innodisk

Total Solution For
Embedded Peripherals

EGPL-G2P1

M.2 to Dual PoE Module

Customer:

Customer Part Number:

Innodisk Part Number:

Innodisk Model Name:

Date:

Innodisk Approver	Customer Approver

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REVISION HISTORY

Revision	Description	Date
1.0	First Released	Jun, 2019

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1. Product Introduction

1.1. Overview

Innodisk EGPL-G2P1 is M.2 2280 B/M key form factor PoE card which supports dual GbE 802.33af(PoE) compliant Ethernet ports. With 12V~24V power input via 4pin header or DC Jack, the EGPL-G2P1 can provide up to 15.4 watts at 48 VDC power to dual ports at same time. It allows power to be supplied to powered devices, such like PoE IP camera or PoE Wifi AP, which brings you a flexible expansion solution for embedded systems.

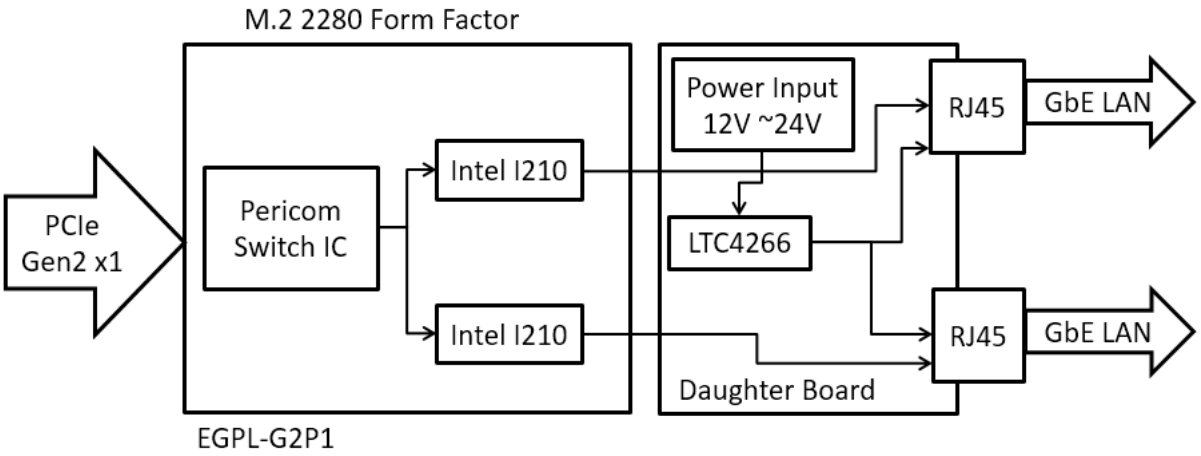


Figure 1: Block Diagram

1.2. Features

- Supports dual GbE LAN ports
- Two independent PSE channels
- Supports 12V~24V power input via 4pin header or DC Jack
- Complies with IEEE 802.3af, up to 15.4W at 48V per PoE port
- Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV
- Industrial temperature -40 ºC to 85 ºC

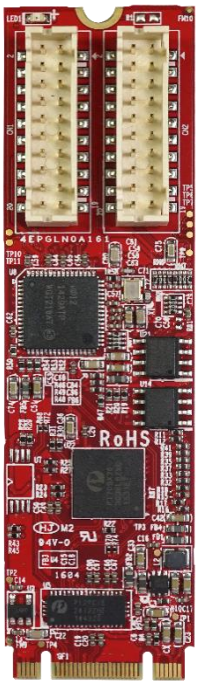


Figure 2: M.2 2280 Board Picture

Figure 3: Mounting Hole, 4Pin Header, Daughter Board Picture (EGPL-G2P1-C1/W1)

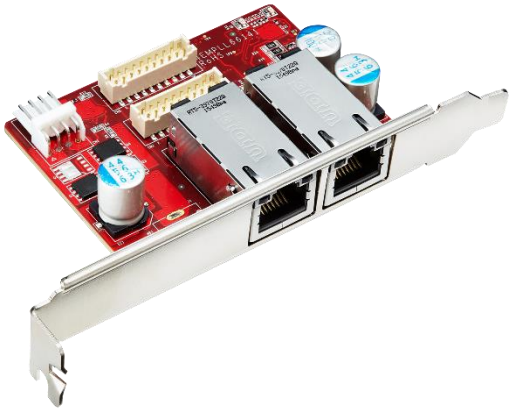


Figure 4: Bracket, 4Pin Header, Daughter Board Picture (EGPL-G2P1-C2/W2)

Figure 5: Mounting Hole, DC Jack, Daughter Board Picture (EGPL-G2P1-C3/W3)

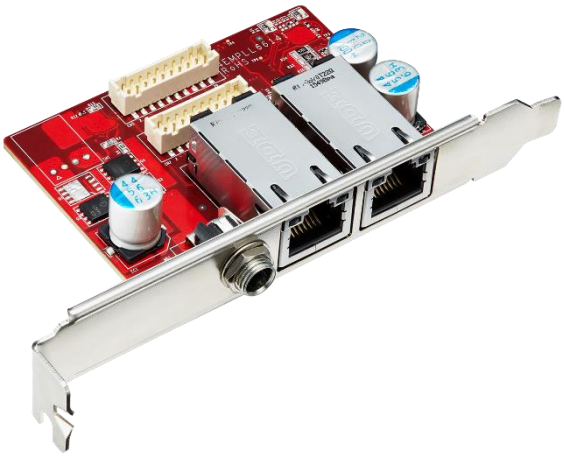


Figure 6: Bracket, DC Jack, Daughter Board Picture (EGPL-G2P1-C4/W4)

2. Product Specifications

2.1. Device Parameters

Table 1: Device Parameters

Form Factor	M.2 2280 B-M
Input I/F	PCI Express 2.1 x 1
Output I/F	PoE LAN x 2
Output Connector	RJ45 x 2
Dimension (WxLxH)	M.2 Board: 22 x 80 x 7.1 mm Daughter Board: 72.7 x 58.2 x 23.6 mm

2.2. Electrical Specifications

2.2.1. Power Requirement

Table 2: Power Requirement

Item	Connector	Rating
Main Board	M.2 Golden Finger	+3.3 VDC +-5%
Daughter Board	4Pin Header/ DC Jack	12 ~ 24 VDC

2.2.2. Power Consumption

Table 3: Power Consumption

	Full Load (mA)	Voltage (V)
Main Board	450	3.3
Daughter Board	1250	24

2.3. Environmental Specifications

2.3.1. Temperature Ranges

Table 4: Temperature Ranges

Temperature	Range
Operating	Standard Grade: 0°C to +70°C Industrial Grade: -40°C to +85°
Storage	-55°C to +95°

2.3.2. Humidity

Relative Humidity: 10-95%, non-condensing

2.3.3. Shock and Vibration

Table 5: Shock and Vibration

Reliability	Test Conditions	Reference Standards
Vibration	7 Hz to 2K Hz, 20G, 3 axes	IEC 68-2-6
Mechanical Shock	Duration: 0.5ms, 1500 G, 3 axes	IEC 68-2-27

2.3.4. Mean Time between Failure (MTBF)

Reliability prediction methodology provides the basis for reliability evaluation and analysis. The purpose of the prediction is to predict the life time of the product in units of failure rate and MTBF.

