CE

SPORTON LAB.

Certificate No: L891605L1018

CERTIFICATE

- **EQUIPMENT:** WLAN Mechanical PT IP Camera

MODEL NO. : IC-5010PTn , GC-D51N

APPLICANT : EDIMAX TECHNOLOGY CO., LTD.

NO.3, Wu Chuan 3rd Road, Wu-Ku Industiral Park. Taipei Hsien, Taiwan

SPORTON LAB.

I HEREBY CERTIFY THAT:

THE MEASUREMENTS SHOWN IN THIS TEST REPORT WERE MADE IN ACCORDANCE WITH THE PROCEDURES GIVEN IN **EUROPEAN COUNCIL DIRECTIVE 2006/95/EC.** THE EQUIPMENT WAS **PASSED** THE TEST PERFORMED ACCORDING TO

European Standard: 2006/95/EC
IEC 60950-1: 2001
EN 60950-1: 2001 + A11: 2004

This evaluation was carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to relieve the sellers from their contractual obligations.

THE CERTIFICATE WAS CARRIED OUT ON December 18, 2008 AT SPORTON INTERNATIONAL INC. LAB.

Jason Chuang

Jason Chuang
Director

Sporton International Inc. 耕興股份有限公司 SPORTON 印鑑專用章

SPORTON INTERNATIONAL INC. EMC & SAFETY GROUP
No.186-14, Jian 1st Rd., Jhonghe City, Taipei County 235, Taiwan, R.O.C.

LOW VOLTAGE DIRECTIVE TEST REPORT

IEC 60950-1 / EN 60950-1, First Edition

Information technology equipment – Safety – Part 1: General requirements

Report Reference No.	:	L891605L1018
Compiled by (+ signature)	:	John Jan Project Engineer
Approved by (+ signature)	:	Jason Chuang Director
Date of Issue	:	December 18, 2008
Testing laboratory	:	**Sporton International Inc.**
Address	:	14Fl.-2, No. 186, Jianyi Rd., Junghe City, Taipei Hsien,
Testing location	:	Taiwan
Applicant	:	**EDIMAX TECHNOLOGY CO., LTD.**
Address	:	NO.3, Wu Chuan 3rd Road, Wu-Ku Industiral Park. Taipei Hsien, Taiwan.
Standard	:	IEC 60950-1: 2001 EN 60950-1: 2001 + A11: 2004
Test Report Form No.	:	LVD 60950-1
Test procedure	:	Sporton LVD type test approval
Procedure deviation	:	N/A
Non-standard test method	:	N/A
Type of test object	:	WLAN Mechanical PT IP Camera
Trademark	:	EDIMAX
Model/type reference	:	IC-5010PTn,GC-D51N
Manufacturer	:	EDIMAX TECHNOLOGY CO., LTD. NO.3, Wu Chuan 3rd Road, Wu-Ku Industiral Park. Taipei Hsien, Taiwan.
Rating	:	+ 12 Vdc , 1 A (Optional)

Test item particulars:	
Equipment mobility	Movable
Operating condition	continuous
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N.A.
Class of equipment	Class III
Mass of equipment (kg)	approx. 0.32kg
Protection against ingress of water	IP 20
Possible test case verdicts:	
- test case does not apply to the test object	N.A.
- test object does meet the requirement	Pass
- test object does not meet the requirement	Fail
Testing:	
- Date of receipt of test item	December 18, 2008
- Date(s) of performance of test	December 12 – December 16, 2008

General remarks:

"(see remark #)" refers to a remark 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.

The test results presented in this report relate only to the object tested.

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

Comments:

The test results are true for the test sample(s) only.

A part of this test report or certificate should not be duplicated in any way; however, the duplication of the whole document is allowed.

This test-report includes the following documents:

Test report - (27 pages)

Photo - (13 pages)

Brief description of the test sample:

The equipment is a WLAN Mechanical PT IP Camera, intended for used with information technology equipment.

The external power adaptor is approved product and complied with the requirements of sub-clause 2.5 as a limited power source, see appended table 1.5.1 for detail.

Models GC-D51N identical to model IC-5010PTn except for model designation.

The equipment was evaluated for use in a maximum air ambient of 40 ºC.

The test sample is pre-production without serial number.

Clause	Requirement - Test	Result - Remark	Verdict
1	**GENERAL**		**Pass**
1.5	**Components**		**Pass**
1.5.1	Comply with IEC 60950 or relevant component standard	Safety involved components comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards (refer to appended table 1.5.1 below).	Pass
1.5.2	Evaluation and testing of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	Pass
1.5.3	Thermal controls		N.A.
1.5.4	Transformers		N.A.
1.5.5	Interconnecting cables		N.A.
1.5.6	Capacitors in primary circuits		N.A.
1.5.7	Double or reinforced insulation bridged by components		N.A.
1.5.7.1	General		N.A.
1.5.7.2	Bridging capacitors		N.A.
1.5.7.3	Bridging resistors		N.A.
1.5.7.4	Accessible parts		N.A.
1.5.8	Components in equipment for IT power systems		N.A.
1.6	**Power interface**		**Pass**
1.6.1	AC power distribution systems		N.A.
1.6.2	Input current	See appended table 1.6.2	Pass
1.6.3	Voltage limit of hand-held equipment		N.A.
1.6.4	Neutral conductor		N.A.
1.7	**Marking and instructions**		**Pass**
1.7.1	Power rating	See below.	Pass
	Rated voltage(s) or voltage range(s) (V)	12 V ,Optional	Pass
	Symbol for nature of supply for d.c.	IEC 60417, No. 5031: ⎓	Pass
	Rated frequency or frequency range (Hz)		N.A.

	Rated current (mA or A)	1 A ,Optional	Pass
	Manufacturer's name/Trademark	See page 1.	Pass
	Type/model	See page 1.	Pass
	Symbol of Class II	The unit is a Class III equipment.	N.A.
	Other symbols	Additional symbols or marking does not give rise to misunderstanding.	Pass
	Certification marks	CE mark	Pass
1.7.2	Safety instructions	Operation/installation instruction is provided with each unit.	Pass
1.7.3	Short duty cycles		N.A.
1.7.4	Supply voltage adjustment		N.A.
1.7.5	Power outlets on the equipment		N.A.
1.7.6	Fuse identification		N.A.
1.7.7	Wiring terminals		N.A.
1.7.7.1	Protective earthing and bonding terminals		N.A.
1.7.7.2	Terminal for a.c. mains supply conductors		N.A.
1.7.8	Controls and indicators		N.A.
1.7.8.1	Identification, location and marking		N.A.
1.7.8.2	Colours		N.A.
1.7.8.3	Symbols according to IEC 60417.....		N.A.
1.7.8.4	Markings using figures		N.A.
1.7.9	Isolation of multiple power sources		N.A.
1.7.10	IT power distribution systems		N.A..
1.7.11	Thermostats and other regulating devices		N.A.
1.7.12	Language	Installation instruction and equipment markings are in English. Versions in other languages should by provide when submitted for national approval.	Pass
1.7.13	Durability	Complied	Pass
1.7.14	Removable parts		N.A.
1.7.15	Replaceable batteries		N.A..
	Language		—
1.7.16	Operator access with a tool.....		N.A.
1.7.17	Equipment for restricted access locations		N.A.

2	**PROTECTION FROM HAZARDS**	**Pass**

2.1	**Protection from electric shock and energy hazards**	**Pass**

2.1.1	Protection in operator access areas	See below	Pass
2.1.1.1	Access to energized parts	The unit is supplied from approved power supply adaptor that provides SELV. Only SELV circuit inside the unit. No electrical shock or energy hazards see below.	Pass
	Test by inspection		N.A.
	Test with test finger		N.A.
	Test with test pin		N.A.
	Test with test probe		N.A.
2.1.1.2	Battery compartments		N.A.
2.1.1.3	Access to ELV wiring		N.A.
	Working voltage (V); distance (mm) trough insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	N.A.
2.1.1.5	Energy hazards	No energy hazard in operator access area. The connectors of the equipment below 240VA.	Pass
2.1.1.6	Manual controls		N.A.
2.1.1.7	Discharge of capacitors in the primary circuit		N.A.
	Time-constant (s); measured voltage (V)		—
2.1.2	Protection in service access areas		N.A.
2.1.3	Protection in restricted access locations		N.A.

