



JEISOON KANG
HANWHA TECHWIN CO LTD
42 SUNGJU-DONG
CHANGWON-SI GYEONGNAM 641-716 KOREA

Date: 2016/06/04
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Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue

<u>Date</u>	<u>Vol</u>	<u>Sec</u>	<u>Pages</u>	<u>Revised Date</u>
		X1	Index Page(s)	
2016/06/02	X1	A141	Cert of Compliance	
2016/06/02	X1	A141	Add New Proc/Report Sect	

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Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

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SEO File

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Product Type	Model/Type Reference	Report Reference #	Status
Digital Video Recorder	SVR-430	E158873-A2-UL	
Video Presenter	UF-80, UF-80DX, UF-80ST	E158873-A4-UL	
Video Presenter	SVP-5300N	E158873-A5-UL	
Video Presenter	SDP-900DXAN, SDP-950DXAN, SDP-950STAN	E158873-A6-UL	
Video Presenter	SDP-850, SDP-850DX	E158873-A9-UL	
Digital Video Recorder	SVR-1650, SVR-1650E, SVR-1640, SVR-1640E, SVR-950, SVR-950E and SVR-1640A	E158873-A11-UL	
Video Presenter	SDP-6500DXA	E158873-A12-UL	
HDD Extension Unit	SVS-5	E158873-A13-UL	
Video Presenter	UF-130DX	E158873-A14-UL	
Video Presenter	UF-130ST	E158873-A15-UL	
Network Video Recorder	SNR-6400, SNR-3200, SRN-3250, SRN-6450	E158873-A16-UL	
Digital Video Recorder.	SVR-480	E158873-A17-UL	Withdrawn
Video Presenter	SDP-860	E158873-A18-UL	
Digital Video Recorder.	SVR-1670	E158873-A19-UL	
UTP Power Supply Unit	SPU-400	E158873-A20-UL	Withdrawn
Digital Video Recorder.	SRD-1630D, SRD-1630, SRD-1610D, SRD-1610, SRD-830D, SRD-830, SRD-1670D, SRD-1670DC, SRD-1670, SRD-1671, SRD-870D, SRD-870DC, SRD-870, SRD-871, SRD-1650D, SRD-1650DC, SRD-1650, SRD-1651, SRD-850D, SRD-850DC, SRD-850, SRD-851, SRD-1630DCP, SRD-1630DCN, SRD-1610DCP, SRD-1610DCN, SRD-830DCP, SRD-830DCN, SRD-#####\$&@	E158873-A24-UL	
Digital Presenter	SDP-960	E158873-A40-UL	
Digital Presenter	SDP-760	E158873-A44-UL	
Network Camera	SNP-5300H*, SNP-6201H* (* is N or P: N = NTSC, P=PAL)	E158873-A45-UL	
Network Camera	SND-7011*, SND-5011*, SND-5061*, SND-7061*, SNV-5010*, SNZ-5200* (* is N or P: N = NTSC, P=PAL)	E158873-A46-UL	
Network Camera	SNP-5300*, SNP-6201* (* is N or P: N = NTSC, P=PAL)	E158873-A47-UL	
Digital Color Camera	SCP-3371H*, SCP-2371H*, SCP-2271H*, SCP-2373H*, SCP-2273H* (* is N or P: N = NTSC, P=PAL)	E158873-A48-UL	
Digital Color Camera	SCP-3371*, SCP-2371*, SCP-2271*, SCP-2373*, SCP-2273* (* is N or P: N = NTSC, P=PAL)	E158873-A49-UL	
Network Camera	SND-7082*, SND-7082F*, SNV-7082* (* is N or P: N = NTSC, P=PAL)	E158873-A50-UL	
Network Camera	SNB-7001*, SNB-5001*, SNB-3002* (* is N or P: N = NTSC, P=PAL)	E158873-A51-UL	
Network Camera	SNO-7082R* (* is N or P: N = NTSC, P=PAL)	E158873-A52-UL	
Network Camera	SNB-7002* (* is N or P: N = NTSC, P=PAL)	E158873-A53-UL	

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DIGITAL COLOR CAMERA	SCV-2010F*, SCD-1020R*, SCD-2080R*, SCD-2020R*, SCD-2010*, SCD-2010B*, SCD-2010F*, SCB-3020*, SCB-3021*, SCB-2010*, SCO-1020R* (* is N or P: N=NTSC, P=PAL)	E158873-A54-UL	
Network Camera	SNB-6004*, SNB-6003*, SNB-5004*, SNB-5003*, SNB-7004*, SNB-6005* (* is N or P: N = NTSC, P=PAL)	E158873-A55-UL	
Network Camera	SND-6084*, SND-6083*, SND-5084*, SND-5083*, SND-7084* (* is N or P: N = NTSC, P=PAL)	E158873-A56-UL	
DIGITAL COLOR CAMERA	SCD-2022*, SCD-2022R*, SCD-2042R* (* is N or P: N = NTSC, P=PAL)	E158873-A58-UL	
Digital Color Camera	SCB-2004*, SCB-2005* (* is N or P: N = NTSC, P=PAL);	E158873-A59-UL	
Digital Color Camera	SCD-2082*, SCV-2082R*, SCV-3083*, SCD-3083* (* is N or P: N = NTSC, P=PAL)	E158873-A60-UL	
Network Camera	SND-6084R*, SND-7084R*, SND-5084R* (* is N or P: N = NTSC, P=PAL)	E158873-A61-UL	
NETWORK CAMERA	SNO-6084R*, SNO-7084R* (* is N or P: N = NTSC, P=PAL)	E158873-A62-UL	
Network Camera	SNV-6084R*, SNV-6084*, SNV-5084*, SNV-7084*, SNV-7084R*, SNV-5084R* (* is N or P: N = NTSC, P=PAL)	E158873-A63-UL	
Digital Color Camera	SCO-2081R* (* is N or P: N = NTSC, P=PAL)	E158873-A64-UL	
DIGITAL COLOR CAMERA	SCB-2004*D, SCB-2005*D (* is N or P: N = NTSC, P=PAL)	E158873-A65-UL	
DIGITAL VIDEO RECORDER	SRD-1673D*, SRD-1654D*, SRD-854D*, SRD-852D*, SRD-1673*, SRD-1653*, SRD-873*, SRD-1640*, SRD-840*(* is N or P, N=NTSC / P=PAL)	E158873-A66-UL	
Network Camera	SNP-6200RH*, SCP-2370RH* (* is N or P: N=NTSC,P=PAL)	E158873-A67-UL	
Network Camera	SNV-6012M* (* is N or P: N = NTSC, P=PAL)	E158873-A68-UL	
Network Camera	SNF-7010*, SNF-7010V*, SNF-7010VM* (* is N or P: N = NTSC, P=PAL)	E158873-A69-UL	
Network Camera	SNO-6011R* (* is N or P: N = NTSC, P=PAL)	E158873-A72-UL	
Network Camera	SND-6011R* (* is N or P: N = NTSC, P=PAL)	E158873-A73-UL	
Digital Video Recorder	SRD-1680D*, SRD-880D* (*is N:NTSC / P:PAL)	E158873-A74-UL	
DIGITAL COLOR CAMERA	SCZ-2373*, SCZ-2273* (* is N or P: N = NTSC, P=PAL)	E158873-A75-UL	
NETWORK CAMERA	SCO-6081R* (* is N or P: N = NTSC, P=PAL)	E158873-A76-UL	
DIGITAL COLOR CAMERA	SCV-6081R* and SCD-6081R* (* is N or P: N = NTSC, P=PAL)	E158873-A77-UL	
NETWORK VIDEO RECORDER	SRN-4000	E158873-A78-UL	
DIGITAL COLOR CAMERA	SCD-6021* (* is N or P: N = NTSC, P=PAL)	E158873-A81-UL	
NETWORK CAMERA	SNV-6013* (* is N or P: N = NTSC, P=PAL)	E158873-A83-UL	
NETWORK CAMERA	SNB-6010*, SNB-6010A*, SNB-6011*, SNB-6010B*, SNB-6011B* (* is N or P: N = NTSC, P=PAL)	E158873-A85-UL	
NETWORK CAMERA	SNP-6320H*, SNP-5430H* (* is N or P: N = NTSC, P=PAL)	E158873-A86-UL	

