



TEST REPORT	
EN60950-1:2006+A11:2009+A1:20120+A12:2011	
Safety of Information Technology Equipment	
Report reference No.....	12GC0411-LVD
Test engineer (name and signature).....	Oric Huang <i>Oric Huang</i>
Reviewer (name and signature).....	Winnie Chiu <i>Winnie Chiu</i>
Date of issue	Mar.03, 2012
Contents.....	42 pages of test report
Date received.....	Mar.03, 2012
Date tested.....	May.02- May.04, 2012
Testing laboratory.....	Global Compliance Co., Ltd.
Address.....	6F-2, No.11, Jingguo Rd., Taoyuan City, Taoyuan 330, Taiwan (R.O.C.)
Applicant.....	VIVOTEK INC.
Address.....	6F, No.192, Lien-Cheng Rd., Chung-Ho , New Taipei City, 235, Taiwan, R.O.C.
Manufacturer.....	VIVOTEK INC.
Standard	EN60950-1:2006+A11:2009+A1:20120+A12:2011
Test procedure for.....	CE-LVD Verification
Type of test object.....	Indoor Dome Network Camera
Trademark.....	VIVOTEK
Model/type reference.....	FD8136-FXX(XX=0-9,A-Z,blank for different Lens specification)
Rating.....	48VDC (Supplied by POE)



Test item particulars:	
Operating condition.....:	Continuous
Tested for IT power systems.....:	No
IT testing, phase-phase voltage(V).....:	N/A
Class of equipment.....:	Class III
Equipment mobility.....:	Fixed
Mass of the equipment.....:	Approx. 0.15kg
Protection against ingress of water.....:	IPX0
Test case verdicts :	
Test case does not apply to the test object.	N(N/A)
Test object does meet the requirement.....:	P(Pass)
Test object does not meet the requirement.	F(Fail)
General remarks:	
This report shall not be reproduced except in full without the written approval of the testing laboratory.	
The test results presented in this report relate only to the item(s) tested	
The tested specimen(s) shall be preserved for thirty days from the date issued.	



Copy of Marking Plate :





EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
1.5	Components		P
1.5.1	Comply with IEC 60950 or relevant component standard	Components that were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC component standards. (see appended table 1.5.1)	P
1.5.2	Evaluation and testing components	Components that were 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.	P
1.5.3	Thermal controls		N
1.5.4	Transformers		N
1.5.5	Interconnecting cables	Interconnecting o/p cable to other device is carrying only SELV on an energy level below 240VA. Except the insulation material, there are no further requirements to the o/p interconnecting cable.	P
1.5.6	Capacitors in primary circuits		N
1.5.7	Resistors bridging insulation		N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
1.5.7.4	Accessible parts		N
1.5.8	Components in equipment for IT power systems		N
1.5.9	Surge suppressors		N
1.5.9.1	General		N
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of Supplementary, double or reinforced insulation by a VDR		N

1.6	Power interface		P
1.6.1	AC power distribution systems		N
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		N
1.6.4	Neutral conductor		N

1.7	Marking and instructions		P
1.7.1	Power rating	Supplied by "Power-Over-Ethernet".	P
	Rated voltage(s) or voltage range(s) (V)	48Vdc (POE) (not direct connect to the mains supply)	P



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
	Symbol for nature of supply for d.c.		N
	Rated frequency or frequency range (Hz)		N
	Rated current (A)	48Vdc (POE) (not direct connect to the mains supply)	P
	Manufacturer's name/Trade mark	VIVOTEK	P
	Type/Model Number	FD8136	P
	Symbol of Class II		N
	Other symbols	Additional symbols or markings do not cause misunderstanding	P
	Certification marks	CE marking	P
1.7.2	Safety instructions	The user's manual contains information for operation, installation and technical.	P
1.7.2.1	General	The user's manual contains information for operation, installation and technical.	P
1.7.2.2	Disconnect devices		N
1.7.2.3	Overcurrent protective device		N
1.7.2.4	IT power distribution system		N
1.7.2.5	Operator access with a tool		N
1.7.2.6	Ozone		N
1.7.3	Short duty cycles		N
1.7.4	Supply voltage adjustment		N
	Methods and means of adjustment ; reference to installation instructions		N
1.7.5	Power outlets on the equipment		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
1.7.6	Fuse identification(marking, special fusing characteristics, cross-reference)		N
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals		N
1.7.7.2	Terminal for a.c. mains supply conductors		N
1.7.7.3	Terminal for d.c. mains supply conductors		N
1.7.8	Controls and indicators		N
1.7.8.1	Identification, location and marking		N
1.7.8.2	Colours	The colors used for LED are indicating	P
1.7.8.3	Symbols according to IEC 60417		N
1.7.8.4	Markings using figures		N
1.7.9	Isolation of multiple power sources		N
1.7.10	IT power system		N
1.7.11	Thermostats and other regulating devices		N
1.7.12	Removable parts		N
1.7.13	Replaceable batteries		N
	Language		--
1.7.14	Equipment for restricted access locations		N

