Certificate

Issue Date: November 28, 2016
Ref. Report No. ISL-15LE597CE-R1-MA

Product Name	:	PHANES-HR 2.5" SATA III SSD
Model(s)	:	7SR
Brand	:	APRO
Responsible Party	:	APRO CO., LTD.
Address	:	11F-5, No.738, Zongzheng Rd., Zonghe Dist. New Taipei City, 23511 Taiwan.

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 55022: 2010+AC2011 and CISPR 22: 2008 (modified)
AS/NZS CISPR 22:2009 with Amdt 1 (2010) (CISPR 22 Ed. 6.0)
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

☐ **Hsi-Chih LAB**:
No. 65, Gu Dai Keng Street, Hsi-Chih Dist.,
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Nemko ELA113A

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TAF Nemko ELA113B

CE MARK TECHNICAL FILE

AS/NZS EMC CONSTRUCTION FILE

of

Product Name

PHANES-HR 2.5” SATA III SSD

Model

7SR

Brand

APRO

Contains:

1. Declaration of Conformity
2. EN55022/CISPR 22, AS/NZS CISPR 22 EMI test report
3. EN55024/CISPR 24, EN61000-3-2 / IEC 61000-3-2, and EN61000-3-3 / IEC 61000-3-3 test report
4. Block Diagram and Schematics
5. Users’ manual

Declaration of Conformity

Name of Responsible Party:	APRO CO., LTD.
Address of Responsible Party:	11F-5, No.738, Zongzheng Rd., Zonghe Dist. New Taipei City, 23511 Taiwan.
Declares that product:	PHANES-HR 2.5" SATA III SSD
Model:	7SR
Brand:	APRO
Assembled by:	Same as above
Address:	Same as above

Conforms to the EMC Directive 2014/30/EU as attested by conformity with the following harmonized standards:

EN 55022:2010+AC:2011, CISPR 22:2008 (modified): Limits and methods of measurement of Radio Interference characteristics of Information Technology Equipment.
AS/NZS CISPR 22:2009 with Amdt 1 (2010) (CISPR 22 Ed. 6.0): Information technology equipment - Radio disturbance characteristics-Limits and methods of measurement
EN 55024:2010+A1:2015 and CISPR 24:2010+A1:2015: Information technology equipment- Immunity characteristics - Limits and methods of measurement.

Standard	Description	Results	Criteria
EN 61000-4-2:2009 IEC 61000-4-2:2008	Electrostatic Discharge	Pass	B
EN 61000-4-3:2006+A1:2008 +A2:2010 IEC 61000-4-3:2006+A1:2007+A2:2010	Radio-Frequency, Electromagnetic Field	Pass	A
EN 61000-4-4:2012 IEC 61000-4-4:2012	Electrical Fast Transient/Burst	Pass	B
EN 61000-4-5:2014 IEC 61000-4-5:2014	Surge	Pass	B
EN 61000-4-6:2014+AC:2015 IEC 61000-4-6:2013	Conductive Disturbance	Pass	A
EN 61000-4-8:2010 IEC 61000-4-8:2009	Power Frequency Magnetic Field	Pass	A
EN 61000-4-11:2004 IEC 61000-4-11:2004	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 0.5 period	Pass	B
	30% in 25 period	Pass	C
	>95% in 250 period	Pass	C

<to be continued>

Standard	Description	Results
EN 61000-3-2:2014 IEC 61000-3-2:2014	Limits for harmonics current emissions	Pass
EN 61000-3-3:2013 IEC 61000-3-3:2013	Limits for voltage fluctuations and flicker in low-voltage supply systems.	Pass

We, APRO CO., LTD., hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the requirements.

APRO CO., LTD.
Date: November 28, 2016

Declaration of Conformity

Name of Responsible Party:	APRO CO., LTD.
Address of Responsible Party:	11F-5, No.738, Zongzheng Rd., Zonghe Dist. New Taipei City, 23511 Taiwan.
Declares that product:	PHANES-HR 2.5" SATA III SSD
Model:	7SR
Brand:	APRO
Assembled by:	Same as above
Address:	Same as above

Conforms to the EMI part of RCM Mark requirements as attested by conformity with the following standards:

AS/NZS CISPR 22:2009 with Amdt 1 (2010) (CISPR 22 Ed. 6.0)
Information technology equipment - Radio disturbance characteristics-Limits and methods of measurement

We, APRO CO., LTD., hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the requirements.

