

Report No.: SU1238/2255

Copy No.: 2

REPORT ON THE ELECTRICAL SAFETY OF

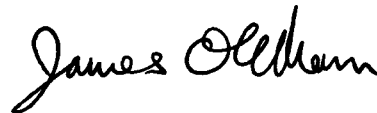
Keymat Technology Ltd

AXS- COM Access Control Unit

Specification: EN60950:1992/A11:1997

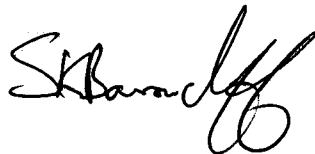
Result: Did not comply with the requirements of the sub-clauses tested to within. See comments for details.

Prepared by:



J Oldham

Authorised by:



S K Barrowcliff

Issue date: 6 September 1999

Distribution:

Copy nos.: 1 & 2 Keymat Technology Ltd

3 & 4 TRL EMC Ltd

RF168 is2

TRL EMC LTD

MOSS VIEW NIPE LANE UP HOLLAND WEST LANCASHIRE WN8 9PY UNITED KINGDOM

TELEPHONE +44(0)1695 556666 FACSIMILE +44(0)1695 557077

E-MAIL test@trl-emc.co.uk WWW <http://www.trl-emc.co.uk>



QUALITY SYSTEM CERTIFIED TO
BS EN ISO 9001 (1994)
REGISTRATION FS 21805



TESTING
No. 0728
No. 0728 SI
No. 1359

SECTION I - INTRODUCTION

Equipment tested: AXS- COM Access Control Unit

	<u>Client's Details</u>	<u>Manufacturing details</u>
Addresses:	Keymat Technology Ltd 14 Bentinck Court Bentinck Road, West Drayton UB7 7RQ	As Client

Specifications: EN60950:1992/A11:1997

Procedure: SF006

Classification: Class II, ordinary, for use with Friwo psu as determined on page 5.

General notes

- 1 The equipment supplied for test was an intercom unit designed for use within a domestic / commercial environment. It was supplied for test together with a mains adapter, keypad control panel and intercom. A single door lock and four identical telephone handsets were supplied for testing purposes, all of which were mounted on a wooden board.
- 2 Only limited assessment was conducted on the power supply unit, with respect to heating. The PSU was then assessed for use within the particular system. Acceptance of the power supply is based on previous approval.
- 3 Secondary circuits were considered as accessible and SELV. Isolation between accessible secondary circuits and live parts was achieved through double/reinforced insulation.
- 4 Classification of some polymeric materials has been verified using data supplied by the client. In these cases no testing has been conducted under this project.
- 5 Limited testing only has been conducted on the critical component parts listed in this report. Where approval or product certification documentation has been used to verify suitability of these components then no testing has been conducted under this project. Responsibility for compliance remains with the issuing authority.
- 6 The equipment was considered suitable for use with TN-C, TN-S, TN-C-S and TT power distribution systems.
- 7 TRL EMC Ltd is a DTI Notified Body under the Low Voltage Directive 73/23/EEC.
- 8 This report shall not be reproduced except in full without the written approval of the testing laboratory.

SECTION II - SUMMARY OF RESULTS

EN 60 950 : 1992/A11 : 1997

<u>Clause</u>	PASS	FAIL	N/A	
1	General			
1.5	Components	(X)	()	()
1.6	Power interface	()	(X)	()
1.7	Marking and instructions	()	(X)	()
2	<u>Fundamental design requirements</u>			
2.1	Protection against electric shock and energy hazards	(X)	()	() #
2.2	Insulation	(X)	()	() #
2.3	Safety extra low voltage (SELV) circuits	(X)	()	()
2.4	Limited current circuits	()	()	(X)
2.5	Provisions for protective earthing	()	()	(X)
2.6	Primary power isolation	()	(X)	()
2.7	Over current and earth fault protection in primary circuits	()	()	(X)
2.8	Safety interlocks	()	()	(X)
2.9	Creepage distances, clearances and distances through insulation .	(X)	()	() #
2.10	Connection to other equipment	(X)	()	()
2.11	Limited power source	()	()	(X)
3	<u>Wiring connections and supply</u>			
3.1	General	(X)	()	()
3.2	Connection to primary power	(X)	()	()
3.3	Wiring terminals for external primary power supply conductors ...	()	()	(X)
4	<u>Physical requirements</u>			
4.1	Stability and mechanical hazards	(X)	()	()
4.2	Mechanical strength and stress relief	(X)	()	()
4.3	Construction details	(X)	()	()
4.4	Resistance to fire	()	(X)	()

† See comments

based on PSU approval.