Table 6: Mean Time between Failure (MTBF)

Product	Condition	MTBF (Hours)
EGPL-G2P1	The analysis is at 25°C ambient temperature by Telcordia SR-332, Issues 4, Method I, Case 3 under Ground Benign, Controlled environment, 50% operation stress	TBD

2.4. CE and FCC Compatibility

EGPL-G2P1 conforms to CE and FCC requirements.

2.5. RoHS Compliance

EGPL-G2P1 is fully compliant with RoHS directive.

2.6. Hardware

2.6.1. Layout

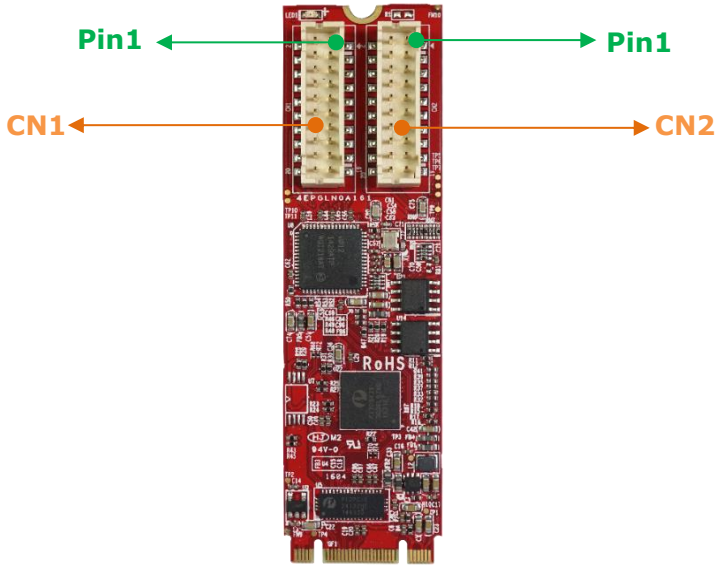


Table 7: M.2 2280 PCB Layout Legend

Label	Connector Type	Function
CN1/ CN2	Wire to board SMD 2*10P 180° P:2.00mm H:4.0mm	GbE LAN Signal 10/100/1000 LED Signal

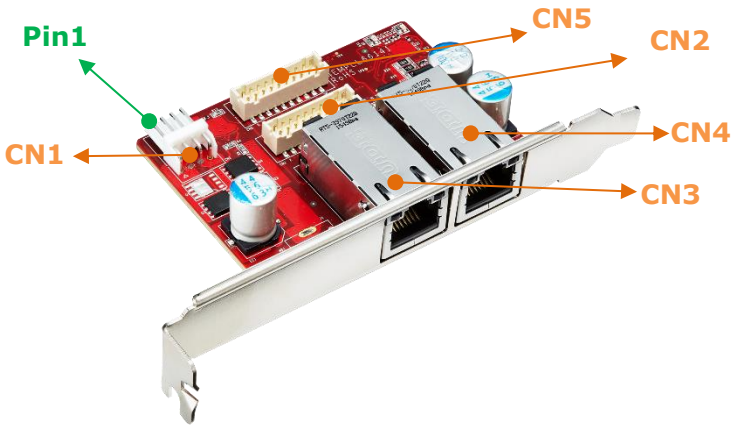


Table 8: Daughter Board PCB Layout Legend

Label	Connector Type	Function
CN1	4Pin Header	4Pin Header Power Input

CN3/ CN4	10/100/1000 Base-T RJ45 PoE DIP 16P16C 90° LED: Green-Orange/Green	PoE GbE LAN Port 10/100/1000 LED Indicator
CN2/ CN5	Wire to board SMD 2*10P 180° P:2.00mm H:4.0mm	GbE LAN Signal 10/100/1000 LED Signal

2.6.2. Pin Define

Table 9: M.2 B-M Key Pin Define

Signal Name	Pin #	Pin #	Signal Name
		75	NC
3.3V	**74**	**73**	GND
3.3V	**72**	**71**	GND
3.3V	**70**	**69**	NC
NC	**68**	**67**	RESET#
Module Key M			
NC	**58**		
NC	**56**	**57**	GND
PE_WAKE_N	**54**	**55**	CLK+
GND	**52**	**53**	CLK-
PE_RST	**50**	**51**	GND
NC	**48**	**49**	RX+
NC	**46**	**47**	RX-
NC	**44**	**45**	GND
NC	**42**	**43**	TX+
NC	**40**	**41**	TX-
NC	**38**	**39**	GND
NC	**36**	**37**	NC
NC	**34**	**35**	NC
NC	**32**	**33**	GND
NC	**30**	**31**	NC
NC	**28**	**29**	NC
NC	**26**	**27**	GND
NC	**24**	**25**	NC

NC	**22**	**23**	NC
NC	**20**	**21**	NC
Module Key B			
NC	**10**	**11**	GND
NC	**8**	**9**	NC
NC	**6**	**7**	NC
3.3V	**4**	**5**	GND
3.3V	**2**	**3**	GND
		1	NC