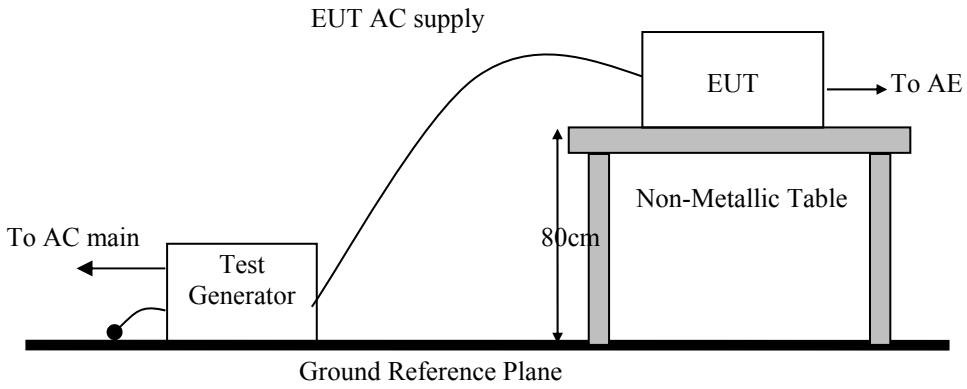
APRO CO., LTD.
Date: November 28, 2016

11. Voltage Dips, Short Interruption and Voltage Variation immunity

11.1 Test Specification

Port:	AC mains
Basic Standard:	EN 61000-4-11/ IEC 61000-4-11 (details referred to Sec 1.2)
Test Level: Criteria:	>95% in 0.5 period B
Test Level: Criteria:	30% in 25 period C
Test Level: Criteria:	>95% in 250 period C
Phase:	0°; 180°
Test intervals:	3 times with 10s each
Test Procedure	refer to ISL QA -T4-E-S13
Temperature:	21°C
Humidity:	55%

11.2 Test Setup



11.3 Test Result

Performance of EUT complies with the given specification.

11.4 Test Setup Photo

12. Harmonics

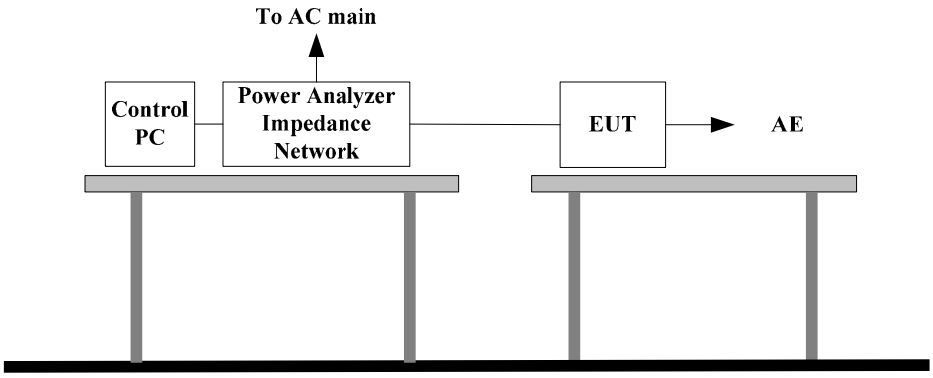
12.1 Test Specification

Port:	AC mains
Active Input Power:	<75W
Basic Standard:	EN61000-3-2/IEC 61000-3-2 (details referred to Sec 1.2)
Test Duration:	2.5min
Class:	D
Test Procedure	refer to ISL QA -T4-E-S14
Temperature:	21°C
Humidity:	55%

Test Procedure

The EUT is supplied in series with shunts or current transformers from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the EUT. The EUT is configured to its rated current with additional resistive load when the testing is performed.
Equipment having more than one rated voltage shall be tested at the rated voltage producing the highest harmonics as compared with the limits.

12.2 Test Setup



12.3 Test Result

Active input power under 75W, no limit apply, declare compliance.

13. Voltage Fluctuations

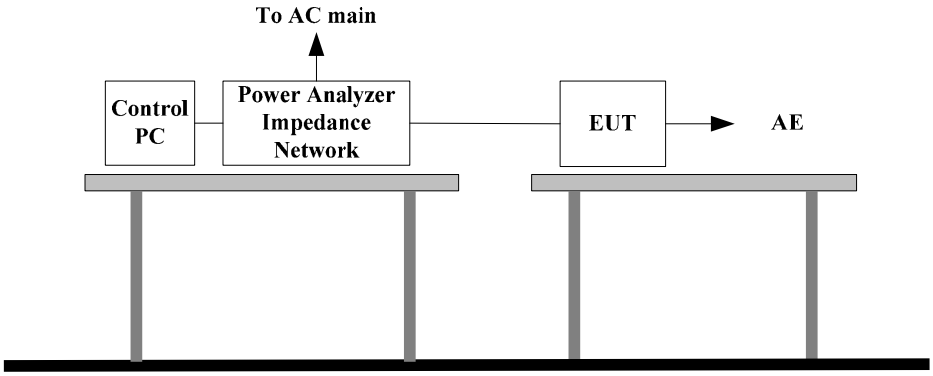
13.1 Test Specification

Port:	AC mains
Basic Standard:	EN61000-3-3/IEC61000-3-3 (details referred to Sec 1.2)
Test Procedure	refer to ISL QA -T4-E-S14
Observation period:	For Pst 10min
	For Plt 2 hours
Temperature:	21°C
Humidity:	55%

Test Procedure

The EUT is supplied in series with reference impedance from a power source with the voltage and frequency as the nominal supply voltage and frequency of the EUT.