SECTION II - SUMMARY OF RESULTS

EN 60 950 : 1992/A11 : 1997

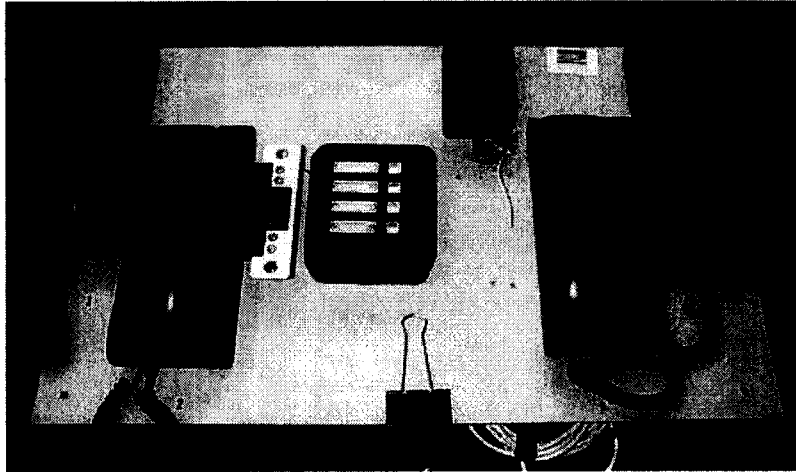
<u>Clause</u>	PASS	FAIL	N/A
5 <u>Thermal and electrical requirements</u>			
5.1 Heating	(X)	()	()
5.2 Earth leakage current	(X)	()	()
5.3 Electric strength	(X)	()	()
5.4 Abnormal operating and fault conditions	(X)	()	() #
6. <u>Connection to telecommunications network</u>			
6.1 General	()	()	(X)
6.2 TNV circuits	()	()	(X)
6.3 Protection of telecommunication network service personnel, and users of other equipment connected to the network, from hazards in the equipment	()	()	(X)
6.4 Protection of user from voltages on telecommunications network	()	()	(X)
6.5 Protection of the telecommunication wiring system from overheating	()	()	(X)

† see comments

based on PSU approval.

SECTION III - DESCRIPTION OF EQUIPMENT

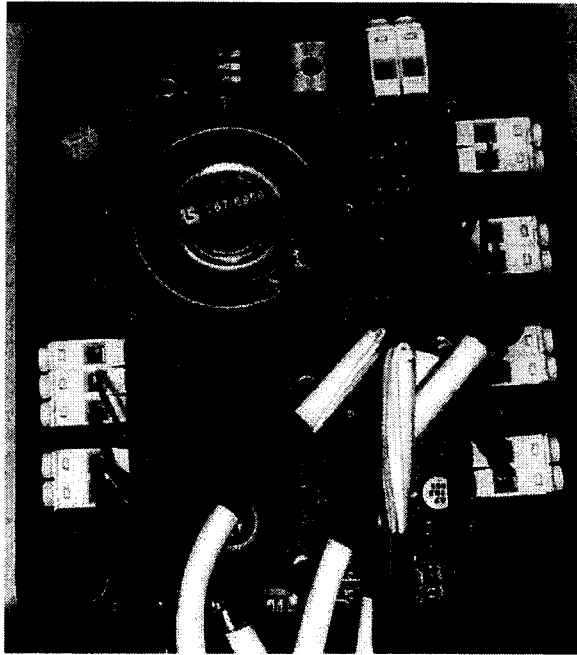
Figure 1 -Equipment under Test



- 1) The AXS-COM keypad and control unit was supplied on a wooden board as pictured above. The controller was 12 / 14 / 4 cm in dimension. It had four buttons and an internal speaker and microphone for the intercom function.
- 2) Power Supply -Friwo, FW1288/N, 230V 83mA, approved to FIMKO and VDE however no details supplied. Included for information only.
- 3) Door Lock - Adams Rite, 7100-310-328-00, 12Vdc-24Vac, UL approved. The unit was accepted under the tests performed on the unit.
- 4) Telephones - Giugiaro Design, Urmet, Low Voltage telephones for connection to closed system only.