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NETWORK CAMERA	SNP-6320*, SNP-5430* (* is N or P: N = NTSC, P=PAL)	E158873-A87-UL	
Network Video Recorder	SRN-472S	E158873-A88-UL	
Digital Video Recorder	SRD-1676D*, SRD-1656D*, SRD-876D* (* is N or P, N=NTSC/ P=PAL)	E158873-A89-UL	
DIGITAL COLOR CAMERA	SCB-5000* (* is N or P: N = NTSC, P=PAL)	E158873-A90-UL	
DIGITAL COLOR CAMERA	SCB-5000*D (* is N or P: N = NTSC, P=PAL)	E158873-A91-UL	
DIGITAL COLOR CAMERA	SCD-5080* (* is N or P: N = NTSC, P=PAL)	E158873-A92-UL	
DIGITAL COLOR CAMERA	SCB-5003*, SCB-5005* (* is N or P: N = NTSC, P=PAL)	E158873-A94-UL	
DIGITAL COLOR CAMERA	SCV-5082* (* is N or P: N = NTSC, P=PAL)	E158873-A95-UL	
DIGITAL COLOR CAMERA	SCD-5083*, SCD-5083R*, SCD-5082*, SCD-5083B* (* is N or P: N = NTSC, P=PAL)	E158873-A96-UL	
DIGITAL COLOR CAMERA	SCV-5083* (* is N or P: N = NTSC, P=PAL) SCV-5083R* (* is N or P: N = NTSC, P=PAL)	E158873-A97-UL	
NETWORK CAMERA	SNF-8010VM*, SNF-8010* (* is N or P: N = NTSC, P=PAL)	E158873-A98-UL	
DIGITAL COLOR CAMERA	SCD-5030*, SCD-5020* (* is N or P: N = NTSC, P=PAL)	E158873-A99-UL	
NETWORK CAMERA	SNO-5084R* (* is N or P: N = NTSC, P=PAL)	E158873-A100-UL	
DIGITAL COLOR CAMERA	SCO-5083R* (* is N or P: N = NTSC, P=PAL)	E158873-A101-UL	
NETWORK CAMERA	SNP-6321*, SNP-L6233* (* is N or P: N = NTSC, P=PAL)	E158873-A102-UL	
NETWORK CAMERA	SNP-6321H*, SNP-L6233H* (* is N or P: N = NTSC, P=PAL)	E158873-A103-UL	
DIGITAL COLOR CAMERA	SCV-5085* (* is N or P: N = NTSC, P=PAL)	E158873-A104-UL	
NETWORK CAMERA	SNB-8000* (* is N or P: N = NTSC, P=PAL)	E158873-A105-UL	
NETWORK CAMERA	SNV-8080* (* is N or P: N = NTSC, P=PAL)	E158873-A106-UL	
NETWORK CAMERA	SNZ-6320	E158873-A107-UL	
NETWORK CAMERA	SNP-6320RH*, SNP-L6233RH* (* is N or P: N=NTSC,P=PAL)	E158873-A108-UL	
NETWORK CAMERA	SNP-5321H*, SNP-L5233H* (* is N or P: N = NTSC, P=PAL)	E158873-A109-UL	
NETWORK CAMERA	SNP-5321*, SNP-L5233* (* N: NTSC / P:PAL)	E158873-A110-UL	
NETWORK CAMERA	SND-L6013R*, SND-L6013*, SND-L6012*, SND-L5013* (* is N or P: N:NTSC/ P:PAL)	E158873-A111-UL	
NETWORK CAMERA	SNO-L6083R*, SNO-L5083R* (* is N or P: N = NTSC, P=PAL)	E158873-A113-UL	
Network Video Recorder	SRN-1673S*(* is N or P)	E158873-A115-UL	
NETWORK CAMERA	SNO-L6013R* (* is N or P: N = NTSC, P=PAL)	E158873-A118-UL	
NETWORK	SND-L6083R*, SND-L5083R* (* is N or P: N =	E158873-A119-UL	

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CAMERA	NTSC, P=PAL)		
Network Video Recorder	SRN-873S* (* is N or P: N = NTSC, P=PAL)	E158873-A120-UL	
NETWORK CAMERA	SNV-L6083R*, SNV-L5083R* (* is N or P: N = NTSC, P=PAL)	E158873-A121-UL	
NETWORK CAMERA	SNB-9000* (* is N or P: N = NTSC, P=PAL)	E158873-A122-UL	
Optical PTZ Accessary	SBP-301HF	E158873-A125-UL	
Optical PTZ Accessary	SBP-300HF	E158873-A126-UL	
NETWORK CAMERA	SNV-8081R* (* is N or P: N = NTSC, P=PAL)	E158873-A127-UL	
NETWORK CAMERA	SNO-8081R* (* is N or P: N = NTSC, P=PAL)	E158873-A128-UL	
NETWORK CAMERA	SNV-6085R* (* is N or P: N = NTSC, P=PAL)	E158873-A129-UL	
DIGITAL COLOR CAMERA	SCB-6003* (* is N or P: N = NTSC, P=PAL)	E158873-A130-UL	
DIGITAL COLOR CAMERA	SCO-6023R* (* is N or P: N = NTSC, P=PAL)	E158873-A132-UL	
DIGITAL COLOR CAMERA	SCV-6083R* (* is N or P: N = NTSC, P=PAL)	E158873-A133-UL	
DIGITAL COLOR CAMERA	SCV-6023R* (* is N or P: N = NTSC, P=PAL)	E158873-A135-UL	
DIGITAL COLOR CAMERA	SCD-6023R* (* is N or P: N = NTSC, P=PAL)	E158873-A136-UL	
DIGITAL COLOR CAMERA	SCD-6083R* (* is N or P: N = NTSC, P=PAL)	E158873-A137-UL	
DIGITAL COLOR CAMERA	SCO-6083R*(* is N or P: N = NTSC, P=PAL)	E158873-A138-UL	
NETWORK CAMERA	SNV-L6014RM*, SNV-L6013R* (* is N or P: N = NTSC, P=PAL)	E158873-A139-UL	
DIGITAL COLOR CAMERA	PNO-9080R* (* is N or P: N = NTSC, P=PAL)	E158873-A140-UL	
NETWORK CAMERA	PNV-9080R* (* is N or P: N = NTSC, P=PAL)	E158873-A141-UL	
NETWORK CAMERA	PND-9080R* (* is N or P: N = NTSC, P=PAL)	E158873-A142-UL	
Digital Video Recorder	SRD-1685*, SRD-894* (* is N or P, N=NTSC/ P=PAL)	E158873-A143-UL	
Digital Video Recorder	SRD-1694* (* is N or P, N=NTSC/ P=PAL)	E158873-A144-UL	
Network Video Recorder (NVR)	XRN-2011*, XRN-2010*, XRN-3010*, XRN-1610* (* is N or P: N=NTSC, P=PAL)	E158873-A146-UL	

CERTIFICATE OF COMPLIANCE

Certificate Number 20160604-E158873
Report Reference E158873-A141-UL
Issue Date 2016-JUNE-04

Issued to: Hanwha Techwin Co Ltd
42 SUNGJU-DONG
CHANGWON-SI GYEONGNAM 641-716 KOREA

**This is to certify that
representative samples of** INFORMATION TECHNOLOGY EQUIPMENT INCLUDING
ELECTRICAL BUSINESS EQUIPMENT
NETWORK CAMERA:
PNV-9080R* (* is N or P: N = NTSC, P=PAL)

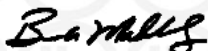
Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 60950-1, (Information Technology Equipment - Safety -
Part 1: General Requirements).
CAN/CSA C22.2 No. 60950-1-07, (Information Technology
Equipment - Safety - Part 1: General Requirements).

Additional Information: See the UL Online Certifications Directory at
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Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

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UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Listing
CCN:	NWGQ, NWGQ7 (Information Technology Equipment Including Electrical Business Equipment)
Product:	NETWORK CAMERA
Model:	PNV-9080R* (* is N or P: N = NTSC, P=PAL)
Rating:	24 Vac, 1.0A or 37-57 Vdc(PoE), 0.35 A or 12 Vdc. 1.0A
Applicant Name and Address:	HANWHA TECHWIN CO LTD 42 SUNGJU-DONG CHANGWON-SI GYEONGNAM 641-716 KOREA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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Prepared by: Jeremy Lim

Reviewed by: ManSoo Huh

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
 - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
 - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
 - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

NETWORK CAMERA employing LED circuit.