13.2 Test Setup



13.3 Test Result

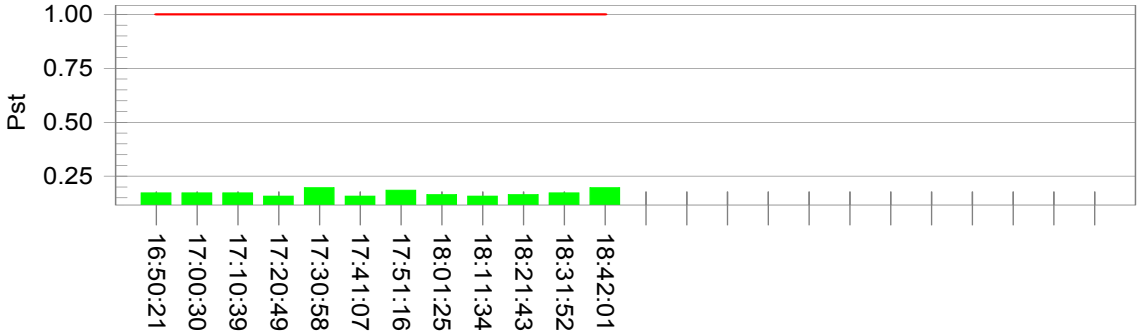
Performance of EUT complies with the given specification.

13.4 Test Data

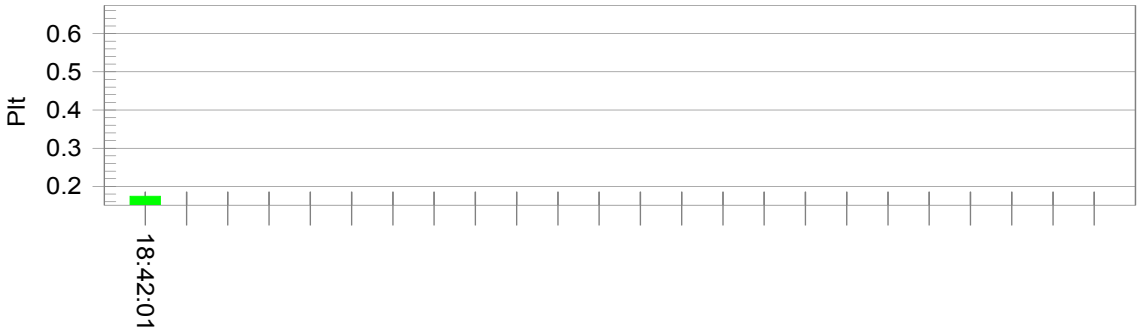
Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

Test Result: Pass **Status: Test Completed**

Pst_i and limit line **European Limits**



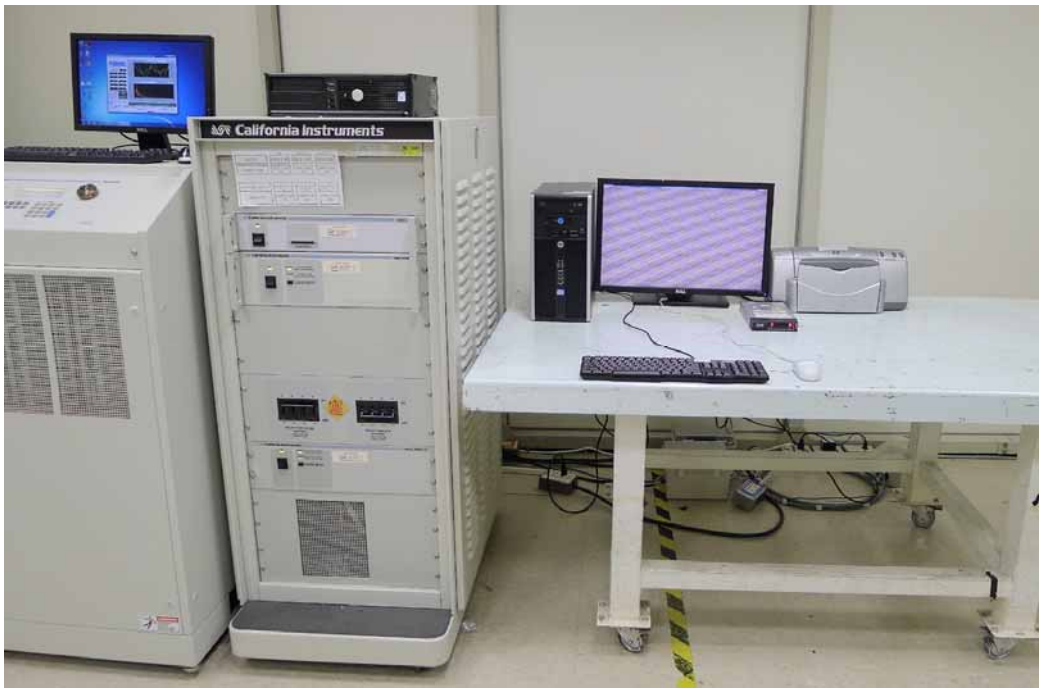
Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**229.75**			
Highest dt (%):	**0.00**	**Test limit (%):**	**N/A**	**N/A**
T-max (mS):	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**-0.07**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.198**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.174**	**Test limit:**	**0.650**	**Pass**