2	Protection from hazards		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		N
2.1.1.1	Access to energized parts		P
	Test by inspection		N
	Test with test finger(Figure 2A)		N
	Test with test pin(Figure 2B)		N
	Test with test probe(Figure 2C)		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
2.1.1.2	Battery compartments		N
2.1.1.3	Access to ELV wiring		N
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation(mm)		---
2.1.1.4	Access to hazardous voltage circuit wiring		N
2.1.1.5	Energy hazards	No energy hazards in operator access area. The connectors on the backside of the equipment below 240VA.	P
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in the primary circuit		N
	Measured voltage(V) ; time-constant(s)		--
2.1.1.8	Energy hazard-d.c. mains supply		N
	Capacitor connected to the d.c. mains supply		--
	Internal battery connected to the d.c. mains supply		--
2.1.1.9	Audio amplifiers		N
2.1.2	Protection in service access areas		N
2.1.3	Protection in restricted access locations		N

2.2	SELV circuits		P
2.2.1	General requirements	SELV circuits are maintained after single fault condition. Insulating materials used are solid or laminated, having adequate thickness and adequate creepage distance over their surfaces and there are adequate clearances through air.	P
2.2.2	Voltage under normal conditions (V)	Between any SELV circuits 42.4V peak or 60Vdc are not exceeded.	P



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
2.2.3	Voltage under fault conditions (V)	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120Vdc were not exceeded for a period longer than 0.2s.	P
2.2.3.1	Separation by double or reinforced insulation (method 1)		N
2.2.3.2	Separation by earthed screen (method 2)		N
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N
2.2.4	Connection of SELV circuits to other circuits	Be considered to comply with the requirement of clause 2.2.2 and 2.2.3. No direct connection between SELV and primary circuit.	P

2.3	TNV circuits		N
2.3.1	Limits		N
	Type of TNV circuits		N
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed		---
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed		--
2.3.5	Test for operating voltages generated externally		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict

2.4	Limited current circuits		N
2.4.1	General requirements		N
2.4.2	Limit values		N
	Frequency (Hz)		N
	Measured current (mA)		N
	Measured voltage (V)		N
	Measured circuit capacitance (Nf or μ F)		N
2.4.3	Connection of limited current circuits to other circuits		N

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

2.6	Provisions for earthing and bonding Class III equipment.		N
2.6.1	Protective earthing		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		--
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		N
2.6.3.4	Resistance of earthing conductors and their terminations, resistance (Ω), voltage drop (V), test current (A), duration (min)		N
2.6.3.5	Colour of insulation		N
2.6.4	Terminals		N
2.6.4.1	Protective earthing and bonding terminals		N
	Rated current (A), type and nominal thread diameter (mm)		--
2.6.4.2	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N

2.7	Over current and earth fault protection in primary circuits		N
2.7.1	Basic requirements		N
	Instruction when protection relies on building installation		N
2.7.2	Faults not covered in 5.3		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices		N
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel		N

2.8	Safety interlocks		N
2.8.1	General principles		N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
2.8.5	Interlocks with moving parts		N
2.8.6	Overriding an interlock		N
2.8.7	Switches and relays		N
2.8.7.1	Contact gaps (mm)		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test (V)		N
2.8.8	Mechanical actuators		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
2.9	Electrical insulation		N
2.9.1	Properties of insulating materials		N
2.9.2	Humidity conditioning		N
	Relative humidity (%), temperature (°C)		--
2.9.3	Grade of insulation		N
2.9.4	Separation from hazardous voltage		N
	Method (s) used		--

2.10	Clearance, creepage distances and distances through insulation		N
2.10.1	General		N
2.10.1.1	Frequency		N
2.10.1.2	Pollution degrees		N
2.10.1.3	Reduced values for functional insulation		N
2.10.1.4	Intervening unconnected conductive parts		N
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating Starting pulses		N
2.10.2	Determination of working voltage		N
2.10.2.1	General		N
2.10.2.2	RMS working voltage		N
2.10.2.3	Peak working voltage		N
2.10.3	Clearances		N
2.10.3.1	General		N
2.10.3.2	Main Transient voltage		N
	a)AC mains supply		N
	b)Earthed d.c. mains supplies		N
	c)Unearthed d.c. mains supply		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
	d)Battery operation		N
2.10.3.3	Clearance in secondary circuits		N
2.10.3.4	Clearance in secondary circuits		N
2.10.3.5	Clearance in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply		N
2.10.3.7	Transients from d.c. mains supply		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N
2.10.3.9	Measurement of transient voltage levels		N
	a)Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b)Transients from a telecommunication network		N
2.10.4	Creepage distance		N
2.10.4.1	General		N
2.10.4.2	Material group and comparative tracking index		N
	CTI tests		--
2.10.4.3	Minimum creepage distances		N
2.10.5	Solid insulation		N
2.10.5.1	General		N
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5	Cemented joints		N
2.10.5.6	Thin sheet material-General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (PCB)		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material-standard test procedure		N
	Electric strength test		N
2.10.5.10	Thin sheet material-alternative test procedure		N
	Electric strength test		N
2.10.5.11	Insulation in wound components		N
2.10.5.12	Wire in wound components		N
	Working voltage		N
	a)basic insulation not under stress		N
	b)basic supplementary, reinforced insulation		N
	c)Compliance with Annex U		N
	Tow wires in contact inside wound component ; angle between 45° and 90°		N
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		--
	Routine test		--
2.10.5.14	Additional insulation in wound components		N
	Working voltage		N
	-basic insulation not under stress		N
	-supplementary, reinforced insulation		N
2.10.6	Coated printed boards		N
2.10.6.1	Uncoated printed boards		N
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
	Distance through insulation		---
	Number of insulation layers (PCS)		--
2.10.7	Component external terminations		N
2.10.8	Test on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulation compound		N
2.10.11	Test for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1.1	Current rating and over current protection	All internal wires are UL recognized wiring which is PVC insulated, rated VW-1, min. 80 °C, 300V. Internal wiring is PVC insulated; the wiring gauge is suitable for current intended to be carried.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges which could damage the insulation	P
3.1.3	Securing of internal wiring	The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation.	P



