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MIL STD 1275E

TEST REPORT

For

Product Name: GPGPU Rugged system

Model Number: HORUS430-X3

Brand Name: PERFECTRON

Issued to

PERFECTRON CO.,LTD. TAIWAN BRANCH

2F., No.190, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan
(R.O.C.)

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan

TEL: 886-2-2299-9720

FAX: 886-2-2299-9721

Issued Date: February 22, 2021

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		February 22, 2021		Initial Issue	ALL	May Lin

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1. TEST RESULT CERTIFICATION

Product:	GPGPU Rugged system
Model:	HORUS430-X3
Brand:	PERFECTRON
Applicant:	PERFECTRON CO.,LTD. TAIWAN BRANCH 2F., No.190, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Manufacturer:	PERFECTRON CO.,LTD. TAIWAN BRANCH 2F., No.190, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Tested:	February 03, 2021

Standards	
MIL-STD-1275E	
Applicable Standard	Test Result
5.1.3.2.1 Injected voltage surges.	No non-compliance noted
Deviation from Applicable Standard	
MIL STD 1275E Injected voltage surges test, time between pulses is 5sec, but the laboratory can only achieve 15 sec due to equipment.	
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in MIL STD 1275E. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Sam Zeng
Asst. Supervisor
Compliance Certification Services Inc.



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2. EUT DESCRIPTION

Product	GPGPU Rugged system
Brand Name	PERFECTRON
Model	HORUS430-X3
Series Model	N/A
Model Discrepancy	N/A
Applicant	PERFECTRON CO.,LTD. TAIWAN BRANCH

Remark: For more details, please refer to the User's manual of the EUT.



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3. TEST METHODOLOGY

All tests were performed in accordance with the procedure documented in MIL STD 1275E.

4. INSTRUMENT AND CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Injected voltage surges Measurement

Injected voltage surges test (Immunity 7637 test site B)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Load Dump Generator	EM TEST	LD 200 N	P1447143711	06/02/2021
Oscilloscope	Agilent	DSO6104A	MY44008056	05/11/2021
Ultra Compact Simulator	EM TEST	UCS 200N	P1504147528	06/02/2021
Voltage Drop Simulator	EM TEST	VDS 200 N10	P1449144556	06/02/2021
Voltage Probe	KEYSIGHT	10076C	001	05/12/2021
Software	iso.control V5.4.2			

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien Dist, New Taipei City, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2299-9721



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6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support

6.2 PHOTOGRAPHS OF EUT

See test photographs attached in Appendix II for the EUT's external structure.

6.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Mouse	DELL	M056U0A	FOR0002V	NA	NA	NA
2	Keyboard	DELL	SK-8115	N/A	NA	NA	NA
3	LCD monitor	DELL	LG-HF380	GC-0700	NA	NA	NA

Remarks:

1. All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6.4 TEST SETUP

The equipment under test was configured and operated manner to battery connects EUT. EUT connects battery in standby mode for testing. EUT tends to maximize its emission characteristics in a typical application for conducted and radiated emission measurement. The EUT was active during the radiated and conducted emission measurements.

7. MIL STD 1275E REQUIREMENTS

7.1 TRANSIENT DISTURBANCES_INJECTED VOLTAGE SURGES

APPLICABILITY

Utilization equipment shall operate without degradation or damage when subjected to voltage surges within the limits shown in Figure 8. The maximum total energy content of a single surge is 60 Joules (J).

LIMIT

The test operator shall inject voltage surges into the EUT using a test setup similar to Figure 5

