

IEC**IECEE**
CB
SCHEME

Ref. Certif. No.

JPTUV-023106-A1/M2

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST
CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEMESYSTEME CEI D'ACCEPTATION MUTUELLE DE
CERTIFICATS D'ESSAIS DES EQUIPEMENTS
ELECTRIQUES (IECEE) METHODE OC**CB TEST CERTIFICATE**
CERTIFICAT D'ESSAI OCProduct
Produit

WIND PC (PERSONAL COMPUTER)

Name and address of the applicant
Nom et adresse du demandeurMicro-Star Int'l Co., Ltd.
69, Li-De St.
Chung Ho City, Taipei Hsien 235 TaiwanName and address of the manufacturer
Nom et adresse du fabricantMicro-Star Int'l Co., Ltd.
69, Li-De St.
Chung Ho City, Taipei Hsien 235 TaiwanName and address of the factory
Nom et adresse de l'usine

See additional page(s)

Rating and principal characteristics
Valeurs nominales et caractéristiques principales

DC 19V; 3.42A; Class III

Trade mark (if any)
Marque de fabrique (si elle existe)

MSI

Model/type Ref.
Ref. de typeWIND PCxxx, MS-6496xxx, MS-6645xxx, Wind Nettop 120,
Wind Nettop, MS-6676 (x = 0-9, A-Z or blank)Additional information (if necessary)
Information complémentaire (si nécessaire)For model differences, refer to the test report.
Re-issue of JPTUV-023106-A1/M1 dated 27.02.2009,
due to second modification.A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à laIEC 60950-1:2001
National differences see test reportAs shown in the Test Report Ref. No. which forms part
of this Certificate
Comme indiqué dans le Rapport d'essais numéro de
référence qui constitue une partie de ce Certificat

11013283 004

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de CertificationTÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 05.11.2009

Signature:


Dipl.-Ing. W. Hsu

1. Micro-Star Int'l Co., Ltd.
69, Li-De St.
Chung Ho City, Taipei Hsien 235
Taiwan
2. MSI Computer (Shenzhen) Co., Ltd.
Longma Information Technology
Industrial Park, Tangtou Village
Shiyan Town, Baoan District
Shenzhen, Guangdong 518108, P.R. China
3. MSI ELECTRONICS (KUNSHAN) CO., LTD.
88E QIANJIN Rd., Kunshan City
Jiangsu 215300
P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Date: 05.11.2009

Signature:


Dipl.-Ing. W. Hsu

Copy of marking plate:

MSI my style inside

产品名称 个人电脑
Product WIND PC (Personal Computer)

型号 WIND PC
Model No.

输入电压电流 Rating: 19V,3.42A












Use of adapter see user's manual

中國製造 Made in China

MSI my style inside

产品名称 个人电脑
Product WIND PC (Personal Computer)

型号 MS-6496
Model No.

输入电压电流 Rating: 19V,3.42A













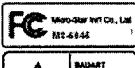








Use of adapter see user's manual

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產品名稱 / Product : 個人電腦 / Personal Computer
型號 / Model name : MS-6645
輸入電壓電流 / Rating : 19V,3.42A






















Use of adapter see user's manual

中國製造 Made in China

msi

產品名稱 / Product : 個人電腦 / Personal Computer
型號 / Model name : Wind Nettop
輸入電壓電流 / Rating : 19V,3.42A






















Use of adapter see user's manual

中國製造 Made in China

msi

產品名稱 / Product : 個人電腦 / Personal Computer
型號 / Model name : Wind Nettop 120
輸入電壓電流 / Rating : 19V,3.42A

Use of adapter see user's manual

中國製造 Made in China

Note: The above label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval

Copy of marking plate:



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Summary of testing:

- The equipment under test (EUT) has been evaluated at maximum ambient temperature of +40°C according to the manufacturer specified.
- The load conditions used during testing:
 - Highest load according to 1.2.2.1 for this equipment is reading/writing between HDD and O.D.D playing a video CD, speaker with maximum value, Add dummy loads of 2.5W for each USB ports.
 - Equipment model MS-6676 with the following configuration:
 - a. CPU: Intel Atom™ Dual – Core processor D510, 1.66 GHz (on board type, for main board main board P/N: MS-7469)
 - b. Memory: DDR2 667 SDRAM, 2 GB x 2
- The USB ports were complied with sub-clause 2.5 limited power source.