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
3.1.4	Insulation of conductors		N
3.1.5	Beads and ceramic insulators		N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulation materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws		N
3.1.9	Termination of conductors	The connection of conductors is soldered, crimped, push-in and similar means.	P
3.1.10	Sleeving on wiring		N

3.2	Connection to a.c. mains supply or d.c. mains supply Class III equipment		N
3.2.1	Means of connection		N
3.2.1.1	Connection to an a.c. mains supply		N
3.2.1.2	Connection to an d.c. mains supply		N
3.2.2	Multiple supply connections		N
	Number of conductors, diameter (mm) of cable and conduits		--
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter (mm) of cable and conduits		--
3.2.4	Appliance inlets		N
3.2.5	Power supply cords		N
3.2.5.1	AC power supply cords		N
	Type		---
	Rated current (A), cross-sectional area (mm ²), AWG		---
3.2.5.2	DC power supply cords		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N)		---
	Longitudinal displacement (mm)		---
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g)		---
	Radius of curvature of cord (mm)		---
3.2.9	Supply wiring space		N

3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals		N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), type and nominal thread diameter (mm)		--
3.3.5	Wiring terminal sizes		N
	Rated current (A), type and nominal thread diameter (mm)		--
3.3.6	Wiring terminals design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Standard wire		N

3.4	Disconnection from the mains supply		N
3.4.1	General requirement	--	N
3.4.2	Disconnect devices	--	N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
3.4.3	Permanently connected equipment	--	N
3.4.4	Parts which remain energized	--	N
3.4.5	Switches in flexible cords	--	N
3.4.6	Number of poles-Single-phase and d.c. equipment	--	N
3.4.7	Number of poles -Three-phase equipment	--	N
3.4.8	Switches as disconnect devices	--	N
3.4.9	Plugs as disconnect devices	--	N
3.4.10	Interconnected equipment	--	N
3.4.11	Multiple power source	--	N

3.5	Interconnection of equipment		P
3.5.1	General requirements	Only be connected to other SELV circuits.	P
3.5.2	Types of interconnection circuits	Only be connected to other SELV circuits.	P
3.5.3	ELV circuits as interconnection circuits		N
3.5.4	Data ports for additional equipment		N

4	Physical requirements		N
4.1	Stability		N
4.1.1	Angle of 10°		N

4.2	Mechanical strength		P
4.2.1	General		P
4.2.2	Steady force test, 10N	10N applied to components.	P
4.2.3	Steady force test, 30N	No internal enclosure.	N
4.2.4	Steady force test, 250N	250N applied to external enclosure.	P



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test		N
4.2.7	Stress relief		N
4.2.8	Cathode ray tubes		---
	Picture tube separately certified		N
	Picture tubes > 16 cm intrinsically protected		N
	Non-intrinsically protected tubes > 16 m used with protective screen		N
	Intrinsically protected tubes : tests on 12 samples		N
	Samples subject to ageing : 6		N
	Samples subject to implosion test : 6		N
	Samples subject to mechanical strength test (steel ball) : 6		N
	Non-intrinsically protected tubes tested		N
4.2.9	High pressure lamps		N
4.2.10	Wall or ceiling mounted equipment		N
	force (N)		N

4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners judged to be sufficiently well rounded.	P
4.3.2	Handles and manual controls; force (N)		N
4.3.3	Adjustable controls		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
4.3.4	Securing of parts	No loosening of parts impairing clearance or creepage distance is likely to occur.	P
4.3.5	Connection of plugs and sockets		N
4.3.6	Direct plug-In equipment		N
	Torque		--
	Compliance with the relevant mains plug standard		--
4.3.7	Heating elements in earthed equipment		N
4.3.8	Batteries		N
	-Overcharging of a rechargeable battery		--
	-Unintentional charging of a non-rechargeable battery		--
	-Reverse charging of a rechargeable battery		--
	Excessive discharging rate for any battery		--
4.3.9	Oil and grease		N
4.3.10	Dust, powders, liquids and gases		N
4.3.11	Containers for liquids or gases		N
4.3.12	Flammable liquids		N
	Quantity of liquid (l)		--
	Flash point (°C)		--
4.3.13	Radiation; type of radiation		N
4.3.13.1	General		N
4.3.13.2	Ionizing radiation		N
	Measured radiation (pA/kg)		--
	Measured High-voltage (kV)		--
	Measured focus voltage (kV)		--
	CRT markings		--



