

CTS Limited

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22 Meadowvale Road
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Bromsgrove
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B60 1JY

Certificate of Conformity

Client: EMS (European) Limited
32 Great London Street
London
EC3A 2EP

Contact Name: Dr Jonathan Hughes

Item Tested: 240-SPMEC-10A0MEC

Serial number: N/A

Specifications Applied: EN55011 Class B Conducted Emissions
EN55011 Class B Radiated Emissions
EN61000-4-4 Fast Transient Bursts
EN61000-4-2 Static Discharge
EN61000-3-2 Harmonics

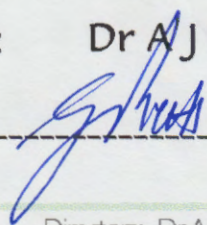
Results:	Conducted Emissions	PASS
	Radiated Emissions	PASS
	Fast Transient Bursts	PASS
	Electro Static Discharge	PASS
	Harmonics	PASS

Report Number: 5810

No of Report Pages: 23

Prepared By: Dr A J Pratt

Date of Testing: 18.07.2003

Signature: 

Date of Report: 18.07.2003

CTSLTD

1

EMC & CE Marking Consultants
22 Meadowvale Road
Bromsgrove, Worcs., B60 1JY
Tel: 01527 870270 Fax: 01527 833636
e-mail: doctoremc.co.uk

TEST REPORT

CLIENT:
REPORT NO

EMS (European) Ltd
32 Great Easton Street,
London
EC3A 2EP

5810

Mr. Jonathon Hughes

ITEM TESTED:

240-SPMEC-10A-MEC For EMS European Ltd

SERIAL NUMBER:

Not Known

SPECIFICATIONS
APPLIED:

Checking for EMC Compliance. Generic EN50081/2, EN5011 Class B for Radiated and
Conducted Emissions.
Generic EN50082/1 for Immunity Using EN61000-4-4 Fast Transient Burst
EN61000-4-2 Static Discharge
EN61000-3-2 Harmonics

Low Voltage Directive assessed by Client to EN61010

RESULTS:

CONDUCTED EMISSIONS
RADIATED EMISSIONS
Fast Transient Burst
Static Discharge
Harmonics

PASS
PASS
PASS
PASS
PASS

AUTHORISED

PREPARED BY: Dr. A J PRATT

19/07/03

SIGNED BY.....

18/07/03

DATE REPORT WRITTEN:

DATE OF TESTING

SIGNATURE

CONDITIONS OF ISSUE

The results contained within this report apply only to the particular unit tested and to the specifications best suited to the unit under test. The issuing of this test report does not indicate any measure of approval, certification, supervision control or surveillance by CTS of any product. This report is to be used as evidence to support a self certifying document.

TEST SUMMARY

2

TITLE: 240 – SPMEC-10A-MEC For EMS European Ltd

REPORT NO:
P

5810

TEST DATE:

18/07/03

AUTHORITY:

SELF CERTIFY

SPECIMEN RECEIVED:

18/07/03

SPECIMEN RETUNED:

N/A

CLIENT:

EMS (European) Ltd

ADDRESS:

32 Great Easton Street
London
EC3A 2EP

CLIENT LIASON ENGINEER:

Dr. J Hughes

TEST OBJECTIVE/SPECIFICATION:

To check for EMC compliance. Against Generic Standards EN55011 Class B Emissions and EN50082/2 immunity. Immunity use EN61000-4-4 Fast Transient Burst level 4 at 2Kv, EN61000-4-2 Static Discharge level 4 at 4Kv contact, and 8Kv Space.

Test site location. All tests applied at CTS Chamber in Birmingham UK

SYSTEM DESCRIPTION:

The set up used a calibrated LISN for conducted emissions and a calibrated antenna at 3M for Radiated emission. The EUT (Equipment under test) consists of a small steel box containing the electronics. The system functions as an 'in-line' control device to limit the energy into small refrigerators etc. The system uses 230v 50 Hz up to 10A.

THE RESULTS IN THIS REPORT ONLY APPLY TO THE SAMPLE SUBMITTED FOR TEST.

Summary of Test Results.

Conducted Emissions.	Using ambient levels as original plot.	PASS
Radiated Emissions.	Using Ambient Trace as original plot	PASS
Fast Transient Burst Set to 2 KV		PASS
Static Discharge Set to 4 KV contact and 8 Kv space		PASS
Harmonics	up to 40 th	PASS

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Contact for testing: Dr A. J. Pratt Telephone Number 01527 870270

CTS Limited

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Dr Pratt Mobile: 07973 676607
Dr Pratt Car Phone: 07790 773175
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Web site: www.doctoremc.co.uk

Office Address:
22 Meadowvale Road
Lickey End
Bromsgrove
Worcs
B60 1JY

Certificate of Conformity

Client: EMS (European) Limited
32 Great Eastern Street
London
EC3A 2EP

Contact Name: Mr Jonathan Hughes

Item Tested: 240-SPMEC-10A0MEC

Serial number: N/A

Specifications Applied: EN55011 Class B Conducted Emissions
EN55011 Class B Radiated Emissions
EN61000-4-4 Fast Transient Bursts
EN61000-4-2 Static Discharge
EN61000-3-2 Harmonics

Results:	Conducted Emissions	PASS
	Radiated Emissions	PASS
	Fast Transient Bursts	PASS
	Electro Static Discharge	PASS
	Harmonics	PASS