Model Differences

N/A

Technical Considerations

- Equipment mobility : stationary
- Connection to the mains : No direct connection
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : No direct connection
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class III (supplied by SELV)
- Considered current rating of protective device as part of the building installation (A) : N/A
- Pollution degree (PD) : N/A
- IP protection class : IP X0
- Altitude of operation (m) : Up to 2 000
- Altitude of test laboratory (m) : Less than 2 000
- Mass of equipment (kg) : 0.97
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 55
- The product was investigated to the following additional standards: IEC 62471:2006(1st edition)
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- LEDs provided in the product are considered low power devices: Yes
- Marking Label is representatives of all models

Additional Information 4787414817 Unit is operated continuously with LED.	
Additional Standards The product fulfills the requirements of: N/A	
Markings and instructions	
Clause Title	Marking or Instruction Details
Replaceable batteries	"CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."
1.7.1 Power rating - Ratings	Ratings (voltage, frequency/dc, current)
1.7.1 Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.1 Power rating - Model	Model Number
Installation Manual - UL Listed PoE Source	The following statement or similar shall be included in the User Manual: The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802-3af shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1.
Installation Manual - Network Environment	The following statement or similar shall be included in the User Manual: Unit is intended for installation in a Network Environment 0 as defined in IEC TR 62102. As such, associated Ethernet wiring shall be limited to inside the building.
Special Instructions to UL Representative N/A	

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						

Earthing Continuity Test Exemptions - This test is not required for the following models:

All models

Electric Strength Test Exemptions - This test is not required for the following models:

All models

Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					

1.5.1	TABLE: list of critical components					Pass
Object/part or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
Power Supply (Optional)	Various	Various	Rated output DC 12 V, 24 Vac, 50/60 Hz, min. 1.0A, marked "LPS" or "Class 2"	QQGQ or EPBU	UL	
Label	Various	Various	Min.70 deg. C if max. surface temperature not specified.	PGDQ2 or PGJ12	USR	
Enclosure (Metal)	Various	Various	Aluminium, Min. 2.0 mm thickness.	-	-	
Enclosure (Plastic)	Sabic Innovative Plastic US L L C	HF1130R(f2)	Min. 1.5 mm thick, rated V-2, 125 deg. C. No openings.	QMFZ2	USR (E121562)	
Internal Plastic Part Materials	LOTTE ADVANCED MATERIALS CO LTD	NH-1035(+)	Min. 1.5 mm thickness, rated Min. V-0	QMFZ2	USR (E115797)	
Internal Plastic Part Materials (alternate)	LOTTE ADVANCED MATERIALS CO LTD	NH-1023(+)	Min. 1.5 mm thickness, rated Min. V-2	QMFZ2	USR (E115797)	
PWB	Various	Various	Min. V-1, 105 deg. C.	ZPMV2	USR	
LED	LITE ON	LTE-R38386-S- SS	Max. IF = 1A	-	-	
Connectors and Receptacles (Secondary circuits)	Various	Various	-	ECBT2 or RTRT2	USR	
Connectors and Receptacles (Secondary circuits) (alternate)	Various	Various	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	USR	
Fuse (F1, F2)	Littelfuse Inc	449*	125 V, 2 A	JDYX2	USR (E10480)	
Transformer(T3)	GET PLUS	SNO-5080R	160 uH, 130 deg. C	-	-	
Optocoupler (LS1)	LITE-ON Technology Corp.	LTV-816	Isolation Voltage: 5000. Max. Operation Temperature: 110 deg. C	FPQU2	USR (E113898)	
Lithium Battery	SEIKO INSTRUMENTS INC	ML414H	Lithium (Coin), Rechargeable, 3.4 Vdc, 300 mAh	BBCV2	USR (MH15628)	
Internal Wiring	Various	Various	FEP, PTFE, PVC, TFE,	AVLV2	USR	

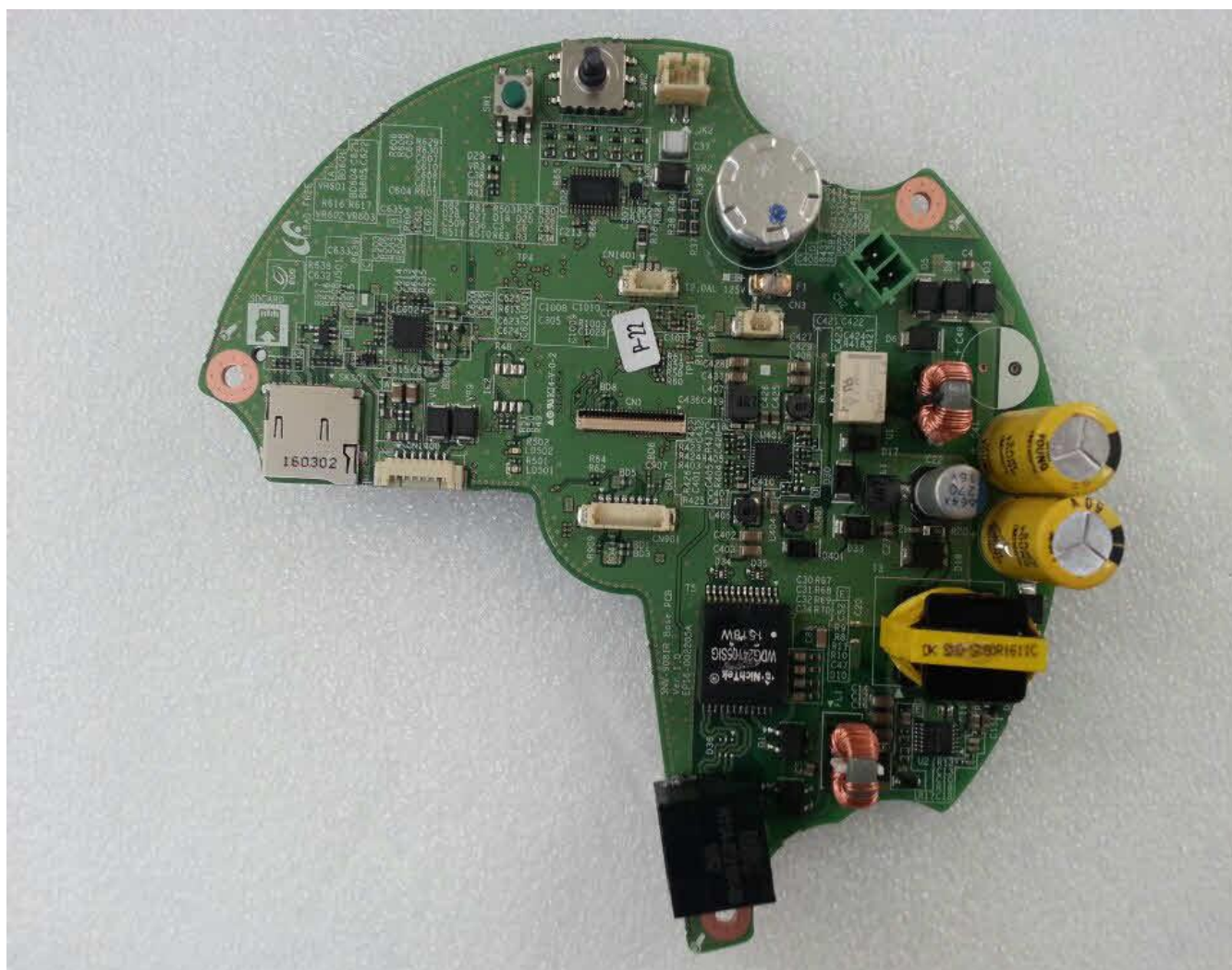
(Secondary)			neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C			
DC Fan	MINEBEA CO LTD	1204KL-04W-B39	12 Vdc, 0.09 A	GPWV2	USR (E89936)	
Cable	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	AVLV2	USR	
CCD or CMOS color video camera (Motor)	EVETAR	MZ117BP451016I CRD19R2	Max. 5 Vdc	-	-	

Enclosures

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Photographs	3-01	Overall View
Photographs	3-02	Internal View
Photographs	3-03	PowerBoard Top View
Photographs	3-04	PowerBoard Bottom View
Manuals	6-01	Manual
Miscellaneous	7-01	T3 specification
Miscellaneous	7-02	Label
Miscellaneous	7-03	LED test report