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N
	Part, property, retention after test, flammability classification		--
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N
4.3.13.5	Laser (including LEDs)	LED lamp for indicator light	P
	Laser class		--
4.3.13.6	Other types		N

4.4	Protection against hazardous moving parts		N
4.4.1	General		N
4.4.2	Protection in operator access areas		N
4.4.3	Protection in restricted access locations		N
4.4.4	Protection in service access areas		N

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature rise	See appended table 4.5.1	P
	Normal load condition per Annex L	--	P
4.5.3	Temperature limits for materials	See appended table 4.5.1	P
4.5.4	Touch temperature limits	See appended table 4.5.1	P
4.5.5	Resistance to abnormal heat		N

4.6	Openings in enclosures		N
4.6.1	Top and side openings		N
	Dimensions (mm)		--
4.6.2	Bottom of fire enclosures		N
	Construction of the bottom		--



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.4.1	Constructional design measures		N
	Dimensions(mm)		N
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metalized parts		N
4.6.5	Adhesives for constructional purposes		N
	Conditioning temperature (°C),time (weeks)		N

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		N
	Method 1, selection and application of components wiring and materials		--
	Method 2, application of all of simulated fault condition tests		--
4.7.2	Conditions for a fire enclosure		N
4.7.2.1	Parts requiring a fire enclosure		N
4.7.2.2	Parts no requiring a fire enclosure	Connectors in secondary circuits supplied by limited power source complying with 2.5 and mounted on materials of flammability class V-1.	P
4.7.3	Materials	See below.	P
4.7.3.1	General	PCB rated V-1 or better.	P
4.7.3.2	Materials for fire enclosures		N
4.7.3.3	Materials for components and other parts outside fire enclosures		N
4.7.3.4	Materials for components and other parts inside fire enclosures.	Internal components except small parts are V-2 or better.	P



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
4.7.3.5	Materials for air filter assemblies		N
4.7.3.6	Materials used in high-components	No high voltage components.	N

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		N
5.1	Touch current and protective conductor current	Class III equipment.	N
5.1.1	General		N
5.1.2	Equipment under test (EUT)		N
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit		N
5.1.4	Application of measuring instrument		N
5.1.5	Test procedure		N
5.1.6	Test measurements		N
	Test voltage (V)		---
	Measured current		---
	Max. allowed current (mA)	-	---
5.1.7	Equipment with touch current		N
	Exceeding 3.5 Ma		---
5.1.8	Touch currents to and from telecommunication networks.		N
5.1.8.1	Limitation of the touch current to a telecommunication network		N
	Test voltage (V)		---
	Measured current (Ma)		---
	Max. allowed current (Ma)		---



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
5.1.8.2	Summation of touch current from telecommunication networks		N
5.2	Electric strength		N
5.2.1	General		N
5.2.2	Test procedure		N
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation		N
5.3.2	Motors		N
5.3.3	Transformers		N
5.3.4	Functional insulation	Components mounted on V-0 material.	P
5.3.5	Electromechanical components		N
5.3.6	Simulation of faults		N
5.3.7	Unattended equipment		N
5.3.8	Compliance criteria for abnormal operating and fault conditions		N
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire, no emit and no shrinkage, distortion or loosening if any enclosure part was noticeable on the equipment.	P
5.3.9.1	During the tests	Ditto	P
5.3.9.2	After the tests	Ditto	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service personnel, and users of other equipment connected to the network, from hazards in the equipment.		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
6.1.1	Protection from hazardous voltages	Only SELV circuit.	N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements	Only SELV circuit.	N
	Test voltage (V)		---
	Current in the test circuit (mA)		---
6.1.2.2	Exclusions		N

6.2	Protection of equipment users from over voltages on telecommunication networks		N
6.2.1	Separation requirements	Only SELV circuit.	N
6.2.2	Electric strength test procedure	See clause 6.2.2.2	N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test	(See appended table 6.2.2.2)	N
6.2.2.3	Compliance criteria	During the tests of 6.2.2.2 There shall be no breakdown of insulation.	N

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

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
---	------------------------------------------	--	---

7.1	Protection of cable distribution system service personnel, and users of other equipment connected to the system, from hazards voltage in the equipment.		N
-----	---------------------------------------------------------------------------------------------------------------------------------------------------------	--	---

7.2	Protection of equipment users from over voltages on the cable distribution system		N
-----	-----------------------------------------------------------------------------------	--	---



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
7.3	Insulation between primary circuits and cable distribution systems		N
7.3.1	General		N
7.3.2	Voltage surge test	Between accessible parts of terminal to L/N of power Adaptor and have been tested and passed.	N
7.3.3	Impulse test		N