13.5 Test Setup Photo



14. Appendix

14.1 Appendix A: Test Equipment

14.1.1 Test Equipment List

Location Con02	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conduction 02	LISN 15	R&S	ENV216	101335	09/18/2015	09/18/2016
Conduction 02	LISN 06	ROHDE&SCHWARZ	ESH3/Z5	828874/009	03/26/2015	03/26/2016
Conduction 02	Conduction 02-1 Cable	WOKEN	CFD 300-NL	Conduction 02 -1	07/17/2015	07/17/2016
Conduction 02	EMI Receiver 14	ROHDE& SCHWARZ	ESCI	101034	06/04/2015	06/04/2016

Location Chamber02	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Radiation (Chamber02)	BILOG Antenna 15	Teseq GmbH	CBL6112D	27622	01/29/2015	01/29/2016
Radiation (Chamber02)	Coaxial Cable Chmb 02-10M-02	MIYAZAK	8D-FB	Chmb 02-10M-02	10/02/2015	10/02/2016
Radiation (Chamber02)	EMI Receiver 12	ROHDE & SCHWARZ	ESCI	100804	08/06/2015	08/06/2016

Location Chmb14	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Rad. Above 1GHz	Spectrum Analyzer 24 (1G~26.5GHz)	Agilent	N9010A	MY49060537	07/30/2015	07/30/2016
Rad. Above 1GHz	Horn Antenna 06 (1G~18G)	ETS	3117	00066665	11/30/2015	11/30/2016
Rad. Above 1GHz	Preamplifier 13 (1G-18G)	MITEQ	JS44-00101800-25-10P-44	1329256	07/28/2015	07/28/2016
Rad. Above 1GHz	Microwave Cable 25 (1G-18G)	EMC Instruments	EMC104-NM-SM-6000	141111	11/25/2015	11/25/2016
Rad. Above 1GHz	Microwave Cable 26 (1G-18G)	EMC Instruments	EMC104-NM-SM-800	141112	11/25/2015	11/25/2016

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
EN61K-4-2	ESD Gun 05	EM TEST	Dito	V0640101838	06/12/2015	06/12/2016
EN61K-4-3	Broadband Log-Periodic Antenna	AR	AT1080	310698	N/A	N/A
EN61K-4-3	Horn Antenna RF-01	AR	ATS700M11G	0335864	N/A	N/A
EN61K-4-3	Amplifier 80Mz~1GHz 250W	AR	250W1000A	312494	N/A	N/A
EN61K-4-3	Amplifier 800MHz~4.2GHz 50W	AR	50S1G4M1	312762	N/A	N/A
EN61K-4-3	Amplifier	AR	35S4G8AM1	0335752	N/A	N/A

	4.0~8.0GHz 35W					
EN61K-4-3	Broadband Coupler 80M~1GHz	Amplifier Research	DC6180A	0341805	N/A	N/A
EN61K-4-3	Coaxial Cable	INSULATED	NPS-4806-2360-NP3	108599.003.01.03	N/A	N/A
EN61K-4-3	Broadband Coupler 0.8G~4.26GHz	AR	DC7144A	0335226	N/A	N/A
EN61K-4-3	Broadband Coupler 4G~8GHz	AR	DC7350A	0335817	N/A	N/A
EN61K-4-3	Signal Generator 07	ROHDE& SCHWARZ	SMB100A	107780	09/09/2015	09/09/2016
EN61K-4-4	EFT and SURGE Test System	EM TEST	UCS-500 M6B	V0728102674	12/23/2014	12/23/2015
EN61K-4-4	Capacitive Coupling Clamp	EM TEST	HFK	0907-106	12/23/2014	12/23/2015
EN61K-4-5	CDN-UTP8	EMC-PARTNER	CDN-UTP8	017	03/25/2015	03/25/2016
EN61K-4-5	SURGE-TESTER	EMC Partner	MIG0603IN3	523	03/25/2015	03/25/2016
EN61K-4-6	CDN M2+M3 04	Frankonia	CDN M2+M3	A2210235/2013	08/19/2015	08/19/2016
EN61K-4-6	CDN T2 04	FCC Inc.	FCC-801-T2	02067	08/19/2015	08/19/2016
EN61K-4-6	CDN T4 06	FCC Inc.	FCC-801-T4	02017	02/04/2015	02/04/2016
EN61K-4-6	CDN T8 03	FCC Inc.	FCC-801-T8	101193	08/19/2015	08/19/2016
EN61K-4-6	Coaxial Cable 4-6 02-1			4-6 02-1	N/A	N/A
EN61K-4-6	Conducted Immunity Test System 02	Frankonia	CIT-10-75-DC	126B1301/2014	02/06/2015	02/06/2016
EN61K-4-6	EM-Clamp	Schaffner	KEMZ-801	19215	N/A	N/A
EN61K-4-8	Magnetic Field Immunity Loop	FCC	F-1000-4-8-L-1M	01037	06/05/2015	06/05/2016
EN61K-4-8	Magnetic Field Test Generator	FCC	F-1000-4-8-G-125A	01038	06/05/2015	06/05/2016
EN61K-4-11	Voltage Dip and UP Simulator	NoiseKen	VDS-2002	VDS0640162	10/15/2015	10/15/2016
EN61K-4-34	Voltage Dip and UP Simulator	EM Test	PFS-503	V0728102676	01/28/2015	01/28/2016
EN61K-3-2/3, EN61K-3-11-12	(Harmonic/Flicker) MX Series CTSH Compliance Test System	California Instruments	MX60T04GH 10400	72793	06/01/2015	06/01/2016