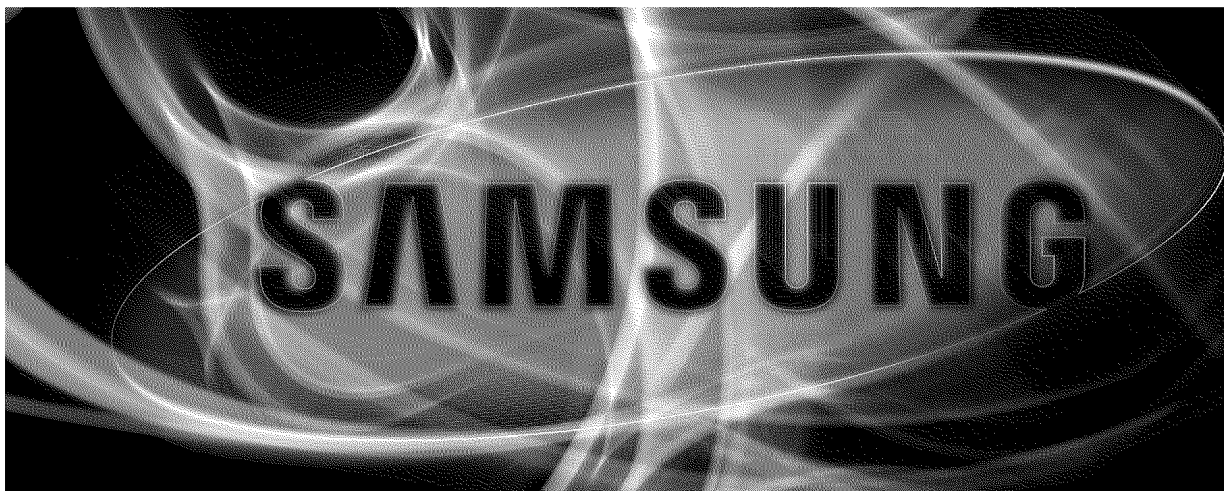




NETWORK CAMERA

User Manual

PND-9080R/PNO-9080R/PNV-9080R



Network Camera User Manual

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Disclaimer

Samsung makes the best to verify the integrity and correctness of the contents in this document, but no formal guarantee shall be provided. Use of this document and the subsequent results shall be entirely on the user's own responsibility. Samsung reserves the right to change the contents of this document without prior notice.

❖ Design and specifications are subject to change without prior notice.

❖ The initial administrator ID is "admin" and the password should be set when logging in for the first time.

Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.
Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

overview

IMPORTANT SAFETY INSTRUCTIONS

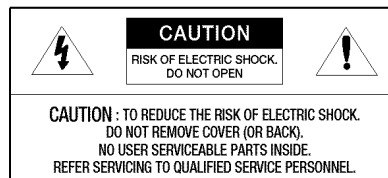
1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/ accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" and rated from 24 Vac (50/60 Hz) 1.0 A or 12 Vdc, 1.0 A.

**WARNING**

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions.

CAUTION**EXPLANATION OF GRAPHICAL SYMBOLS**

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

overview

Class I construction

An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

Battery

Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.

Disconnection Device

Disconnect the main plug from the apparatus, if it's defected. And please call a repair man in your location.

When used outside of the U.S., it may be used HAR code with fittings of an approved agency is employed.

CAUTION

Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries according to the instructions.

These servicing instructions are for use by qualified service personnel only.

To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The CVBS out terminal of the product is provided for easier installation, and is not recommended for monitoring purposes.

Please use the input power with just one camera and other devices must not be connected.

The ITE is to be connected only to PoE networks without routing to the outside plant.

Please read the following recommended safety precautions carefully.

- Do not place this apparatus on an uneven surface.
- Do not install on a surface where it is exposed to direct sunlight, near heating equipment or heavy cold area.
- Do not place this apparatus near conductive material.
- Do not attempt to service this apparatus yourself.
- Do not place a glass of water on the product.
- Do not install near any magnetic sources.
- Do not block any ventilation openings.
- Do not place heavy items on the product.

User's Manual is a guidance book for how to use the products.

The meaning of the symbols are shown below.

- Reference : In case of providing information for helping of product's usages
- Notice : If there's any possibility to occur any damages for the goods and human caused by not following the instruction

※ Please read this manual for the safety before using of goods and keep it in the safe place.

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	58	Product Overview
	60	Troubleshooting
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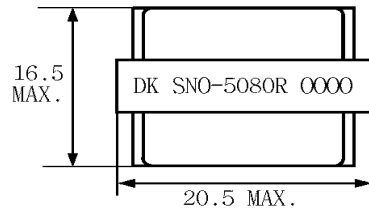
CUSTOMER : SAMSUNG TECHWIN CO.,LTD.

Rev NO : 0,1,2,3,4,5 /

SPECIFICATIONS

SHEET NO.		2 OF 12	
DATE		2010. 10. 11.	
PART NAME	S/W TRANS	MODEL NAME	SNO-5080R
PART NO.	Z2605006701A	TYPE NO	EE1916-160uH

6. APPERARANCE & DIMENSIONS (UNIT:MM)

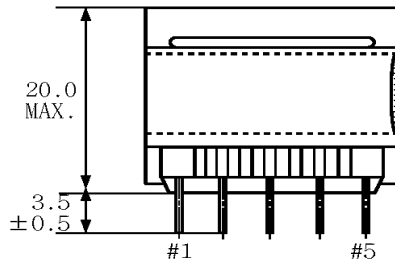


* MARKING (BLACK) *

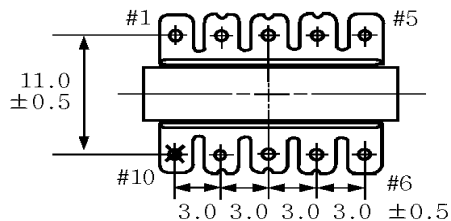
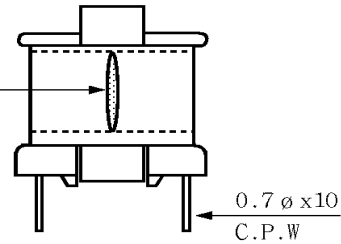
DK SNO-5080R 0000

↑ ↑ ↑ ↑

↑ 제조 LINE NO.
↑ 제조 주차
↑ 제조년
↑ CODE NO
↑ 제조 MAKER



SHORTRING



* GAP : CENTER AIR GAP



GET PLUS CO., LTD.

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SUWON OFFICE
#209-42 WONCHEUN-DONG, YOUNGTONG-KU, SUWON, KOREA
TEL: +82-31-215-3092 FAX: +82-31-215-3095

DESIGN	CHECK	APPROVAL
FILE NO.	DK -	

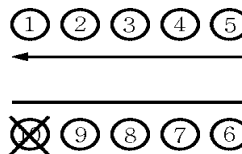
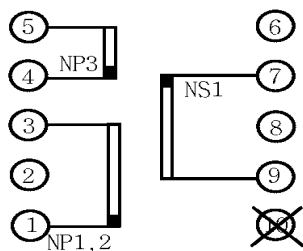
CUSTOMER : SAMSUNG TECHWIN CO.,LTD.

Rev NO : 0,1,2,3,4,5 /

SPECIFICATIONS

SHEET NO.		3 OF 12	
DATE		2010. 10. 11.	
PART NAME	S/W TRANS	MODEL NAME	SNO-5080R
PART NO.	Z2605006701A	TYPE NO	EE1916-160uH

7. SCHEMATIC DIAGRAM



WINDING	BOTTOM VIEW	C.C.W
N.C PIN	#2,6,8	
REMOVE PIN	#10	
TUBE		

8. WINDING SPECIFICATION

WINDING ORDER	NAME	TERMINAL	WIRE	TURNS	WINDING METHOD	REMARKS
W1	NP1	1S - 3F	2UEW 0.3 ϕ	50t	SOLENOID WINDING	
W2	NS1	7S - 9F	2UEW 0.32 ϕ x3	30t	SOLENOID WINDING	
W3	NP2	1S - 3F	2UEW 0.3 ϕ	50t	SOLENOID WINDING	
W4	NP3	4S - 5F	2UEW 0.2 ϕ	32t	SOLENOID WINDING	



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CUSTOMER : SAMSUNG TECHWIN CO.,LTD.