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
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.1.1	Samples, material		N
	Wall thickness (mm)		---
A.1.2	Conditioning of samples; temperature (°C)		N
A.1.3	Mounting of samples		N
A.1.4	Test flame		N
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	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.		N
A.2.1	Samples, material		---
	Wall thickness (mm)		---
A.2.6	Compliance criteria		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
	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
	Sample 1 burning time (s)		---
	Sample 2 burning time (s)		---
	Sample 3 burning time (s)		---
A.3	High current arcing ignition test		N
A.3.1	Samples, material		---
	Wall thickness (mm)		---
A.3.5	Compliance criteria		N
	Sample 1 number of arcs to ignition (PCS)		---
	Sample 2 number of arcs to ignition (PCS)		---
	Sample 3 number of arcs to ignition(PCS)		---
	Sample 4 number of arcs to ignition (PCS)		---
	Sample 5 number of arcs to ignition(PCS)		---
A.4	Hot wire ignition test		N
A.4.1	Samples, material		---
	Wall thickness (mm)		---
A.4.5	Compliance criteria		N
	Sample 1 ignition time (s)		---
	Sample 2 ignition time (s)		---
	Sample 3 ignition time (s)		---
	Sample 4 ignition time (s)		---
	Sample 5 ignition time (s)		---
A.5	Hot flaming oil test		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
A.6	Flammability tests for classifying materials V-0, V-1 or V-2		N
A.6.1	Samples, material		---
	Wall thickness (mm)		---
A.6.5	Compliance criteria		N
A.6.6	Permitted retest		N
A.7	Flammability tests for classifying foamed materials HF-1, HF-2 or HFB		N
A.7.1	Sample, material		---
	Wall thickness (mm)		---
A.7.4	Compliance criteria		N
A.7.5	Compliance criteria, HF-2		N
A.7.6	Compliance criteria, HF-1		N
A.7.7	Compliance criteria, HBF		N
A.7.8	Permitted retest, HF-1 or HF-2		N
A.7.9	Permitted retest, HBF		N
A.8	Flammability test for classifying materials HB		N
A.8.1	Samples, material		---
	Samples thickness (mm)		---
A.8.2	Conditioning of samples; temperature (°C)		N
A.8.4	Test procedure		N
A.8.5	Compliance criteria		N
A.8.6	Permitted retest		N
A.9	Flammability test for classifying materials 5V		N
A.9.1	Samples, material		---
	Sample thickness (mm)		---
A.9.4	Test procedure, test bare		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
A.9.5	Test procedure, test plaques		N
A.9.6	Compliance criteria		N
A.9.7	Permitted retest		N
A.10	Stress relief conditioning		N
	Temperature (°C)		---

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS		N
B.1	General requirements		N
	Position		---
	Manufacturer		---
	Type		---
	Rated values		---
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)		---
	Electric strength test; test voltage (V)		---
B.6	Running overload test for DC motors in secondary circuits		N
B.7	Locked-rotor overload test for DC motors in secondary circuits		N
B.7.1	Test procedure		N
B.7.2	Alternative test procedure; test time (h)		N
B.7.3	Electric strength test		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
B.10	Test for series motors		N
	Operating voltage (V)		---
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N
	Position		---
	Manufacturer		---
	Type		---
	Rated values		---
C.1	Overload test		---
C.2	Insulation		---
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS		N
D.1	Measuring instrument		N
D.2	Alternative measuring instrument		N
E	ANNEX E, TEMPERATURE RISE OF A WINDING Thermocouple method used.		N
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES Considered.		N
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES The alternative method is not considered.		N
G.1	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.3	Determination of telecommunication network transient voltage (V)		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
G.4	Determination of required withstand voltage (V)		N
G.5	Measurement of transient levels (V)		N
G.6	Determination of minimum clearances		N

H	ANNEX, IONIZING RADIATION		N
	Ionizing radiation		---
	Measured radiation (mr/h)		---
	Measured high voltage (KV)		---
	Measured focus voltage (KV)		---
	CRT markings		---

J	ANNEX, TABLE OF ELECTROCHEMICAL POTENTIALS		N
	Metal used		---

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

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		P
L.1	Typewriters		N
L.2	Adding machines and cash registers		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
L.3	Erasers		N
L.4	Pencil Sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		N

M	ANNEX, CRITERIA FOR TELEPHONE RINGING SIGNALS		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringling signal		N
M.3.1.1	Frequency (f)		---
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
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V)		N

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

P	ANNEX P, NORMATIVE REFERENCES		P
---	-------------------------------	--	---

Q	ANNEX Q, BIBLIOGRAPHY		P
---	-----------------------	--	---



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N
R.2	Reduced clearances (see 2.10.3)		N
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N
			--
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N
	Separate test report		N
V	ANNEX V, AC POWER DISTRIBUTION SYSTEM (see 1.6.1)		N
V.1	Introduction		N
V.2	TN power distribution systems		N
V.3	TT power systems		N
V.4	IT power systems		N
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N
W.1	Touch current from electronic circuits		N
W.1.2	Earthed circuits		N



EN 60950-1 / A1:2010			
Clause	Requirement - Test	Result - Remark	Verdict
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N
Y.1	Test apparatus		N
Y.2	Mounting of test samples		N
Y.3	Carbon-arc light-exposure apparatus		N
Y.4	Xenon-arc light exposure apparatus		N



1.5.1		TABLE: list of critical components					P
No	Object/ Part No.	Manufacturer/ trademark	Type/ Model	Technical Data	Standard	Marks of conformity	
1.	Plastic Enclosure	--	--	HB or better	UL94	UL	
2.	PCB material	--	--	V-1 or better, 105°C min	UL 796	UL	

Note :

1.6.2		TABLE: electrical data (in normal conditions)					P
Fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition/status	
--	--	48	1.78	0.037	--	FD8136-F3 Maximum normal load.(supply by Adaptor)	

Supplementary information: All connectors connected and transmission data continuously.