Table 10: 4Pin Header Power Input Pin Define

Pin #	Signal Name
1	NC
2	GND
3	GND
4	12V-24V

2.6.3. I/O Connector Mechanical Drawing & Pin Defines

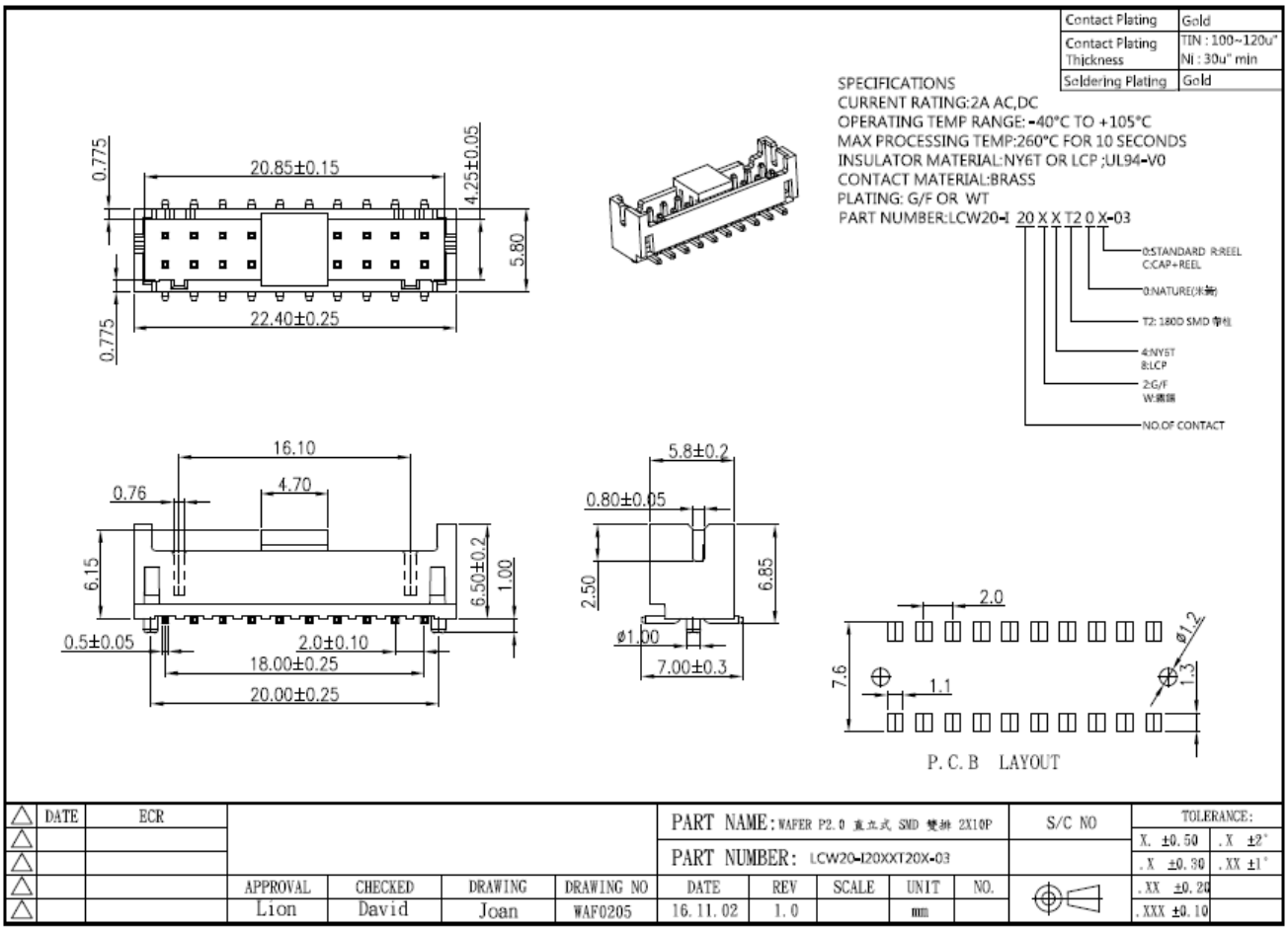


Figure 7: Wire to Board SMD 2*10P Connector Drawing

Table 11: Wire to Board SMD 2*10P Connector Pin Define

Signal Name	Pin #	Pin #	Signal Name
LINK_100_N	**2**	**1**	MDI0P_IC
LINK_ACT_N	**4**	**3**	MDI0N_IC
LINK_1000_N	**6**	**5**	MDI1P_IC
GND	**8**	**7**	MDI1N_IC
GND	**10**	**9**	MDI2P_IC
GND	**12**	**11**	MDI2N_IC
3.3V	**14**	**13**	MDI3P_IC
3.3V	**16**	**15**	MDI3N_IC
NC	**18**	**17**	NC
NC	**20**	**19**	NC

