Guangzhou CHANGEN Electronic Technology Co., Ltd.

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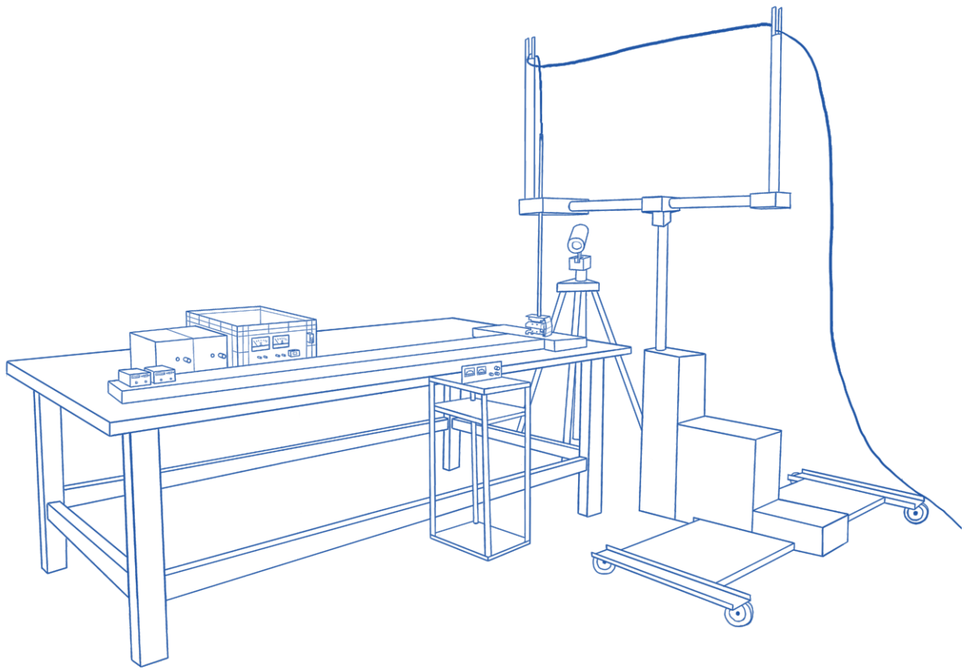
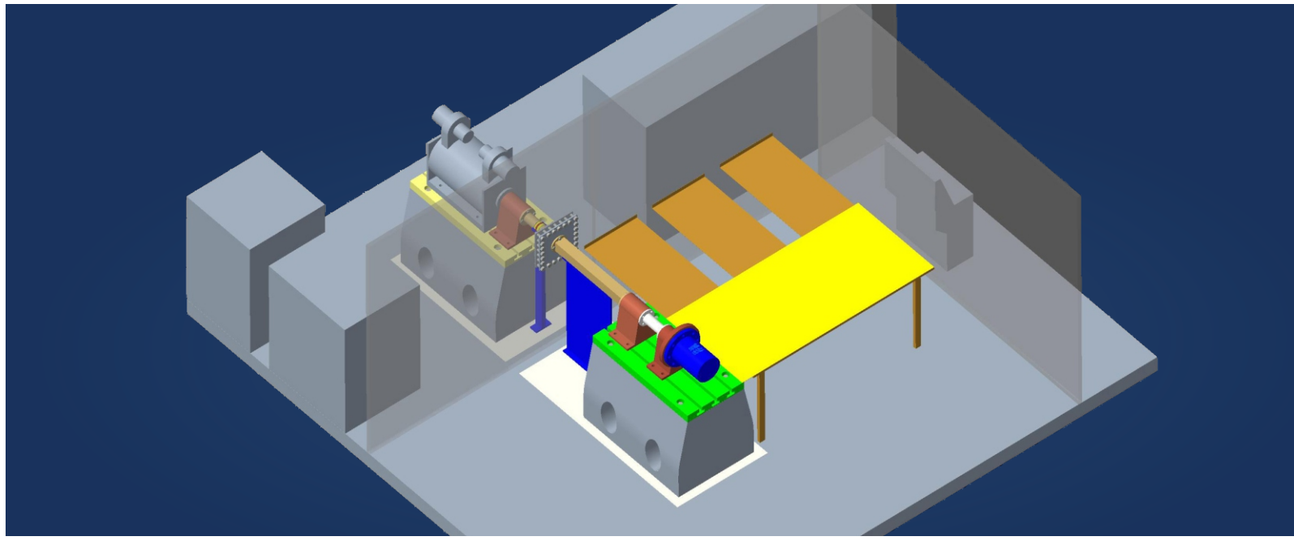
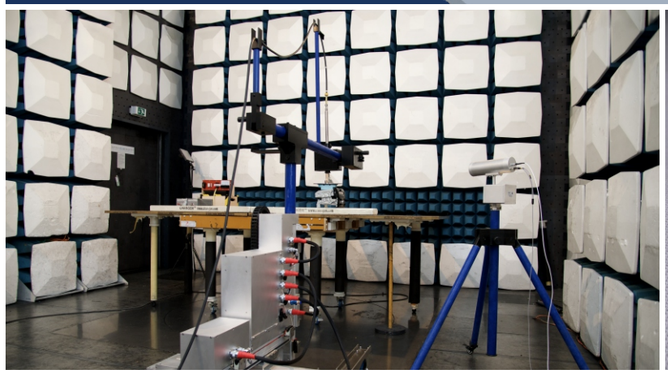


