

Test environment (Table-top type / Floor-standing type)

ESS-801 / 801GL

Feature

ESD test environment in conformance with EN/IEC61000-4-2 Standard.

Two types for EUT are available, table-top type and floor-standing type so that the environments can support the tests along EUT figures. Since the table is made of wood, influence to the test result should be small (quantifiable test result can be expected since the discharge can be realized in state high frequency electromagnetic field is less lost) and the high reproducibility can be expected and realized. Also, versatilely utilized for another tests like impulse noise immunity test, etc.

- ESD test environments in conformance with EN/IEC61000-4-2 standard
- High reproducible tests can be performed
- Can be versatilely utilized for another tests



Test setup example with ESS-801
* Contents in the set referred to following specification

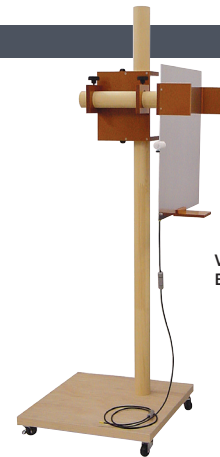
Specification

ESS-801 (Table-top type)

Item	Model	Dimensions	Q'ty
Test table	03-00039A	(W) 1600x(H)800x (D) 800mm	1 set
Vertical coupling plate	03-00005A	(W) 500x(H)500x (t) 1.5mm	1 set
Ground plane	03-00007A	(W) 1800x(D)1000x (t) 1.5mm	3 pcs.
Insulating sheet	03-00004A	(W) 1450x(D)650x (t) 0.5mm	1 pc.
Discharge resistance cable	05-00054B	2m cable equipped with 470kΩ X 2 pcs.	2 pcs.
Horizontal coupling plate	03-00020A	(W) 1600x(D)800x (t) 1.5mm	1 pc.

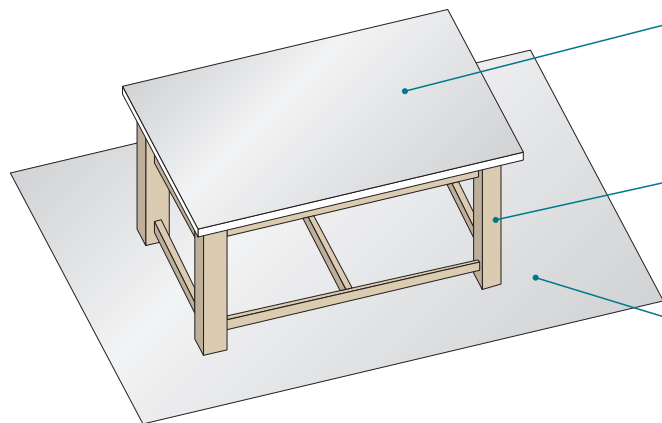
ESS-801GL (Floor-standing type)

Item	Model	Dimensions	Q'ty
Insulating support	03-00024A	(W) 1200x(H)1200x (t) 100mm	1 pc.
Floor-standing vertical coupling plate	03-00034A	(W) 540x(H)1540x (D) 500mm	1 pc.
Ground plane	03-00007A	(W) 1800x(H)1000x (t) 1.5mm	3 pcs.
Discharge resistance cable	05-00054B	2m cable equipped with 470kΩ X 2 pcs	1 pc.



Vertical coupling plate for ESS-801GL

Option



Horizontal Coupling Plate (HCP) MODEL : 03-00020A

Metal plate to be placed onto the table in case of the testing to table top devices.
W1600 × D800 × t1.5mm × 1 pc.(Made of aluminum)

Test Table MODEL : 03-00039A

Wooden table to be used for the test to devices under test (DUT).
W1600 × H800 × D800mm

Ground Reference Plane (GRP) MODEL : 03-00007A

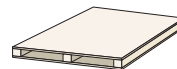
Ground plane to be placed just under the wooden table.
W1800 × D1000 × t1.5mm × 3 pcs. in 1 set (Made of aluminum)

Discharge resistance cable MODEL : 05-00054B



Cable to be used for eliminating the ESD on DUT and connect between HCP and GRP
470kΩ × 2 pcs./1 set.