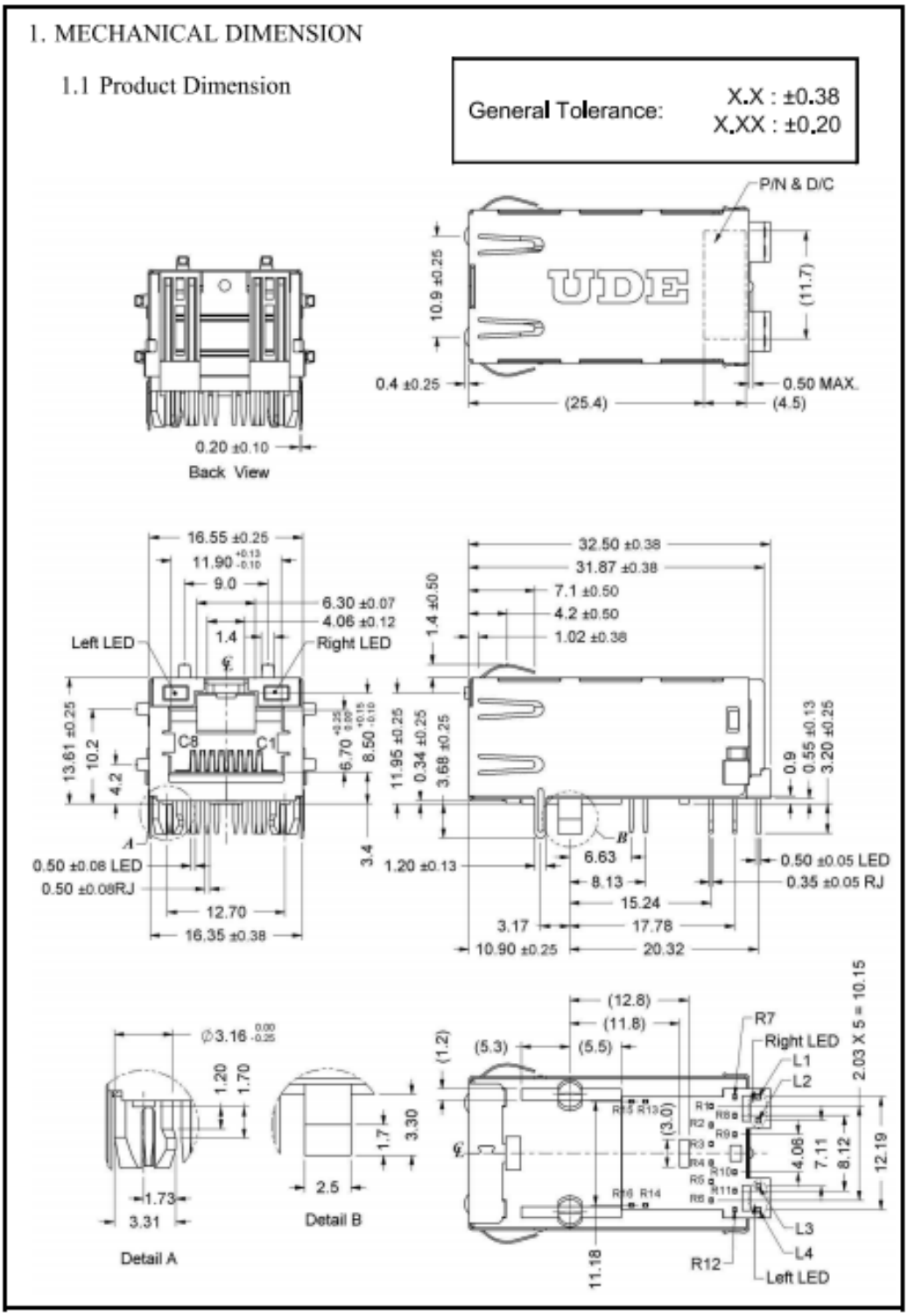
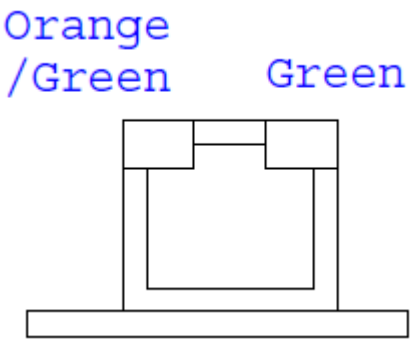


Figure 8: RJ45 Connector Drawing

Table 12: RJ45 LAN LED Table



Speed	Orange/Green (Status)	Green (Active/Link)
10M	OFF	Flash
100M	ON (Green)	Flash
1G	ON (Orange)	Flash