Rev NO : 0,1,2,3,4,5 /

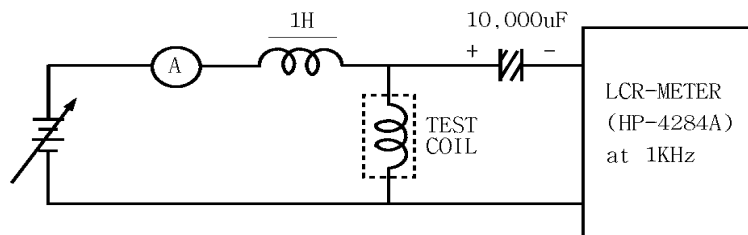
SPECIFICATIONS

SHEET NO.		5 OF 12	
DATE		2010. 10. 11.	
PART NAME	S/W TRANS	MODEL NAME	SNO-5080R
PART NO.	Z2605006701A	TYPE NO	EE1916-160uH

9. INSULATION

NO	COIL	METERIALS	WRAPS(T)	THICKNESS(mm) x WIDTH (mm)
1	NP1 TO NS1	POLYESTER FILM TAPE	1	0.025t x 9.5mm
2	NS1 TO NP2	POLYESTER FILM TAPE	1	"
3	NP2 TO NP3	POLYESTER FILM TAPE	1	"
4	NP3 TO CORE	POLYESTER FILM TAPE	2	0.025t x 9.5mm(Y)
5	CORE FIXING	POLYESTER FILM TAPE	3	0.025t x 4.5mm(Y)
6	SHORTRING	COPPER FOIL TAPE	1.1	0.05t x 7mm
7	SHIELD AFTER	POLYESTER FILM TAPE	3	0.025t x 9.5mm(Y)

** TEST CIRCUIT (DC OVERLAP) **



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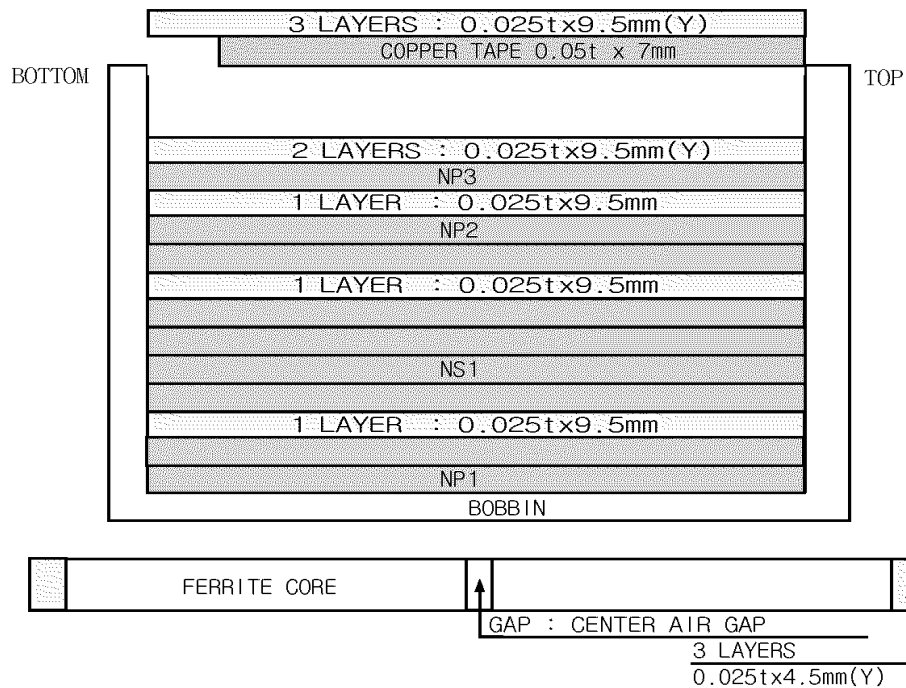
CUSTOMER : SAMSUNG TECHWIN CO.,LTD.

Rev NO : 0,1,2,3,4,5 /

SPECIFICATIONS

SHEET NO.		5 OF 12	
DATE		2010. 10. 11.	
PART NAME	S/W TRANS	MODEL NAME	SNO-5080R
PART NO.	Z2605006701A	TYPE NO	EE1916-160uH

10. INTERNAL CONSTRUCTION



- * WINDING
* P.S TAPE



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CUSTOMER : SAMSUNG TECHWIN CO.,LTD.

Rev NO : 0,1,2,3,4,5 /

SPECIFICATIONS		SHEET NO.	4 OF 12
		DATE	2010. 10. 11.
PART NAME	S/W TRANS	MODEL NAME	SNO-5080R
PART NO.	Z2605006701A	TYPE NO	EE1916-160uH

11.ELECTRICAL CHARACTERISTIC

NO	CLOSURE	TERMINAL	ELECTRICAL CHARACTERISTICS	TOLERANCE	CONDITION
1	INDUCTANCE	1 - 3	160.0 uH	± 7%	LCR-METER at 1KHz, 1Vrms HP-4284A
		4 - 5	76.5 uH	± 15%	
		7 - 9	60.0 uH	± 15%	
2	DC RESISTANCE	1 - 3	0.265 Ω	MAX.	OHM METER 502AC
		4 - 5	0.970 Ω	MAX.	
		7 - 9	0.096 Ω	MAX.	
3	LEAKAGE INDUCTANCE	1 - 3	15.0 uH	MAX.	AT 1KHz, 1Vrms (SECONDARY ALL SHORT)
4	LAYER SHORT	AC 1.4KV, 60Hz.			
5	INSULATION RESISTANCE	DC 500V, 100M ohm MIN. (P COIL TO S COIL)			
6	WITHSTAND VOLTAGE	AC 1.0KV, 1 MINUTE. (P COIL TO S COIL) (P COIL TO CORE) (S COIL TO CORE)			



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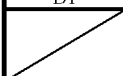
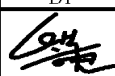
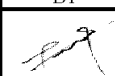
MATERIALS LIST

SHEET NO : 6 OF 12

PART NAME : S/W TRANS
 PART NO : Z2605006701A
 TYPE NO : EE1916-160uH
 MODEL NO. : SNO-5080R

DATE : 2010. 10. 11.

NO	COMPONENT	NAME OF MATERIAL	MANUFACTURER OF MATERIAL	REMARKS
1	CORE	FERRITE EE-1916 PL-7	SAM WHA ELECTRONICS CO.,LTD.	
		FERRITE EE-1916 DMR40	ZHEJIANG DONGYANG MAGNETIC ENTERPRISE GROUP CO.	
		FERRITE EE-1916 YP2	YOUNG HWA FERRITE CO.,LTD.	
		FERRITE EE-1916 HE4	RUYUAN DONGYANGGUANG MAGNETICS MATERIALS CO.,LTD.	
		FERRITE EE-1916 KP4	ZAOZHUANG KINGTECH ELECTRONICS CO.,LTD	
2	BOBBIN	PHENOLIC (PF2736) PHENOLIC (T-375J) PHENOLIC(PM8375,PM9820)	HEXION SPECIALTY CHEMICALS GMBH CHANG CHUN PLASTICS CO.,LTD. SUMITOMO BAKELITE CO.,LTD.	E61040 E59481 E41429
3	WIRE	POLYURETHANE 2UEW 0.2 ϕ 2UEW 0.3 ϕ 2UEW 0.32 ϕ	DONG YANG ELECTRONICS IND.CO.,LTD.	E102761
			SAM JIN WIRE CO.,LTD.	E207120
			LIAONING DONGGANG MAGNET WIRE CO., LTD.	E229247
			CHANG JUN CO.,LTD.	E93944
			CNI ELECTRONICS CO.,LTD.	E209819
4	INSULATION TAPE	POLYESTER FILM TAPE 0.025t x 9.5mm	METAL LINE CO.,LTD.	E162848
5	CORE FIXING TAPE	POLYESTER FILM TAPE 0.025t x 4.5mm	DUCK SUNG HITECH CO.,LTD.	E105147
			JINGJIANG YAHUA PRESSURE SENSITIVE CLUE CO.,LTD.	E165111
6	SHORTRING	COPPER FOIL TAPE 0.05t x 7.0mm	TAE HWA INDUSTRIAL CO., A-TECH CO.,LTD.	
7	VARNISH	SR-337A DVB-2085	SE GYE CHEMICAL CO., NOROO PAINT & COATINGS CO.,LTD.	
8	SOLDER	BAR (SN98%-Cu2%)	HANJIN SOLDER CO. DAEKIL METAL CO.,LTD.	

DESIGNED BY	CHECKED BY	APPROVED BY
		

0401-02-양식02

GET PLUS CO.,LTD.

