
Street: 85 Rangeway Road
City, State ZIP North Billerica, MA 01821
Telephone: 978 - 670 - 2440 x 17275 **FAX:** 978-670-3747

Test Type:

<u>Emissions</u>		<u>Immunity</u>	
CISPR 11 <input type="checkbox"/>		EN50082-1 <input type="checkbox"/>	EN50082-2 <input type="checkbox"/> IEC60601-1-2 <input type="checkbox"/>
CISPR 22 <input checked="" type="checkbox"/>	VDE <input type="checkbox"/>	EN61326 <input type="checkbox"/>	EN61000-6-2 <input type="checkbox"/>
VCCI <input type="checkbox"/>	Other <input type="checkbox"/>	EN61000-4-2 <input checked="" type="checkbox"/>	EN61000-4-6 <input checked="" type="checkbox"/> Test Level 1 <input type="checkbox"/>
AUSTEL <input type="checkbox"/>		EN61000-4-3 <input checked="" type="checkbox"/>	EN61000-4-8 <input type="checkbox"/> Test Level 2 <input type="checkbox"/>
		EN61000-4-4 <input checked="" type="checkbox"/>	EN61000-4-11 <input checked="" type="checkbox"/> Test Level 3 <input type="checkbox"/>
Class A (1) <input checked="" type="checkbox"/>		EN61000-4-5 <input checked="" type="checkbox"/>	Test Level 4 <input type="checkbox"/>
Class B (2) <input type="checkbox"/>		Special <u>IEC 61000-2-2, EN 61000-3-2, EN 61000-3-3</u>	
Add EN 61000-4-1 General Requirements to Certificate			

Equipment Under Test (EUT) Description:

Uninterruptible Power Supply (UPS)

Model Number(s): SUA750RMI1U, SUA1000RMI1U **Serial Number(s):** N/A

EUT Weight(lb.): 39 lb. **EUT Size (LxWxH):** 25.75 x 17 x 1.76 inches

Power Interface:

Frequency 50/60 Hz
 Voltage 220 - 240Vac
 No. of Phases 1
 Current 10A
 Plug Type IEC
 Cord Type _____

Power Supply:

Description _____
 Manufacturer _____
 Model Number _____
 Switching Freq. _____
 RF Filter Manufac. _____
 RF Filter Model _____

Equipment Cycle Time: _____

Failure Criteria: _____

Equipment Configuration	Slot No.	Board Type
	N/A	

Equipment Internal Devices (e.g. disks, tapes)	Manufacturer	Part No.	Serial No.
	N/A		

Oscillator Frequencies of EUT (Please list all):

Main is 16 MHz, USB 24 MHz, Inverter 10-40 MHz,

Battery Charger 30-70 MHz, See Attachment

RF Suppression Components of EUT (i.e., ferrites, gasketing, filters, etc.):

Manufacturer	Part No.	Locations used

Cabinet Shielding/Construction of EUT:

N/A

I/O Cables:

Note: Interconnecting cables shall be connected to one of each type of functional port of the EUT. Where there are multiple ports of the same type, additional cables shall be attached to each of these ports. These additional cables do not need to be terminated.