2.6.4. EGPL-G2P1 Mechanical Drawing

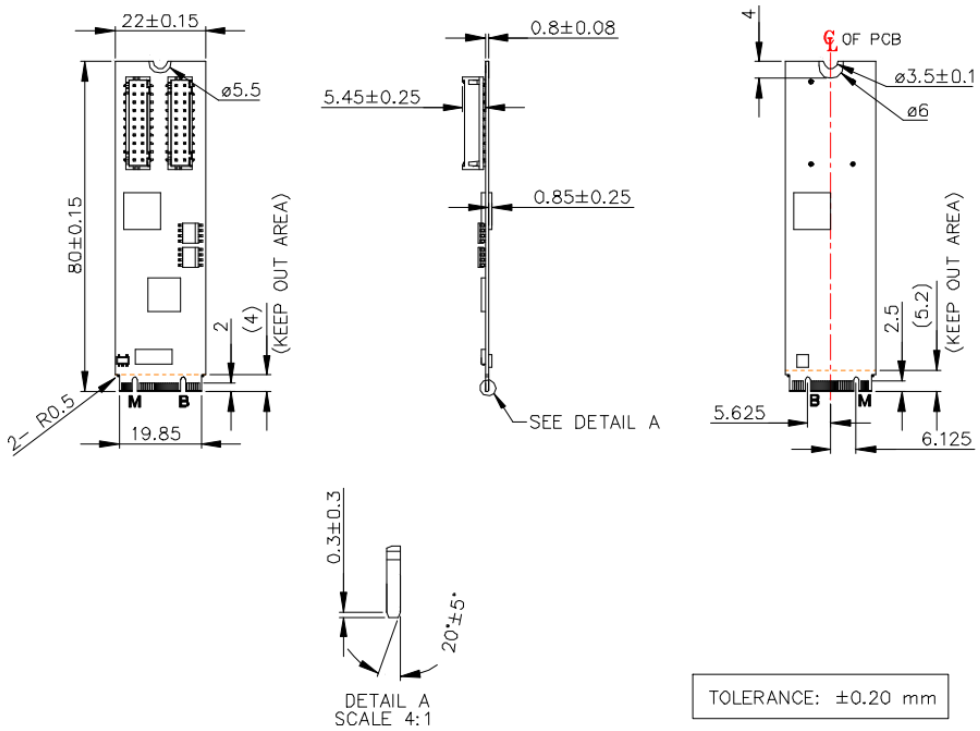


Figure 9: EGPL-G2P1 M.2 Board Drawing

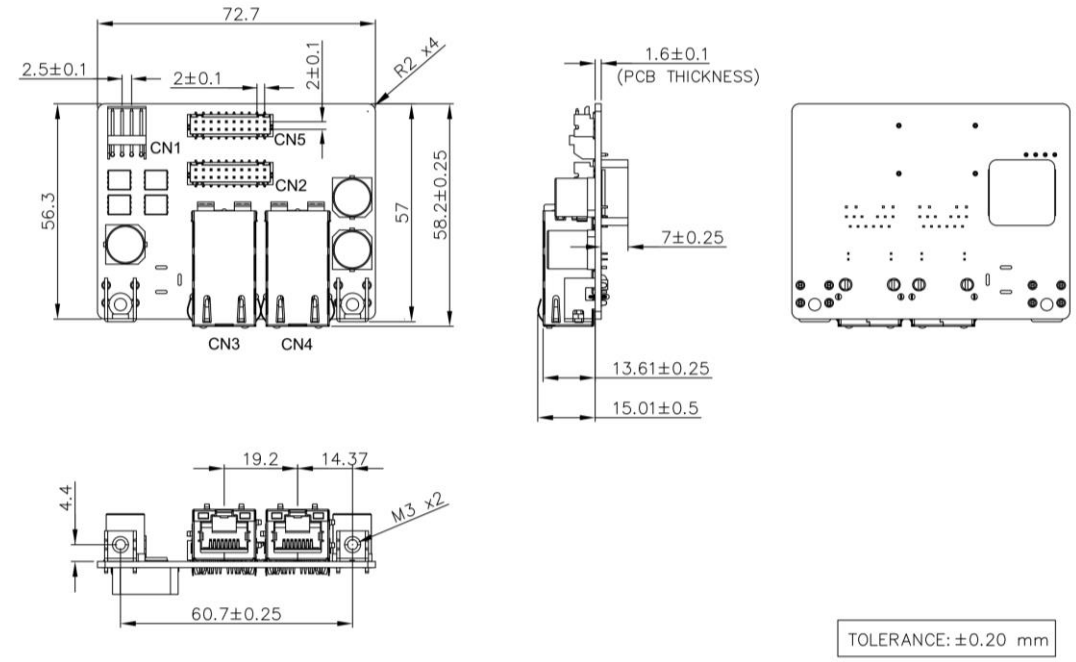


Figure 10: Mounting Hole Daughter Board Drawing - 4Pin Header (EGPL-G2P1-C1/W1)

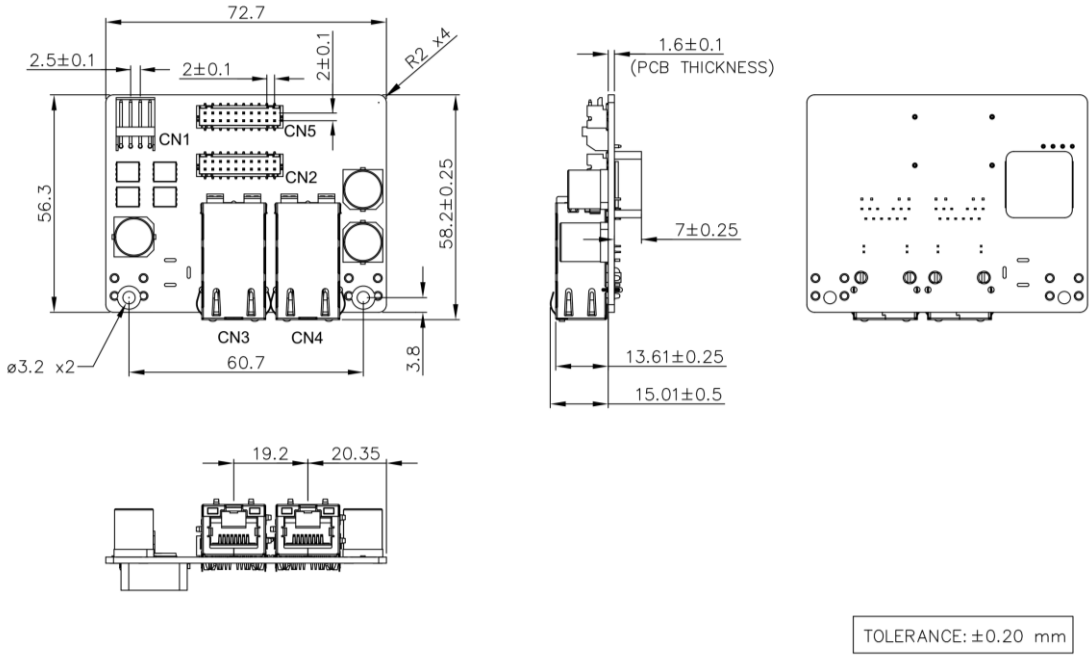


Figure 11: Bracket Daughter Board Drawing - 4Pin Header (EGPL-G2P1-C2/W2)

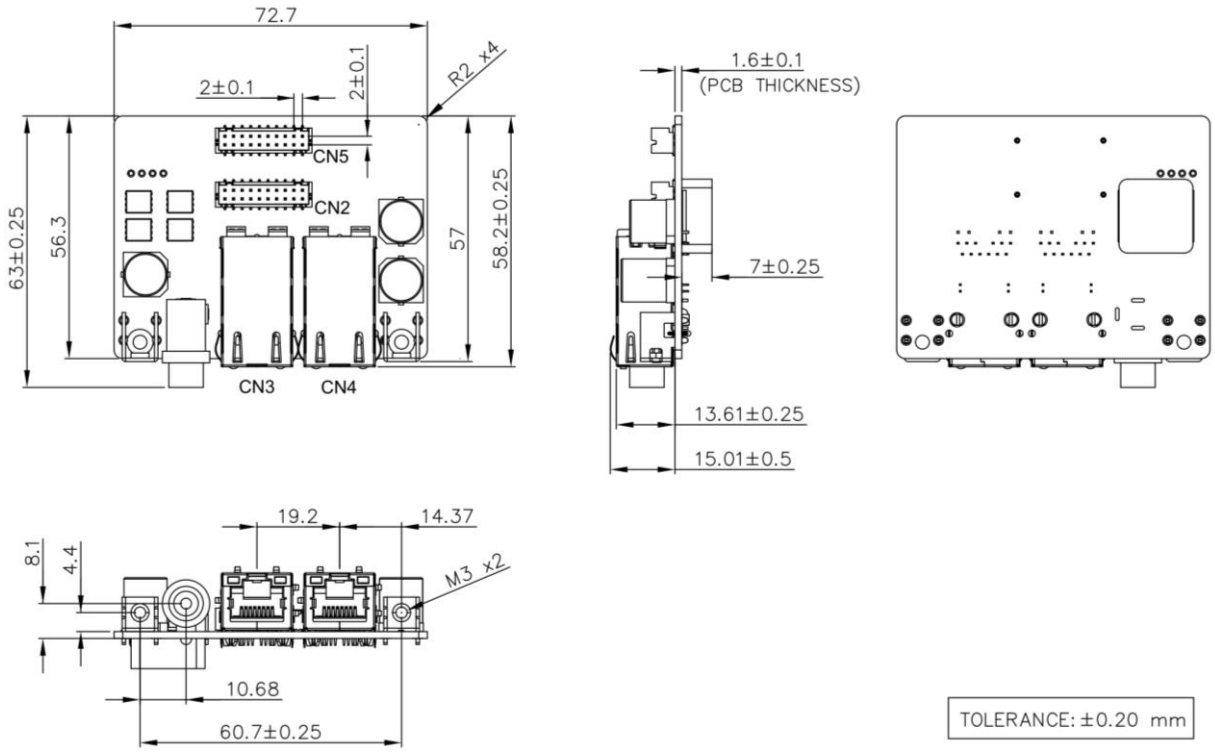


Figure 12: Mounting Hole Daughter Board Drawing – DC Jack (EGPL-G2P1-C3/W3)