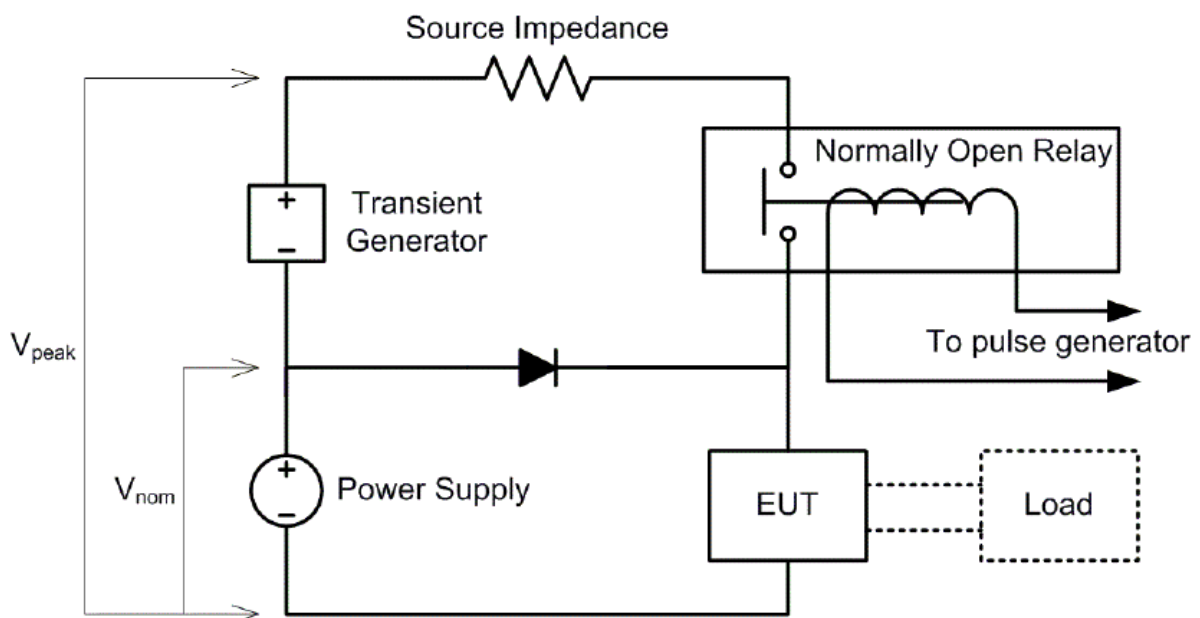


Figure 5. Sample test circuit for immunity to injected voltage surges

The voltage waveform injected on the power line(s) of the EUT shall simulate the voltage surge shown in Figure 6. The voltage surge parameters are shown in Table 2. Energy emitted from the transient surge generator shall be limited to 60 Joules.

Table 2. Positive voltage surge test parameters.

Operating Voltage (V_{nom})	Amplitude (V_{peak})	Rise Time (ms)	Duration (ms)	Source Impedance ($m\Omega$)	Number of Pulses	Time Between Pulses (s)
30 -0/+1	100 -0/+10	$1 < t < 10$	50 -0/+5	500 -25/+0	5	15

Prior to connection of the EUT, the test operator shall verify the amplitude and duration of the voltage surge specified in Table I with a non-inductive load whose resistance is matched to the source impedance of the transient generator.

Verify the EUT operates as specified while subjected to the voltage surges. Any deviation from normal operation shall be recognized as a failure of the EUT.

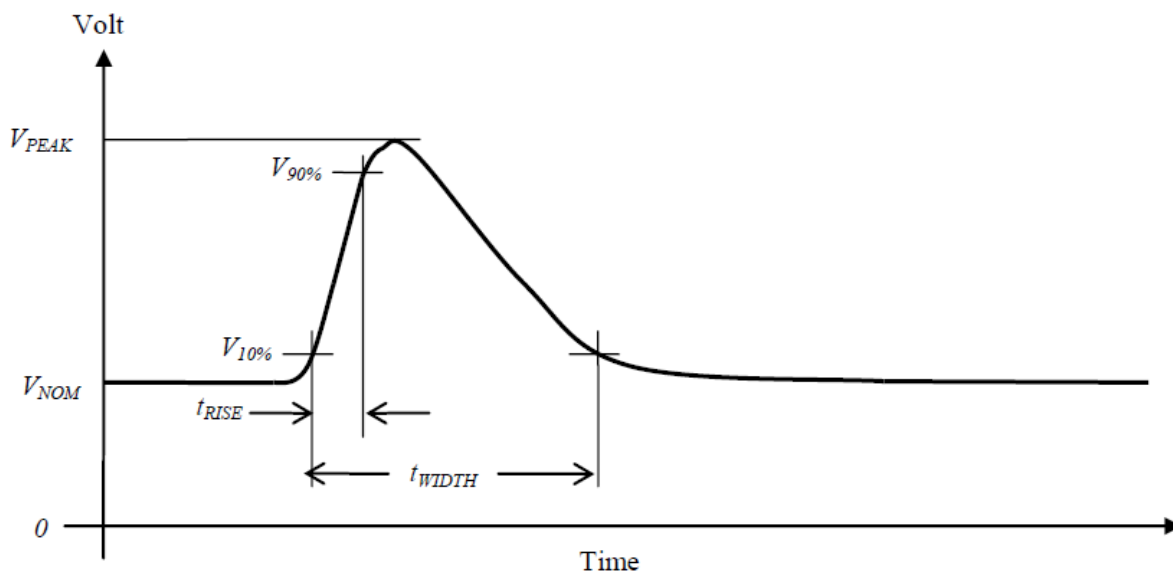
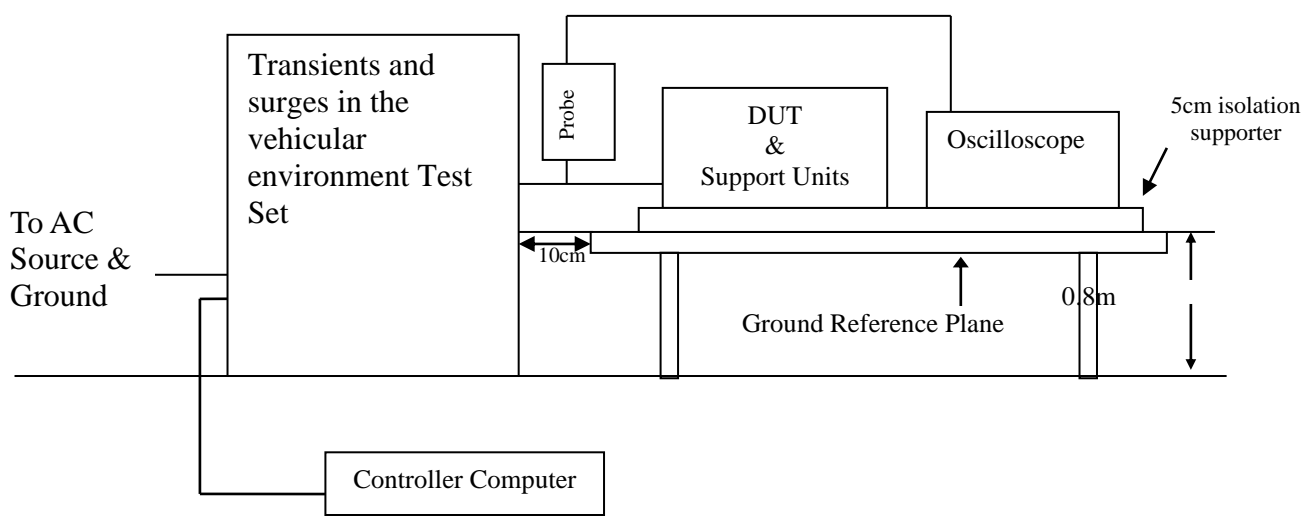