Report Number: 5810

No of Report Pages: 23

Prepared By: Dr A J Pratt

Date of Testing: 18.07.2003

Signature: _____

Date of Report: 18.07.2003

CTS LTD

1

EMC Consultants

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TEST REPORT

CLIENT:

EMS (European) Ltd
32 Great Easton Street
London
EC3A 2EP

Report Number

5810

CONTACT:

Mr. Johnathan Hughes

ITEM TESTED:

240-SPMEC-10A -MEC

For EMS European Ltd

SERIAL NUMBER:

Not known

SPECIFICATIONS APPLIED:

Checking for EMC Compliance. Generic EN50081/2, EN55011 Class B for Radiated and Conducted Emissions
Generic EN50082/1 for Immunity Using EN61000-4-4 Fast Transient Burst
EN61000-4-2 Static Discharge
EN61000-3-2 Harmonics

Low Voltage Directive Assessed by Client to EN61010

RESULTS:

Conducted Emissions	PASS
Radiated Emissions	PASS
Fast Transient Burst	PASS
Static Discharge	PASS

PREPARED BY: Dr A J PRATT

SIGNED BY.....

DATE REPORT WRITTEN:

19/07/03

DATE OF TESTING

18/07/03

AUTHORISED
CTS LTD
SIGNATURE

CONDITIONS OF ISSUE

The results contained within this report apply only to the particular unit tested and to the specifications best suited to the unit under test. The issuing of this test report does not indicate any measure of approval, certification, supervision control or surveillance by CTS of any product. This report is to be used as evidence to support a self certifying document.

TEST SUMMARY

2

TITLE: 240 – SPMEC-10A-MEC For EMS European Ltd

REPORT NO: P	5810	CLIENT:	EMS (European) Ltd
TEST DATE:	18/07/03	ADDRESS:	32 Great Easton Street London EC3A 2EP
AUTHORITY:	SELF CERTIFY		
SPECIMEN RECEIVED:	18/07/03		
SPECIMEN RETURNED:	N/A	CLIENT LIASON ENGINEER:	Mr J Hughes

TEST OBJECTIVE/SPECIFICATION:

To check for EMC compliance. Against Generic Standards EN55011 Class B Emissions and EN50082/2 immunity. Immunity use EN61000-4-4 Fast Transient Burst level 4 at 2Kv, EN61000-4-2 Static Discharge level 4 at 4Kv contact, and 8Kv Space.

Test site location. All tests applied at CTS Chamber in Birmingham UK

SYSTEM DESCRIPTION:

The set up used a calibrated LISN for conducted emissions and a calibrated antenna at 3M for Radiated emission. The EUT (Equipment under test) consists of a small steel box containing the electronics. The system functions as an 'in-line' control device to limit the energy into small refrigerators etc. The system uses 230v 50 Hz up to 10A.

THE RESULTS IN THIS REPORT ONLY APPLY TO THE SAMPLE SUBMITTED FOR TEST.

Summary of Test Results.

Conducted Emissions.	Using ambient levels as original plot.	PASS
Radiated Emissions.	Using Ambient Trace as original plot	PASS
Fast Transient Burst Set to 2 KV		PASS
Static Discharge Set to 4 KV contact and 8 Kv space		PASS
Harmonics	up to 40 th	PASS

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Contact for testing: Dr A. J. Pratt Telephone Number 01527 870270

1.0 Conducted Emissions

1.1 Test Detail

A number of preliminary tests are completed to establish worse case conditions prior to recording the measurements. Background noise is reduced as far as possible by fitting filters and other suppression devices prior to the mains input to the LISN. Where EUT's are to be powered by mains feeds in metal conduits a screen lead is used between the LISN and the EUT. A background noise plot was produced in peak and average format. EUT plots were then produced in peak and average formats. EUT = Equipment Under Test.

1.2 Test Method

The EUT is powered up via a suitable calibrated LISN, the EMI receiver is initially set up to measure wide band quasi peaks in the range 150 KHz. to 30 MHz. If the reading is at least 6 dB,s below the recorded limit no further QP measurements are made. If the reading is within 6 dB,s of the recorded limit, or over, a narrow band QP measurement is taken.

These procedures are applied to:

A- Line & Neutral .

1.3 Test Configuration

The EUT was mounted on a wooden table 0.8 Mts above the ground plane. The LISN was electrically tied to the ground. The receiver was placed on a wooden table and connected by 50 ohm coaxial cable to the LISN.

1.4 Pass Criteria

EUT must show levels at least 10dB below the limit line on Quasi peak measurements.

1.5 Results See plots ems 1 & 2. Dat See Photo 1

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2. Radiated Emissions

2.1 Test Method

The emissions were measured using a wide band antenna placed approximately 3 metres from the EUT. The output of the antenna was fed into the EMI test receiver which in turn was being driven by a computer.

The initial reading taken by the receiver is of peak reading, a final quasi peak reading only being necessary where the peak reading is within 6dB of the limit or exceeding the limit level. Where readings are high or within 6dBs of the limit and focused reading is taken.

2.2 Test Configuration

The antenna is placed on the ground 3 meters from the EUT. The EUT is free standing on the ground. The signals are passed via a coupling cable to the receiver. Background measurements are taken and recorded in both vertical and horizontal antenna positions. Some preliminary tests, unrecorded are performed to establish worse case conditions.

2.3 Pass Criteria

EUT must show a level below the limit line, in quasi peak measurements at 120KHz Bandwidth. Ambient conditions MUST be taken into account when tested in an uncontrolled environment.