4.5.1		TABLE: temperature rise measurements			P
Test Voltage : 48Vdc(POE)					
Operating condition		FD8136-F3 Maximum normal load. (supply by POE)			
Test position :		Measured A (°C)	Shift to 50°C	Allowed T (°C)	
1.Ambient		29.8	--	--	
2.D9		47.8	68.0	105	
3.L30		49.5	69.7	105	
4.PWB near IC		51.4	71.6	105	
5.battery body		50.1	70.3	105	
6. PWB near battery		48.0	68.2	105	
7.U2		46.6	66.8	105	
8.L334		48.4	68.6	105	
9.T1		49.5	69.7	105	
10.L1		50.5	70.7	105	
11.L29		52.5	72.7	105	
12. Enclosure near T1		44.0	64.2	95	



Model : FD8136-F3

Photo1



Photo2





Photo3



Photo4

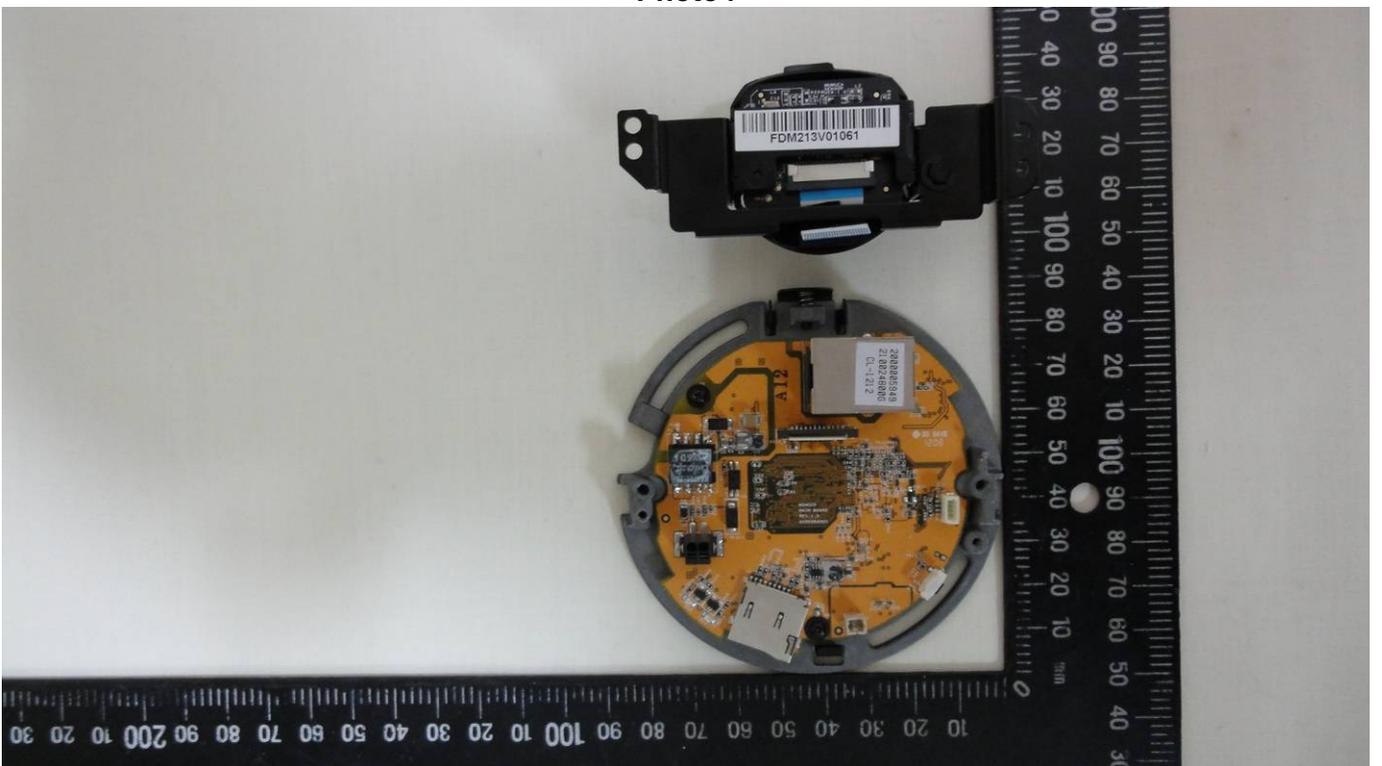




Photo5

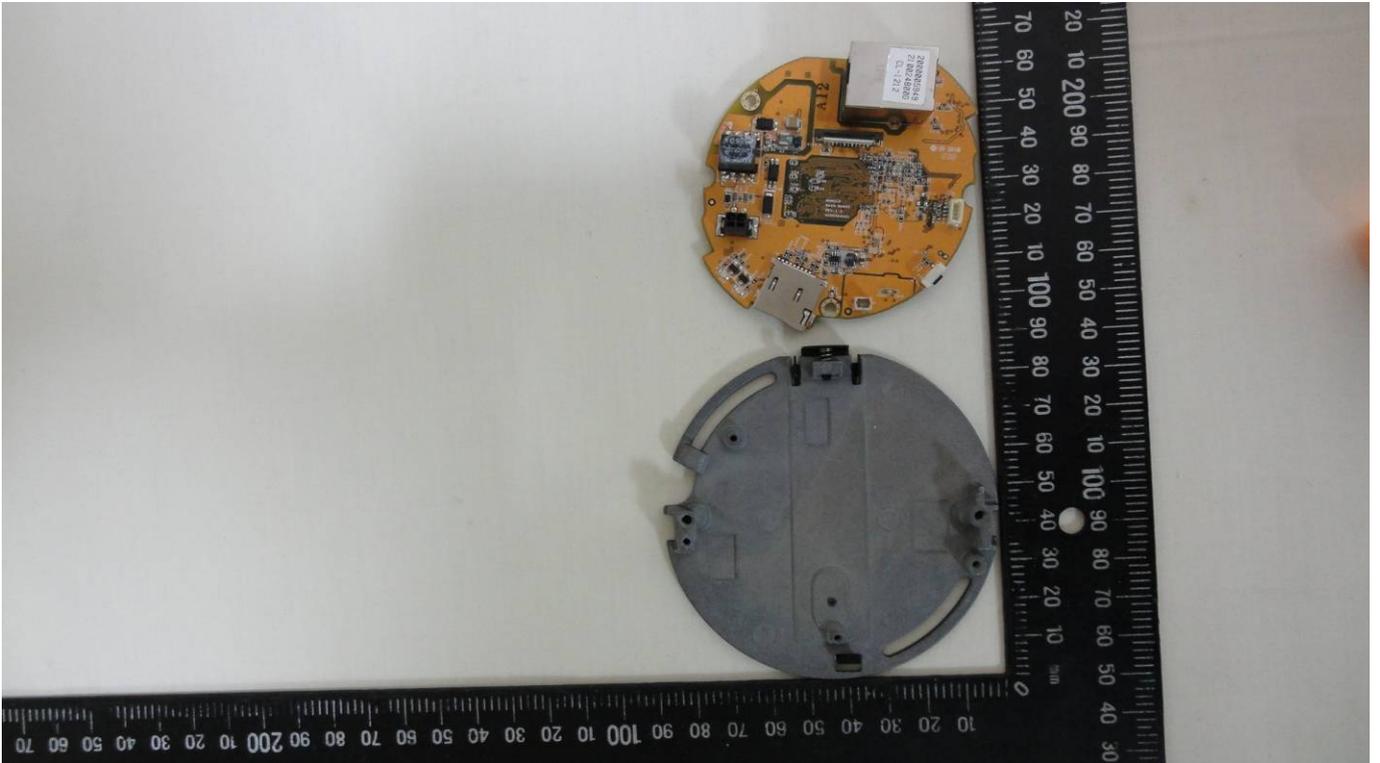


Photo6

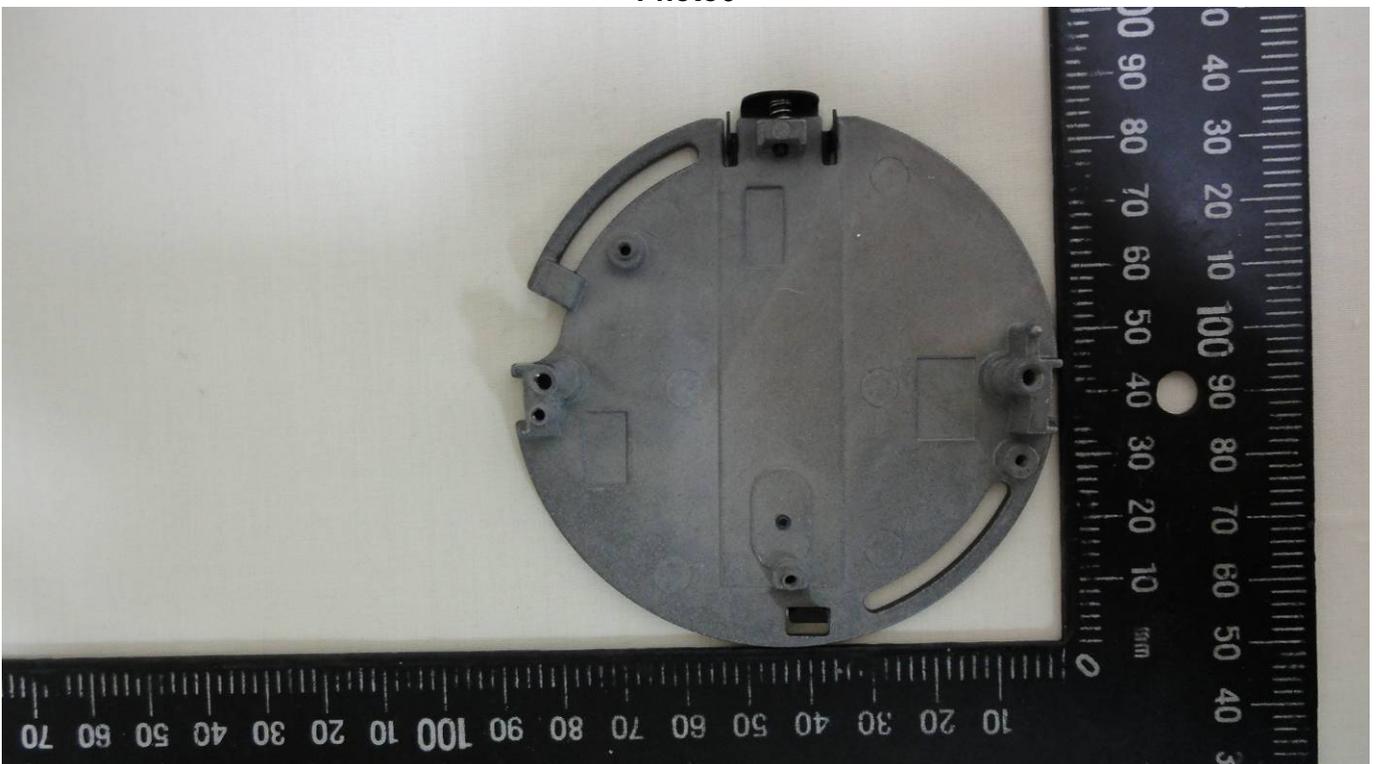


Photo7



Photo8





Photo9

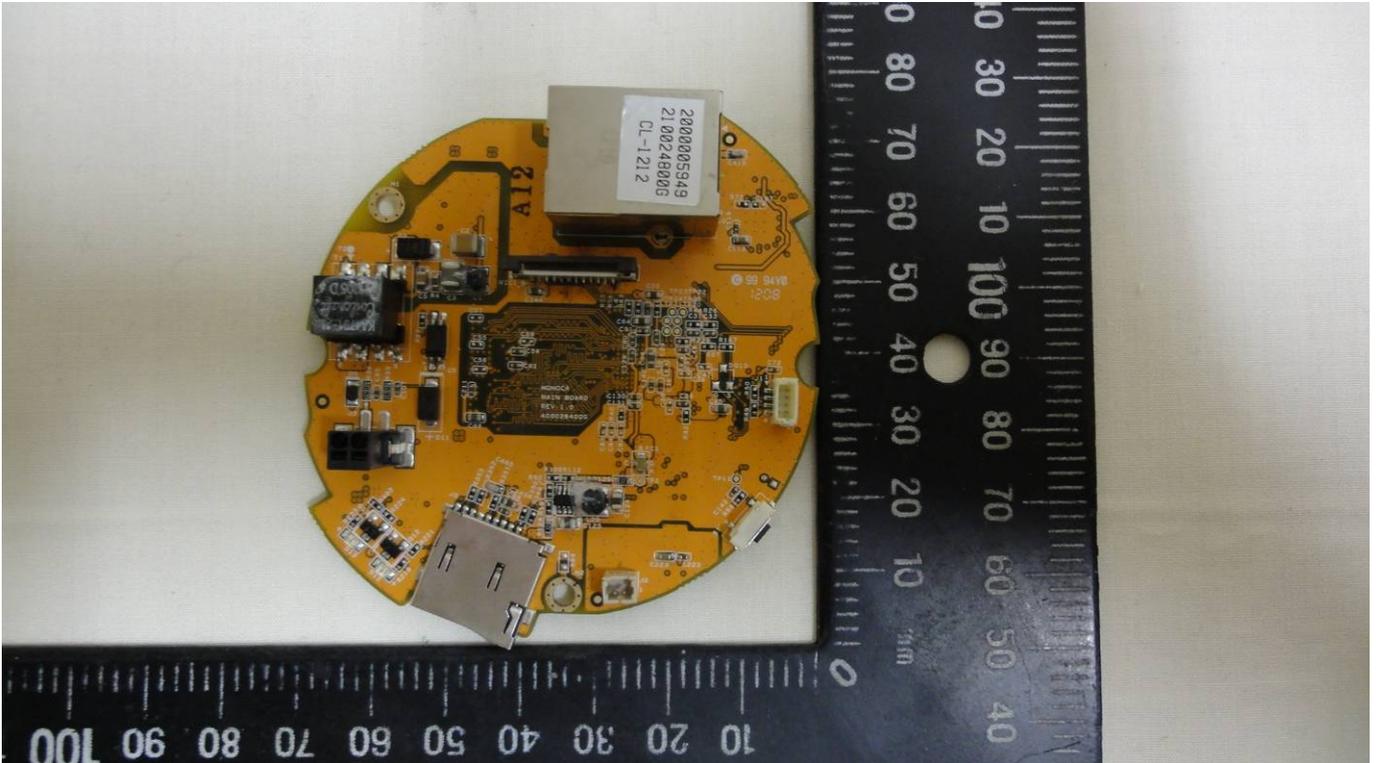


Photo10