PS: N/A => The equipment does not need calibration.

14.1.2 Software for Controlling Spectrum/Receiver and Calculating Test Data

Test Item	Filename	Version
EN61000-3-2	California Instruments	CTS 4 <4.9.0>
EN61000-3-3	California Instruments	CTS 4 <4.9.0>
EN61000-4-2	N/A	2.0
EN61000-4-3	i2	4.130102k
EN61000-4-4	EMC TEST	4.10
EN61000-4-5	EMC Partner	1.69
EN61000-4-6	EMC Partner	2.22
EN61000-4-8	N/A	
EN61000-4-11	NOISE KEN	2.0

Site	Filename	Version	Issue Date
Conduction/Radiation	EZ EMC	ISL-03A2	3/6/2013

14.2 Appendix B: Uncertainty of Measurement

The measurement uncertainty refers to CISPR 16-4-2:2011. The coverage factor k = 2 yields approximately a 95 % level of confidence.

<Conduction 02>
AMN: ±2.88dB

<Chamber 02 (10M)>
Horizontal
30MHz~200MHz: ±4.38dB
200MHz~1000MHz: ±4.12dB
Vertical
30MHz~200MHz: ±4.57dB
200MHz~1000MHz: ±4.10dB

<Chamber 14 (3M)>
1GHz~6GHz: ±4.94dB

<Immunity 02>

Test item	Uncertainty	Test item	Uncertainty
EN 61000-4-2 (ESD)		EN 61000-4-6 (CS)	
Rise time tr	≦ 15%	CDN	± 1.36dB
Peak current Ip	≦ 6.3%	EM Clamp	± 3.19dB
current at 30 ns	≦ 6.3%	EN 61000-4-8 (Magnetic)	± 5.59%
current at 60 ns	≦ 6.3%	EN 61000-4-11 (Dips)	
EN 61000-4-3 (RS)	± 2.19dB	Time	± 2.80%
EN 61000-4-4 (EFT)		Voltage	± 0.04%
voltage rise time (tr)	± 6.2%	EN 61000-4-34 (Dips)	
peak voltage value (VP)	± 8.6%	Time	± 2.80%
voltage pulse width (tw)	± 5.9%	Voltage	± 1.70%
EN 61000-4-5 (Surge)			
Time	± 3.9%		
Voltage	± 3.9%		
Current	± 2.7%		

Test item	Uncertainty	Test item	Uncertainty
EN 61000-3-2 (Harmonics)	± 3.98 %	EN 61000-3-12 (Harmonics)	Voltage ±0.10% Current ±0.15%
EN 61000-3-3 (Fluctuations and Flicker)	± 3.98 %	EN 61000-3-11 (Fluctuations and Flicker)	Voltage ±0.10% Current ±0.15%