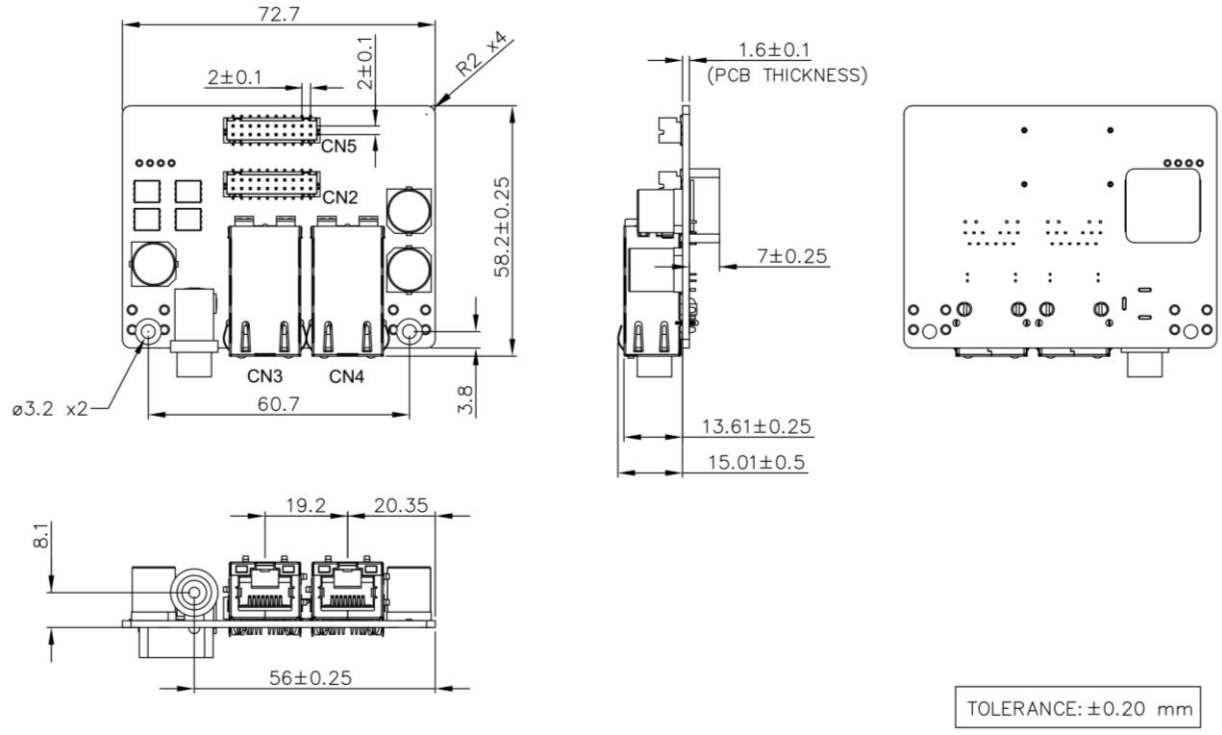


Figure 13: Bracket Daughter Board Drawing – DC Jack (EGPL-G2P1-C4/W4)