Insulating support MODEL : 03-00024A

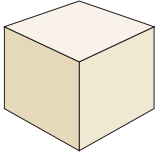


When doing the electrostatic discharge test to floor-standing equipment, to be used for floating the equipment 10cm higher than the ground reference plane.
Size : W 1200 × D 1200 × H 100mm
Material : Wooden
Withstanding loads : 500kg

Option

ESD simulator
ESS

Cubic Insulating Block100 MODEL : 03-00029A



Used for floating EUT 10cm upper than the ground plane in case of testing to floor-standing EUT
 Size : W100 × D100 × H100mm
 Material : Wood
 Withstanding loads: 500kg

Automated ESD Eliminator MODEL : 01-00013B



Enable to eliminate electric charge which has been charged to EUT automatically with connection to ESS-S3011A

● Available model : ESS-S3011A

Probe Stand MODEL : 03-00108A



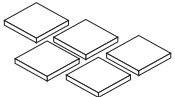
A probe stand used to fix the discharge gun for ESD Simulator. (Excluded from IEC standard) Because of the articulated type, the discharge gun fixes in any direction.

Item	Specification
Dimensions	(H)380mm, Pedestal diameter 160mm
Weight	approx. 4.1 kg
Range of movement	Vertical: 150mm, Swing angle: 130 °

● Available discharge gun : GT-30R series

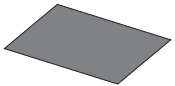


Insulating Block MODEL : 03-00054A



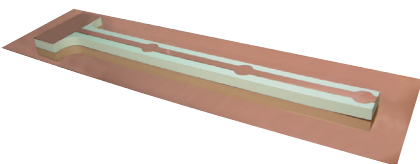
Blocks to float (isolate) wirings of DUT from GRP.
 W300 × D300 × H50mm, 5 pcs. in 1 set

Conductive Mat (for ISO Standard) MODEL : 03-00055A



Mat to be laid out in between DUT and GRP for the ESD susceptibility test in the packaging and handling.
 Surface resistance $10^7 \sim 10^9 \Omega$
 W1000 × D500 × t2mm

Coupling Plate for ISO 10605 Annex F MODEL : 03-00065A



Coupling plate used for the optional test in ISO 10605 Ed.2 (2008). It consists of a coupling plate (made of copper) and an insulation block.
 * Ground reference plane is not included.

ESD Elimination Brush MODEL : 05-00125A



Brush to eliminate the electrification on EUT / DUT before starting the test.

Conversion Adaptor for Probe Stand MODEL : 03-00074A



Adaptor for connecting between probe stand PS-806 or 03-00022B and discharge gun GT-30R series.

● Available discharge gun : GT-30R series

Free Arm Gun Stand MODEL : 03-00022B

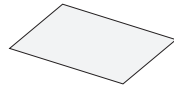


Enable to move discharge gun vertically and horizontally to arbitrary desirable discharging point. (Out of ISO Standard)

● Corresponding discharge gun : GT-30R series

* Conversion adaptor model 03-00074A is necessary in addition for the attachment to GT-30R series

Insulating Support MODEL : 03-00066A



Sheet to be laid out in between DUT and GRP for the test to automotive electronics devices.
 W1450 × D650 × t2mm

Aluminum Plate for Test MODEL : 03-00053A

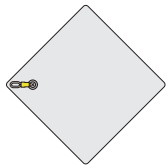


Plate to be laid out under tires for the vehicle test
 W500 × D500 × t1.5mm

Ground Cable (for ISO Standard) MODEL : 05-00104A



Cable to be used for grounding connection required in ISO 10605 (2001). L2000 × W50mm
 * Not required in ISO 10605 Ed.2 (2008)

CR Unit M



CR unit for ESD gun GT-30R series

● Available discharge gun : GT-30R series

* Please contact us when the other CR constant is required than the right description.

