ilac-MRA SNAS Reg. No. 010/S-042	TEST REPORT Accredited Testing laboratories EVPÚ a.s., Trenčianska 19, Nová Dubnica	Report No. : 0136E / 2008 Page No. : 1 Pages : 6 Annexes : 6

Product:	**Fire alarm control panel**
Brand name:	-
Type / Model:	**EOLO**
Variants:	-
Producer:	TELEDATA s.r.l Via Giulietti 8 20132 Milano Italy
Applicant: Adress:	TELEDATA s.r.l Via Giulietti 8 20132 Milano Italy
Project No::	00213 / 2007
Tested according to:	EN 54 – 4 : 1997 + AC : 1999 + A1 : 2002 + A2 : 2006 cl. 9.9 *(STN EN 54 – 4 + AC : 2001 + A1 : 2003 + A2 : 2007)* *(cl. 9.9)* EN 54 – 2 : 1997 + AC : 1999 + A1 : 2006 cl. 15.8 *(STN EN 54 – 2 + AC : 2001 + A1: 2007)* *(cl. 15.8)*
Prepared by:	Jaroslav BUŠO
Verified by :	Ján HELDÁK Head of laboratories
Date of receiving of sample:	February 25th 2008
Date of finishing of tests:	February 28th 2008
Issue date:	February 29th 2008

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CONTENT

1. Summary

Tests were performed according to following standards:

1.1. Immunity

		Result
1	EN 54 – 4 : 1997 + AC : 1999 + A1 : 2002 + A2 : 2006 Fire detection and fire alarm systems. Part 4 : Power supply equipment	*
2	EN 54 – 2 : 1997 + AC : 1999 + A1 : 2006 Fire detection and fire alarm systems. Part 2: Control and indicating equipment	*

Notice: * Test results are given in Test report No. 90015/2008 issued by SKTC 101.

2. Description of equipment under test

Equipment under test: **Fire alarm control panel**

Power supply : 230 V~, 50 Hz, 690 mA / class I

3. Environmental conditions

Tests were performed in Laboratory - EMC under following environmental conditions:

- temperature: +22 ºC
- relative humidity: 44 %
- atmospheric pressure: 100,3 kPa

4. Measurement uncertainty

Expanded measurement uncertainty according to parameters as follows:

Disturbance voltage	±3 dB(μV)
Disturbance power	±3 dB(pW)
Electromagnetic field intensity	±6 dB(μV/m)
Current – basic harmonic	$\pm 1{,}4 \cdot 10^{-2}\ I_{Inp}$
Current – 2nd - 40th harmonic	$\pm(1{,}2 \cdot 10^{-2}\ I_{inp} + 5{,}0 \cdot 10^{-2}\ I_{n\ LIM})$
Voltage	±0,6 %

I_{inp} – mean effective value of measured equipment input current
$I_{n\ LIM}$ – calculated limit of n^{th} -harmonic of measured equipment input current

5. Test procedures

5. 1 Immunity

Electrostatic discharge was performed according to EN 61000 – 4 – 2 by simulator SCHAFFNER NSG 432. EUT was placed on the ground reference plane .

Direct and undirect contact discharge	Air discharge
± 4 kV	± 8 kV

The test results are given in Annex No. 1.

Immunity to radio- frequency electromagnetic field
was performed according to EN 61000 – 4 – 3 in frequency range from 80 MHz to 2000 MHz with level 10V/m , AM 80% (1kHz) and in the frequency range 80 - 2000 MHz with level 10 V / m with keyed carrier wave 1 Hz, 50%.
The test results are given in Annex No. 2.

Fast transients (Bursts) was performed according to EN 61000 – 4 – 4 by ultra compact simulator UCS 500M4. EUT was placed on the ground reference plane.
The test results are given in Annex No. 3.

Surge immunity test was performed according to EN 61000 – 4 – 5 by ultra compact simulator UCS 500M4.
The test results are given in Annex No. 4.

Voltage dips,short interruptions and voltage variations immunity test was performed by simulator California Instruments CTS Series - C15003iX-400-CTS-413-EOS3-LR3.
The test results are given in Annex No. 5.