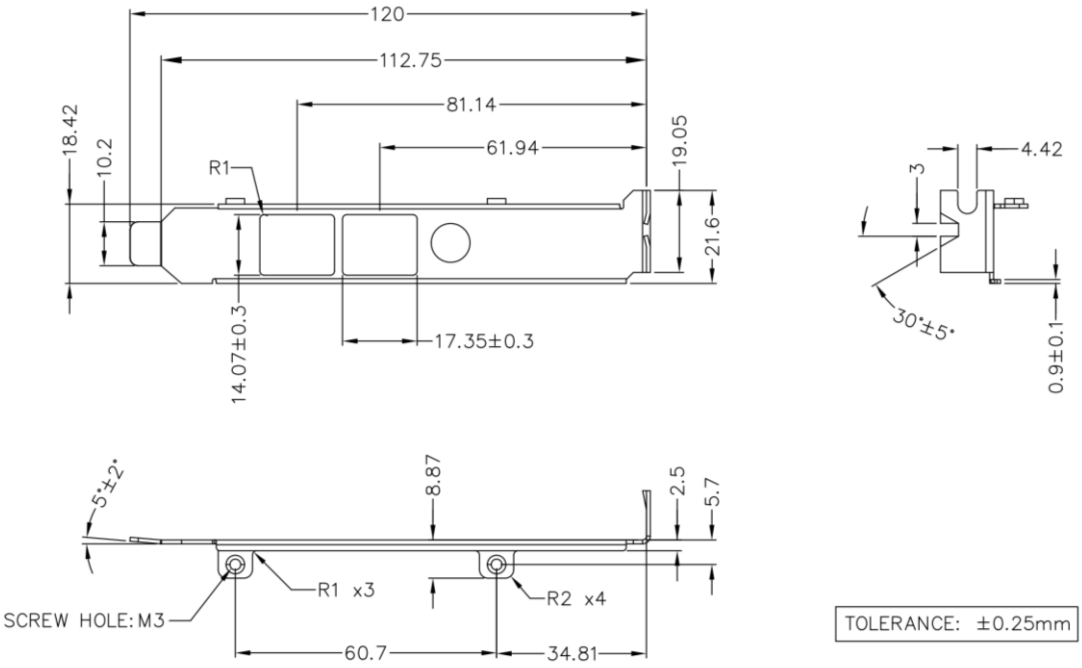


Figure 14: Bracket Drawing

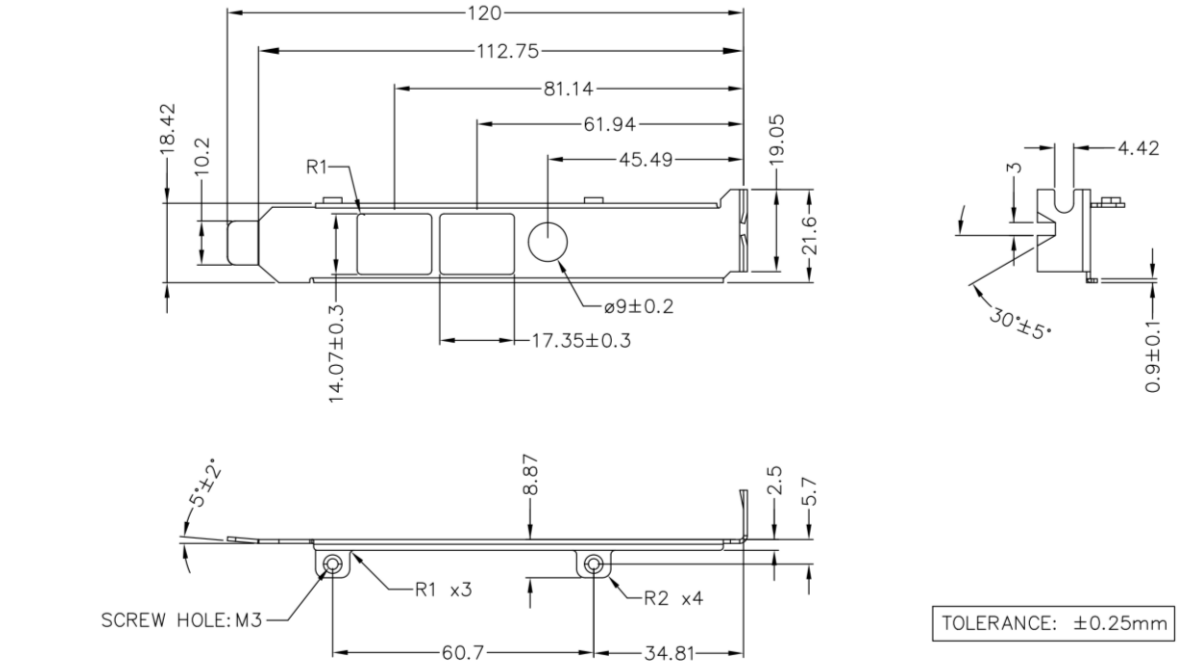


Figure 15: Bracket + DC Jack Drawing

2.6.5. Cable Mechanical Drawing

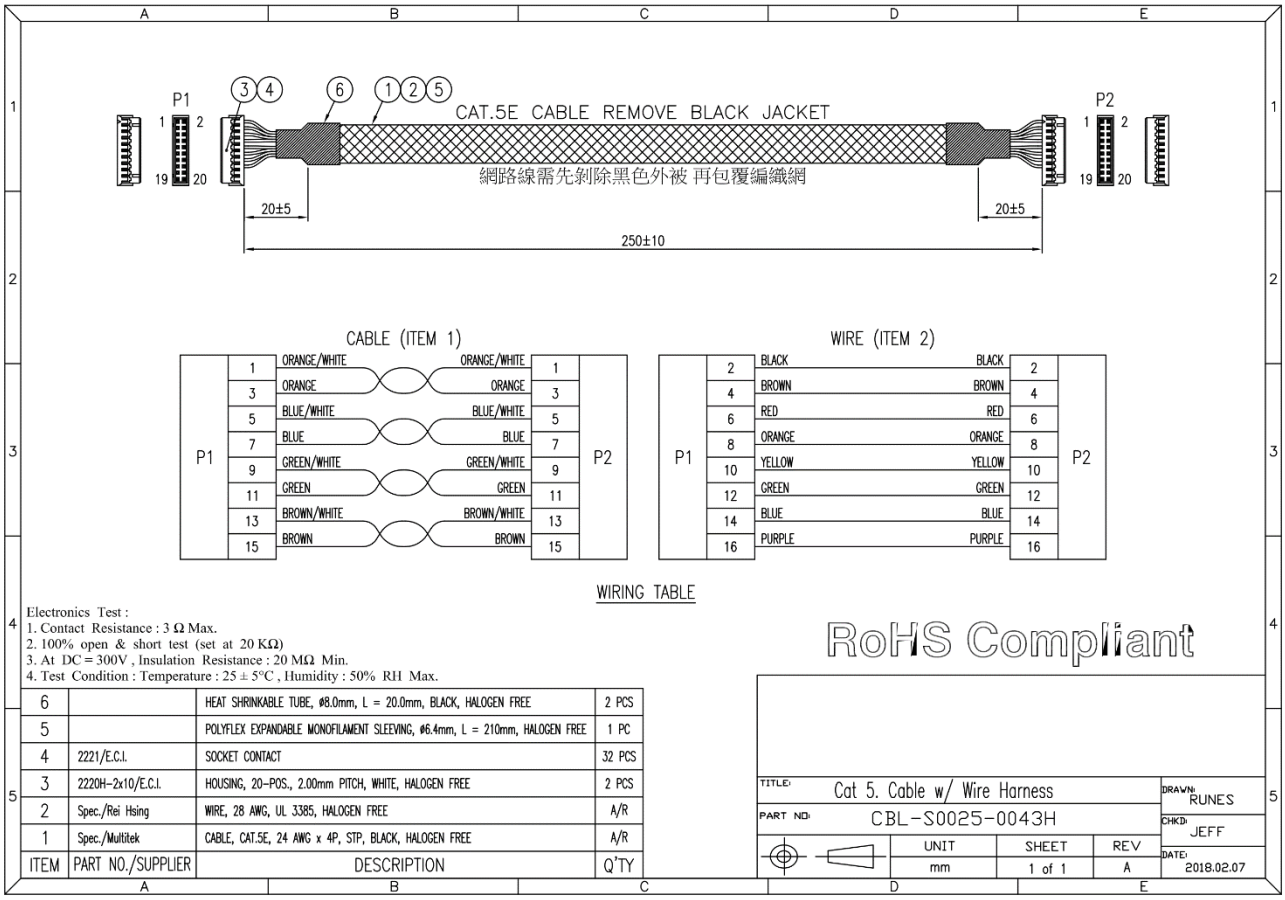


Figure 16: Board to Board LAN Cable Drawing

2.6.6. Packing List

- EGPL-G2P1 M.2 Board x 1
- EGPL-G2P1 Daughter Board x 1
- Board to Board LAN Cable x 2
- Bracket x 1 (EGPL-G2P1-C2/W2/C4/W4 only)
- Screw M3*5 Silver x 2 (EGPL-G2P1 C2/W2/C4/W4 only)

2.7. Software Support

- Windows: XP(32bit), 7(32/64bit), 8/8.1(32/64 bit), 10(32/64bit)
- Linux: Kernel 2.4 above.