※ Fac. ID : S (창원) , T (TSTO)



※ 원산지 표기 기준

TSTO : MADE IN CHINA

창 원 : MADE IN KOREA



Test Report issued under the responsibility of:



Korea Testing Laboratory

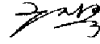
TEST REPORT IEC 62471 Photobiological safety of lamps and lamp systems	
Report Reference No.	18-022102-01
Date of issue	2016-05-09
Total number of pages	20 pages
CB Testing Laboratory	KTL (Korea Testing Laboratory)
Address	87, Digital-ro 26-gil, Guro-gu, Seoul, 08389, Rep. of Korea
Applicant's name	Hanwha Techwin Co., Ltd.
Address	1204, Changwondae-ro, Sungsan-gu, Changwon-si, Gyeongsangnam-do, Korea
Test specification:	
Standard	IEC 62471:2006 (First Edition) + European Group Difference and National Differences
Test procedure	N/A
Non-standard test method	N/A
Test Report Form No.	IEC62471A
TRF Originator	VDE Testing and Certification Institute
Master TRF	Dated 2009-05
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
Test item description	ANALOG CAMERA
Trade Mark	
Manufacturer	Same as applicant
Model/Type reference	PNO-9080R*
Ratings	AC24V, 50-60Hz, DC12 V, 0.71A, PoE48 Exempt Group

TRF No. IEC62471A



* 위 마크는 추후 전자확인용 대조 프로그램에서 유효대조시 사용되는 2D코드입니다.



Testing procedure and testing location:	
☒ CB Testing Laboratory:	CTL (Korea Testing Laboratory)
Testing location/ address	87, Digital-ro 26-gil, Guro-gu, Seoul, 08389, Rep. of Korea
☐ Associated CB Laboratory:	
Testing location/ address	
Tested by (name + signature)	JinWook Kwon 
Approved by (+ signature)	Jae-Hoon Jung 
☐ Testing procedure: TMP	
Tested by (name + signature)	
Approved by (+ signature)	
Testing location/ address	
☐ Testing procedure: WMT	
Tested by (name + signature)	
Witnessed by (+ signature)	
Approved by (+ signature)	
Testing location/ address	
☐ Testing procedure: SMT	
Tested by (name + signature)	
Approved by (+ signature)	
Supervised by (+ signature)	
Testing location/ address	
☐ Testing procedure: RMT	
Tested by (name + signature)	
Approved by (+ signature)	
Supervised by (+ signature)	
Testing location/ address	

TRF No. IEC62471A



* 위 마크는 주위 전자책인용 대조 프로그램에서 얻은대조시 사용되는 20코드입니다.



Summary of testing:	
Tests performed (name of test and test clause): - All clauses - by supplying DC12V to the model PNO-9080RN	Testing location: KTL (Korea Testing Laboratory) 87, Digital-ro 26-gil, Guro-gu, Seoul, 08389, Rep. of Korea
Summary of compliance with National Differences: The sample(s) tested complies with the requirements of EN 62471:2008. See Attachment at the end of this report for compliance with European Group Difference and National Differences.	
Copy of marking plate: -	
Item covered Model PNO-9080R*(* mean N: NT & P: PAL) cover PNO-9080RN and PNO-9080RP	

TRF No. IEC62471A



* 위 마크는 후술 전자확인증 대조 프로그램에서 원본대조시 사용되는 2D코드입니다.



Test item particulars									
Tested lamp	☒ continuous wave lamps ☐ pulsed lamps								
Tested lamp system	-								
Lamp classification group	☒ exempt ☐ risk 1 ☐ risk 2 ☐ risk 3								
Lamp cap.	-								
Bulb	LED								
Rated of the lamp	-								
Furthermore marking on the lamp	-								
Seasoning of lamps according IEC standard	-								
Used measurement instrument	See page 15								
Temperature by measurement	24.1 °C								
Information for safety use	Not required								
Possible test case verdicts:									
- test case does not apply to the test object	N/A								
- test object does meet the requirement	P (Pass)								
- test object does not meet the requirement	F (Fail)								
Testing:									
Date of receipt of test item	2016-04-19								
Date (s) of performance of tests	2016-04-19~ 05-09								
General remarks:									
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 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 comma (point) is used as the decimal separator. List of test equipment must be kept on file and available for review.									
General product information:									
- LED Package									
<table border="1"> <thead> <tr> <th>Manufacturer</th> <th>Model</th> <th>Rating</th> <th>Color Rank</th> </tr> </thead> <tbody> <tr> <td>LITEON</td> <td>LTE-R38386-S-SS</td> <td>V_F=Max. 2.5V I_F= 1A</td> <td>-</td> </tr> </tbody> </table>	Manufacturer	Model	Rating	Color Rank	LITEON	LTE-R38386-S-SS	V _F =Max. 2.5V I _F = 1A	-	
Manufacturer	Model	Rating	Color Rank						
LITEON	LTE-R38386-S-SS	V _F =Max. 2.5V I _F = 1A	-						

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IEC 62471			
Clause	Requirement + Test	Result – Remark	Verdict
4	EXPOSURE LIMITS		
4.1	General		P
	The exposure limits in this standard is not less than 0,01 ms and not more than any 8-hour period and should be used as guides in the control of exposure		P
	Detailed spectral data of a light source are generally required only if the luminance of the source exceeds 10^4 cd m^{-2}	see clause 4.3	P
4.3	Hazard exposure limits		P
4.3.1	Actinic UV hazard exposure limit for the skin and eye		P
	The exposure limit for effective radiant exposure is 30 J m^{-2} within any 8-hour period		P
	To protect against injury of the eye or skin from ultraviolet radiation exposure produced by a broadband source, the effective integrated spectral irradiance, E_s , of the light source shall not exceed the levels defined by:		P
	$E_s \cdot t = \sum_{300}^{400} \sum_t E_\lambda(\lambda, t) \cdot S_{UV}(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 30 \quad \text{J m}^{-2}$		P
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye or skin shall be computed by:		P
	$t_{\max} = \frac{30}{E_s} \quad \text{s}$		P
4.3.2	Near-UV hazard exposure limit for eye		P
	For the spectral region 315 nm to 400 nm (UV-A) the total radiant exposure to the eye shall not exceed 10000 J m^{-2} for exposure times less than 1000 s. For exposure times greater than 1000 s (approximately 16 minutes) the UV-A irradiance for the unprotected eye, E_{UVA} , shall not exceed 10 W m^{-2} .		P
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye for time less than 1000 s, shall be computed by:		P
	$t_{\max} \leq \frac{10000}{E_{UVA}} \quad \text{s}$		P
4.3.3	Retinal blue light hazard exposure limit		P
	To protect against retinal photochemical injury from chronic blue-light exposure, the integrated spectral radiance of the light source weighted against the blue-light hazard function, $B(\lambda)$, i.e., the blue-light weighted radiance, L_s , shall not exceed the levels defined by:		P

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Clause	Requirement + Test	Result – Remark	Verdict
	$L_B \cdot t = \sum_{300}^{700} \sum_t L_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta\lambda \leq 10^6 \quad \text{J} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	for $t \leq 10^4 \text{ s}$ $t_{\max} = \frac{10^6}{L_B}$	P
	$L_B = \sum_{300}^{700} L_\lambda \cdot B(\lambda) \cdot \Delta\lambda \leq 100 \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	for $t > 10^4 \text{ s}$	P
4.3.4	Retinal blue light hazard exposure limit - small source		P
	Thus the spectral irradiance at the eye E_λ , weighted against the blue-light hazard function $B(\lambda)$ shall not exceed the levels defined by:	see table 4.2	P
	$E_B \cdot t = \sum_{300}^{700} \sum_t E_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta\lambda \leq 100 \quad \text{J} \cdot \text{m}^{-2}$		P
	$E_B = \sum_{300}^{700} E_\lambda \cdot B(\lambda) \cdot \Delta\lambda \leq 1 \quad \text{W} \cdot \text{m}^{-2}$		P
4.3.5	Retinal thermal hazard exposure limit		P
	To protect against retinal thermal injury, the integrated spectral radiance of the light source, L_λ , weighted by the burn hazard weighting function $R(\lambda)$ (from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by:	see table 4.2	P
	$L_R = \sum_{380}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \leq \frac{50\,000}{\alpha \cdot t^{0.25}} \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	($10 \mu\text{s} \leq t \leq 10 \text{ s}$)	P
4.3.6	Retinal thermal hazard exposure limit – weak visual stimulus		N/A
	For an infrared heat lamp or any near-infrared source where a weak visual stimulus is inadequate to activate the aversion response, the near infrared (780 nm to 1400 nm) radiance, L_{IR} , as viewed by the eye for exposure times greater than 10 s shall be limited to:		N/A
	$L_{IR} = \sum_{780}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \leq \frac{6\,000}{\alpha} \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$		N/A
4.3.7	Infrared radiation hazard exposure limits for the eye		P
	The avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye (cataractogenesis), ocular exposure to infrared radiation, E_{IR} , over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not exceed:		P
	$E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \leq 18\,000 \cdot t^{-0.75} \quad \text{W} \cdot \text{m}^{-2}$		P
	For times greater than 1000 s the limit becomes:		P