2.4 Test Details

Tests were performed over a frequency range of 30-1000 MHz, with the antenna in horizontal then vertical polarisation.

2.5 Test Results See plots ems 3 & 4 .dat

1	Background noise	Vertical	30-1000 MHz	
2	unit operational	Vertical	30-1000 MHz	pass
3				
4				
5	Background noise	Horizontal	30-1000 MHz	
6	Unit operational	Horizontal	30-1000 MHz	pass
7				
8				

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3.0 Immunity to Fast Transient Bursts EN61000-4-4

3.1 Test Method

The immunity of the EUT was submitted for test to fast transient bursts and was assessed in accordance with the methods given in specification EN61000-4-4

The tests were performed on the EUT and subjected to fast transient using a fast transient burst generator via:-

A) By direct injection into Power Leads.

3.2 Test Configuration

A test voltage of 2Kv Bursts in positive and negative directions was applied to the EUT
Pass Criteria

There must be no observed change in EUT performance during and after tests.

3.5 Test Results See Photo 5

3.6

Category

PASS

FAIL

1		2	X	3		4	
---	--	---	---	---	--	---	--

Category 1 = No Change

Category 2 = There was change but system automatically reverts back to normal operation on removal of test

Category 3 = There was change and system required manual reset before resuming to normal operation

Category 4 = Permanent damage NON compliant

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4 Immunity to electrostatic Discharge (ESD) EN61000-4-2

4.1 Test Method

The immunity of the EUT was submitted to electrostatic discharge and assessed in accordance with the methods given in specification EN 61000-4-2

4.2 Test Configuration

Via test probe Onto various points on the case.

4.3 Test Details

Two variations of the tests were applied to the EUT, this consists a contact discharge with a charge voltage of 4kV using + and - polarities, then a discharge is applied with a charge voltage of 8kV + and - polarities.

The discharges of both types and positive and negative polarity, were carried out to the following test points:

Case of EUT,

4.4 Test Results See Photo 6

Category

PASS

FAIL

1		2	X	3		4	
---	--	---	---	---	--	---	--

See explanation of categories on previous page.

Category Pass

4.5 Pass Criteria

The System moves into start mode and carries on normally after test removed

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The list below indicates the equipment used and last calibration dates of the equipment used during the EMC testing.

An X indicates item of equipment was used.

EQUIPMENT USED	Last CALIBRATION DATE	
LISN Chase MN2025 Serial Number 2564	Nov 2002	X
Schaffner Fast Transient Burst Generator Model NSG2053 Serial Number 1315	Jan 2003	X
Rhode & Schwarz EMI Rx. Serial Number 024 Complete with antenna and coupling cables	Aug 2002	X
Schaffner Coupling Clamp	N/A	
Wavetec Multimeter Model 093	N/A	X
AllTech Current Probe Model 93511-1L Calibrated against LISN	Oct 2001	
AVO MEGGER PAT-2/2 Serial Number 970376	June 1997	
LISN 200A per Phase	Oct 2001	
AV 2200 Harmonics Flicker	Jan 2001	
Schaffner Static Discharge Gun Model NSG435 Serial Number 5514	Nov 2002	X

NOTES

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Glossary of Terms Used in this Report

EUT	Equipment Under Test
MHz	Hz x E6
GHz	Hz x E12
KHz	Hz x E3
PFC	Power Factor Correction (Cos. 0)
A	Amperes
V	Volts
Kv	Kilo-volts
H	Henries (Inductance)
C	Farads (Capacitance)
mH	H x E -3
uH	H x E -6
mF	C x E -3
uF	C x E -6
Rt	Rise Time
Pw	Pulse Width
Ft	Fall Time
S	Seconds
mS	S x E-3
uS	S x E -6
dB/uv	Decibel/micro-volts. Ratio with 1 uv Reference
P	Peak
QP	Quasi Peak
Av	Average

