

# 규격서

## Commodity Description

ITEM NO. (품목번호)	DESCRIPTION (품목 및 규격서)	Q'TY (수량)	UNIT (단위)
1	자동차램프용 LED모듈 충격시험 시스템(LED module shock test systems for automobile lamp)	1	set

### A. General Description

1. 본 장비는 자동차용 LED 모듈에 대한 기계적인 특성을 평가 및 분석하기 위한 장비임
2. 시스템을 구성하는 모든 요소는 IEC 60068-2-27, SAE/USCAR33 기준에서 요구하는 해당시험의 모든 조건을 만족해야 하며, 아래에서 요구하는 시험이 이루어질 수 있어야 한다.
  - LED 모듈에 대한 MECHANICAL SHOCK 시험으로 11ms 동안 100g에 해당하는 반정현파 pulse를 자동으로 3회 이상 충격을 가할 수 있어야 함
  - 정밀 센서와 전용 s/w를 통해 충격파에 대한 정확한 분석데이터를 확보할 수 있어야 함

### B. General Specification

※ 아래 사양과 동등 또는 그 이상의 성능을 보유한 장비

ITEM	Specification	Quantity	
<b>Automated Mechanical Shock Test System</b>	1. Technical Parameters	1set	
	Main parameters of the shock tester		
	Operating platform		250 × 200 mm
	Max. load		15KG
	Peak acceleration		20 to 1500G(accept customized)
	Pulse duration		0.5--5ms(accept customized)
	Equipment dimensions		600×550×2500mm
	Equipment weight		650 kg
	Measuring system		
	Input channels		2 channels
	Sampling frequency		192KHz
	Pulse duration		50-1ms
	Communication interface		USB2.0
	Supportive standard		ISO, UN38.3,MIL-STD-810, user defin
	Operating system		Microsoft Windows2000/XP
	System acceleration sensor		
	Brand		B&W
	Model		22100
	Output mode		Charge type
	Sensitivity		3.93pC/g
Frequency range	0.5 to 12KHz		
Acceleration range	±2500G		
Operating environment	-40 to +160℃		

## 2. Introduction to Equipment Performance

### 2-1 Operating platform

High-strength imported aluminum alloy operating platform.

### 2-2 Lifting height control

The lifting height is measured by a photoelectric encoder module installed on the base, and the photoelectric encoder module has high accuracy, strong anti-interference capability and high reliability, thus ensuring shock repeatability.

### 2-3 Braking system

Air brake and strong friction brake are applied to prevent secondary shock braking, thus ensuring prompt and reliable braking to prevent secondary bounce.

### 2-4 Buffer system

The buffer system is consisted of a base, a damper and a gasbag. The buffer system can reduce the shock force transferred from the working platform to the ground.

### 2-5 Waveform generator

Plate-typed half sine wave: for achieving different shock pulse widths (1 to 30ms)

Trapezoidal wave: special cylinder

### 2-6 Safety device

Emergency stop switch: It switches off the circuit in emergency cases by forcibly disconnecting welded contacts of the actuating mechanism.

Optional: safety mat

### 2-7 Introduction to the shock measuring system and its features

The system conforms to MIL-STD-810, GJB-150-18-86 and IEC68-2-27 standards, and has accurate and prompt shock wave capture capability. The max. sampling rate is 1MHz, therefore, you need not worry about omission of minor shock events.

The system is also an integrated solution, you need not be busy with waveform viewing and recording, as the system can capture shock event and generate report, more importantly, the system can provide you with shock response spectrum analysis (SRS) to facilitate effective assessment of potential damage from shock pulse to the actual system. At last, the auxiliary analysis on force deformation and shock response can enable to understand more details about the shock results.