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Clause	Requirement + Test	Result – Remark	Verdict
	$E_{IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta\lambda \leq 100 \quad W \cdot m^{-2}$		P
4.3.8	Thermal hazard exposure limit for the skin		N/A
	Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to:		N/A
	$E_{IR} = \sum_{380}^{3000} \sum_{\lambda} E_{\lambda}(\lambda, t) \cdot \Delta\lambda \leq 20\,000 \cdot t^{0.25} \quad J \cdot m^{-2}$		N/A
5	MEASUREMENT OF LAMPS AND LAMP SYSTEMS		P
5.1	Measurement conditions		P
	Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification.		P
5.1.1	Lamp ageing (seasoning)		P
	Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard.		P
5.1.2	Test environment		P
	For specific test conditions, see the appropriate IEC lamp standard or in absence of such standards, the appropriate national standards or manufacturer's recommendations.	manufacturer's recommendations.	P
5.1.3	Extraneous radiation	No extraneous radiation	P
	Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results.		P
5.1.4	Lamp operation		P
	Operation of the test lamp shall be provided in accordance with:		P
	– the appropriate IEC lamp standard, or		N/A
	– the manufacturer's recommendation		P
5.1.5	Lamp system operation		P
	The power source for operation of the test lamp shall be provided in accordance with:		N/A
	– the appropriate IEC standard, or		N/A
	– the manufacturer's recommendation		P
5.2	Measurement procedure		P
5.2.1	Irradiance measurements		P
	Minimum aperture diameter 7mm.		P
	Maximum aperture diameter 50 mm.		P

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IEC 62471			
Clause	Requirement + Test	Result - Remark	Verdict
	The measurement shall be made in that position of the beam giving the maximum reading.		P
	The measurement instrument is adequate calibrated.		P
5.2.2	Radiance measurements		P
5.2.2.1	Standard method		P
	The measurements made with an optical system.		P
	The instrument shall be calibrated to read in absolute radiant power per unit receiving area and per unit solid angle to acceptance averaged over the field of view of the instrument.		P
5.2.2.2	Alternative method		N/A
	Alternatively to an imaging radiance set-up, an irradiance measurement set-up with a circular field stop placed at the source can be used to perform radiance measurements.		N/A
5.2.3	Measurement of source size	13.1 mrad	P
	The determination of α , the angle subtended by a source, requires the determination of the 50% emission points of the source.		P
5.2.4	Pulse width measurement for pulsed sources	Continuous sources	N/A
	The determination of Δt , the nominal pulse duration of a source, requires the determination of the time during which the emission is > 50% of its peak value.		N/A
5.3	Analysis methods		P
5.3.1	Weighting curve interpolations		P
	To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired.	see table 4.1	P
5.3.2	Calculations		P
	The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy.		P
5.3.3	Measurement uncertainty		N/A
	The quality of all measurement results must be quantified by an analysis of the uncertainty.		N/A
6	LAMP CLASSIFICATION		
	For the purposes of this standard it was decided that the values shall be reported as follows:	see table 6.1	P

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Clause	Requirement + Test	Result - Remark	Verdict
	for lamps intended for general lighting service, the hazard values shall be reported as either irradiance or radiance values at a distance which produces an illuminance of 500 lux, but not at a distance less than 200 mm		N/A
	for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm		P
6.1	Continuous wave lamps		P
6.1.1	Except Group		P
	In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose:	See table 6.1	P
	an actinic ultraviolet hazard (E_S) within 8-hours exposure (30000 s), nor		P
	a near-UV hazard (E_{UVA}) within 1000 s, (about 16 min), nor		P
	a retinal blue-light hazard (L_B) within 10000 s (about 2.8 h), nor		P
	a retinal thermal hazard (L_R) within 10 s, nor		P
	an infrared radiation hazard for the eye (E_{IR}) within 1000 s		P
6.1.2	Risk Group 1 (Low-Risk)		N/A
	In this group are lamps, which exceeds the limits for the except group but that does not pose:		N/A
	an actinic ultraviolet hazard (E_S) within 10000 s, nor		N/A
	a near ultraviolet hazard (E_{UVA}) within 300 s, nor		N/A
	a retinal blue-light hazard (L_B) within 100 s, nor		N/A
	a retinal thermal hazard (L_R) within 10 s, nor		N/A
	an infrared radiation hazard for the eye (E_{IR}) within 100 s		N/A
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 100 s are in Risk Group 1.		N/A
6.1.3	Risk Group 2 (Moderate-Risk)		N/A
	This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose:		N/A
	an actinic ultraviolet hazard (E_S) within 1000 s exposure, nor		N/A
	a near ultraviolet hazard (E_{UVA}) within 100 s, nor		N/A
	a retinal blue-light hazard (L_B) within 0,25 s		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	(aversion response), nor		
	- a retinal thermal hazard (L_R) within 0.25 s (aversion response), nor		N/A
	- an infrared radiation hazard for the eye (E_{IR}) within 10 s		N/A
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_R), within 10 s are in Risk Group 2.		N/A
6.1.4	Risk Group 3 (High-Risk)		N/A
	Lamps which exceed the limits for Risk Group 2 are in Group 3.		N/A
6.2	Pulsed lamps		N/A
	Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0.25 s.		N/A
	A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer.		N/A
	The risk group determination of the lamp being tested shall be made as follows:		N/A
	- a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High-Risk)		N/A
	- for single pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance dose is below the EL, shall be classified as belonging to the Exempt Group		N/A
	- for repetitively pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance dose is below the EL, shall be evaluated using the continuous wave risk criteria discussed in clause 6.1, using time averaged values of the pulsed emission		N/A

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Table 4.1 Spectral weighting function for assessing ultraviolet hazards for skin and eye			N/A
Wavelength λ , nm	UV hazard function $S_w(\lambda)$	Wavelength λ , nm	UV hazard function $S_w(\lambda)$
200	0,030	313*	0,006
205	0,051	315	0,003
210	0,075	316	0,0024
215	0,095	317	0,0020
220	0,120	318	0,0018
225	0,150	319	0,0012
230	0,190	320	0,0010
235	0,240	322	0,00067
240	0,300	323	0,00054
245	0,360	325	0,00050
250	0,430	328	0,00044
254*	0,500	330	0,00041
255	0,520	333*	0,00037
260	0,650	335	0,00034
265	0,810	340	0,00028
270	1,000	345	0,00024
275	0,960	350	0,00020
280*	0,880	355	0,00016
285	0,770	360	0,00013
290	0,640	365*	0,00011
295	0,540	370	0,000093
297*	0,460	375	0,000077
300	0,300	380	0,000064
303*	0,120	385	0,000053
305	0,060	390	0,000044
308	0,026	395	0,000036
310	0,015	400	0,000030
† Wavelengths chosen are representative; other values should be obtained by logarithmic interpolation at intermediate wavelengths. * Emission lines of a mercury discharge spectrum.			