6. Used test equipments

Type	Range	Manufacturer	Date of calibration	Cycle of calibration	Registration number
Generator SMGU	0,1 – 2180 MHz	R&S	18.7.2006	2 years	20190
Antenna	80 MHz -1GHz	AR		Valid.	E90
Amplifier 250A250AM3	0,09 – 230 MHz 250 W	AR		Valid.	20903
Amplifier 150E1000M3	200 – 1000 MHz 150 W	AR		Valid.	20903
Ultra-compact simulator UCS 500M4 +CNI 503	EN 61000-4-4 EN 61000-4-5 EN 61000-4-11	EM TEST	17.11.2005	3 years	21145
Coupling-Decoupling-Network CDN801-M2/M3	0,15-230 MHz Mains 240V 16A	Lüthi Elektronik-Feinmechanik AG		Valid.	20903
System-CTS Series C15003iX-400-CTS-413-EOS3-LR3	EN 61000-3-2 EN 61000-3-3 EN 61000-4-11	California Instruments	26.9.2005	3 years	E93
Static Discharge simulator NSG 432	2 kV - 25 kV	SCHAFFNER		Valid.	20578

Electrostatic discharge

EUT : Fire alarm control panel
Type : EOLO
Mode of operation : Under a normal operating conditions
Standard: EN 61000 – 4 – 2

In each tested point were applicated 10 positive impulses and 10 negative impulses. The time interval between successive single discharges was 1s.

Simulator settings		Verify	Required criteria
Air discharge	+ / - 2 kV + / - 4 kV + / - 8 kV	A A	B B
Direct contact discharge	+ / - 2 kV + / - 4 kV + / - 6 kV	A A	B B

RESULT : No changes were observed. The EUT verifies criterion A.

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Immunity to radio-frequency electromagnetic field

EUT : Fire alarm control panel
Type : EOLO
Mode of operation : Under a normal operating conditions
Standard: EN 61000 – 4 – 3

Setting		Verify	Required criteria
Intensity of field: Amplitude modulation: Frequency range: Polarization of antenna:	10 V/m 80% 80 – 2000 MHz Horizontal	A	A
Intensity of field: Amplitude modulation: Frequency range: Polarization of antenna:	10 V/m 80% 80 – 2000 MHz Vertical	A	A

Setting		Verify	Required criteria
Intensity of field: Pulse modulation: Frequency range: Polarization of antenna:	10 V/m 1 Hz, 50 % 80 – 2000 MHz Horizontal	A	A
Intensity of field: Pulse modulation: Frequency range: Polarization of antenna:	10 V/m 1 Hz, 50 % 80 – 2000 MHz Vertical	A	A

RESULT : No changes were observed. The EUT verifies criterion A.

Fast transients (Bursts)

EUT : Fire alarm control panel
Type : EOLO
Mode of operation : Under a normal operating conditions
Standard: EN 61000 – 4 – 4

Simulator settings		Verify	Required criteria
Voltage: Burst duration: Burst frequency: Burst repetition: Polarity: Power lines:	2kV 15ms 5kHz 0,30s +/- L	A	B
Voltage: Burst duration: Burst frequency: Burst repetition: Polarity: Power lines:	2kV 15ms 5kHz 0,30s +/- N	A	B
Voltage: Burst duration: Burst frequency: Burst repetition: Polarity: Power lines:	2kV 15ms 5kHz 0,30s +/- PE	A	B

RESULT : No changes were observed. The EUT verifies criterion A.

Surge immunity

EUT : Fire alarm control panel
Type : EOLO
Mode of operation : Under a normal operating conditions
Standard: EN 61000 – 4 – 5

Setting		Phase shift	Polarity	Score	Verify	Required criteria
Power lines : Test level :	L – N 0,5; 1kV	0°	+	5	A	B
			-	5	A	B
		90°	+	5	A	B
			-	5	A	B
		180°	+	5	A	B
			-	5	A	B
		270°	+	5	A	B
			-	5	A	B
Power lines : Test level :	N – PE 0,5; 1; 2 kV	0°	+	5	A	B
			-	5	A	B
		90°	+	5	A	B
			-	5	A	B
		180°	+	5	A	B
			-	5	A	B
		270°	+	5	A	B
			-	5	A	B
Power lines : Test level :	L – PE 0,5; 1; 2 kV	0°	+	5	A	B
			-	5	A	B
		90°	+	5	A	B
			-	5	A	B
		180°	+	5	A	B
			-	5	A	B
		270°	+	5	A	B
			-	5	A	B

RESULT : No changes were observed. The EUT verifies criterion A.

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Voltage dips, short interruptions and voltage variations immunity test