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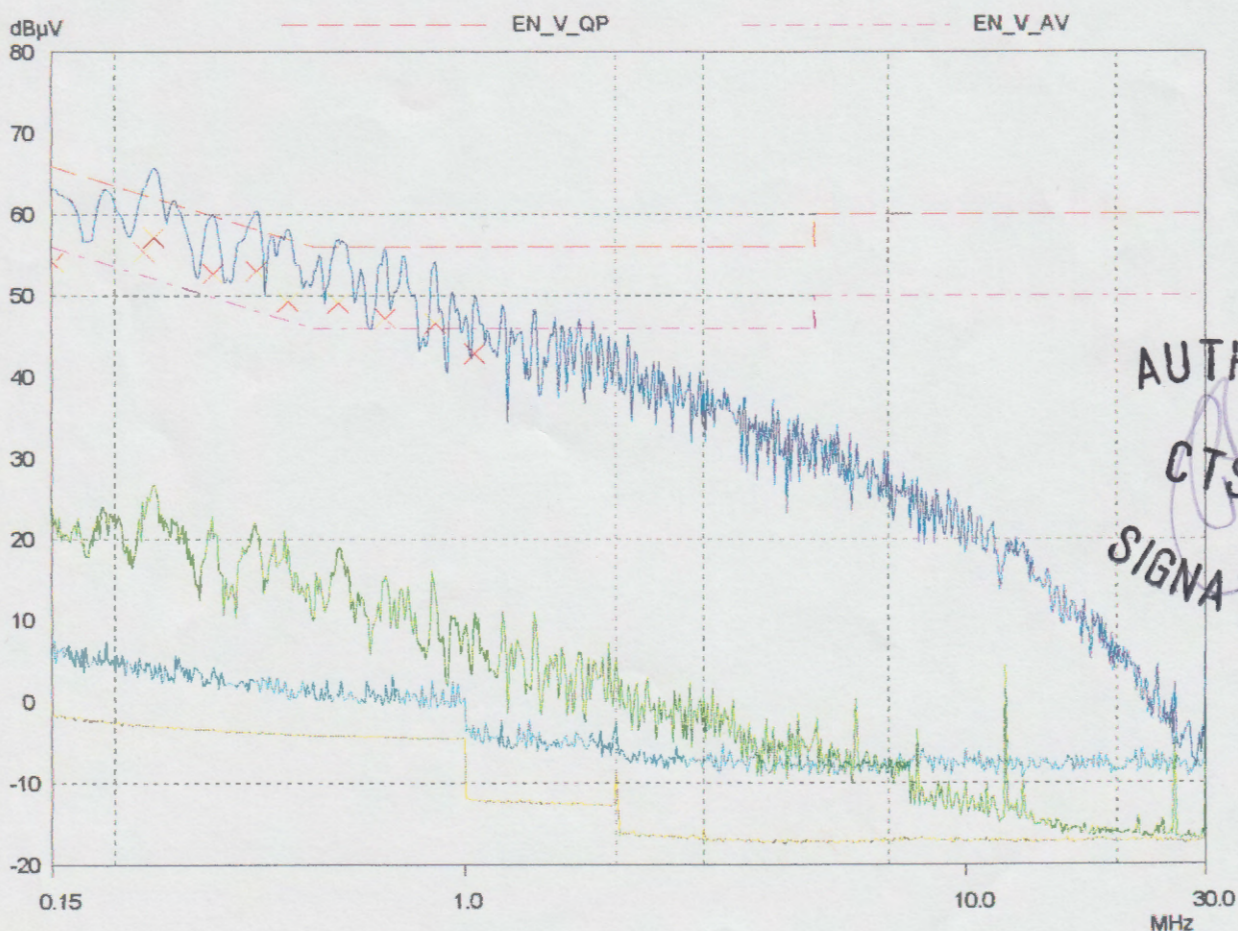
18 Jul 2003 09:23

Conducted Emissions

EUT: 240-SPMEC-10A MEC
 Manuf: EMS European Ltd UK
 Op Cond: CTS Chamber Birmingham UK
 Operator: Dr A.J.Praff
 Test Spec: BSEN 55011 Class B Light Commercial Limits
 Comment: Live Conductor
 1Hp Motor used as Dummy Load
 Result File: ems1.dat : New Measurement

Scan Settings		(1 Range)			Receiver Settings		
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
150kHz	30MHz	0.8%	10kHz	PK+AV	20msec	Auto	60dB
Transducer	No.	Start	Stop	Name			
	21	150kHz	30MHz	LSN0930A			

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 6 dB



CTS for EMS European Ltd
Conducted Emissions

18 Jul 2003 09:23

EUT: 240-SPMEC-10A MEC
Manuf: EMS European Ltd UK
Op Cond: CTS Chamber Birmingham UK
Operator: Dr A.J.Pratt
Test Spec: BSEN 55011 Class B Light Commercial Limits
Comment: Live Conductor
1Hp Motor used as Dummy Load
Result File: ems1.dat : New Measurement

Scan Settings		(1 Range)			Receiver Settings		
		Frequencies					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
150kHz	30MHz	0.8%	10kHz	PK+AV	20msec	Auto	60dB
Transducer	No.	Start	Stop	Name			
	21	150kHz	30MHz	LSN0930A			

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 25
Acc Margin: 6 dB

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Ref. Offset dB
0.1512	53.99	65.93	11.94	-46.45
0.22882	55.38	62.49	7.11	-51.83
0.24002	57.14	62.10	4.96	-52.55
0.31471	52.71	59.85	7.14	-48.44
0.38409	52.98	58.19	5.21	-50.32
0.44332	49.20	57.00	7.80	-48.83
0.55857	49.06	56.00	6.94	-48.48
0.69264	47.20	56.00	8.80	-45.12
0.8727	46.54	56.00	9.46	-45.49
1.04824	42.83	56.00	13.17	-47.50

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Ref. Offset dB
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No results