Particulars: test item vs. test requirements

Equipment mobility : Movable equipment
 Operating condition..... : Continuous operation
 Mains supply tolerance (%) : No direct connected to mains.
 Tested for IT power systems : No
 IT testing, phase-phase voltage (V) : N/A
 Class of equipment : III
 Mass of equipment (kg) : 3.68 (for all models)
 Protection against ingress of water : IPX0

Test case verdicts

Test case does not apply to the test object . : N/A
 Test item does meet the requirement : P(ass)
 Test item does not meet the requirement : F(ail)

Testing

Date of receipt of test item : October, 2009
 Date(s) of performance of test : October - November, 2009

General remarks

"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IEC 60950-1".

The test result presented in this report relate only to the object(s) tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Comments:

Summary of compliance with National Differences (for explanation of codes see below):

EU Group Differences, EU Special National Conditions, EU A-Deviations, AR, AT, AU, BE, CA, CH, CN, CZ, DE, DK, FI, FR, GB, GR, HU, IL, IN, IT, KE, KR, MY, NL, NO, PL, SE, SG, SI, SK, US.

AR=Argentina, AT=Austria, AU=Australia, BE=Belgium, CA=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IL=Israel, IN=India, IT=Italy, KE=Kenya, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SG=Singapore, SI=Slovenia, SK=Slovakia, US=United States of America.

Remark:

For compliance of Norway and Sweden national differences, it only applied to MS-6676 without TV tuner.

Factories:

- MSI Computer (Shenzhen) Co., Ltd.
 Longma Information Technology Industrial Park, Tangtou Village Shiyan Town, Baoan District
 Shenzhen, Guangdong 518108, P.R. China

2. Micro-Star Int'l Co., Ltd.
69, Li-De St., Chung Ho City, Taipei Hsien 235 Taiwan
3. MSI ELECTRONICS (KUNSHAN) CO., LTD.
88E QIANJIN Rd., Kunshan City, Jiangsu 215300, P.R. China

The manufacturer's declaration, that the samples tested represent the products from each factory, is available.

Definition of variables:

Variable:	Range of variable:	Content:
For models: WIND PCxxx, MS-6496xxx, MS-6645xxx		
x	0 – 9, A – Z or blank	Marketing purpose, no technical differences

History of amendments and modifications:

- Ref. No. 11013283 001, dated June 03, 2008 (original test report)
- Ref. No. 11013283 002, dated July 23, 2008 (amendment)
- Ref. No. 11013283 003, dated February 27, 2009 (modification)
- Ref. No. 11013283 004, dated November 03, 2009 (modification)

General product information:

Description of change(s):

1. For model WIND PCxxx, MS-6496xxx, MS-6645xxx (x = 0-9, A-Z or blank), Wind Nettop 120 and Wind Nettop were change as the following:
 - a. Update rating label to add the words as "Use of adapter see user's manual" for all models.
 - b. Update user's manual to add the manufacturer and model of switching power adapter
2. Correct typing error for the following item in the appended table 1.5.1, 4.6.1, 4.6.2 of test report no.: 11013283 001.
 - a. Revised the description of result in subclause 4.7.2 and 4.7.3.
 - b. For switching Power adapter to correct the model design and/or technical data
 - c. For front bezel to add the temperature rating
 - d. Add the enclosure openings measurement for the equipment place on the vertical position.
3. Add one rectangular opening on the rear side of I/O port shielding plate for all certified models used.
4. Add one alternative source of DVD/CD-RW drive for all certified models used.
5. Add new model MS-6676 which is similar to approval model MS-6645xxx (x = 0-9, A-Z or blank) except for the following difference:
 - a. Model designation
 - b. With the enclosure type C
 - c. With new main board (P/N: MS-7469)
 - d. With an Wireless LAN module (optional)
 - e. Add one alternative source of TV tuner module (optional)
 - f. Modified the number of I/O port on the rear side of I/O port shielding plate.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1.	<ul style="list-style-type: none"> • N/A 	See copy of marking plates for the new labels.
2 and 3.	<ul style="list-style-type: none"> • Enclosure openings measurement. 	See bold type words in appended tables for details of correction and measurement.
4.	<ul style="list-style-type: none"> • N/A 	TÜV approved source with same rating used. See appended table 1.5.1 for component source.
5.	For IEC 60950-1: <ul style="list-style-type: none"> • Input test • Limited power source measurement • Heating test • Fault condition test • Construction check for TV tuner module • Voltage surge test • Impulse test For IEC 60065: <ul style="list-style-type: none"> • Surge test • Insulation resistance test • Dielectric strength test 	See copy of marking plates and sub-clause 1.7.1 and 1.7.2 for model details. Add the remark on "Summary of compliance with National Differences" in page 4 and "Engineering Considerations" for the equipment with TV tuner construction. See appended table 1.5.1 for component source. See "Engineering Considerations" as below, subclauses and appended tables for test results.