14.3 Appendix C: Photographs of EUT

Please refer to the File of **ISL-*15LE597*P-MB**

Appendix

Photographs of EUT

of

Product Name

PHANES-HR 2.5" SATA III SSD

Model

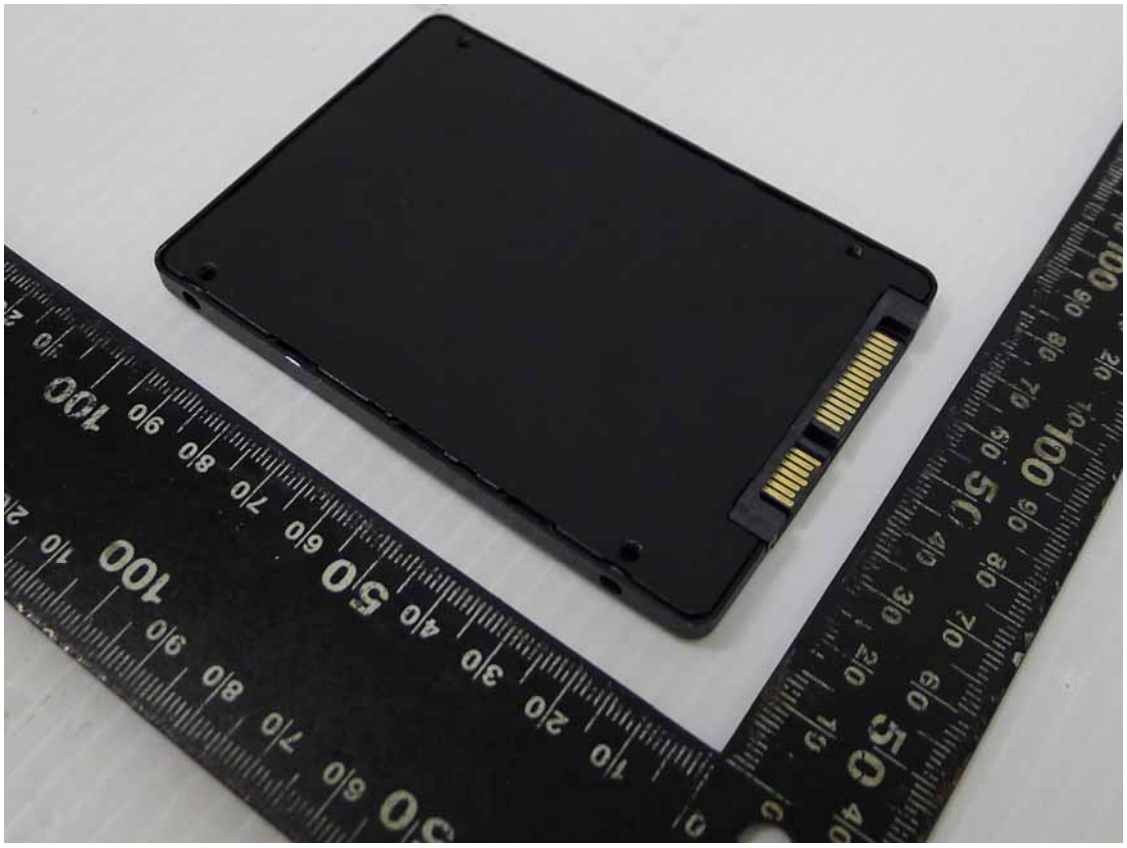
7SR

Brand

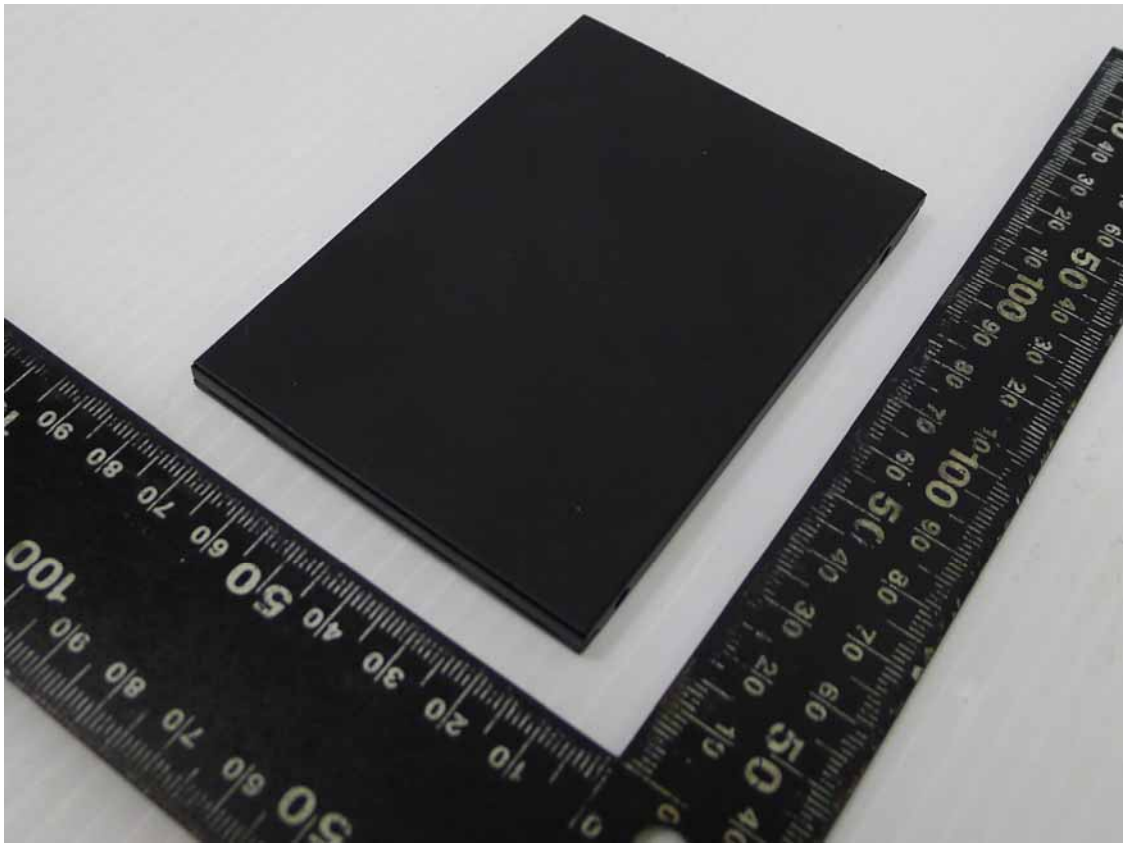
APRO

EUT-1.