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SIGNATURE

* limit exceeded

CTS for EMS European Ltd

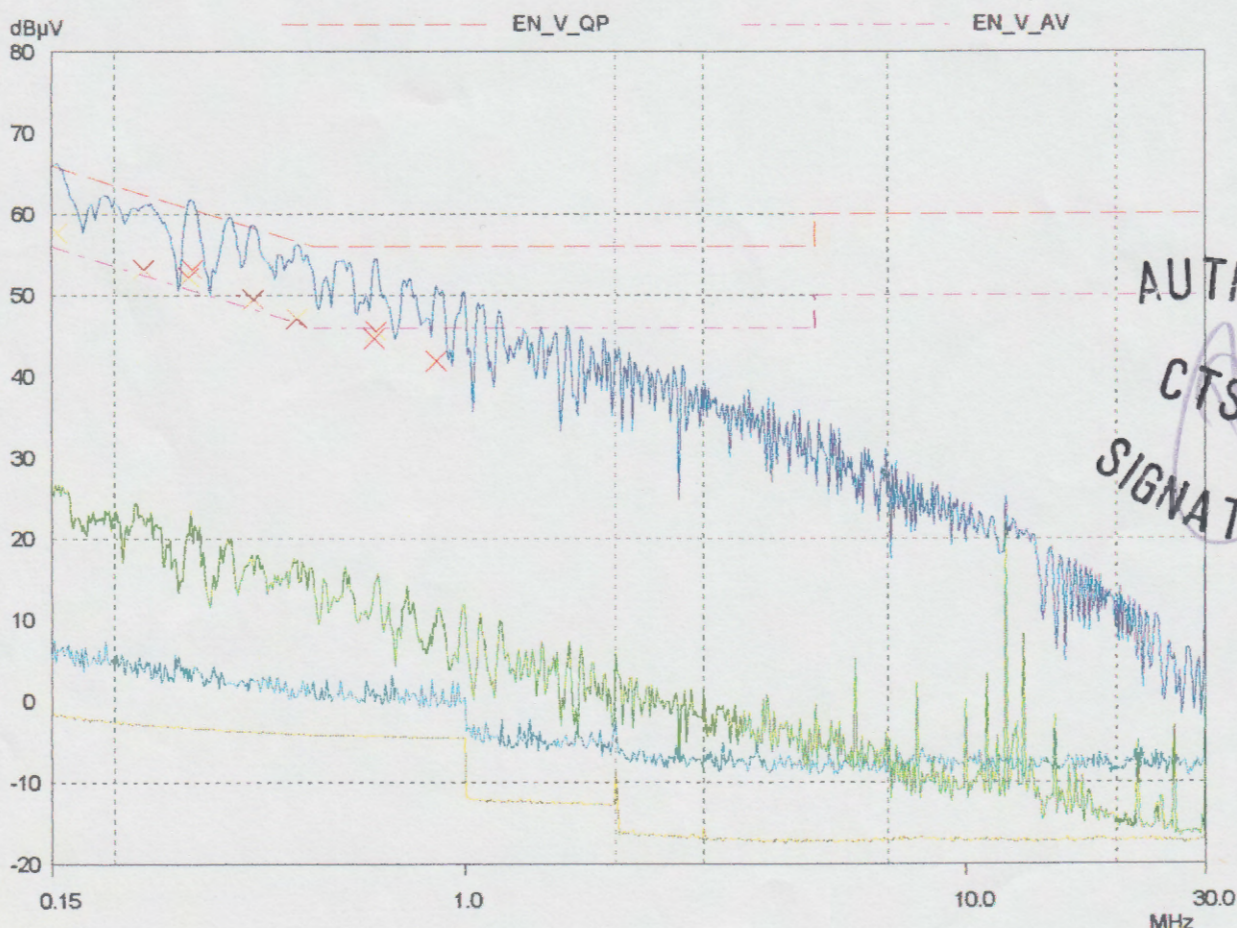
18 Jul 2003 09:32

Conducted Emissions

EUT: 240-SPMEC-10A MEC
 Manuf: EMS European Ltd UK
 Op Cond: CTS Chamber Birmingham UK
 Operator: Dr A.J.Pratt
 Test Spec: BSEN 55011 Class B Light Commercial Limits
 Comment: Neutral Conductor
 1 HP Motor used as Dummy Load
 Result File: ems2.dat : New Measurement

Scan Settings			(1 Range)			Receiver Settings		
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge	
150kHz	30MHz	0.8%	10kHz	PK+AV	20msec	Auto	60dB	
Transducer	No.	Start	Stop	Name				
	21	150kHz	30MHz	LSN0930A				

Final Measurement: Detectors: X QP / + AV
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 6 dB



CTS for EMS European Ltd
Conducted Emissions

18 Jul 2003 09:32

EUT: 240-SPMEC-10A MEC
Manuf: EMS European Ltd UK
Op Cond: CTS Chamber Birmingham UK
Operator: Dr A.J.Pratt
Test Spec: BSEN 55011 Class B Light Commercial Limits
Comment: Neutral Conductor
1 HP Motor used as Dummy Load
Result File: ems2.dat : New Measurement

Scan Settings		(1 Range)			Receiver Settings		
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
150kHz	30MHz	0.8%	10kHz	PK+AV	20msec	Auto	60dB
Transducer	No.	Start	Stop	Name			
	21	150kHz	30MHz	LSN0930A			

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 25
Acc Margin: 6 dB

Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB	Ref. Offset dB
0.15362	57.66	65.80	8.14	-51.24
0.22882	53.16	62.49	9.33	-49.61
0.28149	52.18	60.77	8.59	-48.15
0.28601	53.15	60.64	7.49	-49.47
0.37801	49.46	58.32	8.86	-47.00
0.46134	47.08	56.67	9.59	-46.39
0.66031	44.65	56.00	11.35	-44.58
0.66559	45.56	56.00	10.44	-44.66
0.87968	41.90	56.00	14.10	-42.55

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB	Ref. Offset dB
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No results