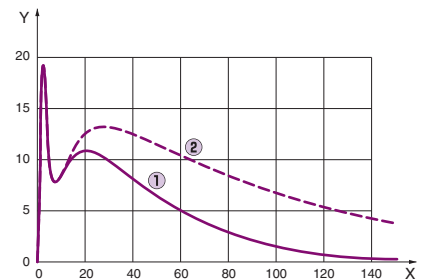
* The unit size depends on the capacitor constant.

Model	CR constant	Model	CR constant
06-00073B	150pF-330Ω	06-00081B	150pF-150Ω
06-00074B	150pF-2kΩ	06-00082B	500pF-500Ω
06-00075B	330pF-330Ω	06-00083B	500pF-5kΩ
06-00076B	330pF-2kΩ	06-00084B	250pF-100Ω
06-00077B	500pF-0Ω	06-00085B	200pF-100Ω
06-00078B	150pF-500Ω	06-00086B	250pF-0Ω
06-00079B	100pF-1.5kΩ		
06-00080B	200pF-0Ω		

● For ISO10605 compliant test

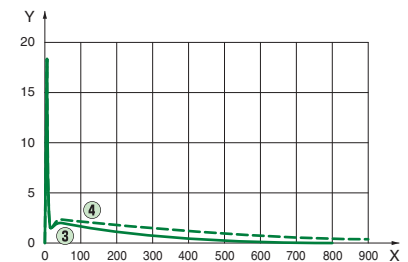
● GT-30R3302KA package contents

GT-30R series	gun body
03-00071A	gun head
03-00072A	gun head
06-00073B	150pF-330 ohm CR unit
06-00074B	150pF-2K ohm CR unit
06-00075B	330pF-330 ohm CR unit
06-00076B	330pF-2K ohm CR unit
12-00007A	conical tip
12-00008A	round tip
12-00009A	spherical tip



Energy storage capacitor / Discharge resistor values	1st discharge peak current	t ₁ Current	t ₂ Current
150pF/330Ω ①	3.75A/kV±10%	2A/kV±30% (t ₁ =30ns)	1A/kV±30% (t ₂ =60ns)
330pF/330Ω ②	3.75A/kV±10%	2A/kV±30% (t ₁ =65ns)	1A/kV±30% (t ₂ =130ns)

Energy storage capacitor / Discharge resistor values	1st discharge peak current	t ₁ Current	t ₂ Current
150pF/2kΩ ③	3.75A/kV +30%-0%	0.275A/kV±30% (t ₁ =180ns)	0.15A/kV±50% (t ₂ =360ns)
330pF/2kΩ ④	3.75A/kV+30%-0%	0.275A/kV±30% (t ₁ =400ns)	0.15A/kV±50% (t ₂ =800ns)



Gun Head MODEL : 03-00071A / 03-00072A



Gun head to be changed according to Standard compliant test. 2 kinds for the test with 330Ω(03-00071A) and 2kΩ (03-00072) are lined up.

● Available discharge gun : GT-30R series

Fast Rise Time Adaptor MODEL : 03-00073A



Fast Rise Time Adaptor MODEL : 03-00073A
Realize faster rise time of the discharge current than IEC61000-4-2 standard value (0.6±0.1ns) around 0.2±0.3ns with attachment to the discharge gun.

● Available discharge gun : GT-30R series

Discharge Tip MODEL : 12-00007A / 8A / 9A



Discharge tips on the gun.
Conical (12-00007A) and Round (12-00008A) are standard equipped with GT-30R series.
The all 3 tips are standard equipped with GT-30R series.

● Available discharge gun : GT-30R series

Impulsive Electric Field Adaptor MODEL : 03-00068A



Adaptor for simulating static induction as one of noise inductive mode with attachment to the discharge gun (Not standardized in IEC)

● Available discharge gun : GT-30R series

Option

ESD simulator
ESS

Impulsive Magnetic Field Adaptor MODEL : 03-00069A



Adaptor for simulating electro-magnetic induction as one of noise inductive mode.with attachment to the discharge gun (Not standardized in IEC)

- Available discharge gun : GT-30R series

Magnetic Field Adapter MODEL : 03-00070A



Magnetic field adapter for Ford standard. Connected to GT-30R series discharge gun, it generates transient magnetic fields.

