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:	QNV-8080R, QNV-8010R, QNV-8020R, QNV-8030R
Rating:	PoE (48 Vdc), 0.19 A for model QNV-8080R, PoE (48 Vdc), 0.16 A for QNV-8010R, PoE (48 Vdc), 0.15 A for QNV-8020R, QNV-8030R
Applicant Name and Address:	HANWHA TECHWIN CO LTD 6, PANGYO-RO 319BEON-GIL, BUNDANG-GU SEONGNAM-SI KOREA, REPUBLIC OF

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.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Sungil Kim Reviewed by: Seulki Park

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 intended for indoor use.
Electronic components were mounted on PWB and housed in plastic and metal enclosure and supplied by SELV and LPS.

Model Differences

- Basic model is QNV-8080R.

- Model QNV-8010R is identical to basic model QNV-8080R except for rated input.
- Model QNV-8020R is identical to basic model QNV-8080R except for rated input.
- Model QNV-8030R is identical to basic model QNV-8080R except for rated input.

Technical Considerations

- Equipment mobility : Fixed
- Connection to the mains : N/A
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC I
- 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) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : less than 2000 meters
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.698
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer’s specification of: 55 °C

- The product was investigated to the following additional standards: IEC 62471
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Additional Information

Original (4788956496)
- Maximum normal load: Continuous operation with IR LED on.

Revision (4789037584)
- Addition of model name. (QNV-8010R, QNV-8020R, QNV-8030R)

Additional Standards

The product fulfills the requirements of: N/A

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Replaceable batteries	"CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."
Manual -1	This product is intended to be supplied by a Listed Power Supply Unit marked “Class 2” or “LPS” and rated from PoE (48 Vdc), 0.19 A.
Manual -2	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.
Manual -3	ITE is to be connected only to PoE networks without routing to the outside plant. 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	N/A	N/A	N/A	N/A	N/A	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
Enclosure (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.5 mm thickness, see enclosure for dimension.	-	-	
Enclosure (White)	LOTTE ADVANCED MATERIALS CO LTD	NH-1035(+)	Min. 1.5 mm thickness, rated Min. V-0, 80 deg.C, see enclosure for dimension.	QMFZ2/8	UL (E115797)	
Enclosure (Transparent Plastic)	SABIC INNOVATIVE PLASTICS US L L C	HF1130(f2), ML7622(f2), HFR1723(f2)	Min. 1.5 mm thick, rated V-2, 130 deg.C, see enclosure for dimension.	QMFZ2	UL (E121562)	
Internal Plastic Part Materials	LOTTE ADVANCED MATERIALS CO LTD	NH-1035(+)	Min. 1.5 mm thickness, rated Min. V-0, 80 deg.C.	QMFZ2/8	UL (E115797)	
Transformer (PT201)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO LTD	PDT2433ASR	130 deg.C, See enclosure for more detail.	-	-	
Optocoupler (PC202)	LITE-ON TECHNOLOGY CORP	LTV-356T(%)(c)	Isolation Voltage: 3750. Max. Operation Temperature:110 deg. C	FPQU2	UL (E113898)	
Lithium Battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Lithium (Coin), Rechargeable, Max. Charging Voltage: 3.4 Vdc, Max. Charging Current: 300 mAh	BBCV2	UL (MH15628)	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 0.2 mm thickness, rated V-0, 150 deg.C	QMFZ2	UL (E245303)	
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	-	ECBT2 or RTRT2	USR	
Connectors and Receptacles (Secondary circuits) (alternate)	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	USR	
Internal Wiring (Secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked	AVLV2	UL	

			VW-1; Min. 30 V, 80 deg.C			
Cable	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg.C	AVLV2	UL	
FPWB	Interchangeable	Interchangeable	Min. V-0, 80 deg.C.	QMFZ2 or QMTS2	UL	
PWB	Interchangeable	Interchangeable	Min. V-1, 105 deg.C.	ZPMV2	UL	
Label	Interchangeable	Interchangeable	Min.55 deg. C if max. surface temperature not specified.	PGDQ2 or PGJI2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	3-01	Overall
Photographs	3-02	Rear
Photographs	3-03	Internal -1
Photographs	3-04	Internal -2
Photographs	3-05	Network board (Top)
Photographs	3-06	Network board (Bottom)
Photographs	3-08	LED board (Top)
Photographs	3-09	LED board (Bottom)
Manuals	6-01	Manual
Miscellaneous	7-01	Enclosure dimension
Miscellaneous	7-02	Transformer (PT201) spec
Miscellaneous	7-03	Label
Miscellaneous	7-04	Dual language safety labeling CRD
Miscellaneous	7-05	LED report
Miscellaneous	7-08	Label (QNV-8010R)
Miscellaneous	7-09	Label (QNV-8020R)
Miscellaneous	7-10	Label (QNV-8030R)