2.2	**SELV circuits.**		**Pass**
2.2.1	General requirements	See below.	Pass
2.2.2	Voltages under normal conditions (V).....	Between any SELV circuits 42.4 Vpeak and 60 Vdc are not exceeded.	Pass
2.2.3	Voltages under fault conditions (V)	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120Vd.c. were not exceeded within 0.2s and limits 42.4V peak and 60Vd.c. were not exceeded for longer than 0.2s.	Pass
2.2.3.1	Separation by double or reinforced insulation (method 1)		—
2.2.3.2	Separation by earthed screen (method 2)		—
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		—
2.2.4	Connection of SELV circuits to other circuits.....	See 2.2.2 and 2.2.3.	Pass

2.3	TNV circuits		N.A.
2.3.1	Limits		N.A.
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N.A.
	Insulation employed.....		—
2.3.3	Separation from hazardous voltages		N.A.
	Insulation employed.....		—
2.3.4	Connection of TNV circuits to other circuits		N.A.
	Insulation employed.....		—
2.3.5	Test for operating voltages generated externally		N.A.

2.4	Limited current circuits		N.A.
2.4.1	General requirements		N.A.
2.4.2	Limit values		N.A.
	Circuit capacitance		—
	Frequency (Hz)		—
	Measured current (mA).....		—
	Measured voltage (V) :		—
	Measured capacitance (μF)		—
2.4.3	Connection of limited current circuits to other circuits		N.A.

2.5	Limited power sources		N.A.
	Inherently limited output		N.A.
	Impedance limited output		N.A.
	Overcurrent protective device limited output		N.A.
	Regulating network limited output under normal operating and single fault condition		N.A.
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N.A.
	Output voltage (V), output current (A), apparent power (VA)		—
	Current rating of overcurrent protective device (A)		—

2.6	**Provisions for earthing and bonding** ***The unit is a Class III equipment.***		**N.A.**
2.6.1	Protective earthing		N.A.
2.6.2	Functional earthing		N.A.
2.6.3	Protective earthing and protective bonding conductors		N.A.
2.6.3.1	General		N.A.
2.6.3.2	Size of protective earthing conductors		N.A.
	Rated current (A), cross-sectional area (mm^2), AWG.....		—
2.6.3.3	Size of protective bonding conductors		N.A.
	Rated current (A), cross-sectional area (mm^2), AWG.....		—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A)		N.A.
2.6.3.5	Colour of insulation.....		N.A.
2.6.4	Terminals		N.A.
2.6.4.1	General		N.A.
2.6.4.2	Protective earthing and bonding terminals		N.A.
	Rated current (A), type and nominal thread diameter (mm).....		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N.A.
2.6.5	Integrity of protective earthing		N.A.
2.6.5.1	Interconnection of equipment		N.A.
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N.A.
2.6.5.3	Disconnection of protective earth		N.A.
2.6.5.4	Parts that can be removed by an operator		N.A.
2.6.5.5	Parts removed during servicing		N.A.
2.6.5.6	Corrosion resistance		N.A.
2.6.5.7	Screws for protective bonding		N.A.
2.6.5.8	Reliance on telecommunication network or cable distribution system		N.A.

2.7	**Overcurrent and earth fault protection in primary circuits** ***The unit is a Class III equipment.***		**N.A.**
2.7.1	Basic requirements		N.A.
	Instructions when protection relies on building installation.		N.A.

2.7.2	Faults not covered in 5.3		N.A.
2.7.3	Short-circuit backup protection		N.A.
2.7.4	Number and location of protective devices		N.A.
2.7.5	Protection by several devices		N.A.
2.7.6	Warning to service personnel.....		N.A.

2.8	**Safety interlocks** ***No safety interlocks provided.***		**N.A.**
2.8.1	General principles		N.A.
2.8.2	Protection requirements		N.A.
2.8.3	Inadvertent reactivation		N.A.
2.8.4	Fail-safe operation		N.A.
2.8.5	Moving parts		N.A.
2.8.6	Overriding		N.A.
2.8.7	Switches and relays		N.A.
2.8.7.1	Contact gaps (mm)		N.A.
2.8.7.2	Overload test		N.A.
2.8.7.3	Endurance test		N.A.
2.8.7.4	Electric strength test (V)		N.A.
2.8.8	Mechanical actuators		N.A.

2.9	**Electrical insulation**		**N.A.**
2.9.1	Properties of insulating materials		N.A.
2.9.2	Humidity conditioning		N.A.
	Humidity (%)		--
	Temperature (℃)		--
2.9.3	Grade of insulation		N.A.

2.10	**Clearances, creepage distances and distances through insulation**		**Pass**
2.10.1	General	Only SELV circuit inside the Unit.	Pass
2.10.2	Determination of working voltage		N.A.
2.10.3	Clearances		N.A.
2.10.3.1	General		N.A.
2.10.3.2	Clearances in primary circuit		N.A.
2.10.3.3	Clearances in secondary circuits		N.A.
2.10.3.4	Measurement of transient voltage levels		N.A.
2.10.4	Creepage distances		N.A.

	CTI tests		—
2.10.5	Solid insulation		N.A.
2.10.5.1	Minimum distance through insulation		N.A.
2.10.5.2	Thin sheet material		N.A.
	Number of layers (pcs)		—
	Electric strength test		N.A.
2.10.5.3	Printed boards		N.A.
	Distance through insulation		N.A.
	Electric strength test for thin sheet insulating material		N.A.
	Number of layers (pcs)		N.A.
2.10.5.4	Wound components.....		N.A.
	Number of layers (pcs)		N.A.
	Two wires in contact inside wound component; angle between 45° and 90°		N.A.
2.10.6	Coated printed boards		N.A.
2.10.6.1	General		N.A.
2.10.6.2	Sample preparation and preliminary inspection ...		N.A.
2.10.6.3	Thermal cycling.....		N.A.
2.10.6.4	Thermal ageing.....		N.A.
2.10.6.5	Electric strength test		N.A.
2.10.6.6	Abrasion resistance test		N.A.
	Electric strength test		N.A.
2.10.7	Enclosed and sealed parts.....		N.A.
	Temperature $T_1=T_2 = T_{ma} - T_{amb}$ +10K (°C).....		N.A.
2.10.8	Spacings filled by insulating compound.....		N.A.
	Electric strength test		—
2.10.9	Component external terminations		N.A.
2.10.10	Insulation with varying dimensions		N.A.

3	**WIRING, CONNECTIONS AND SUPPLY**	**Pass**

3.1	**General**		**N.A.**
3.1.1	Current rating and overcurrent protection		N.A.
3.1.2	Protection against mechanical damage		N.A.
3.1.3	Securing of internal wiring		N.A.
3.1.4	Insulation of conductors		N.A.
3.1.5	Beads and ceramic insulators		N.A.

3.1.6	Screws for electrical contact pressure		N.A.
3.1.7	Insulation materials in electrical connections		N.A.
3.1.8	Self-tapping and spaced thread screws		N.A.
3.1.9	Termination of conductors		N.A.
	10 N pull test		N.A.
3.1.10	Sleeving on wiring		N.A.

3.2	**Connection to a.c. mains supplies or d.c. mains supply**		**N.A.**
3.2.1	Means of connection		N.A.
3.2.1.1	Connection to an a.c. mains supply		N.A.
3.2.1.2	Connection to a d.c. mains supply		N.A.
3.2.2	Multiple supply connections		N.A.
3.2.3	Permanently connected equipment		N.A.
	Number of conductors, diameter (mm) of cable and conduits		—
3.2.4	Appliance inlets		N.A.
3.2.5	Power supply cords		N.A.
3.2.5.1	AC Power supply cords		N.A.
	Type		—
	Rated current (A), cross-sectional area (mm^2), AWG.....		—
3.2.5.2	DC power supply cords		N.A.
3.2.6	Cord anchorages and strain relief		N.A.
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N.A.
3.2.8	Cord guards		N.A.
	D (mm); test mass (g)		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N.A.

3.3	**Wiring terminals for connection of external conductors**		**N.A.**
3.3.1	Wiring terminals		N.A.
3.3.2	Connection of non-detachable power supply cords		N.A.
3.3.3	Screw terminals		N.A.
3.3.4	Conductor sizes to be connected		N.A.

	Rated current (A), cord/cable type, cross-sectional area (mm^2)		—
3.3.5	Wiring terminal sizes		N.A.
	Rated current (A), type and nominal thread diameter (mm).....		N.A.
3.3.6	Wiring terminals design		N.A.
3.3.7	Grouping of wiring terminals		N.A.
3.3.8	Stranded wire		N.A.

3.4	**Disconnection from the a.c. mains supply**		**N.A.**
3.4.1	General requirement		N.A.
3.4.2	Disconnect devices		N.A.
3.4.3	Permanently connected equipment		N.A.
3.4.4	Parts which remain energized		N.A.
3.4.5	Switches in flexible cords		N.A.
3.4.6	Single-phase equipment and d.c. equipment		N.A.
3.4.7	Three-phase equipment		N.A.
3.4.8	Switches as disconnect devices		N.A.
3.4.9	Plugs as disconnect devices		N.A.
3.4.10	Interconnected equipment		N.A.
3.4.11	Multiple power sources		N.A.