- Available discharge gun : GT-30R series

Item	Specification
Loop coil diameter	155mm
Dimensions	168mm(loop outer diameter) 300mm(length) 12.7mm(thickness of the loop)

Extension cable for GT-30R MODEL : 05-00047B



Extension cable in connection between ESD simulator main unit and its discharge gun. The length is 3m * not compliant with the IEC standard

- Available discharge gun :GT-30R series

Gun Holder MODEL : 03-00075A



Holder for discharge gun during the test. Also, can be the pre-checking fixture in combination between ESS-S3011A and GT-30R series.

- Available discharge gun : GT-30R series

Specialized Case for Discharge Gun MODEL : 09-00006A



Specialized Case for putting the discharge gun, CR units and the other related fixtures and carrying them out.

- Available discharge gun : GT-30R series

Warning Lamp MODEL : 11-00014A



Caution is alerted with its blinking while the HV circuit is on.

- Available model : ESS-S3011A

* The connection is done with DSUB connector.

AUX Connector Junction Box MODEL : 05-00052A



Enable to connect warning lamp, automated ESD eliminator and external trigger simultaneously

- Available model : ESS-S3011A

Optical USB Module MODEL : 07-00022A



Optical conversion adaptor Used for remote control with PC. 5m of optical fiber cable with USB interface attached.

- Available model : ESS-S3011A

Optical RS232 Module MODEL : 07-00017A

Optical conversion adaptor used for remote control with PC. 5m of optical fiber cable with RS232 interface attached.

- Available model : ESS-S3011A

Option

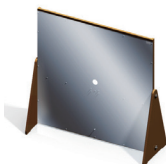
Faraday cage MODEL : FC-200



Faraday cage which is defined in IIEC61000-4-2 Standard and ISO 10605 Ed.2 Standard to verify the discharge current waveform. Easy to move with casters equipped to the bottom.

Item	Specification
Power supply	AC100V 50Hz/60Hz 3P inlet Equipped with over-current protective breaker
Opening Dimensions on door	(W) 410mm X (H) 618mm
Dimensions / Weight	(W)670mm x (H)1612mm x (D) 1509mm Approx. 65kg. 3p outlet X 2 15A MAX

Load Resistor Mounting Board MODEL : 03-00052B



The board to fix the load resistor (MODEL NO. 06-00067A ESD current target) for measuring the discharge current waveform defined in IEC61000-4-2 Standard and ISO 10605 Ed.2 Standard
Dimensions : 1.2m X 1.2m

Coaxial Cable MODEL : 02-00132A



High frequency responsible cable to connect ESD target And oscilloscope
BNC-SMA connector (02-00133A) is also available as an option

GND Cable Positioner MODEL : 03-00060A



Stand to pull and fix the ground cable of discharge gun 0.5m backward at the middle of the cable when calibrating the ESD current.

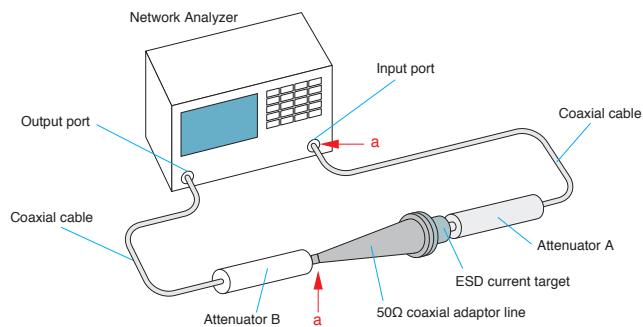
ESD Current Target Calibration Set MODEL : 06-00068A

Set to calibrate the ESD target (06-00067A) in conformance with IEC61000-4-2 Ed.2.0 (2008).