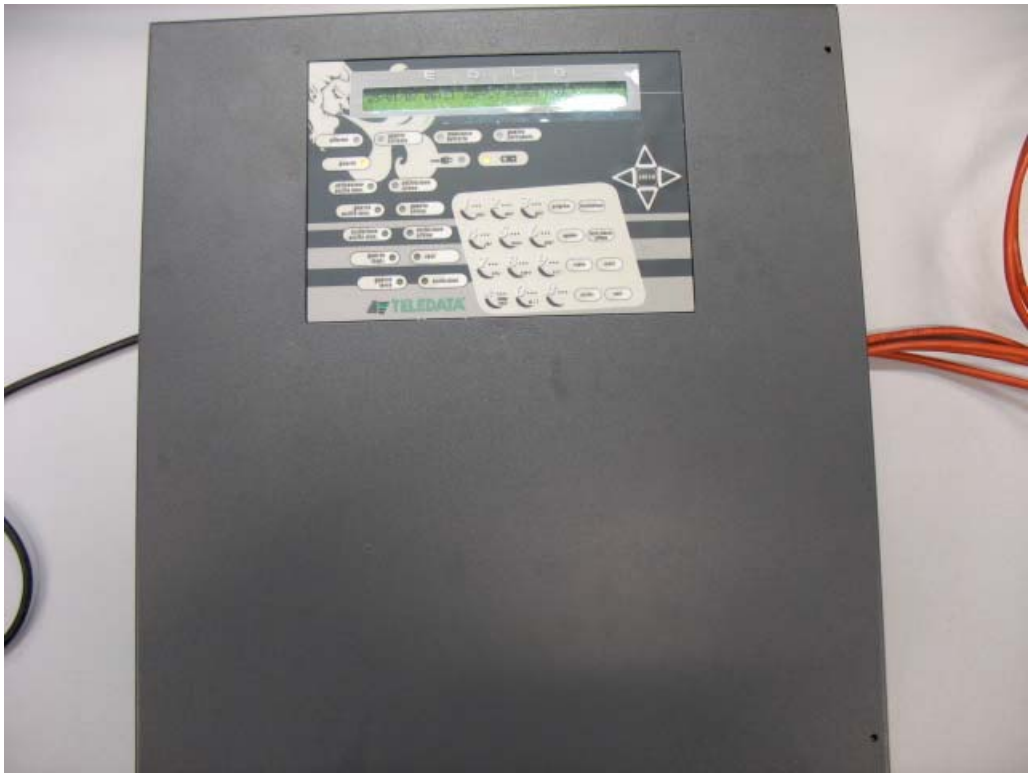
EUT : Fire alarm control panel
Type : EOLO
Mode of operation : Under a normal operating conditions
Standard: EN 61000 – 4 – 11

Simulator setting		Verify
Voltage dips: Voltage dips duration: Voltage dips repetition: Number of voltage dips per test:	50 % 200 ms 1 s 10	A

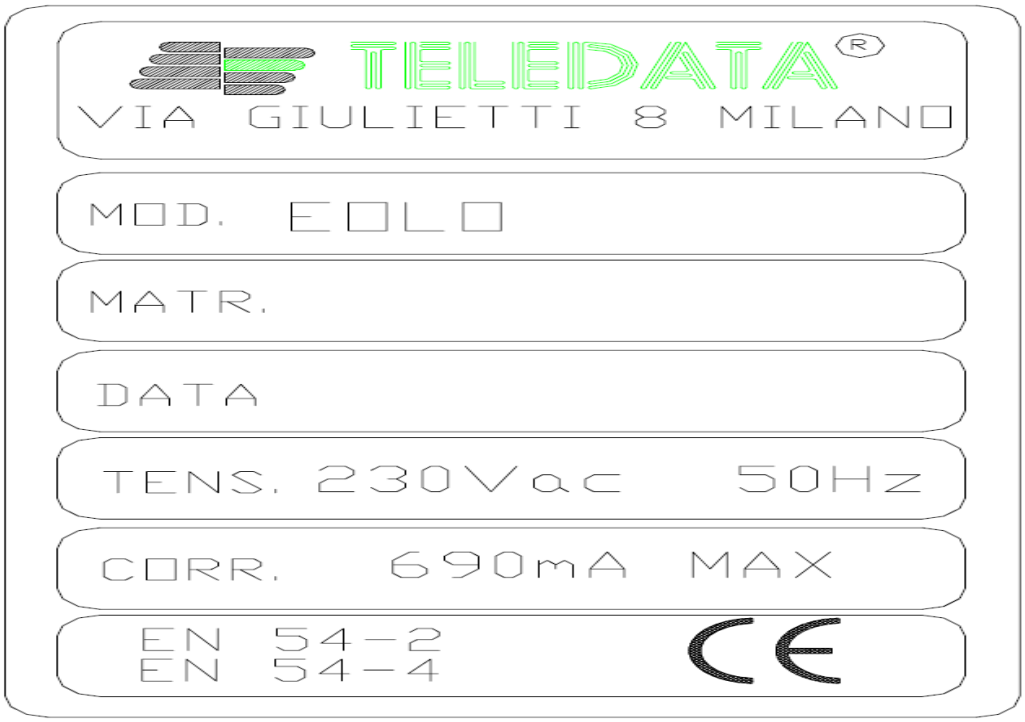
Simulator setting		Verify
Voltage interruption: Voltage interruption duration: Number of voltage dips per test:	100 % 100 ms 10	A

RESULT : No changes were observed. The EUT verifies criterion A

Pictures of EUT



Equipment under test



Sign of EUT