Engineering Considerations for model MS-6676:

- The following accessible locations are compliance with Limited Power Sources (see subclause 2.5):
USB port
- The following terminals to be connected to a Cable Distribution System were investigated to Clause 7:
TV-tuner antenna connector
- The equipment provides one TV tuner module as optional function that considered as a multimedia equipment under the IEC Guide 112. Therefore, the surge test, insulation resistance test and dielectric strength test were performed according to sub-clauses 10.1 and 10.3 of IEC 60065: 2001 as following test condition:
 - Surge test performed from AC mains supply terminal of external power adapter to antenna connector of TV tuner with 50 discharges at a maximum rate of 12 per minute, from a 1nF capacitor charged to 10kV.
 - After the test, the insulation resistance greater then 4 MΩ at 500Vdc and subjected to dielectric strength test at test voltage 4240 V d.c.
- Due to fulfilled the following considerations for the equipment, the separation requirements and tests according to clause 6.2 do not apply to the cable distribution system.
 - The circuit of cable distribution system is considered as TNV-1 circuit.
 - The common sides or earthed side of the circuit are connected to the screen of the coaxial cable through an antenna connector of tuner and to all accessible parts and circuits (SELV and accessible metal parts).
 - The screen of the coaxial cable is intended to be connected to earth in the building installation.
(The statements for earthing connection during installation were provided in user's manual).

The similar approach for CB-Scheme testing according to IEC 60950-1:2005, covering Germany, USA and Canada. However, in compliance with above mention requirement for other CB countries has to be verified during national mark approval.

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7	Marking and instructions		P
1.7.1	Power rating	See below.	P
	Rated voltage(s) or voltage range(s) (V)	See copy of marking plates. (No direct connection to mains supply)	N/A
	Symbol for nature of supply, for d.c. only	d.c. symbol provided.	P
	Rated frequency or rated frequency range (Hz) ..	No direct connection to the AC mains supply.	N/A
	Rated current (mA or A)	See copy of marking plates. (No direct connection to mains supply)	N/A
	Manufacturer's name or trademark or identification mark	See copy of marking plates.	P
	Type/model or type reference	See copy of marking plates.	P
	Symbol for Class II equipment only	Class III equipment.	N/A
	Other symbols	Additional symbols or markings do not give rise to misunderstanding.	P
	Certification marks	See copy of marking plates.	N/A
1.7.2	Safety instructions	The user's manual provided which contains information for the following: <ul style="list-style-type: none"> ▪ Operations and specification ▪ Max. ambient temperature ▪ Caution for replaceable battery 	P
4.3.8	Batteries	For non-rechargeable lithium type RTC battery: <ul style="list-style-type: none"> • Reverse polarity installation is prevented by socket design. • The battery is protected from reverse charging by the diode in series with the resistor. (on main board P/N: MS-MS-7469: D10 in series with R165, 1kΩ). Results see appended table 5.3.	P
4.7.2	Conditions for a fire enclosure	See below.	P
4.7.2.1	Parts requiring a fire enclosure	See sub clause 4.7.2.2.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.2.2	Parts not requiring a fire enclosure	The fire enclosure is not required for the equipment, due to: <ul style="list-style-type: none"> • Components in secondary circuits supplied by limited power source and mounted on PCB material of flammability class V-1 min. • PVC insulation wiring 	P
4.7.3	Materials		P
4.7.3.2	Materials for fire enclosures	See sub clause 4.7.2.	N/A

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		P
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	Circuits in the equipment intended to be directly connect to a cable distribution system, which consider to comply with requirements of TNV-1 circuit.	P
7.2	Protection of equipment users from overvoltages on the cable distribution system	IEC 60950-1, 2nd Edition, subclause 7.3 was used for evaluated. See General product information - Engineering Consideration for details.	N/A
7.3	Insulation between primary circuits and cable distribution systems	See below.	P
7.3.1	General	Compliance is checked by the voltage surge test of 7.3.2 and impulse test of 7.3.3.	P
7.3.2	Voltage surge test	10 kV of surge test voltage is applied between the AC mains and the antenna connection points of TV tuner (without earthed connection). After the test, the insulation in compliance with the electric strength test requirement of 5.2.2.	P
7.3.3	Impulse test	4 kV of impulse test voltage applied between the AC mains and the antenna connection points of TV tuner (without earthed connection). After the test, the insulation in compliance with the electric strength test requirement of 5.2.2.	P