AUTHORIZED
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SIGNATURE

* limit exceeded

CTS for EMS European Ltd

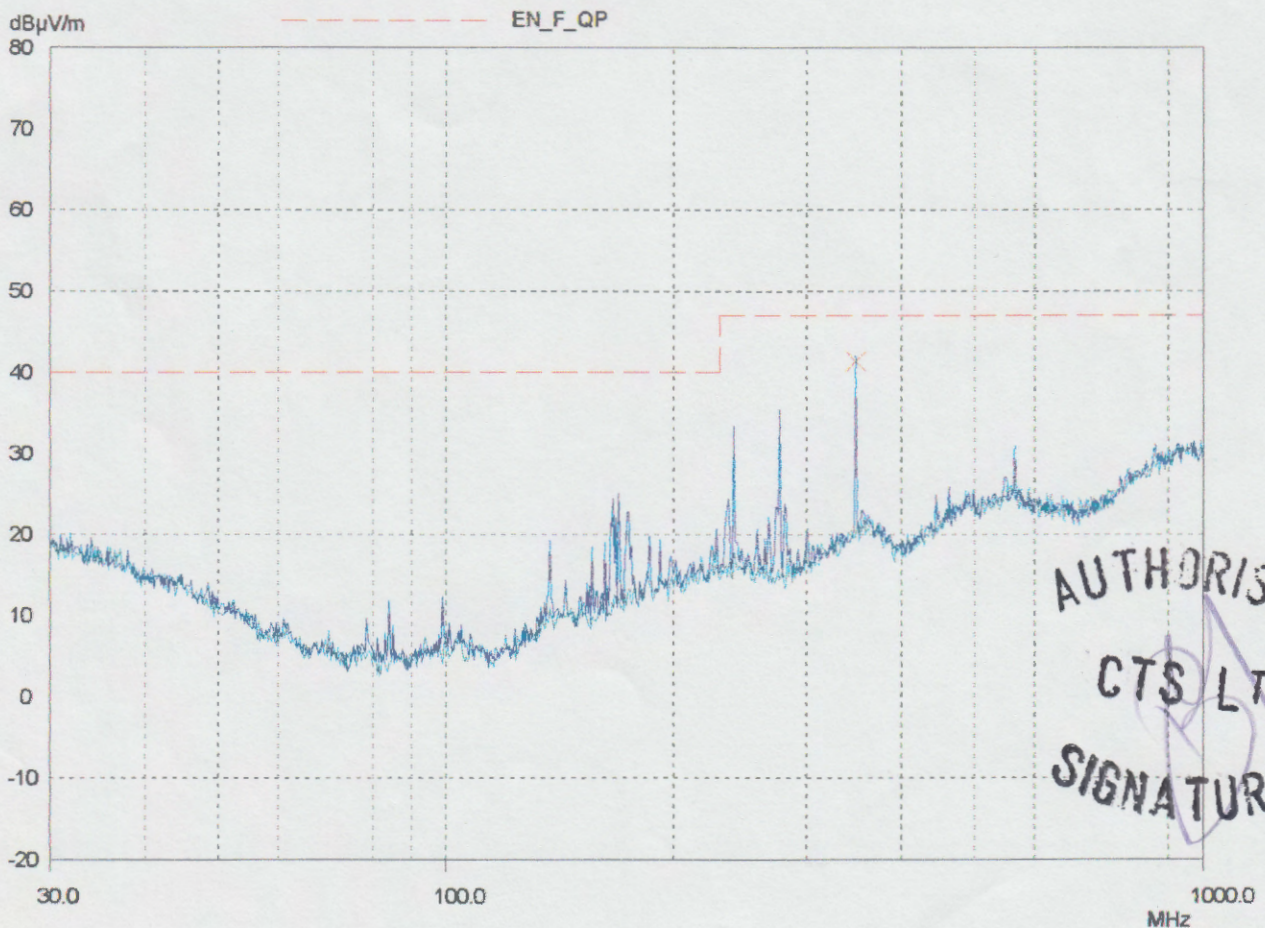
18 Jul 2003 09:57

Radiated Emissions

EUT: 240-SPMEC -10A MEC
 Manuf: EMS European Ltd UK
 Op Cond: CTS Chamber in Birmingham
 Operator: Dr A.J.Pratt
 Test Spec: BSEN55011 Class B Limits Antenna at 3 Mts
 Comment: Vertical
 1.0 HP motor used as Dummy Load
 Result File: ems3.dat : New Measurement

Scan Settings		(1 Range)			Receiver Settings		
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
30MHz	1000MHz	0.4%	120kHz	PK	20msec	Auto	60dB
Transducer	No.	Start	Stop	Name			
	21	30MHz	1000MHz	55022plusAmp			

Final Measurement: Detector: X QP
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 6 dB



Radiated Emissions

EUT: 240-SPMEC -10A MEC
 Manuf: EMS European Ltd UK
 Op Cond: CTS Chamber in Birmingham
 Operator: Dr A.J.Pratt
 Test Spec: BSEN55011 Class B Limits Antenna at 3 Mts
 Comment: Vertical
 1.0 HP motor used as Dummy Load
 Result File: ems3.dat : New Measurement

Scan Settings		(1 Range)		Receiver Settings			
Frequencies		Step	IF BW	Detector	M-Time	Atten	OpRge
Start	Stop						
30MHz	1000MHz	0.4%	120kHz	PK	20msec	Auto	60dB
Transducer	No.	Start	Stop	Name			
	21	30MHz	1000MHz	55022plusAmp			

Final Measurement: Detector: X QP
 Meas Time: 1sec
 Subranges: 25
 Acc Margin: 6 dB

Final Measurement Results

Frequency MHz	QP Level dBµV/m	QP Limit dBµV/m	QP Delta dB	Ref. Offset dB
348.03339	41.35	47.00	5.65	-21.58