3.5	**Interconnection of equipment**		**Pass**
3.5.1	General requirements	See below.	Pass
3.5.2	Types of interconnection circuits.....	Interconnection circuits of SELV output connectors.	Pass
3.5.3	ELV circuits as interconnection circuits		N.A.

4	**PHYSICAL REQUIREMENTS**		**Pass**

4.1	**Stability**		**Pass**
	Angle of 10°		Pass
	Test: force (N).....		N.A.

4.2	**Mechanical strength**		Pass
4.2.1	General		Pass
4.2.2	Steady force test, 10 N		N.A.
4.2.3	Steady force test, 30 N		N.A.

4.2.4	Steady force test, 250 N		N.A.
4.2.5	Impact test		N.A.
	Fall test		N.A.
	Swing test		N.A.
4.2.6	Drop test		N.A.
4.2.7	Stress relief test		N.A.
4.2.8	Cathode ray tubes		—
	Picture tube separately certified		N.A.
4.2.9	High pressure lamps		N.A.
4.2.10	Wall or ceiling mounted equipment; force (N)	Force applied:50N	Pass

4.3	**Design and construction**		**Pass**
4.3.1	Edges and corners	All edges and corners of the exterior enclosure are properly rounded.	Pass
4.3.2	Handles and manual controls; force (N).....		N.A.
4.3.3	Adjustable controls		N.A.
4.3.4	Securing of parts	Mechanical fixings in such a way designed that they will withstand mechanical stress occurring in normal use	Pass
4.3.5	Connection of plugs and sockets		N.A.
4.3.6	Direct plug-in equipment		N.A.
	Dimensions (mm) of mains plug for direct plug-in		N.A.
	Torque and pull test of mains plug for direct plug-in; Torque (Nm); pull (N).....		--
4.3.7	Heating elements in earthed equipment		N.A.
4.3.8	Batteries		N.A.
4.3.9	Oil and grease		N.A.
4.3.10	Dust, powders, liquids and gases		N.A.
4.3.11	Containers for liquids or gases		N.A.
4.3.12	Flammable liquids.....		N.A.
	Quantity of liquid (l).....		N.A.
	Flash point (°C).....		N.A.
4.3.13	Radiation; type of radiation		Pass
4.3.13.1	General	For LED user as indicating lights	Pass
4.3.13.2	Ionizing radiation		N.A.
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—

	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N.A.
	Part, property, retention after test, flammability classification		N.A.
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N.A.
4.3.13.5	Laser (including LEDs)	See above	Pass
	Laser class	See above	—
4.3.13.6	Other types		—

4.4	**Protection against hazardous moving parts** ***No hazardous moving parts .***		**N.A.**
4.4.1	General		N.A.
4.4.2	Protection in operator access areas		N.A.
4.4.3	Protection in restricted access locations		N.A.
4.4.4	Protection in service access areas		N.A.

4.5	**Thermal requirements**		**Pass**
4.5.1	Maximum temperatures	See appended table 4.5.1	Pass
	Normal load condition per Annex L	See 1.6.2	Pass
4.5.2	Resistance to abnormal heat		N.A.

4.6	**Openings in enclosures**		**Pass**
4.6.1	Top and side openings	See table 4.6.1	Pass
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures	See table 4.6.1	Pass
	Construction of the bottom		—
4.6.3	Doors or covers in fire enclosures		
4.6.4	Openings in transportable equipment		N.A.
4.6.5	Adhesives for constructional purposes		N.A.
	Conditioning temperature (℃)/time (weeks)		—

4.7	**Resistance to fire**		**Pass**
4.7.1	Reducing the risk of ignition and spread of flame	See below.	Pass
	Method 1, selection and application of components wiring and materials	Use of materials with the required flammability classes.	Pass
	Method 2, application of all of simulated fault condition tests		N.A.

4.7.2	Conditions for a fire enclosure	With having the following parts : ● Components in secondary (supplied by LPS). ● Components mounted on material of flammability Class V-1. The fire enclosure is not required.	Pass
4.7.2.1	Parts requiring a fire enclosure	See above.	N.A.
4.7.2.2	Parts not requiring a fire enclosure	See above.	Pass
4.7.3	Materials	See appendix table 1.5.1 for details.	Pass
4.7.3.1	General		Pass
4.7.3.2	Materials for fire enclosures		N.A.
4.7.3.3	Materials for components and other parts outside fire enclosures		N.A.
4.7.3.4	Materials for components and other parts inside fire enclosures		N.A.
4.7.3.5	Materials for air filter assemblies		N.A.
4.7.3.6	Materials used in high-voltage components		N.A.

5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**	**Pass**

5.1	**Touch current and protective conductor current**		**N.A.**
5.1.1	General		N.A.
5.1.2	Equipment under test (EUT)		N.A.
5.1.3	Test circuit		N.A.
5.1.4	Application of measuring instrument		N.A.
5.1.5	Test procedure		N.A.
5.1.6	Test measurements		N.A.
	Test voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA) ..		—
5.1.7	Equipment with touch current exceeding 3.5 mA		N.A.
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N.A.

5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N.A.
	Test voltage (V)		—
	Measured current (mA)		—
	Max. allowed current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks.....		N.A.

5.2	**Electric strength**		**N.A.**
5.2.1	General		N.A.
5.2.2	Test procedure		N.A.

5.3	**Abnormal operating and fault conditions**		**Pass**
5.3.1	Protection against overload and abnormal operation	See below	Pass
5.3.2	Motors		N.A.
5.3.3	Transformers		N.A.
5.3.4	Functional insulation.....	Method C. Considered due to - all components are mounted on PCB of flammability V-1. - no risk of electrical shock no test had been performed.	Pass
5.3.5	Electromechanical components		N.A.
5.3.6	Simulation of faults	See appended table 5.3.	Pass
5.3.7	Unattended equipment		N.A.
5.3.8	Compliance criteria for abnormal operating and fault conditions	Neither fire the equipment nor molten metal was emitted.	Pass

6	**CONNECTION TO TELECOMMUNICATION NETWORKS**	**N.A.**

6.1	**Protection of telecommunication network service personnel, and users of other equipment connected to the network, from hazards in the equipment**		**N.A.**
6.1.1	Protection from hazardous voltages		N.A.
6.1.2	Separation of the telecommunication network from earth		N.A.
6.1.2.1	Requirements		N.A.
	Test voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions.....		N.A.

6.2	**Protection of equipment users from overvoltages on telecommunication networks**		**N.A.**
6.2.1	Separation requirements		N.A.
6.2.2	Electric strength test procedure		N.A.
6.2.2.1	Impulse test		N.A.
6.2.2.2	Steady-state test		N.A.
6.2.2.3	Compliance criteria		N.A.

6.3	**Protection of telecommunication wiring system from overheating**		**N.A.**
	Max. output current (A).....		—
	Current limiting method		—

7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS**		**N.A.**

7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N.A.
7.2	Protection of equipment users from overvoltages on the cable distribution system		N.A.
7.3	Insulation between primary circuits and cable distribution systems		N.A.
7.3.1	General		N.A.
7.3.2	Voltage surge test		N.A.
7.3.3	Impulse test		N.A.

A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		**N.A.**
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N.A.
A.1.1	Samples		—
	Wall thickness (mm)		—
A.1.2	Conditioning of samples; temperature (°C)		N.A.
A.1.3	Mounting of samples		N.A.
A.1.4	Test flame		N.A.
A.1.5	Test procedure		N.A.
A.1.6	Compliance criteria		N.A.
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N.A.
A.2.1	Samples		—
	Wall thickness (mm)		—
A.2.2	Conditioning of samples.....		N.A.
A.2.3	Mounting of samples		N.A.
A.2.4	Test flame		N.A.
A.2.5	Test procedure		N.A.
A.2.6	Compliance criteria		N.A.
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4, 8		N.A.
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	Hot flaming oil test (see 4.6.2)		N.A.
A.3.1	Mounting of samples		N.A.
A.3.2	Test procedure		N.A.
A.3.3	Compliance criterion.....		N.A.