Figure 6. Sample alternator load dump waveform.

TEST CONFIGURATION



TEST PROCEDURE

The magnetic emission of EUT representative of its type shall be tested by the method(s) according to MIL 1275E.



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TEST RESULTS

No non-compliance noted

Test Pulse	Test Voltage (V _{peak})	Test requirements	Test Result	Pass / Fail
Injected voltage surges	100V	Any deviation from normal operation shall be recognized as a failure of the EUT.	During and after the test is normal.	Pass



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TEST RESULTS

No non-compliance noted

Test Data

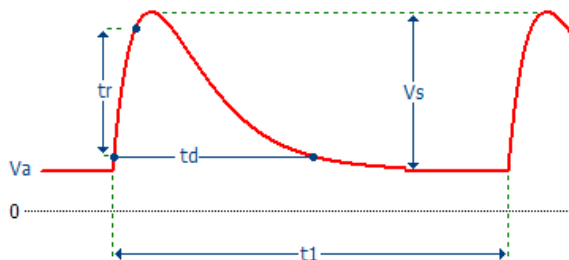
Company Name:	PERFECTRON CO.,LTD. TAIWAN BRANCH
Report No.:	T210128D05
Date of test:	February-03-2021, 14:40
Tester:	Adam Cheng
Customer:	PERFECTRON CO.,LTD. TAIWAN BRANCH
D. U. T:	GPGPU Rugged system
Standard:	MIL-STD-1275E
Application:	28 V system
Ambient Temperature:	22.0 'C
Humidity:	45 %
Pressure:	98 kPa

Test Result	
Result:	Test Passed! During and after the test is normal.

D. U. T	
Name:	GPGPU Rugged system
Serial Number:	HORUS430-X3
Operation Mode:	Standby mode
Description:	

Test Procedure			
Pulse Name:	MIL-STD-1275E : Injected voltage surges		
Test generator:	LD200N	Software No.:	000384
		Serial No.:	P1447143711
Coupling network:	UCS200N50	Serial No.:	P1504147528
Va (Alternator):	30.0 V	Current limit:	10 A
Software:	iso.control	Version:	5.4.3

Test Setup		
Vs:	+70	V
t1:	15	s
td:	50	ms
tr:	10	ms
Ri:	0.5	Ohm
Events:	5	
Test duration:	00:01:15	h



Test Result	
Pulses:	5
Result:	Test Passed! During and after the test is normal.

8. APPENDIX I PHOTOGRAPHS OF TEST SETUP

Transient disturbances _injected voltage surges



9. APPENDIX I

EXTERNAL PHOTOGRAPHS OF EUT