1.5.1	TABLE: list of critical components					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹	
Switching Power adapter (for all models)	Li Shin	0335A1965	Input: 100- 240Vac, 50/60Hz, 1.7A Output: 19Vdc, 3.42A, LPS Class I, 40°C.	IEC/EN 60950-1	UL, CB, TÜV	
	BESTEC	NA6501WB	Input: 100- 240Vac, 50/60Hz, 1.5 A Output: 19Vdc, 3.42A, LPS Class I, 40°C.	IEC/EN 60950-1	UL, CB, TÜV	
	Delta	ADP-65HB BB	Input: 100- 240Vac, 50/60Hz, 1.5A Output: 19Vdc, 3.42A, LPS Class I, 40°C.	IEC/EN 60950-1	UL, CB, TÜV	
Front Bezel (for all models)	Various	Various	HB minimum, 60°C , 1.0mm thickness minimum.	UL 94	UL	
DVD/CD-RW drive (Optional) (for all models)	Philips& Lite-On or equivalent	DH-xxxASxxx (x = any alphanumeric or blank for marketing purpose) or equivalent	5Vdc, 1.5A, 12Vdc, 1.5A, Bezel: flammability class: V-1 min., Class 1 LASER PRODUCT.	IEC 60950- 1:2001 EN 60950- 1:2001+A11 EN 60825-1: 2007	TÜV, UL	
For model MS-6676 with main board P/N: MS-7469						
PCB material	--	--	V-1 min,105°C	UL 94	UL	
PTC for USB Port (F5, F6, F7) (F5 for rear USB: LAN USB1A, F6 for rear USB: USB1, F7 for front USB: USB2 and USB3)	Tyco Electronics, Raychem circuit protection Division	miniSMDC260F	Ih:2.6A, 6V	IEC/EN 60730-1	TÜV, UL	
RTC Battery	Matsushita Electric Industrial Co. Ltd. (Panasonic Corp. of North America)	CR2032	3Vdc, maximum abnormal charge current 10 mA.	UL 1642	UL	

	VIC-DAWN ENTERPRISE CO LTD / KTS	CR2032	3Vdc, maximum abnormal charge current 10 mA.	UL 1642	UL
TV tuner module (optional)	AVERMEDIA	A326	3.3V	--	--
Note(s):					

1.6.2	TABLE: electrical data (in normal conditions)					P
Fuse #	Irated (A)	U (Vdc)	P (W)	I (A)	Ifuse (A)	Condition/status
For model MS-6676 with main board P/N: MS-7469						
--	3.42	19	49.4	2.6	--	Maximum normal load.
Note(s):						

2.5	TABLE: limited power source measurement			P
		Limits	Measured	Verdict
For model MS-6676 with main board P/N: MS-7469				
For the rear USB port (USB1)				
According to Table 2B (normal condition) (Uoc = 5.1 V)				
current (in A)		8	6.1	Pass
apparent power (in VA)		25.5 (5 x Uoc)	19.7	Pass
For the rear USB port (LAN_USB1A)				
According to Table 2B (normal condition) (Uoc = 5.0 V)				
current (in A)		8	5.9	Pass
apparent power (in VA)		25 (5 x Uoc)	18.3	Pass
For the front USB port (USB2)				
According to Table 2B (normal condition) (Uoc = 5.0 V)				
current (in A)		8	6.4	Pass
apparent power (in VA)		25 (5 x Uoc)	22.4	Pass
Note(s):				

4.5.1	TABLE: maximum temperatures	P
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test voltage (V)	A) DC 19V (Horizontal position) B) DC 19V (Vertical position)		—		
t1 (°C)	--		—		
t2 (°C)	--		—		
Maximum temperature T of part/at:	T (°C)		allowed T _{max} (°C)		
For model MS-6676 with main board P/N: MS-7469,					
Test voltage:	A	B	--		
Max. ambient temperature (T _{ma}):	40.0	--	--		
Note: ambient air during test (T _{amb}):	32.1	--	--		
Main board PCB near CPU1	59.2	--	105		
Main board PCB near U4	59.8	--	105		
Main board PCB near U26	58.0	--	105		
RTC body	43.4	--	100		
PCB of DDR	62.0	--	105		
HDD body	53.3	--	--		
CD-RW body	50.7	--	--		
CHOCK6 body	50.7	--	105		
EC25 body	49.4	--	85		
F4 body	44.9	--	--		
F7 body	48.6	--	--		
Front bezel inside near F7	41.6	--	60		
Front bezel outside near F7	41.2	--	95		
Enclosure outside near CPU1	42.1	--	70		
Temperature T of winding:	R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed T _{max} (°C)	insulation class
<p>Note(s):</p> <ol style="list-style-type: none"> The temperatures were measured under worst case normal mode as described in summary of testing and at voltages as described above. EUT place on horizontal position considered as worst condition. The equipment under test (EUT) has been evaluated at maximum ambient temperature of +40°C according to the manufacturer specified. While the T_{amb} not exceed T_{ma}, the maximum temperatures measured are recalculated as follows: T + (T_{ma} – T_{amb}) where T is the maximum temperature measured during test, T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification and T_{amb} is the ambient temperature during test. 					