B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)**	**Pass**

B.1	General requirements	Used stepping motor	Pass
	Position	See 1.5.1	—
	Manufacturer	See 1.5.1	—
	Type	See 1.5.1	—
	Rated values	See 1.5.1	—
B.2	Test conditions		N.A.
B.3	Maximum temperatures		N.A.
B.4	Running overload test		N.A.
B.5	Locked-rotor overload test		N.A.
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for DC motors in secondary circuits		N.A.
B.7	Locked-rotor overload test for DC motors in secondary circuits		N.A.
B.7.1	Test procedure		N.A.
B.7.2	Alternative test procedure; test time (h).....		N.A.
B.7.3	Electric strength test		N.A.
B.8	Test for motors with capacitors		N.A.
B.9	Test for three-phase motors		N.A.
B.10	Test for series motors		N.A.
	Operating voltage (V)		—

C	**ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)**		**N.A.**
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Method of protection		—
C.1	Overload test		--
C.2	Insulation		
	Protection from displacement of windings		N.A.

D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS**		**N.A.**
D.1	Measuring instrument		N.A.
D.2	Alternative measuring instrument		N.A.

E	**ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)** ***Thermocouple method used.***	**N.A.**

F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)**	**Pass**

G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		**N.A.**
G.1	Summary of the procedure for determining minimum clearances		N.A.
G.2	Determination of mains transient voltage (V)		N.A.
G.2.1	AC mains supply		N.A.
G.2.2	DC mains supply		N.A.
G.3	Determination of telecommunication network transient voltage (V)		N.A.
G.4	Determination of required withstand voltage (V) ..		N.A.
G.5	Measurement of transient levels (V)		N.A.
G.6	Determination of minimum clearances		N.A.

H	**ANNEX H, IONIZING RADIATION (see 4.3.13)**		**N.A.**

J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		**N.A.**
	Metal used		—

K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)**		**N.A.**
K.1	Making and breaking capacity		N.A.
K.2	Thermostat reliability; operating voltage (V).....		N.A.
K.3	Thermostat endurance test; operating voltage (V)		N.A.
K.4	Temperature limiter endurance; operating voltage (V)		N.A.
K.5	Thermal cut-out reliability		N.A.
K.6	Stability of operation		N.A.

L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)**		**Pass**
L.1	Typewriters		N.A.
L.2	Adding machines and cash registers		N.A.
L.3	Erasers		N.A.
L.4	Pencil sharpeners		N.A.

L.5	Duplicators and copy machines		N.A.
L.6	Motor-operated files		N.A.
L.7	Other business equipment	Considered.	Pass

M	**ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)**		**N.A.**
M.1	Introduction		N.A.
M.2	Method A		N.A.
M.3	Method B		N.A.
M.3.1	Ringing signal		N.A.
M.3.1.1	Frequency (Hz).....		
M.3.1.2	Voltage (V)		
M.3.1.3	Cadence; time (s), voltage (V)		
M.3.1.4	Single fault current (mA).....		
M.3.2	Tripping device and monitoring voltage.....		N.A.
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N.A.
M.3.2.2	Tripping device		N.A.
M.3.2.3	Monitoring voltage (V)		N.A.

N	**ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)**		**N.A.**
N.1	ITU-T impulse test generators		N.A.
N.2	IEC 60065 impulse test generator		N.A.

P	**ANNEX P, NORMATIVE REFERENCES**	**Pass**

Q	**ANNEX Q, BIBLIOGRAPHY**	**Pass**

R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		**N.A.**
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N.A.
R.2	Reduced clearances (see 2.10.3)		N.A.

S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		**N.A.**
S.1	Test equipment		N.A.
S.2	Test procedure		N.A.
S.3	Examples of waveforms during impulse testing		N.A.

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER		N.A.
		See separate test report (reference to standard clause 1.1.2)	—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4).		N.A.
	Separate test report		—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMAS (see 16.1)		N.A.
V.1	Introduction		N.A.
V.2	TN power distribution systems		N.A.

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N.A.
W.1	Touch current from electronic circuits		N.A.
W.1.2	Earthed circuits		N.A.
W.2	Interconnection of several equipments		N.A.
W.2.1	Isolation		N.A.
W.2.2	Common return, isolated from earth		N.A.
W.2.3	Common return, connected to protective earth		N.A.

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N.A.
X.1	Determination of maximum input current		N.A.
X.2	Overload test procedure		N.A.

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N.A.
Y.1	Test apparatus		N.A.
Y.2	Mounting of test samples		N.A.
Y.3	Carbon-arc light-exposure apparatus		N.A.
Y.4	Xenon-arc light-exposure apparatus		N.A.

1.5.1	TABLE: list of critical components				Pass
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Adaptor	DVE	DSA-12R-12 AEU	I/p: AC 200-240V, 50/60Hz, 300mA o/p: DC 12V, 1A Class II, 40 °C, LPS	EN 60950-1: 2001+A11	TUV Rh
Vertical Motor (stepping motor)	AFREEY	60.7010V.202	12Vdc,0.5A	--	--
Horizontal Motor (stepping motor)	AFREEY	60.7010V.201	12Vdc,0.14A	--	--
PCB	--	--	Min. V-1, Min. 105 °C	UL 94	UL
Enclosure	--	--	Min. HB	UL 94	UL

1.6.2	TABLE: electrical data (in normal conditions)					Pass
fuse #	I_{rated} (A)	U (V)	P (W)	I (A)	I_{fuse} (A)	condition/status
--	1.0	12 Vdc	4.32	0.36	--	Max. Normal load.
Note(s):						

2.1.1.5	TABLE: max. V, A, VA test				N.A.
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
Note(s):					

2.1.1.7	TABLE: discharge test				N.A.
Condition	τ calculated (s)	τ measured (s)	tu $\rightarrow$ 0V (s)	Comments	
Note(s):					

2.2.2	TABLE: Hazardous voltage measurement			N.A.
Transformer	Location	max. Voltage		Voltage Limitation Componet
		V peak	V d.c.	
Note(s):				

2.2.3	TABLE: SEL voltage measurement		N.A.
Location	Voltage measured (V)	Comments	
Note(s):			

2.4.2	TABLE: limited current circuit measurement					N.A.
Location	Voltage (V)	Current (Ma)	Freq. (kHz)	Limit (mA)	Comments	
Note(s):						

2.5	TABLE: limited power source measurement		N.A.
	Limits	Measured	Verdict
According to Table 2B (normal condition), Uoc=			

current (in A)			**N.A.**
Apparent power (in VA)			**N.A.**
Note(s):			

2.6.3.4	**TABLE: ground continue test**	**N.A.**
Location	Resistance measured(mΩ)	Comments
Note(s):		

2.10.2	**TABLE: working voltage measurement**	**N.A.**
Location	Resistance measured(mΩ)	Comments
Note(s):		

2.10.3 and 2.10.4	**TABLE: clearance and creepage distance measurements**					**N.A.**
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
Note(s). **Functional insulation only.**						

2.10.5	**TABLE: distance through insulation measurements**			**N.A.**
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)
Note(s):				

4.5.1	**TABLE: maximum temperatures**		**Pass**
	test voltage (V).....	12 Vdc	—
	t_{amb1} (ºC).....	--	—
	t_{amb2} (ºC).....	40	—
Maximum temperature T of part/at:		T (ºC)	allowed T_{max} (ºC)
PWB near U13		71.2	105
PWB near U10		69.8	105
PWB near U4		71.7	105
PWB near U3		70.1	105
PWB near wireless card chip		71.6	105

PWB near U1	76.5	105
Horizontal motor body	75.6	105
Vertical motor body	51.8	105
Enclosure inside near U1	65.4	--
Enclosure outside near U1	53.8	95

temperature T of winding:	R1 (Ω)	R2 (Ω)	dT (ºK)	allowed T_{max} (ºC)	insulation class

Note(s):

1) All values for T (℃) are re-calculated from Tamb respectively.

2) The maximum ambient temperatures specified by manufacturer is 40℃(Tma).