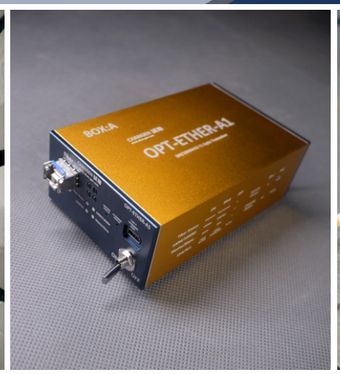
WeChat official account

All of your desires could be satisfied herein.

CHANGEN 誠臻 ®







2020 PRODUCT CATALOG

High-End EMC Lab Supplier

*The pictures in this booklet maybe a little different with the product, please contact us for the latest information.

CONTENTS

Company Introduction

Guangzhou CHANGEN Electronic Technology Co., Ltd. (CHANGEN) was established in 2012. We provide the test auxiliary equipment and photoelectric signal conversion system with the attribution of easy-use and compliance with standards for the global test labs, especially for those EMC labs with extremely high requirements.

CHANGEN owns a leading product design team including senior mechanical experts, electrical and pneumatic control system experts and well-known industry EMC experts, this is our confidence and guarantee to meet your design requirements.

In order to meet the increasingly needs of international market, CHANGEN established CHANGEN Technology Limited (CHANGEN HK) in Hong Kong in 2015 to help the overseas client in the field where we are trying to be the best.

Since its establishment, CHANGEN has won high praise from many well-known testing and certification companies locally and internationally by providing customized and quality products.

The basic starting point of our product design is to reduce the testing cost and enable the test to be finished conveniently, independently and efficiently. The feature of our EMC test auxiliary equipment is to complete the complex mechanical structure design by using nonmetallic materials to the greatest extent.

We believe that the unique product design of CHANGEN will bring excellent experience to you!

Integrity is our insistence! Perfection is our pursuit!

02 Low Permittivity Supporting Material (P41-P42)

LF series low Permittivity(ε,≤1.4) supporting material is CHANGEN'S patent product, which complies with the requirements of CISPR 25.

03 Wooden Test Table (P46)

A metal ground plate was laid on the wooden test table.