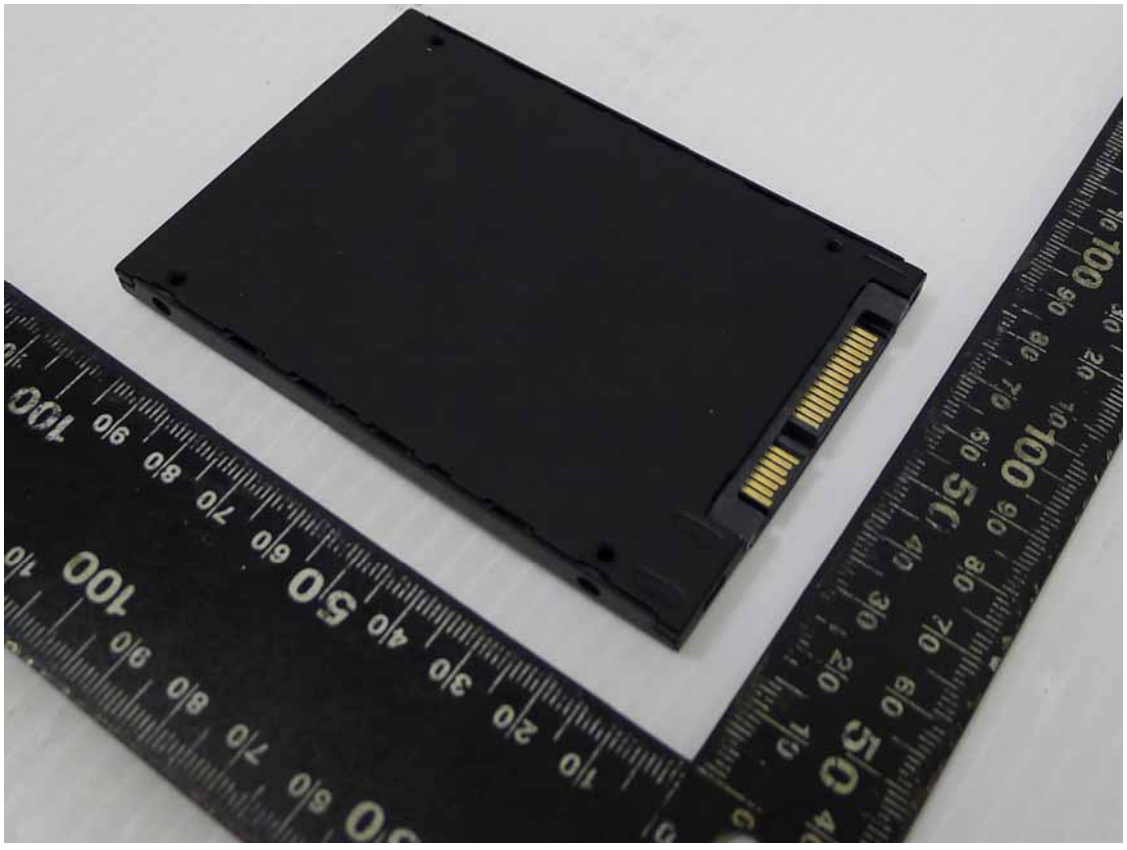
EUT-2.



EUT-3.