4.5.2	**TABLE: ball pressure test of thermoplastics parts**		**N.A.**
	allowed impression diameter (mm).....:	≤ 2 mm	—

part:	test temperature (ºC)	impression diameter (mm)

4.6.1, 4.6.2	**TABLE: Enclosure openings**	**Pass**
Location	Size(mm)	Comments
Top	Each openings diameter measured approx. 1.4mm.	Numerous circular openings.
side	No openings	--
bottom	1.9 x 25 mm	Three rectangle openings.
	Each openings diameter measured approx. 1.9mm.	Numerous circular openings.
Note(s):		

4.7	**TABLE: resistance to fire**			**Pass**
part:	Manufacturer of material	Type of material	Thickness (mm)	Flammability class
Note(s): **See appended table 1.5.1**				

5.1.6	**TABLE: touch current measurement**			**N.A.**
Condition	L→terminal A (mA)	N→terminal A (mA)	Limit	Comments

Note(s):

5.2	TABLE: electric strength tests and impulse tests		N.A.
Test voltage applied between:		Test voltage (V)	Breakdown

5.3	TABLE: fault condition tests		Pass
	ambient temperature (ºC).....:	See below	—
	model/type of power supply .....:	--	—
	manufacturer of power supply.....:	--	—
	rated markings of power supply.....:	--	—

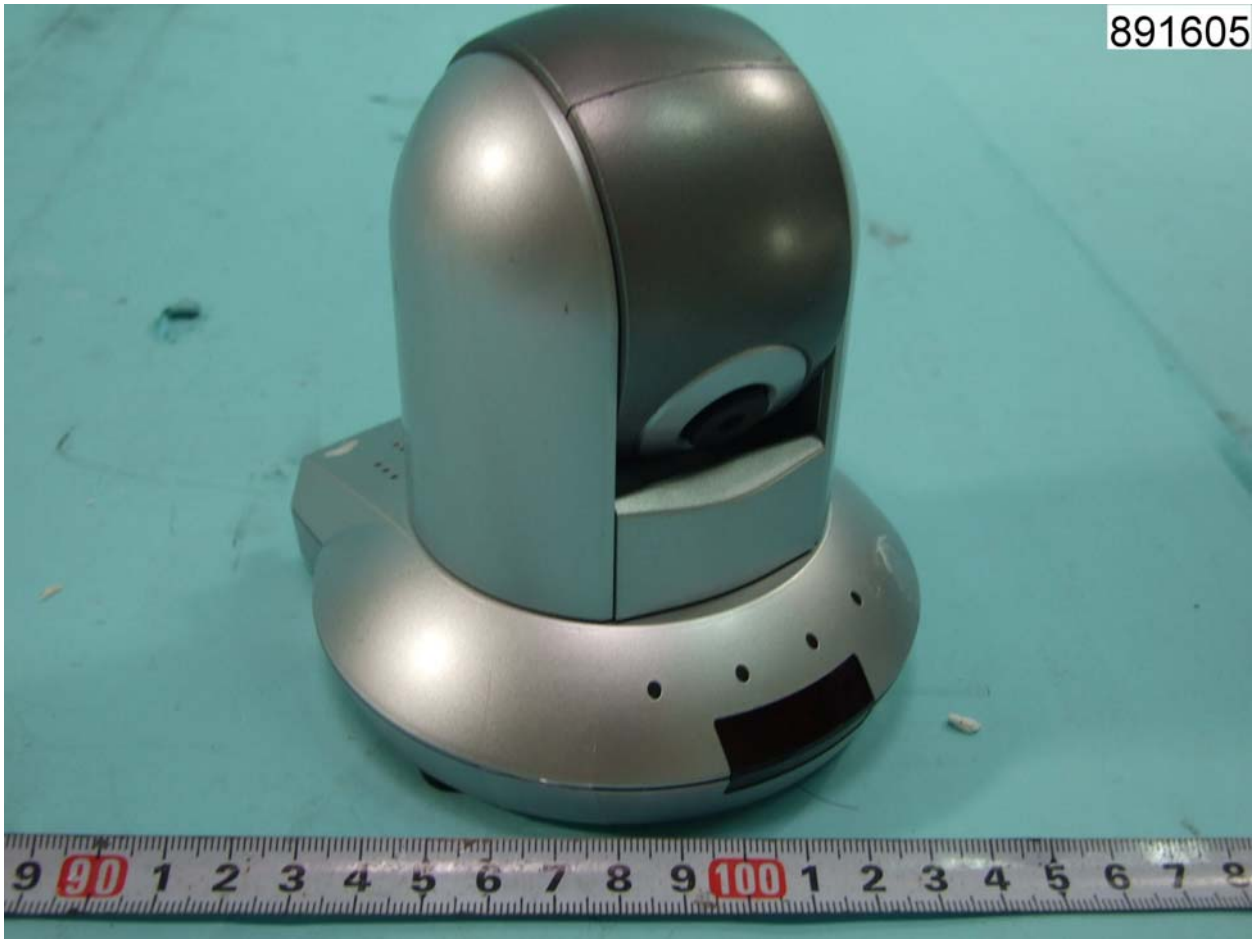
No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
1	Openings	Blocked	12	3.5hrs	--	--	Unit normal operation . No damaged. No hazardous. Maximum Temperature: PWB near U1:64.5 ℃, Ambient:24.4 ℃.

Note(s)

Appendix - Photo

Appendix - Photo

Appendix - Photo



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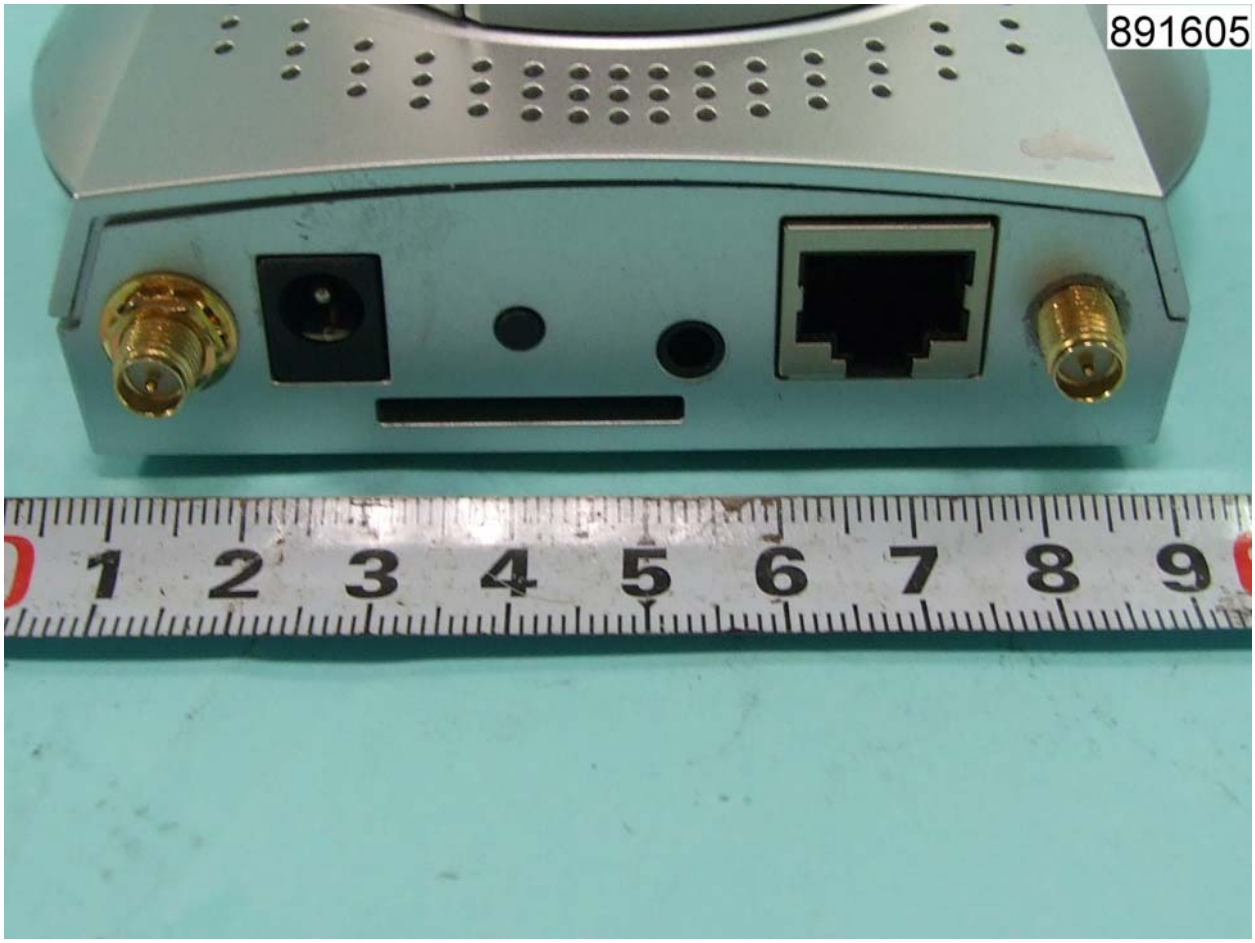