04 Optic Transceiver (P09-P27)

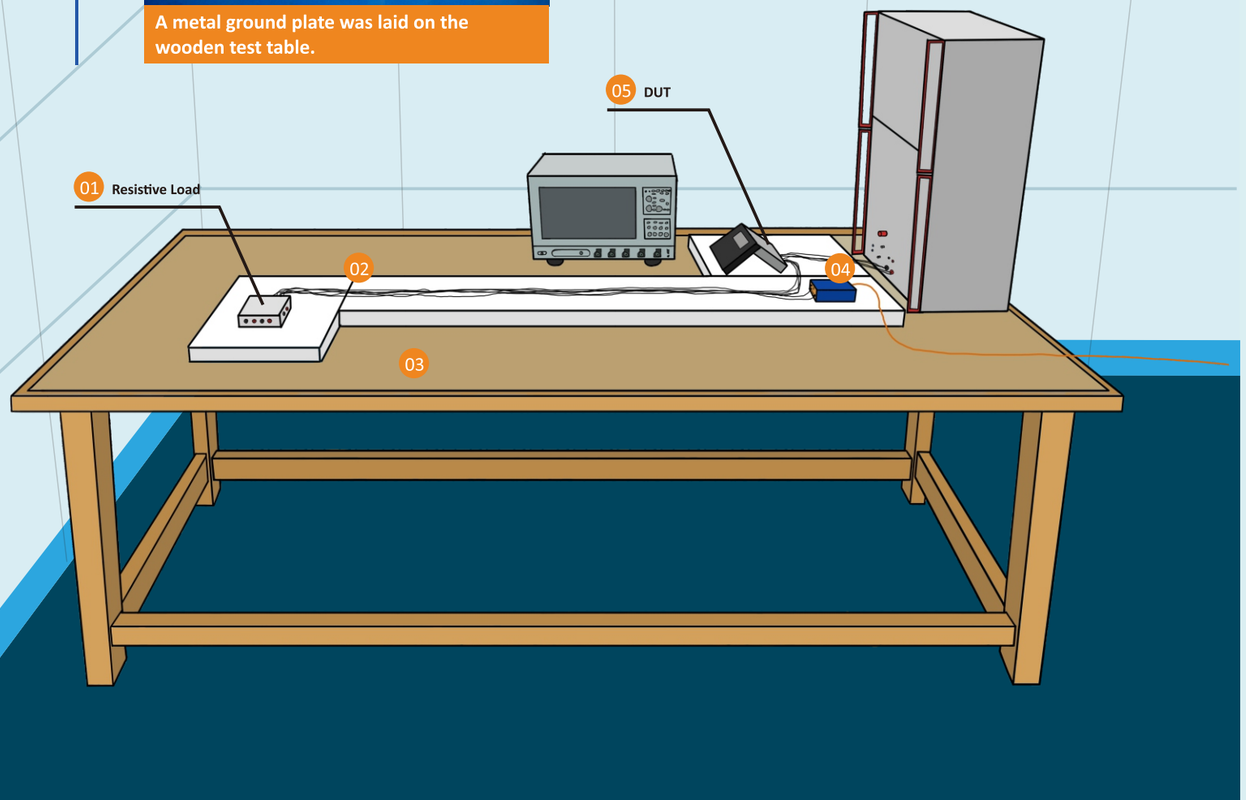
The using of easy-to-recognize colors makes the identify and use easier for testing engineers.

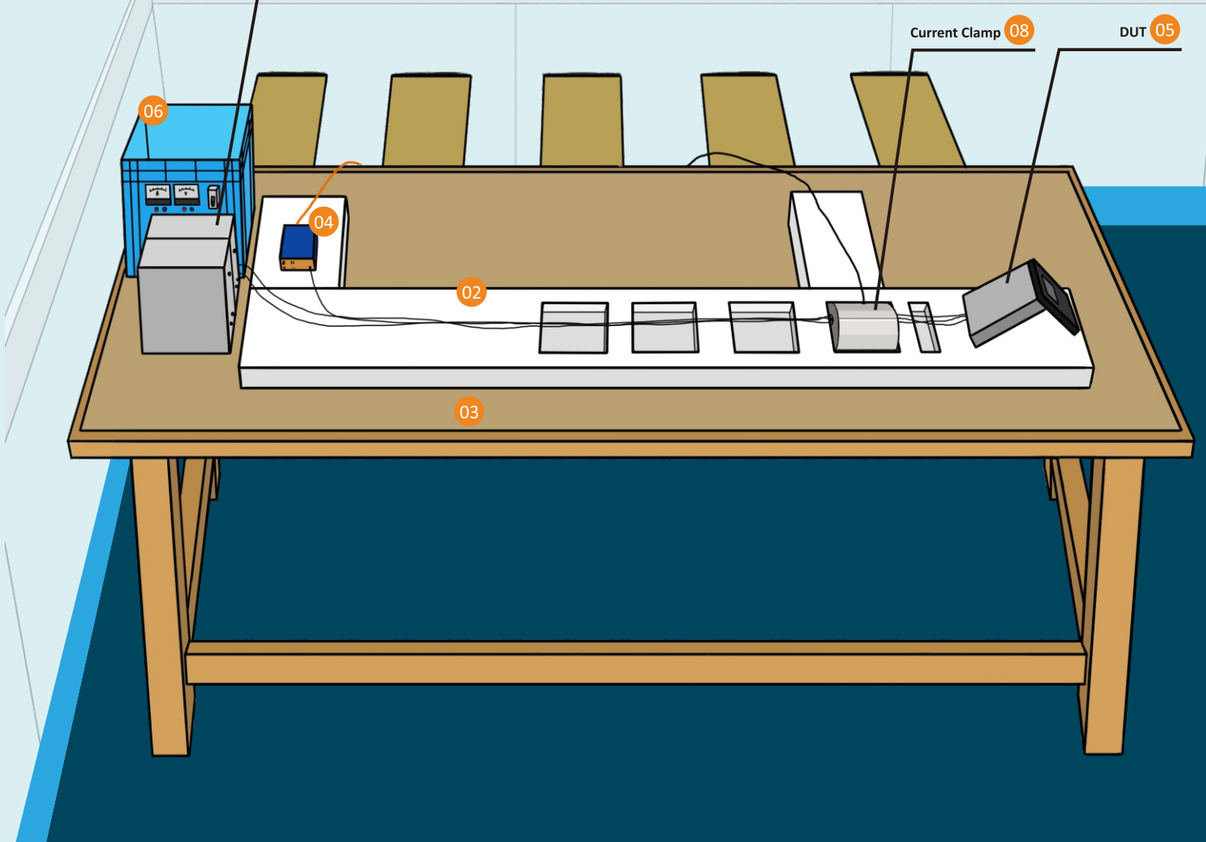
04 Optic Transceiver (P09-P27)