SECTION III - DESCRIPTION OF EQUIPMENT

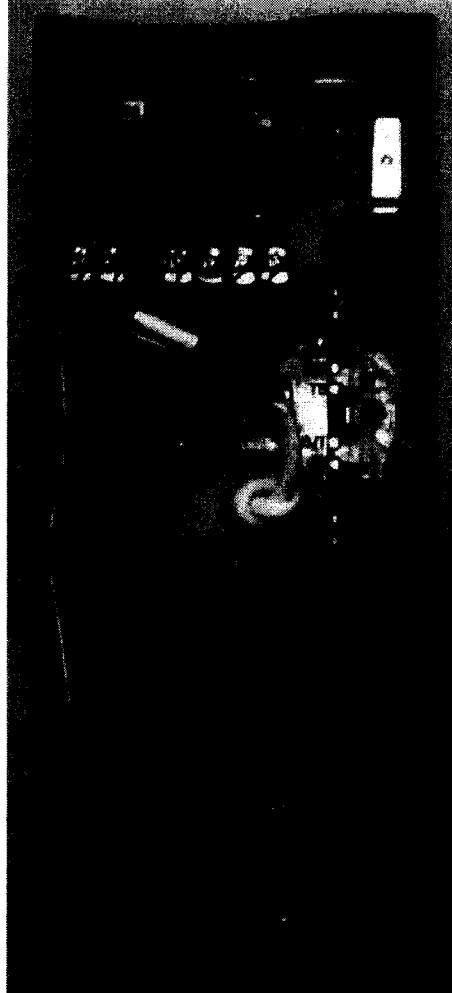
Figure 2 - Internal Keypad



- 1) Printed Circuit Board - I COM Keymat Tech, ICOM-04-02 ISS2 A1 2.
- 2) Connectors - Chiri, IPOO, accepted for inclusion within the system.
- 3) No flammability information was supplied for this product, in particular the enclosure which from a safety perspective needs to be UL94-HB rated. The PCB should be UL94V-1 or better.

SECTION III - DESCRIPTION OF EQUIPMENT

Figure 3 - Internal Telephone



- 1) Telephone- Giugiaro Design, Urmet, Low Voltage telephones for connection to closed system only.
- 2) No flammability information was submitted for the PCB or enclosure.

SECTION IV - TABLES OF RESULTS

Input Power

These tests carried out for information only.

The following measurements were made immediately after the heating tests of clause 5.1.

Input Voltage	Input Current (50Hz)	Input Current (60Hz)	Secondary Current (input 50Hz)	Secondary Current (input 60Hz)
220	32mA	21mA	21mAdc	21mAdc
230	38mA	23mA	21mAdc	21mAdc
240	44mA	25mA	21mAdc	21mAdc

No input power was marked on the unit. The requirements of this clause were not met.

Heating Tests

The following heating results were recorded after thermal stability was achieved. The temperatures were monitored using fine wire type T thermocouples. The input voltage was maintained at 254Vac during both tests. Ambient temperatures 50Hz 22°C, 60Hz 23°C.

Position	Temperature Rise K	
	50Hz	60Hz
PSU Transformer Core (information only)	32	24
PSU NTC Thermistor (information only)	24	12
PSU Transformer Bobbin (information only)	29	19
Control Panel Power Terminal	2	2
Control Panel PCB near IC4	3	3
Control Panel Relay Enclosure	2	2
Control Panel Microphone	3	3
Door Lock Enclosure	1	0
Enclosure (Various units maximum)	2	1

No temperatures were noted outside the thermal limits stated by the standard.

Earth Leakage Current

Measurement	Leakage Current (mA)	
	254Vac 50Hz	254Vac 60Hz
Foil covered enclosure - Live	<0.1	<0.1
Foil covered enclosure - Neutral	<0.1	<0.1

No measured values over the 3.5mA limit, as stated in the standard.

SECTION IV - TABLES OF RESULTS

Abnormal Operation

The following fault conditions were simulated on the equipment. They were conducted with the unit powered at 254Vac 50Hz as this was the worst case.

Number	Fault	Result
1	Permanently energise lock button	Input current rose to 70mA, secondary current noted at 370mA. Temperatures began to rise. Maximum temperature noted at 69°C on transformer bobbin, fault discontinued. No hazard. Pass
2	Short Circuit C15	Short circuit current noted at 2A until power supply cut out. No significant temperatures noted. No hazard. Pass
3	Overload C15	Maximum overload current available was 1.2A (120mA recorded on the input). Maximum temperature recorded was 75°C on the transformer core before power supply cut out. No significant temperatures. No hazard. Pass
4	Overload C14	Overload set at 3Adc (input current 270mA) NTC thermistor rose to 144°C before unit the cut out. No significant temperatures. No hazard. Pass

Compliance is PSU dependant and is therefore only accepted with this Friwo PSU only.

To allow use of any suitably approved power supply, the dc input must be overcurrent protected at <50mAdc.

Marking and Instructions

- 1) No rating plate was supplied on the unit. A marking plate containing the following information is required to be placed in a visible position when the unit is installed:-
Electrical ratings,
Model references including all accessories,
Manufacturers name or recognisable trade mark.
- 2) The instructions should include the following statements or directions:-
The power supply plug is the main device disconnect and must be readily accessible at all times.
The instructions must give adequate siting directions for the power supply unit.
The instructions must recommend a suitably approved power supply is used to power the device. Requesting a CE marked power supply is not acceptable.

APPENDIX A

Equipment included within the scope of this report:

AXS- COM Access Control Unit

Rating plate and marking details:

No identification plate was marked on the unit.