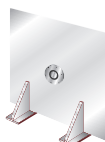
Adaptor (06-00068A)

A photo of 06-00067A ESD target and 06-00068A adaptor connected faced to face



a : Calibration points with networks analyzer

Load Resistor Mounting Board MODEL : 03-00027A



The board to fix the load resistor (MODEL NO. 06-00067A ESD current target) for measuring the discharge current waveform defined in IEC61000-4-2 Standard and ISO 10605 Ed.2 Standard. (not conforming to the standard strictly but simply)
Dimensions : 0.6m X 0.6m

ESD Current Target MODEL : 06-00067A



Load resistor to measure, verify and calibrate ESD current waveform defined in IEC61000-4-2 Standard and ISO 10605 Ed.2 Standard

Parameter	Specification
300kHz-1GHz	±0.5dB
1GHz-4GHz	±1.2dB
Maximum applied voltage	15kV
Conversion ratio	2V/1A (50Ω termination)
Weight	Approx. 400g

Discharge Gun Mount MODEL : 03-00061B



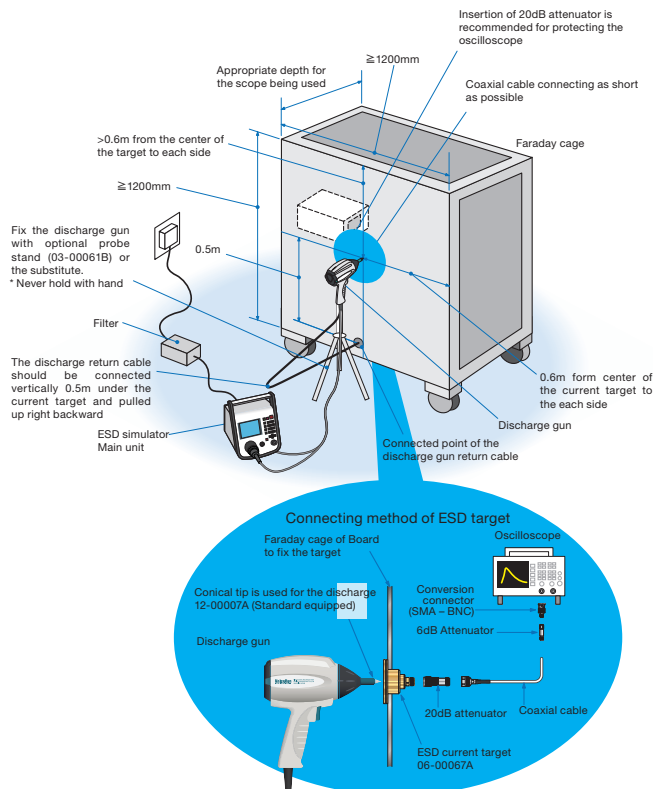
Fixture to load and fix the discharge gun to be Faraday cage (FC-200) or load resistor mounting board (03-00052B)

Attenuator MODEL : 00-00010A / 00-00011A



Attenuator to protect measurement equipment for ESD current waveform.

00-00010A : Attenuation ratio 6dB / SMA connector
00-00011A : Attenuation ratio 20dB / N connector

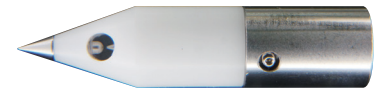


Option

Micro-gap Discharge Tip **MODEL : 12-00010A**

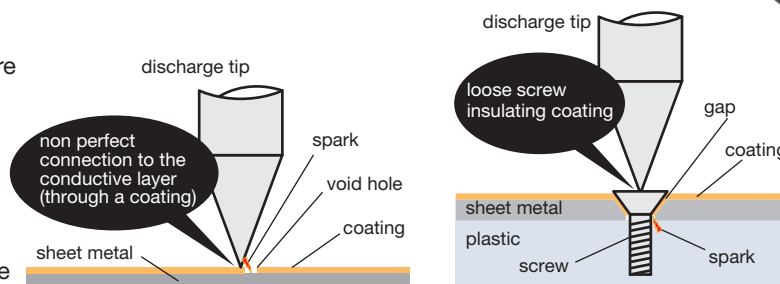
Enabling a more stringent evaluation for the real world ESD immunity