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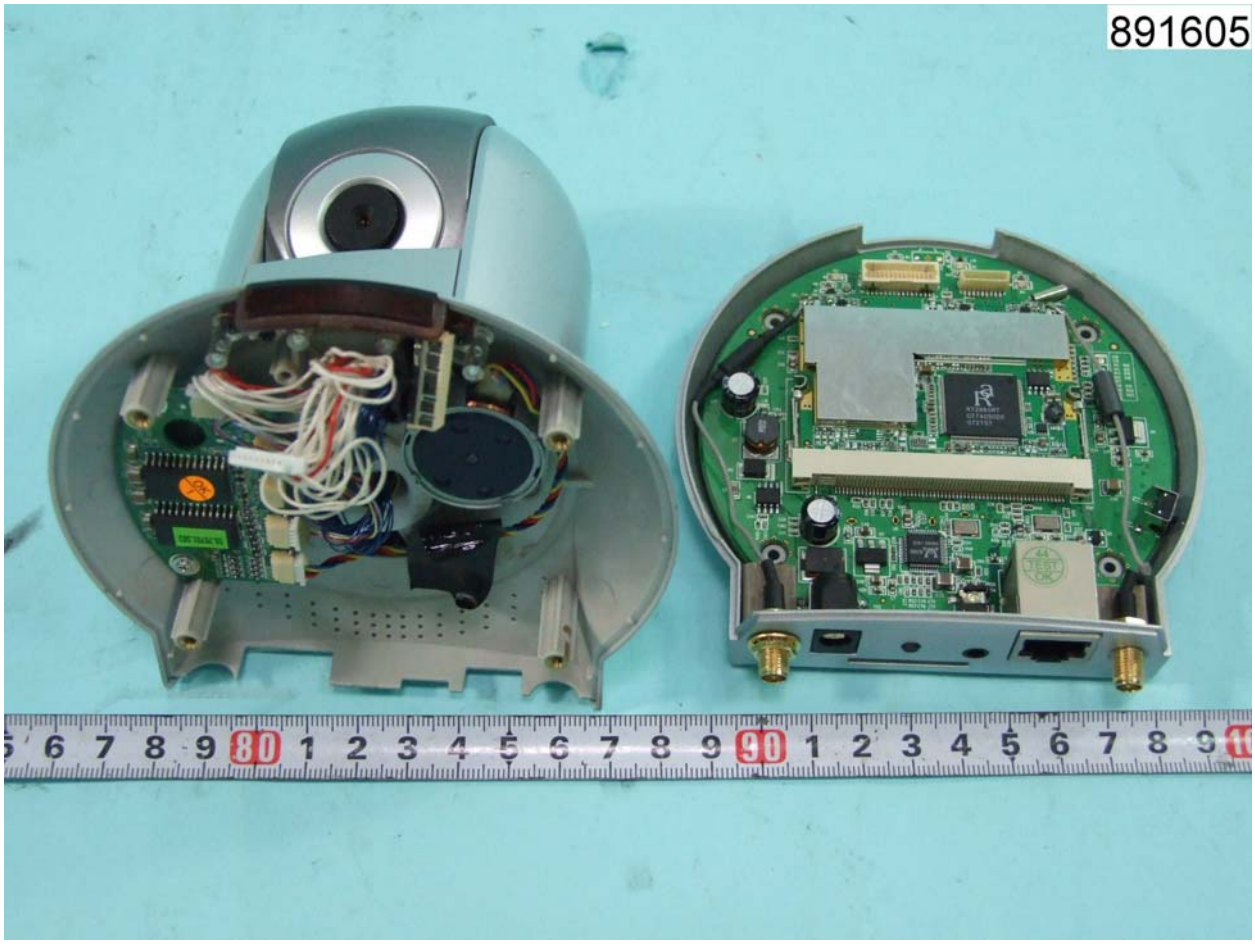

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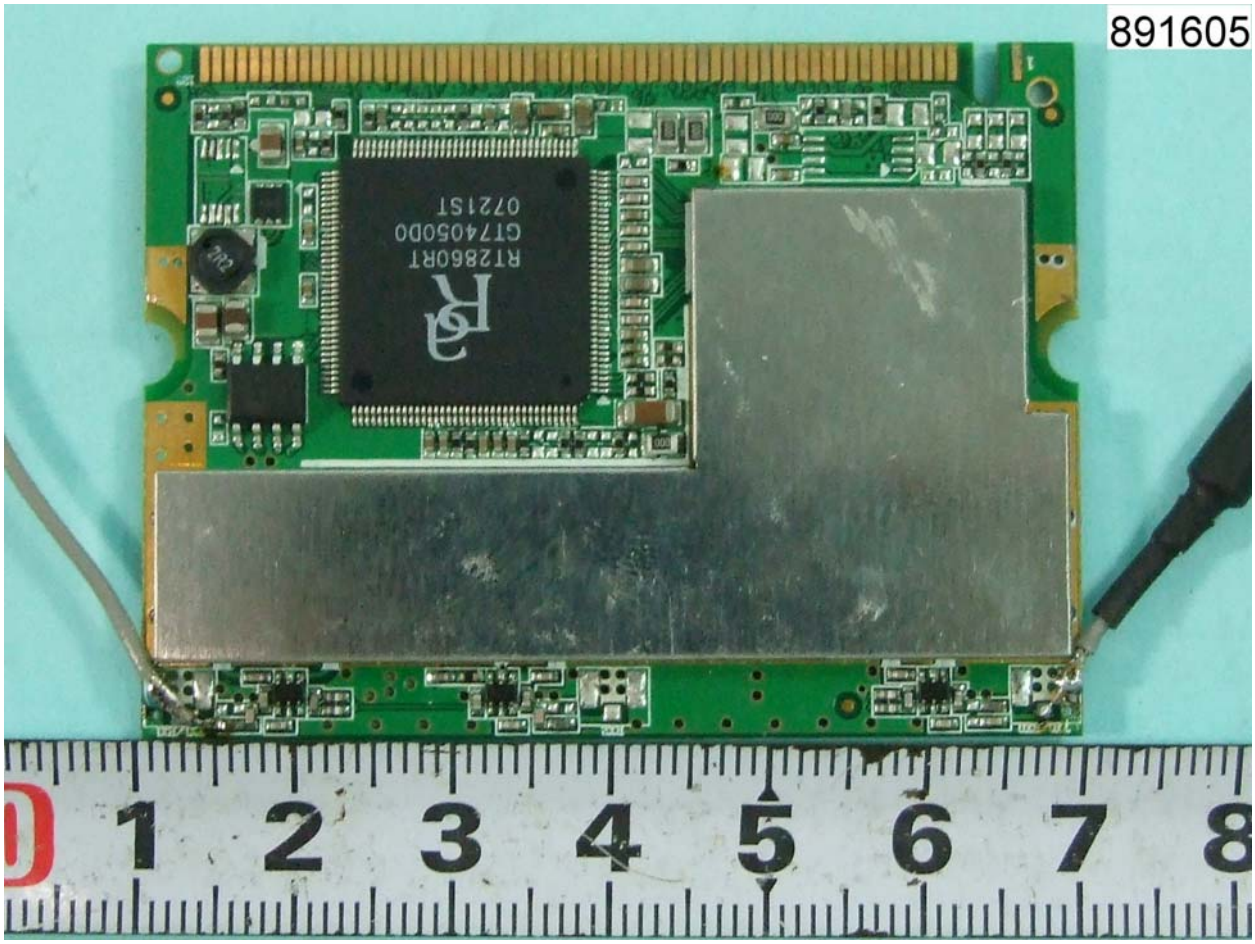