The Single Core design pioneered by CHANGEN in the optic transceiver products has greatly saved the test engineer's time.

06 Battery Box (P65)

The battery box is designed to make the test table more compact and easy to monitor and protect the battery.





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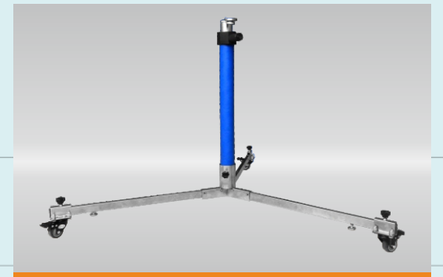
05 Battery Box (P65)

The battery box is designed to make the test table more compact and easy to monitor and protect the battery.

04 Optic Transceiver (P09-P27)

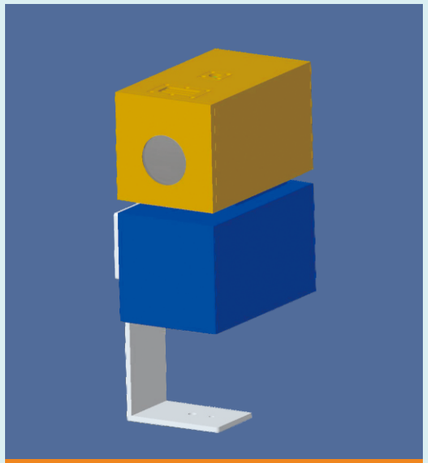
The background noise problem in the disturbance test is not a problem at all for CHANGEN's optic transceiver products.