3. Installation Guide

Please download driver from Myinnodisk web site.
https://myinnodisk.innodisk.com/myinnodisk/Login.aspx

Or you can download intel i210 chip driver from intel official web site directly.
https://downloadcenter.intel.com/product/64399/Intel-Ethernet-Controller-I210-Series

4. Appedix

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宜鼎國際股份有限公司
Innodisk Corporation
REACH Declaration

Tel:(02)7703-3000 Fax:(02) 7703-3555 Internet: http://www.innodisk.com/

We hereby confirm that the product(s) delivered to

Innodisk P/N	Description
All Innodisk EP Products	

☐ contain(s) no hazardous substances or constituents exceeding the defined threshold 0.1 % by weight in homogenous material if not otherwise specified, as described in the candidate list table currently including 191 substances and shown on the ECHA website (http://echa.europa.eu/de/candidate-list-table).

☑ contain(s) one or more hazardous substances or constituents exceeding 0.1 % by weight in homogenous material if not otherwise specified in candidate list table. Where the threshold value is exceeded, the substances in question are to be declared in accompanying Appendix A & B.

Guarantor

Company name 公司名稱： Innodisk Corporation 宜鼎國際股份有限公司

Company Representative 公司代表人： Randy Chien 簡川勝

Company Representative Title 公司代表人職稱： Chairman 董事長

Date 日期： 2018 / 07 / 27

innodisk

宜鼎國際股份有限公司
Innodisk Corporation

Tel:(02)7703-3000 Fax:(02) 7703-3555 Internet: http://www.innodisk.com/

RoHS 自我宣告書(RoHS Declaration of Conformity)

Manufacturer Product: All Innodisk EP products

一、 宜鼎國際股份有限公司（以下稱本公司）特此保證售予貴公司之所有產品，皆符合歐盟 2011/65/EU 及(EU) 2015/863 關於 RoHS 之規範要求。

Innodisk Corporation declares that all products sold to the company, are complied with European Union RoHS Directive (2011/65/EU) and (EU) 2015/863 requirement.

二、 本公司同意因本保證書或與本保證書相關事宜有所爭議時，雙方宜友好協商，達成協議。

Innodisk Corporation agrees that both parties shall settle any dispute arising from or in connection with this Declaration of Conformity by friendly negotiations.

Name of hazardous substance	Limited of RoHS ppm（mg/kg）
鉛（Pb）	< 1000 ppm
汞（Hg）	< 1000 ppm
鎘（Cd）	< 100 ppm
六價鉻（Cr 6+）	< 1000 ppm
多溴聯苯（PBBs）	< 1000 ppm
多溴二苯醚（PBDEs）	< 1000 ppm
鄰苯二甲酸二(2-乙基己基)酯（DEHP）	< 1000 ppm
鄰苯二甲酸丁酯苯甲酯（BBP）	< 1000 ppm
鄰苯二甲酸二丁酯（DBP）	< 1000 ppm
鄰苯二甲酸二異丁酯（DIBP）	< 1000 ppm

立 保 證 書 人 (Guarantor)

Company name 公司名稱： Innodisk Corporation 宜鼎國際股份有限公司

Company Representative 公司代表人： Randy Chien 簡川勝

Company Representative Title 公司代表人職稱： Chairman 董事長

Date 日期： 2018 / 07 / 01

Certificate

Issue Date: December 2, 2016
Ref. Report No. ISL-16LE568CE

Product Name	:	mPCIe to dual GbE PoE Module
Model(s)	:	E%PL-G#P1 (%: Form factor: (2: 2.5"SSD,3:DDR3 DIMM,D:Dongle,G:NGFF_M.2,H:mPCIe Half,L:PCIe Low profile,M:mPCIe,S:PCIe Standard,X:Multi,Z:Others) #: Output items: (1:1Port,2:2Ports,3:3Ports,4:4Ports,A~Z:TBD,X:Multi)
Responsible Party	:	Innodisk Corporation
Address	:	5F., No.237, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

We, **International Standards Laboratory**, hereby certify that:

The device bearing the trade name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in European Council Directive- EMC Directive 2014/30/EU. The device was passed the test performed according to :

CE

Standards:

EN 55032:2015 and CISPR 32:2015
AS/NZS CISPR 32:2015
EN 61000-3-2:2014 and IEC 61000-3-2:2014
EN 61000-3-3: 2013 and IEC 61000-3-3: 2013
EN 55024: 2010+A1:2015 and CISPR 24: 2010+A1:2015
EN 61000-4-2: 2009 and IEC 61000-4-2: 2008
EN 61000-4-3: 2006+A1: 2008 +A2: 2010 and
IEC 61000-4-3:2006+A1: 2007+A2: 2010
EN 61000-4-4:2012 and IEC 61000-4-4:2012
EN 61000-4-5: 2014 and IEC 61000-4-5: 2014
EN 61000-4-6:2014+AC:2015 and IEC 61000-4-6:2013
EN 61000-4-8: 2010 and IEC 61000-4-8: 2009
EN 61000-4-11: 2004 and IEC 61000-4-11: 2004

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

International Standards Laboratory

W.H. Chang / Director

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Nemko ELA113A

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Tel: 886-3-407-1718; Fax: 886-3-407-1738

BSMI TAF Nemko ELA113B

Certificate

Issue Date: December 2, 2016
Ref. Report No. ISL-16LE568FA

Product Name : mPCIe to dual GbE PoE Module
Model(s) : E%PL-G#P1
(%: Form factor: (2: 2.5"SSD,3:DDR3 DIMM,D:Dongle,G:NGFF_M.2,H:mPCIe Half,L:PCIe Low profile,M:mPCIe,S:PCIe Standard,X:Multi,Z:Others)
#: Output items: (1:1Port,2:2Ports,3:3Ports,4:4Ports,A~Z:TBD,X:Multi)
Applicant : Innodisk Corporation
Address : 5F., No.237, Sec. 1, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

We, **International Standards Laboratory**, hereby certify that:

The device bearing the trade name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified. (refer to Test Report if any modifications were made for compliance).

Standards:

FCC CFR Title 47 Part 15 Subpart B: 2015- Section 15.107 and 15.109
ANSI C63.4-2014
Industry Canada Interference-Causing Equipment Standard ICES-003 Issue 6: 2016
Class A

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

International Standards Laboratory

W.H. Chang / Director

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December 28, 2022