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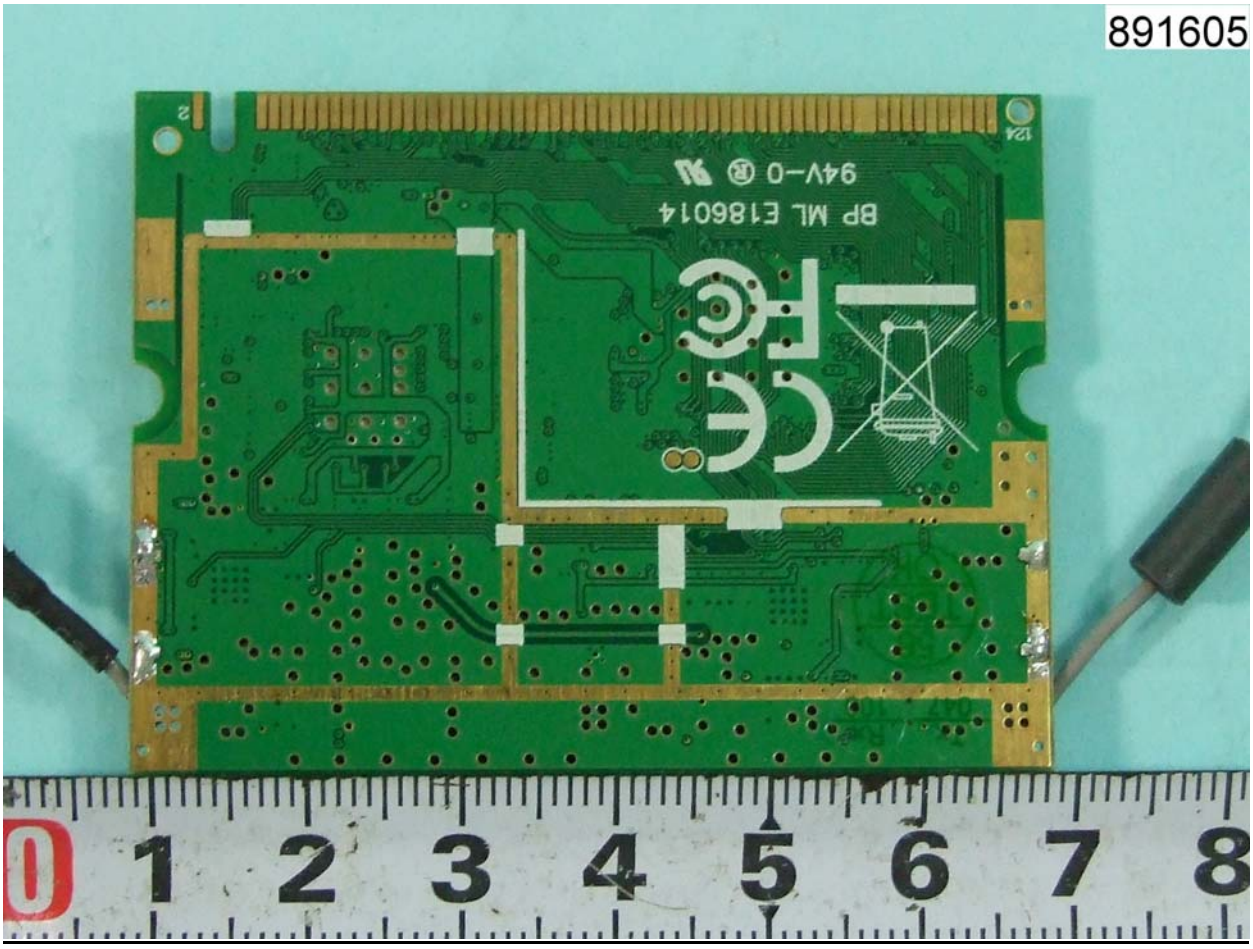

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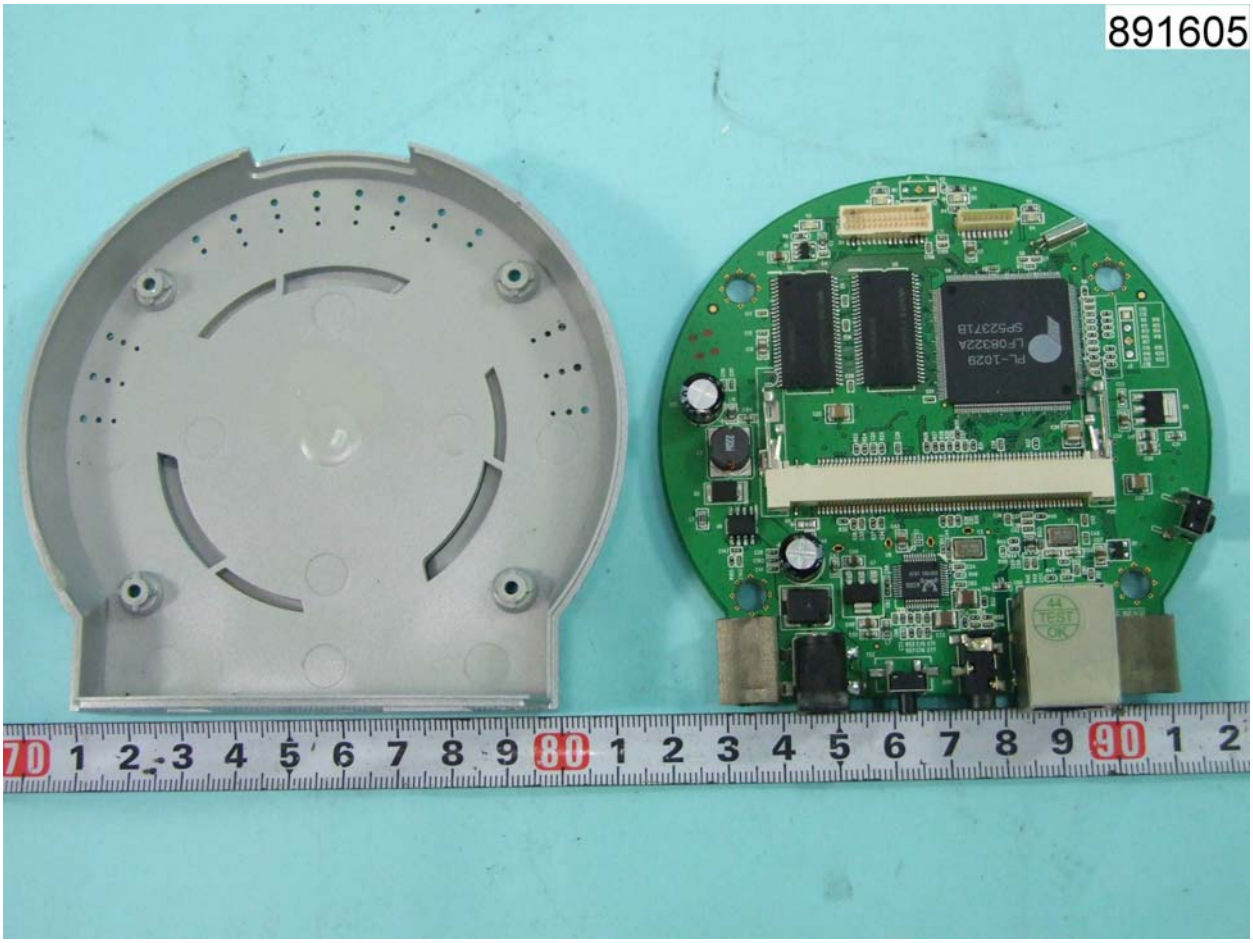

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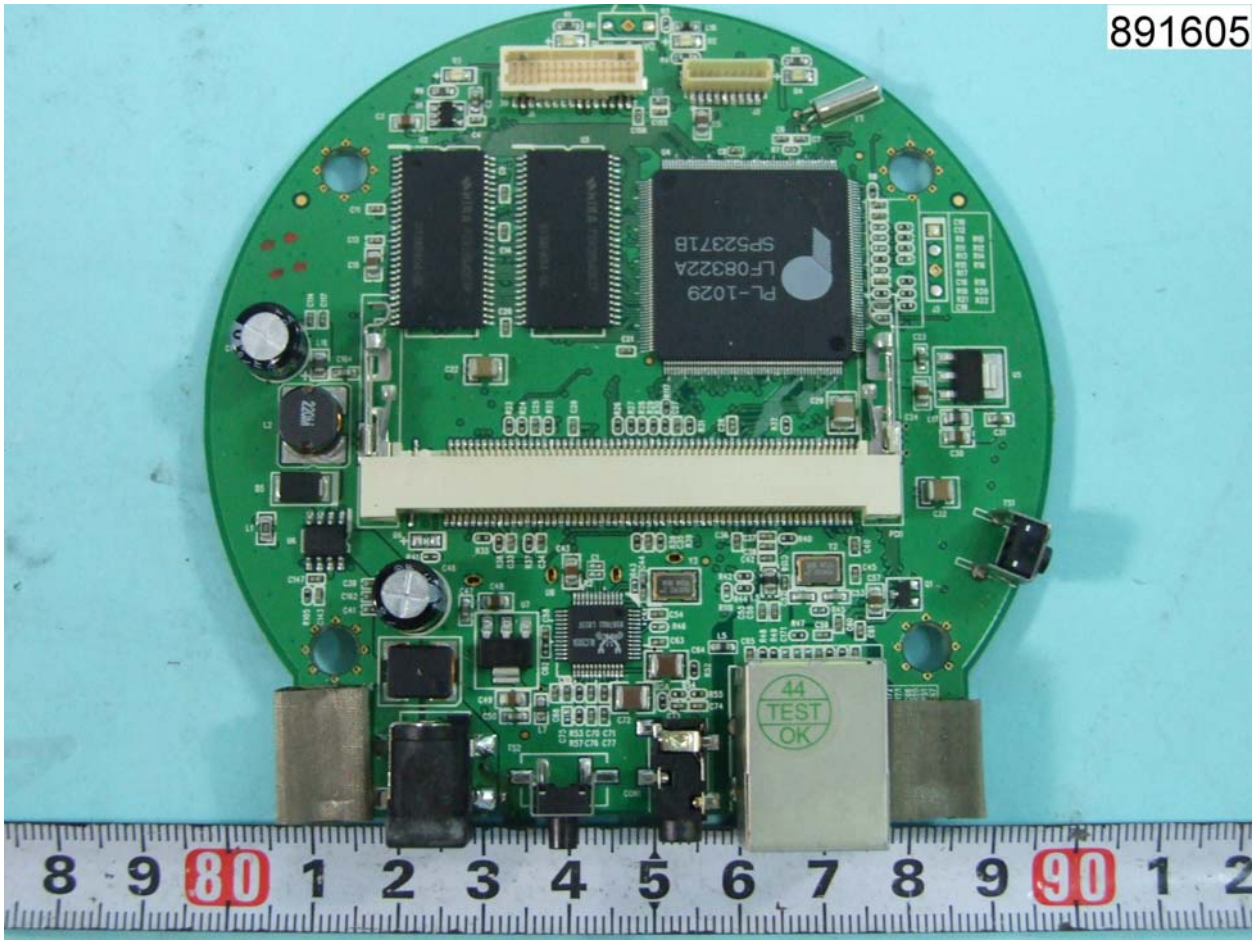