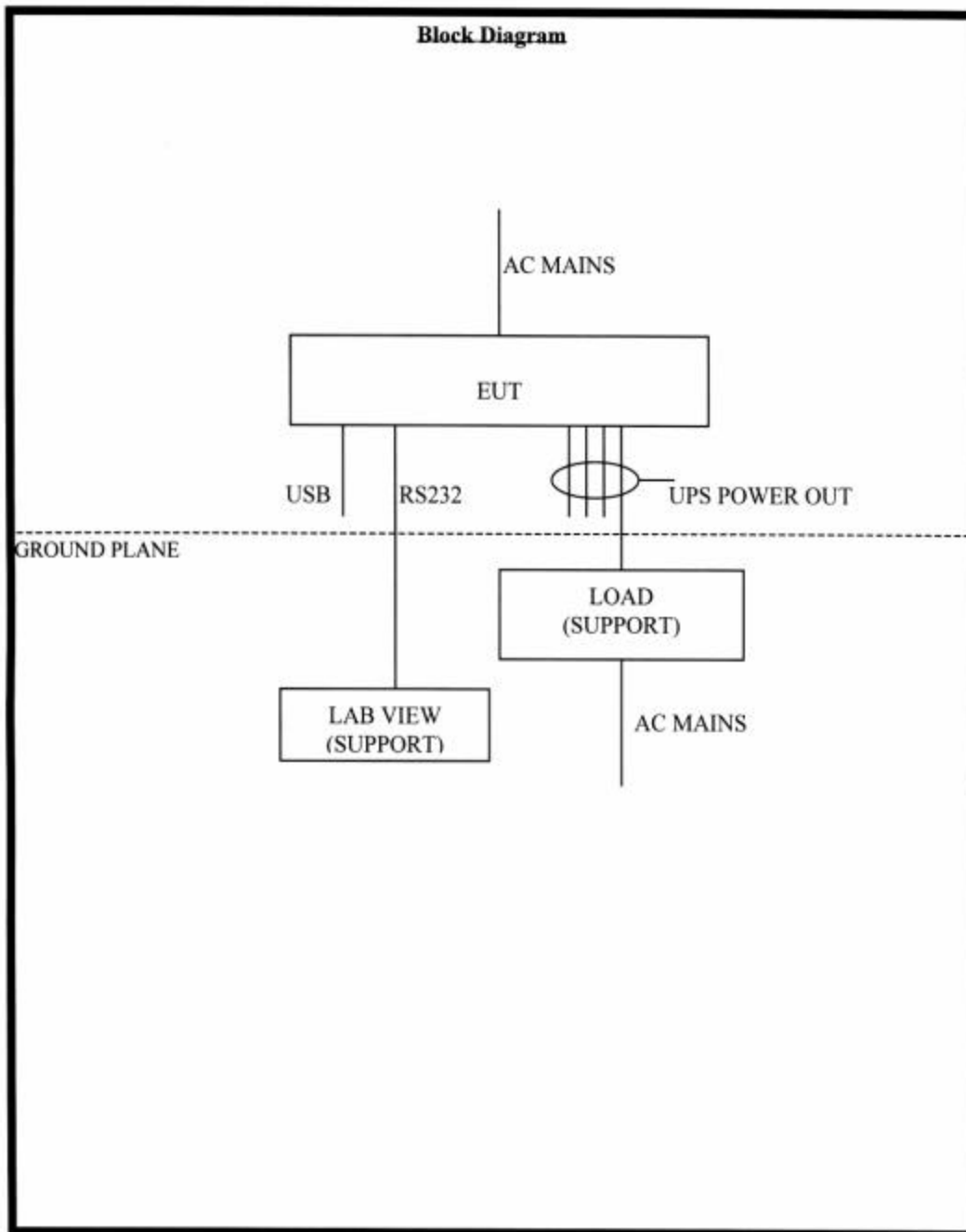
Quantity	Part No.	Function	Shield description (e.g. braid, foil, none)
1		DB9	
1		USB	

Software Description:

Note: The EUT must be exercised by software or other means so as to ensure that the various parts of the system are active. The exercise shall generate traffic representative of typical equipment usage. For immunity testing, the software must be capable of reporting any errors that may occur.

Support Equipment Description (Manufacturer, model number, serial number, cable numbers):

Additional Information:



APPENDIX B

QUEST CREDENTIALS

FCC registered test site

NVLAP Lab Code 200036-0

FCC Method-47 CFR Part 15 – Digital Devices

Conducted Emissions, Power Lines, 450 kHz to 30 MHz

Radiated Emissions

International Special Committee on Radio Interference (CISPR) Methods

IEC/CISPR 22:1993

IEC/CISPR 22:1993, Amendment 1:1995, and Amendment 2:1996

CNS 13438:1997

Australian Standards referred to by clauses in ACA
Technical Standards

AS/NZS 3548

Conformity Assessment Body (CAB) For the EMC annex

VCCI Registration Numbers R-712 and C732

Austel A96/TH/0079

AS/NZS 3584

TEST SERVICES

TEST REPORT POLL

Please rate the attached test report's quality by responding to the brief questions listed in this poll. Our goal is to provide you with high quality test reports in a timely manner. Therefore, your feedback is vital in order to determine how good our test reports are, and what areas could be improved.

Please indicate beside each question what you feel is the rating. Also, feel free to make comments directly on the poll, or by attaching a separate sheet. The completed form should then be returned by mail or FAX to Herman Held at 978-667-3388. Your cooperation and effort are truly appreciated.

TEST REPORT NUMBER: Q02142

YES NO

1. Was the information presented clearly?... []....[]
2. Was the report complete?..... []....[]
3. Was the report timely?..... []....[]
4. Did the report satisfy your requirements?..... []....[]
5. Your organization type? []Engineering... []Manufacturing
..... []Marketing..... []Other
6. Your work environment?. []Hardware..... []Software []Both

YOUR NAME (OPTIONAL): _____

OPTIONAL COMMENTS: _____

To: Herman Held, President
Quest Engineering Solutions
7 Sterling Road
P.O. Box 125
North Billerica, MA 01862
FAX: 978-667-3388



Issues

A CERTIFICATE OF TEST:

To

American Power Conversion

For

Product: Uninterruptible Power System

Model: SUA1000RMI1U and SUA750RMI1U

Date: August 19, 2002

Quest Engineering Solutions, a US and internationally approved test house, attests that compliance testing was completed satisfactorily on the aforementioned equipment as specified by the manufacturer and reported in Quest's test report number: Q02142. Quest Engineering Solutions acknowledges that the Equipment Under Test was found to be in compliance with the following standards:

**EN61000-3-2, 1995, Section 2, Limits for Harmonic Current Emissions
(Equipment Input Current £ 16 Amps per Phase), Class A**

**EN61000-3-3, 1995, Section 3, Limitations of Voltage Fluctuations and
Flicker in Low-Voltage Supply Systems for Equipment with Rated
Current £ 16 Amps**

CQ02142