4.6.1, 4.6.2	Table: enclosure openings	P
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Location	Size (mm)	Comments
For models place on horizontal position		
Top and bottom	--	None.
Left	--	None
Right	Ø 1.8	Numerous circular openings provided.
Front (in horizontal) or Side (in vertical)	<ul style="list-style-type: none"> a. Ø 4.8 b. 12.8 X 5.2 c. 12.5 X 12.0 d. 12.0 X 6.8 	<ul style="list-style-type: none"> a. Numerous round openings provided. b. One opening provided. There's no any hazardous voltage or energy hazards present within 5° projections. c. One opening provided. There's no any hazardous voltage or energy hazards present within 5° projections. d. One opening provided. There's no any hazardous voltage or energy hazards present within 5° projections.
Rear	<ul style="list-style-type: none"> a. Diagonal line: 5.4 b. 6.0 x 1.0 c. 1.3 X 4.0 	<ul style="list-style-type: none"> a. Numerous hexagon openings provided for DC fan. b. While the optional Wireless LAN module is not provided for the equipment, one "+" shape of opening will be provide at the secured position of the antenna. c. While the optional TV tuner module is not provided for the equipment, one rectangular opening will be provide at the secured position of the connection terminal. <p>There's no any hazardous voltage or energy hazards present within 5° projections for above mention openings.</p>
For all models place on vertical position		
Right and left	--	None.
Top	--	None
Bottom	Ø 1.8	Numerous circular openings provided. Thickness of the metal enclosure = 1.0 mm min., minimum space of holes centre to centre = 4.1 mm.
Front	<ul style="list-style-type: none"> a. Ø 4.8 b. 12.8 X 5.2 c. 12.5 X 12.0 d. 12.0 X 6.8 	<ul style="list-style-type: none"> a. Numerous circular openings provided. b. One opening provided. There's no any hazardous voltage or energy hazards present within 5° projections. c. One opening provided. There's no any hazardous voltage or energy hazards present within 5° projections. d. One opening provided. There's no any hazardous voltage or energy hazards present within 5° projections.

Rear	a. Diagonal line: 5.4 b. 6.0 x 1.0 c. 1.3 X 4.0	a. Numerous hexagon openings provided for DC fan. b. While the optional Wireless LAN module is not provided for the equipment, one "+" shape of opening will be provide at the secured position of antenna. c. While the optional TV tuner module is not provided for the equipment, one rectangular opening will be provide at the secured position of connection terminal. There's no any hazardous voltage or energy hazards present within 5° projections for above mention openings.
Note(s):		

5.3		TABLE: fault condition tests					P
	ambient temperature (°C)	See below					—
	model/type of power supply	See below					—
	manufacturer of power supply	See below					—
	rated markings of power supply	See below					—
No.	Component no.	Fault	Test voltage (V)	Test time	Fuse no.	Fuse current (A)	Result
For model MS-6676 with main board P/N: MS-7469 (Horizontal position)							
1.	DC Fan	Stalled	DC 19	4.5 hr	—	—	Unit operated normally, no damaged, no hazards. Temperature stabled on: CHOCK6 body = 85.9°C, CPU1 = 85.6°C, EC25 body = 85.5°C, Memory = 80.0°C, PCB near U4 = 79.3°C, Ambient = 35.3°C
2.	Ventilation openings	blocked	DC 19	4.5 hr	—	—	Unit operated normally, no damaged, no hazards. Temperature stabled on: Memory = 79.9°C, CPU1= 78.8°C, CHOCK6 body = 77.9°C, PCB near U4 = 76.29°C, EC25 body = 71.3°C, Ambient = 33.4°C
3.	D10 pin X – Y (reverse charge current for RTC battery)	s-c	DC 19	1 min	—	—	Limitation of max. abnormal charge current =10mA. Normal reverse charging current = 0.01 mA Abnormal reverse current = 3.3 mA

4.	R165 (reverse charge current for RTC battery)	s-c	DC 19	1 min	--	--	Limitation of max. abnormal charge current = 10mA. Normal reverse charging current = 0.01mA Abnormal reverse current = 0.01 mA
Note(s): 1. Used abbreviations in fault column: s-c=short-circuit.							