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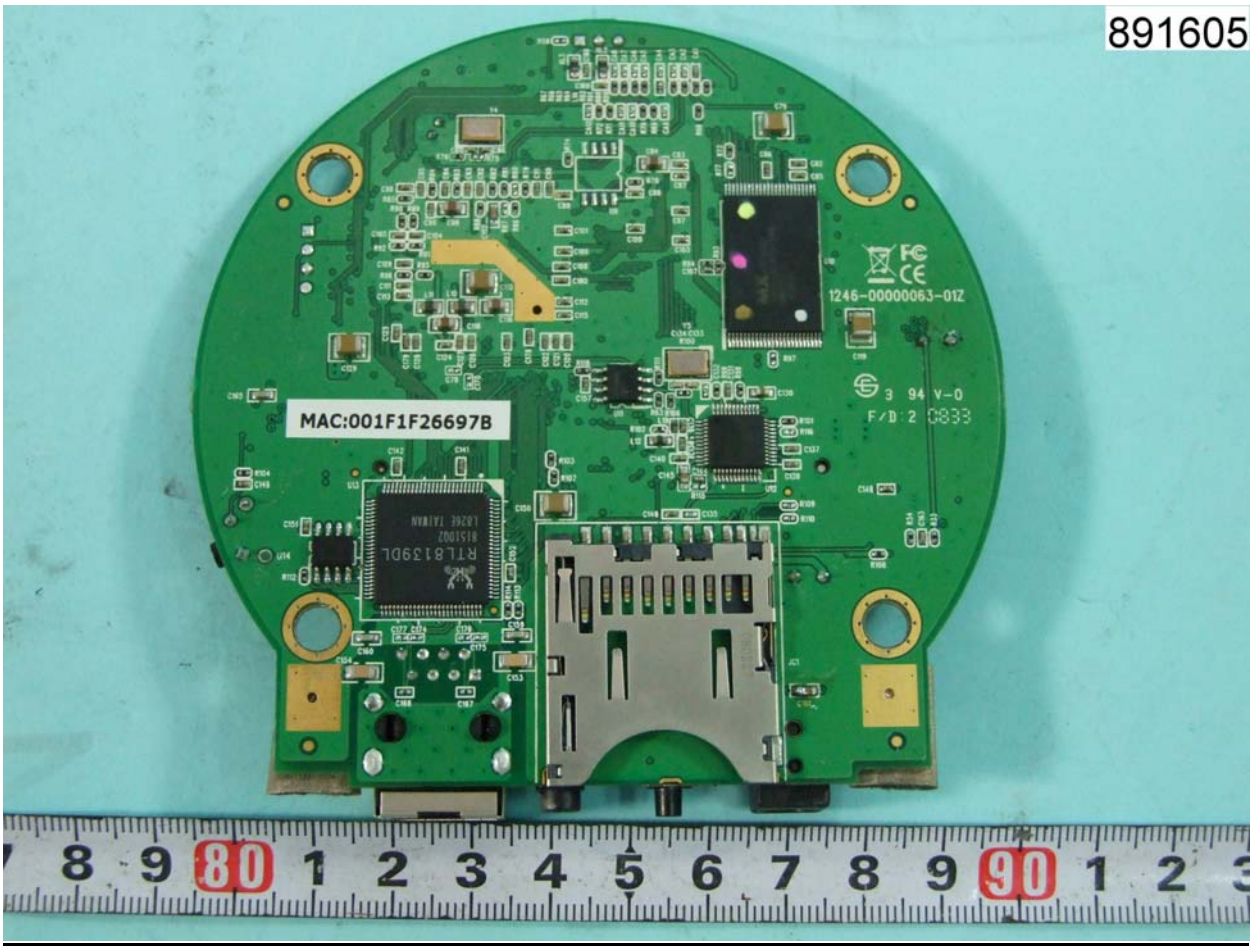

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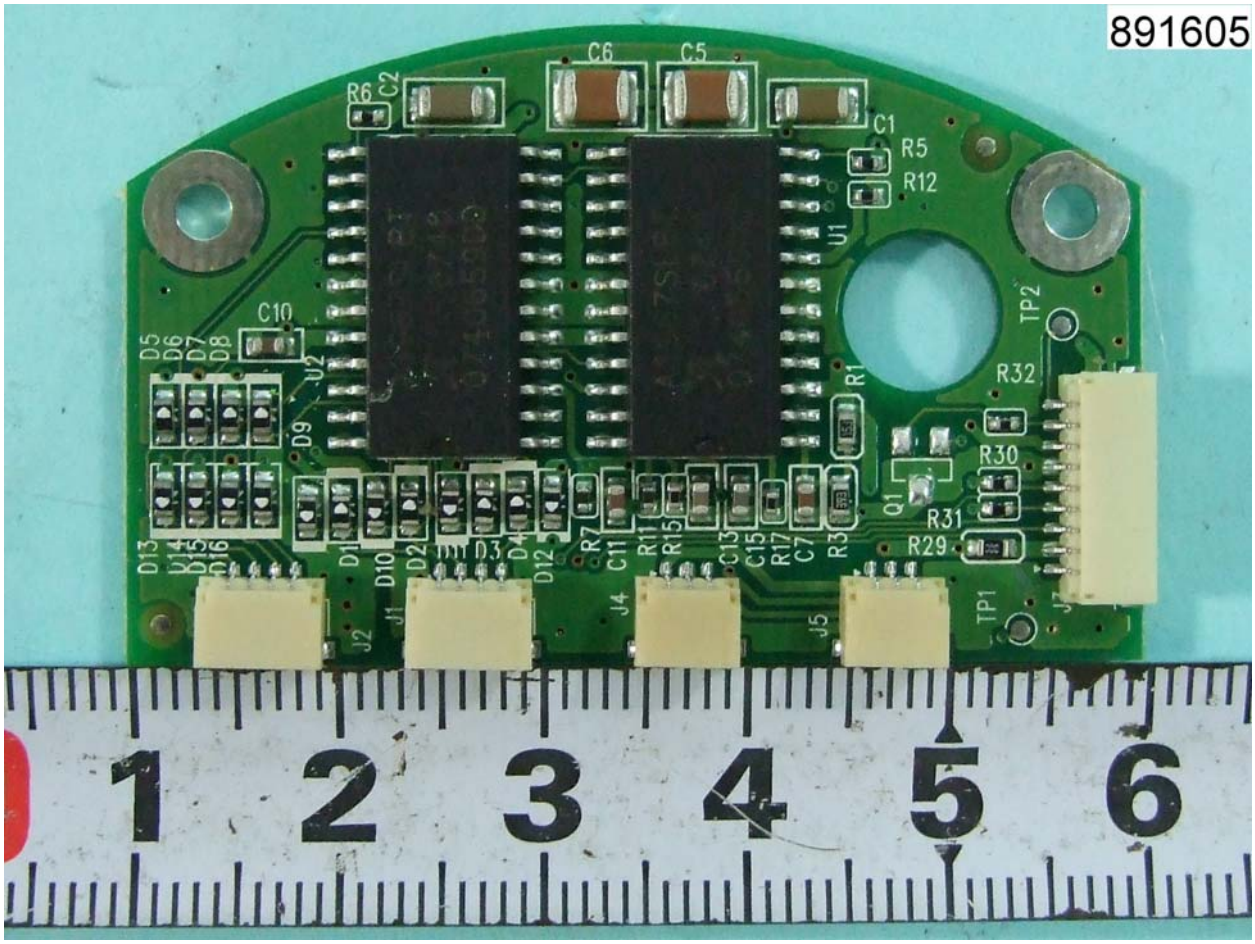

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