AUTHORISED
 CTS LTD
 SIGNATURE

* limit exceeded

CTS for EMS European Ltd

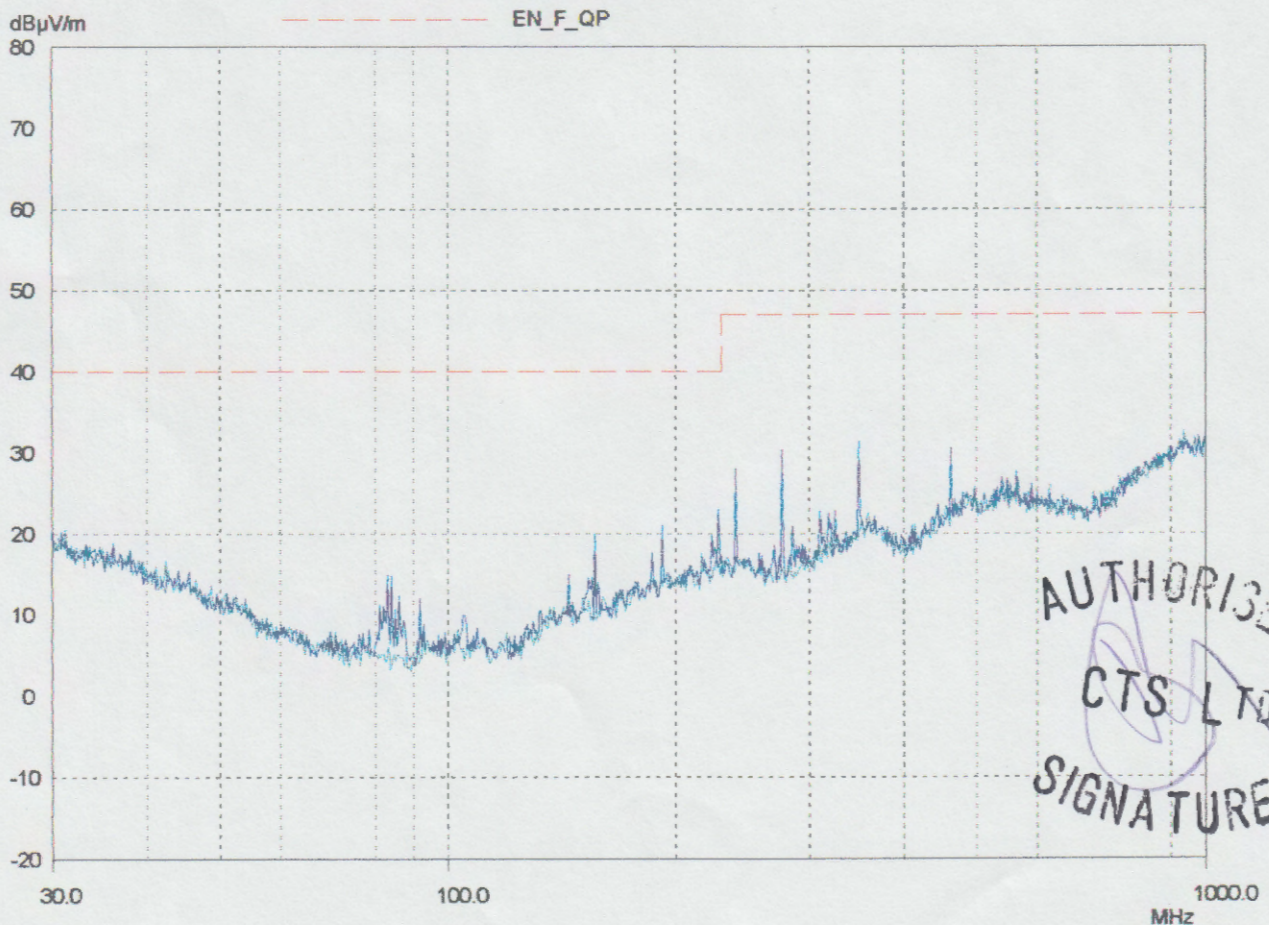
18 Jul 2003 10:04

Radiated Emissions

EUT: 240-SPMEC -10A MEC
 Manuf: EMS European Ltd UK
 Op Cond: CTS Chamber in Birmingham
 Operator: Dr A.J.Pratt
 Test Spec: BSEN55011 Class B Limits Antenna at 3 Mts
 Comment: Horizontal
 1.0 HP motor used as Dummy Load
 Result File: ems4.dat : New Measurement

Scan Settings			(1 Range)					Receiver Settings		
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge			
30MHz	1000MHz	0.4%	120kHz	PK	20msec	Auto	60dB			
Transducer	No.	Start	Stop	Name						
	21	30MHz	1000MHz	55022plusAmp						

Prescan Measurement: Detector: X PK
 Meas Time: see scan settings
 Subranges: 25
 Acc Margin: 6 dB



Radiated Emissions

EUT: 240-SPMEC -10A MEC
 Manuf: EMS European Ltd UK
 Op Cond: CTS Chamber in Birmingham
 Operator: Dr A.J.Pratt
 Test Spec: BSEN55011 Class B Limits Antenna at 3 Mts
 Comment: Horizontal
 1.0 HP motor used as Dummy Load
 Result File: ems4.dat : New Measurement

Scan Settings				Receiver Settings			
(1 Range)							
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
30MHz	1000MHz	0.4%	120kHz	PK	20msec	Auto	60dB