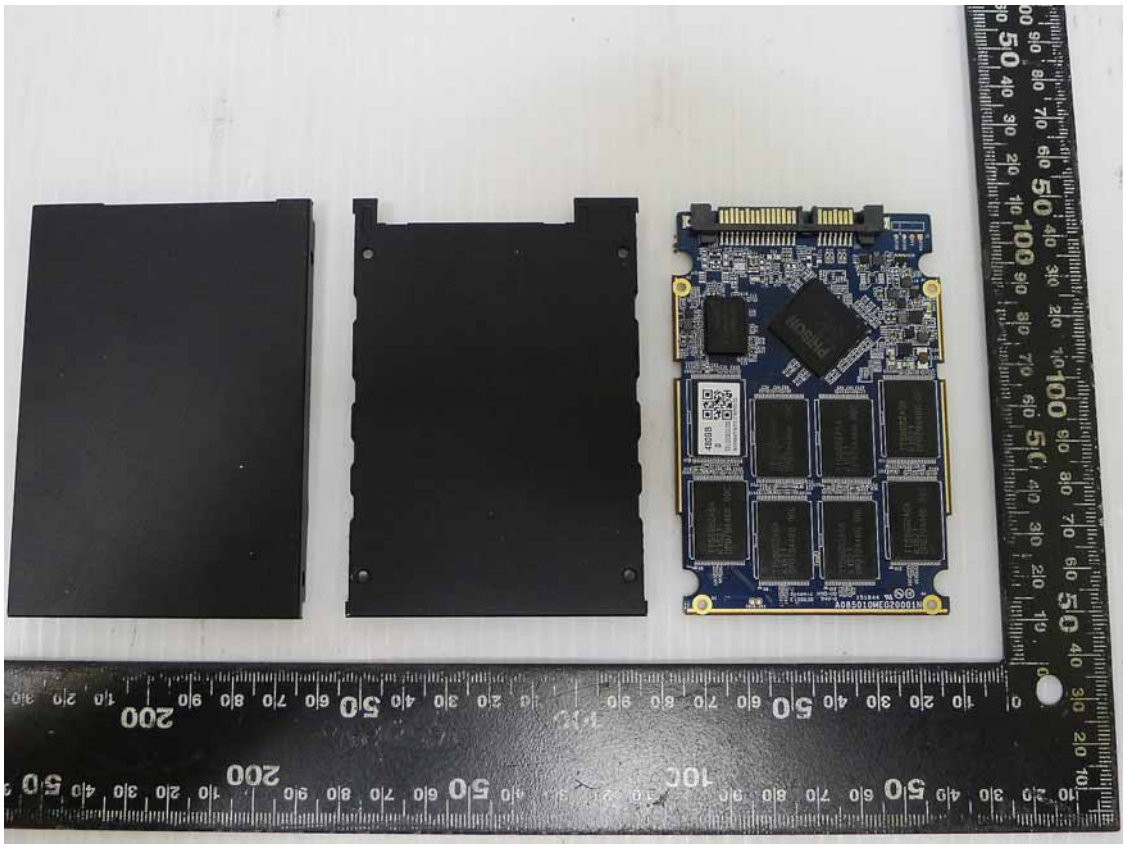


EUT-4.



EUT-5.

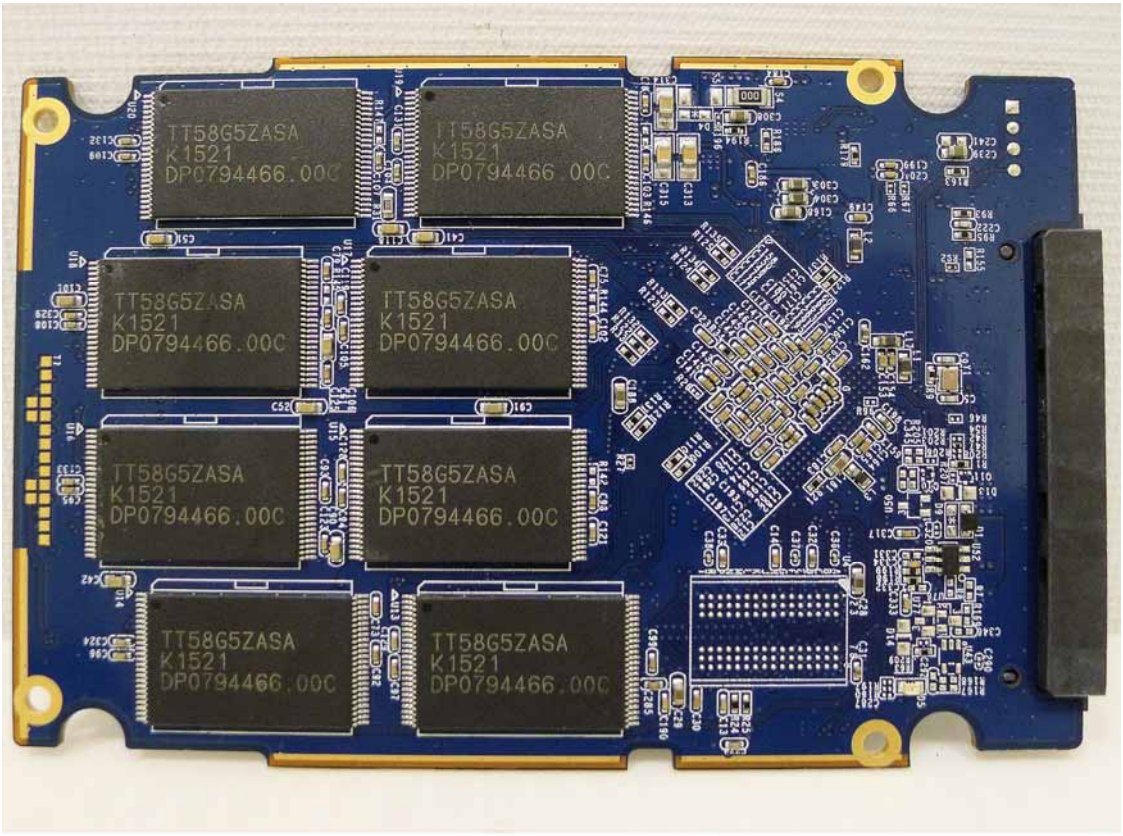
EUT-6.



EUT-7.


480GB
D
531-150611008
WARRANTY VOID IF REMOVED
TT58G5ZASA
K1521
DP0794466.00C
PHISON
PS3110-S10-X
A085010ME920001N

EUT-8.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EUT-9.