	<p>3. Features of the measuring system  It conforms to MIL-STD-810, GJB-150-18-86, IEC68-2-27 and DELL standards.  The max. sampling frequency is up to 1MHz.  The max. testing acceleration is 100000gn.  The min. testing pulse width is 0.1ms.  It has the features of multi-frame waveform recording and playback.  It supports internal and external triggering.</p> <p>4. Transient capture of shock waveform  You can obtain single or multiple pulses with transient capture. The system can automatically analyze data of shock pulse, including peak value, pulse width, rate of speed change and head injury index (HIC), automatically match the captured pulse waveform to ideal waveform, and compare their deviation.</p> <p>5. Shock response spectrum analysis  The shock response spectrum analysis enables assessment on potential damage arising from shock, thus providing basis for designing shock resistance of products. The system can perform SRS analysis on each shock pulse, and compare the deviation between actual SRS and objective SRS.</p> <p>6. Other analysis  Essential analysis in shock test includes force deformation analysis, shock response demonstration and rotary shock analysis. Peak force, deformed peak value, power and energy produced by pulse are calculated in the force-deformation analysis. Tools for learning shock response spectrum are provided in the shock response demonstration. Rotary shock analysis is used for rotary shock machines or other rotary control events, and the signal can be obtained by measuring and calculating axial acceleration</p>	
Computer System	<ol style="list-style-type: none"> <li>1. CPU: Intel Core i7</li> <li>2. RAM: 32GB DDR4</li> <li>3. 1<sup>st</sup> HDD 512 GB SSD SATA</li> <li>4. 2<sup>nd</sup> HDD 2TB SATA 7200RPM</li> <li>5. External HDD 2TB*3EA</li> <li>6. Window 10 (Korean)</li> <li>7. Graphic NVIDIA GTX 960</li> <li>8. Main board ASUS Z170 (PCI-EXPRESS 3.0 x 16)</li> <li>9. 27" Dual monitor 2EA (pixel 1920*1080)</li> <li>10. Wireless Mouse, Key Board &amp; Speaker</li> <li>11. ODD: 16X DVD RW</li> </ol>	Iset

	12. Laserjet Color Printer 13. Workstation Table & Chair 14. Additional License Key (s/w) + Portable control system (Intel/Core M7/512GB/Skylake/12inch)	
Certificates to be delivered with system	Certificate of acceleration Peak acceleration 15G, 30G, 50G, 100G, 500G, 1500G (Calibration certificates are traceable to standards)	1set
Mounting, Instructions, Training	1. Mounting, installation, adjustment, calibration, and performance tests at place of installation 2. Training in use of the system over 1 days.	1set
Delivery	within 1 months after purchase order	

### C. Remarks

1. 보증기간 : 설치 검수 완료일로부터 2년
2. 매뉴얼 : 영문, 국문 각 3부
3. 교정대상 모든 장비는 공인시험 및 교정기관의 인증서(Certificate)를 제출
4. 제품공급자에 의한 설치 및 교육 실시
  - 1) 보증기간 내 2회 이상 현장 방문 교육 무상 제공 (설치 후 교육 제외)
5. 제품의 품질 보증 및 A/S의 원활한 지원을 위해 장비에 문제가 발생하였을 경우 문제 접수 후, 24시간 이내에 대처하며, 해결이 지연되는 경우 7일 이내에 동일 사양의 Back up 장비를 무상 제공하는 A/S 시스템을 지원하여야 한다.
6. 제품공급자는 제품전달시 아래사항을 준수
  - 1) 실험 장치에서 구동프로그램이 있는 경우, 시스템 및 교육용 소스를 모두 제공할 것
  - 2) 사용자가 지정한 장소까지 운송/이동 및 설치하여 줄 것  
(이동 및 설치에 필요한 비용 및 도비는 전액 공급자가 부담)
  - 3) 사용자에게 의한 최종 검수 보고서 발행 시까지 납품을 완료 할 것
7. 외주 방지
  - 1) 제작을 직접 하지 않는 것이 밝혀질 경우 발주를 취소하고 손해배상을 청구한다.  
(향후 한국조명연구원 모든 입찰 배제)
  - 2) 제작과정을 수시로 제출  
(사진, 메일, 팩스 등 제작 과정이 순조롭게 진행되는 것을 확인 할 수 있도록 할 것)
8. 장비 입고에 대한 세부 일정 작성
  - 1) 일정에 맞춰 방문 점검(주요 자재 입고 및 장비 조립 시)
9. 장비 설치 완료일 : 12월 20일 이내  
(검수과정에서 물품에 이상이 발견될 경우 지체일수에 산입하며, 규격서에서 요구하는 사양을 만족하지 못할 경우 계약을 취소하고 손해배상을 청구한다.)