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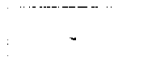


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Clause	Requirement + Test	Result - Remark	Verdict
Table 4.2	Spectral weighting functions for assessing retinal hazards from broadband optical sources		P
Wavelength nm	Blue-light hazard function B (λ)	Burn hazard function R (λ)	
300	0.01		
305	0.01		
310	0.01		
315	0.01		
320	0.01		
325	0.01		
330	0.01		
335	0.01		
340	0.01		
345	0.01		
350	0.01		
355	0.01		
360	0.01		
365	0.01		
370	0.01		
375	0.01		
380	0.01	0.1	
385	0.013	0.13	
390	0.025	0.25	
395	0.05	0.5	
400	0.10	1.0	
405	0.20	2.0	
410	0.40	4.0	
415	0.80	8.0	
420	0.90	9.0	
425	0.95	9.5	
430	0.98	9.8	
435	1.00	10.0	
440	1.00	10.0	
445	0.97	9.7	
450	0.94	9.4	
455	0.90	9.0	
460	0.80	8.0	
465	0.70	7.0	
470	0.62	6.2	
475	0.55	5.5	
480	0.45	4.5	
485	0.40	4.0	
490	0.22	2.2	
495	0.16	1.6	
500-600	$10^{[(450-\lambda)/50]}$	1.0	
600-700	0.001	1.0	
700-1050		$10^{[(700-\lambda)/500]}$	
1050-1150		0.2	
1150-1200		$0.2 \cdot 10^{[0.02 \cdot (1150-\lambda)]}$	
1200-1400		0.02	

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Table 5.4	Summary of the ELs for the surface of the skin or cornea (irradiance based values)					N/A
Hazard Name	Relevant equation	Wavelength range nm	Exposure duration sec	Limiting aperture rad (deg)	EL in terms of constant irradiance $W \cdot m^{-2}$	
Actinic UV skin & eye	$E_S = \sum E_\lambda \cdot S(\lambda) \cdot \Delta\lambda$	200 - 400	< 30000	1.4 (80)	30/t	
Eye UV-A	$E_{UVA} = \sum E_\lambda \cdot \Delta\lambda$	315 - 400	≤ 1000 > 1000	1.4 (80)	10000/t 10	
Blue-light small source	$E_B = \sum E_\lambda \cdot B(\lambda) \cdot \Delta\lambda$	300 - 700	≤ 100 > 100	< 0.011	100/t 1.0	
Eye IR	$E_{IR} = \sum E_\lambda \cdot \Delta\lambda$	780 - 3000	≤ 1000 > 1000	1.4 (80)	18000/t ^{0.75} 100	
Skin thermal	$E_H = \sum E_\lambda \cdot \Delta\lambda$	380 - 3000	< 10	2π sr	20000/t ^{0.75}	

Table 5.5	Summary of the ELs for the retina (radiance based values)					P
Hazard Name	Relevant equation	Wavelength range nm	Exposure duration sec	Field of view radians	EL in terms of constant radiance $W \cdot m^{-2} \cdot sr^{-1}$	
Blue light	$L_B = \sum L_\lambda \cdot B(\lambda) \cdot \Delta\lambda$	300 - 700	0.25 - 10 10-100 100-10000 ≥ 10000	$0.011 \cdot \sqrt{(t/10)}$ 0.011 $0.0011 \cdot \sqrt{t}$ 0.11	$10^6/t$ $10^6/t$ $10^6/t$ 100	
Retinal thermal	$L_R = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$	380 - 1400	< 0.25 0.25 - 10	0.0017 $0.011 \cdot \sqrt{(t/10)}$	$50000/(\alpha \cdot t^{0.25})$ $50000/(\alpha \cdot t^{0.25})$	
Retinal thermal (weak visual stimulus)	$L_{IR} = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$	780 - 1400	> 10	0.011	6000/ α	

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Clause	Requirement + Test	Result - Remark	Verdict

Table 6.1 Emission limits for risk groups of continuous wave lamps									P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(λ)$	E_s	$W \cdot m^{-2}$	0,001	9.71E-07	0,003	n/a	0,03	n/a
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1.12E-04	33	n/a	100	n/a
Blue light	$B(λ)$	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	0.0023	10000	n/a	4000000	n/a
Blue light, small source	$B(λ)$	E_B	$W \cdot m^{-2}$	1,0*	0E+00	1,0	n/a	400	n/a
Retinal thermal	$R(λ)$	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	$28000/α = 2129308.25$	$2.15E+04$	$28000/α = 1944478.04$	n/a	$71000/α = 4930640.75$	n/a
Retinal thermal, weak visual stimulus**	$R(λ)$	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	$6000/α = 456280.34$	n/a	$6000/α = 416673.87$	n/a	$6000/α = 416673.87$	n/a
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	17.4148	570	n/a	3200	n/a
* Small source defined as one with $α < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian. ** Involves evaluation of non-GLS source									

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Furthermore remarks:

- Measuring Instrument

Name	Maker	Model No.
Spectrometer	Bentham	IDR300
Telescope	Bentham	TEL309
Cosine response diffuser	Bentham	D7
Quartz fiber bundle	Bentham	FOP-UV-1
Source profiler	Bentham	PSL-Source Profiler
Illuminance meter	Gigahertz-optik	X1

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IEC62471A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62471 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Photobiological safety of lamps and lamps systems	
Differences according to	EN62471:2008
Attachment Form No.	EU_GD_IEC62471A
Attachment Originator	IMQ S.p.A.
Master Attachment	2009-07
Copyright © 2009 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	CENELEC COMMON MODIFICATIONS (EN)		
4	EXPOSURE LIMITS		
	Contents of the whole Clause 4 of IEC 62471:2006 moved into a new informative Annex ZB		—
	Clause 4 replaced by the following:		
	Limits of the Artificial Optical Radiation Directive (2006/25/EC) have been applied instead of those fixed in IEC 62471:2006	See appended Table 6.1	P
4.1	General		
	First paragraph deleted	Noted	—

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Clause	Requirement + Test	Result - Remark	Verdict

Table 6.1 Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)									P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(A)$	E_s	$W \cdot m^{-2}$	0.001	9.71E-07	-	-	-	-
Near UV		E_{UVA}	$W \cdot m^{-2}$	0.33	1.12E-04	-	-	-	-
Blue light	$B(A)$	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	0.0023	10000	-	4000000	-
Blue light, small source	$B(A)$	E_B	$W \cdot m^{-2}$	0.01*	0E+00	1.0	-	400	-
Retinal thermal	$R(A)$	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	$28000/a = 2129308.25$	2.15E+04	$28000/a$	-	$71000/a$	-
Retinal thermal, weak visual stimulus**	$R(A)$	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	545000	-				
				$0.0017 \leq a \leq 0.011$					
				$6000/a$	-				
				$0.011 \leq a \leq 0.1$					
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	17.4148	570	-	3200	-

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* 위 바코드는 후속 전자확인용 대조 프로그램에서 원본대조시 사용되는 2D코드입니다.



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IEC62471A - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.
 ** Involves evaluation of non-GLS source

NOTE The action functions: see Table 4.1 and Table 4.2

The applicable aperture diameters: see 4.2.1

The limitations for the angular subtenses: see 4.2.2

The related measurement condition 5.2.3 and the range of acceptance angles: see Table 5.5.

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* 위 마크는 추후 전자확인용 대조 프로그램에서 원본대조시 사용되는 2D코드입니다.

..

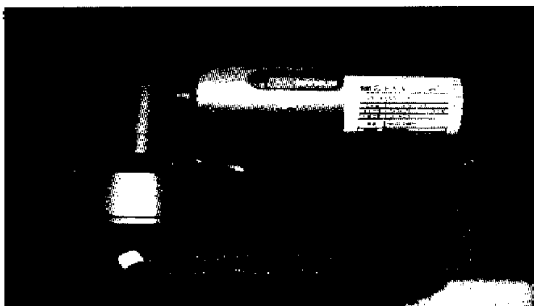


Photographs

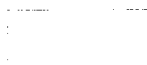
<Fig. 1>



<Fig. 2>



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* 위 이미지는 추후 전자책인종 대조 프로그램에서 원본대조시 사용되는 2D코드입니다.



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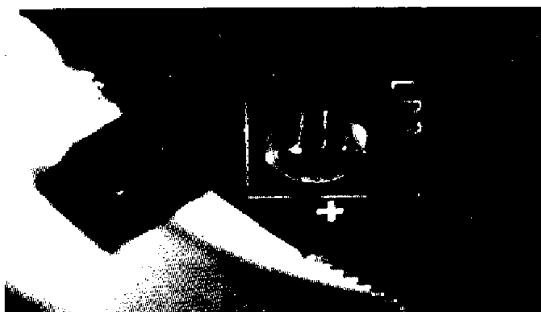
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<Fig. 3>



<Fig. 4>



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* 위 마크는 주위 정지화면 중 대조 프로그램에서 원본대조제 사용되는 20코드입니다.

Test Record

Test Record No. 1

1. The manufacturer submitted representative production sample of Network Camera Model PNV-9080RN.

2. Test results related only to the items tested.

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Input: Single-Phase (1.6.2)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Loading - Wall and Ceiling Mounted Equipment (4.2.10)	
Battery (4.3.8)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Abnormal Operation (5.3.1 - 5.3.9)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
Locked-Rotor Overload for DC Motors in Secondary Circuits (Annex B.7)	

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

The following supplements are provided as a part of this Test Record. NOTE: These supplements are only available to the Applicant via the CDA system.

Type	Supplement Id	Description
Datasheet	2-01	Datasheet