Transducer	No.	Start	Stop	Name
	21	30MHz	1000MHz	55022plusAmp

Prescan Measurement:

Detector:	X PK
Meas Time:	see scan settings
Subranges:	25
Acc Margin:	6 dB

Peak Search Results

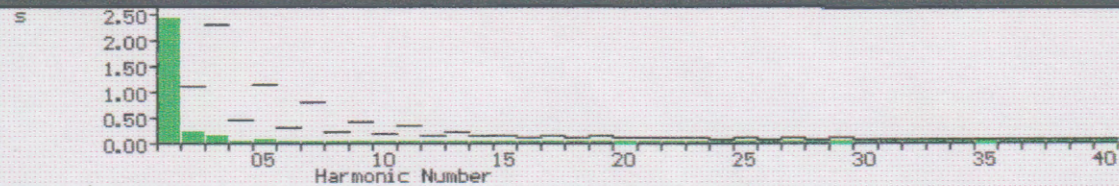
Frequency	PK Level	PK Limit	PK Delta	Ref. Offset
MHz	dBµV/m	dBµV/m	dB	dB

No results

AUTHORISED
 CTS LTD
 SIGNATURE

IEC1000-3-2 : PASSED [10:11:22 20-AUG-2003]

5.007

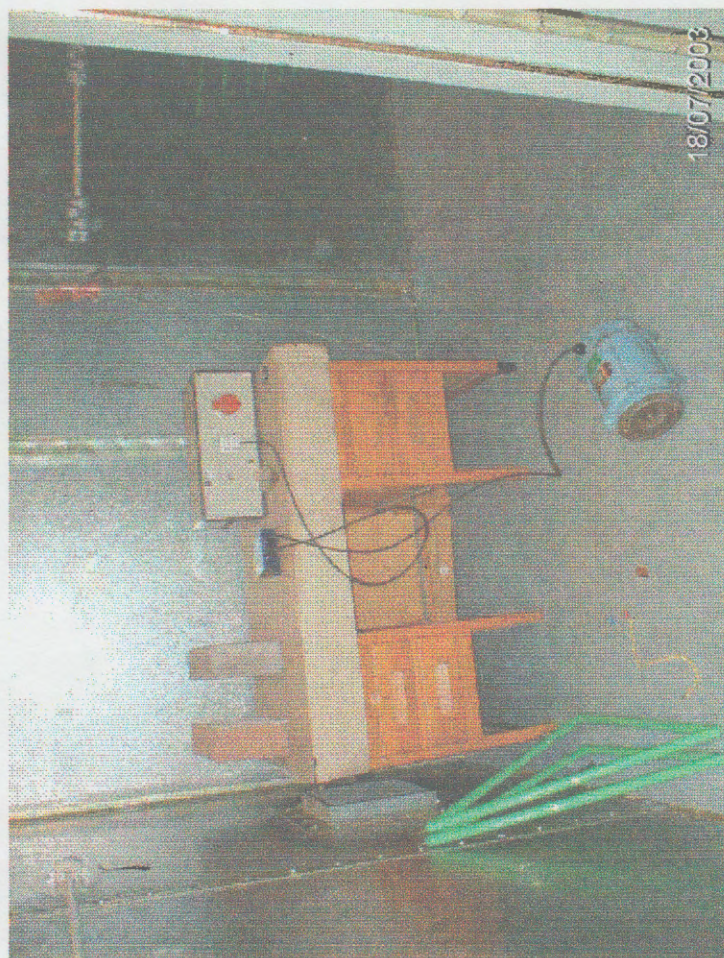


Class A Watts 453.30 Volts 232.40 Amps 2.43 Power Factor 0.80

H#	Limit(A)	Reading(A)		H#	Limit(A)	Reading(A)	
01	0.00000	2.41600	N/A	21	0.10714	0.00145	PASS
02	1.08000	0.21527	PASS	22	0.08364	0.00024	PASS
03	2.30000	0.13964	PASS	23	0.09783	0.00217	PASS
04	0.43000	0.02803	PASS	24	0.07667	0.00193	PASS
05	1.14000	0.05919	PASS	25	0.09000	0.00072	PASS
06	0.30000	0.00387	PASS	26	0.07077	0.00145	PASS
07	0.77000	0.02658	PASS	27	0.08333	0.00145	PASS
08	0.23000	0.00677	PASS	28	0.06571	0.00048	PASS
09	0.40000	0.03020	PASS	29	0.07759	0.00000	PASS
10	0.18400	0.00242	PASS	30	0.06133	0.00121	PASS
11	0.33000	0.00725	PASS	31	0.07258	0.00097	PASS
12	0.15333	0.00169	PASS	32	0.05750	0.00097	PASS
13	0.21000	0.00193	PASS	33	0.06818	0.00097	PASS
14	0.13143	0.00072	PASS	34	0.05412	0.00097	PASS
15	0.15000	0.00193	PASS	35	0.06429	0.00000	PASS
16	0.11500	0.00290	PASS	36	0.05111	0.00169	PASS
17	0.13235	0.00483	PASS	37	0.06081	0.00048	PASS
18	0.10222	0.00193	PASS	38	0.04842	0.00169	PASS
19	0.11842	0.00097	PASS	39	0.05769	0.00121	PASS
20	0.09200	0.00000	PASS	40	0.04600	0.00097	PASS

Press ESCAPE to continue

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