Connected to the NoiseKen ESD gun, this tip allows for a waveform with higher peak amplitude and a faster rise time. It is a common view that ESD immunity testing is the most challenging and passing the standard test does not always assure real world immunity. This tip is helpful for more extensive testing against non-standardized field events



dedicated cup
Model : 03-00103A

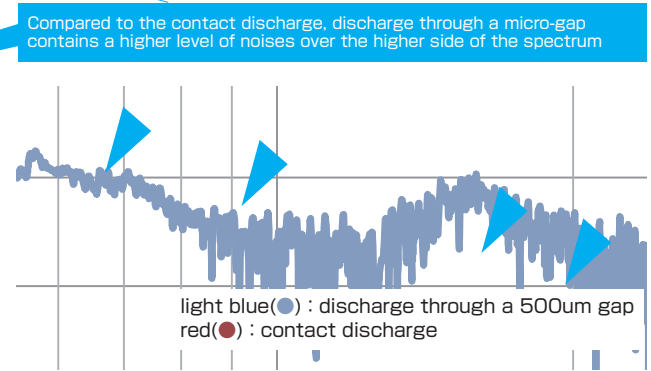
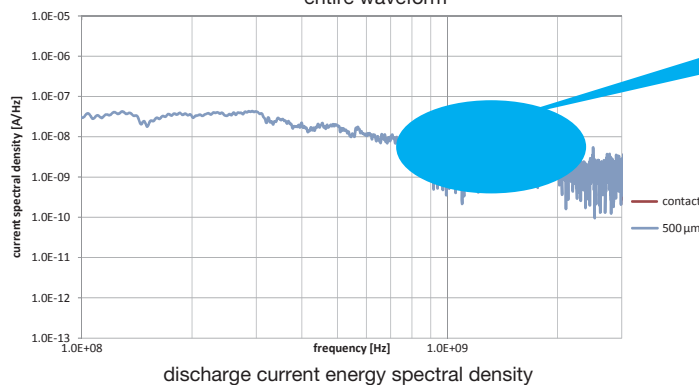
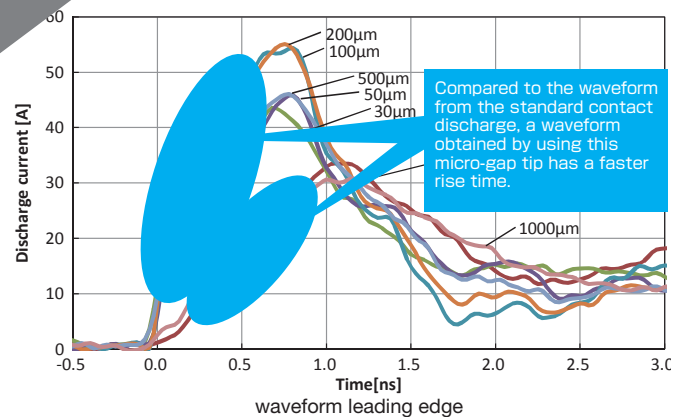
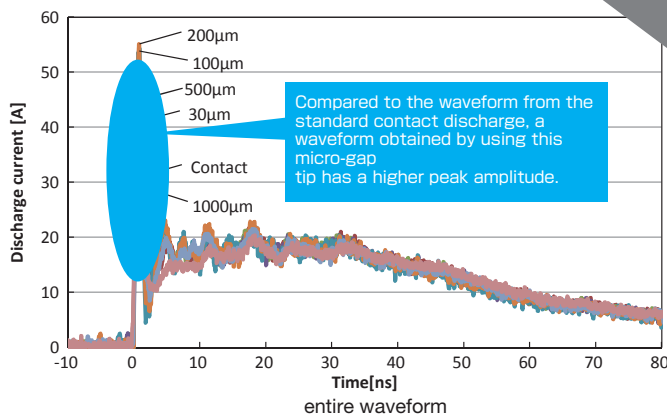
- Events you can simulate are
- Loose screws
- Poor insulation coating
- Poor electrical connection between components and others which cause secondary discharges within a very close distance



enlarged photo of the micro-gap

Simulated field events

■ Output waveform (reference)



Testing with energy rich pulses for the GHz region

■ Compatible discharge gun

TC-815S, 815R, 815ISO, 815-330, 815-2K, 815S-330, GT-30Rseries (the dedicated cup 03-00103A required)

*This product cannot be used for the air discharge testing