06 Universal Stand (P53)

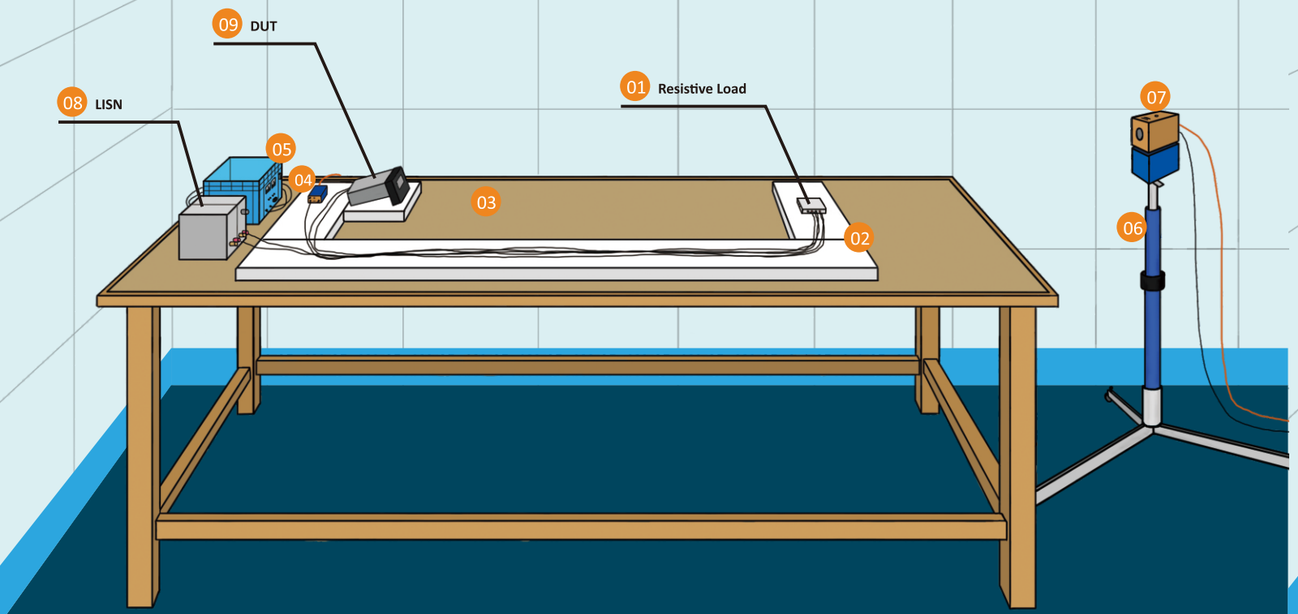


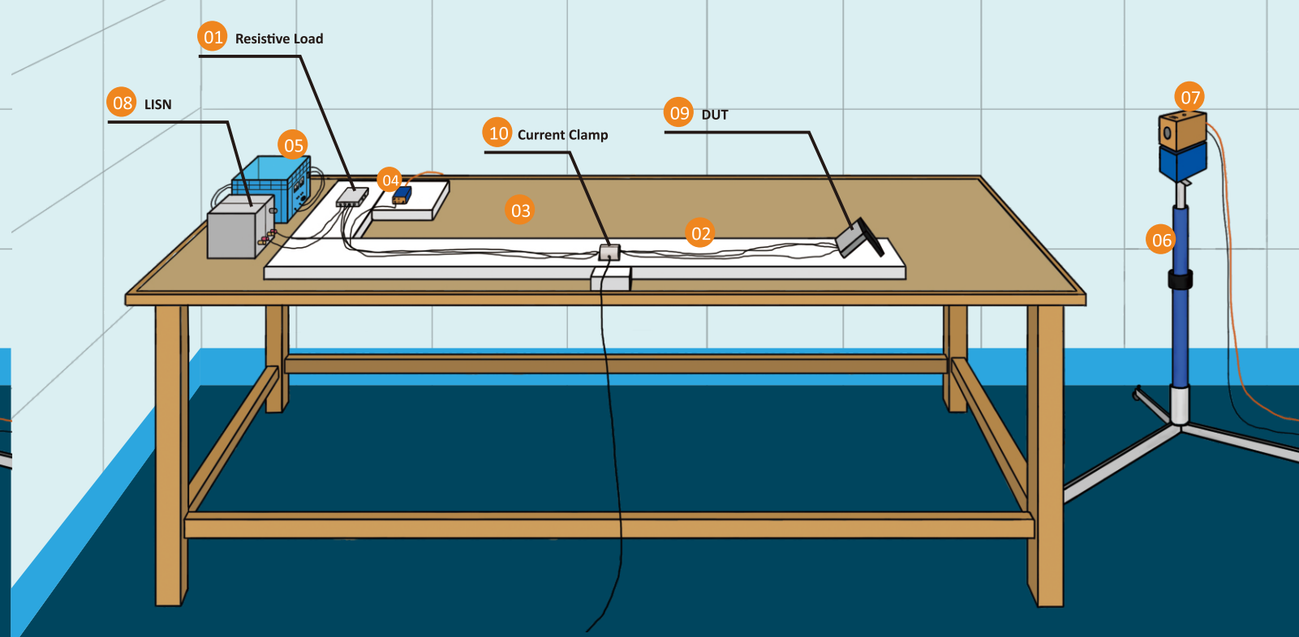
The telescopic tripod structure of the universal antenna stand makes it easy to install and remove.

07 EMC Full HD Camera (P37-P38)



The simple shielded camera design is CHANGEN's unique patents, making any cable between the camera and the PTZ unnecessary.





02 Low Permittivity Supporting Material (P41-P42)

LF series low Permittivity(ε,≤1.4) supporting material is CHANGEN'S patent product, which complies with the requirements of CISPR 25.

03 Optic Transceiver (P09-P27)

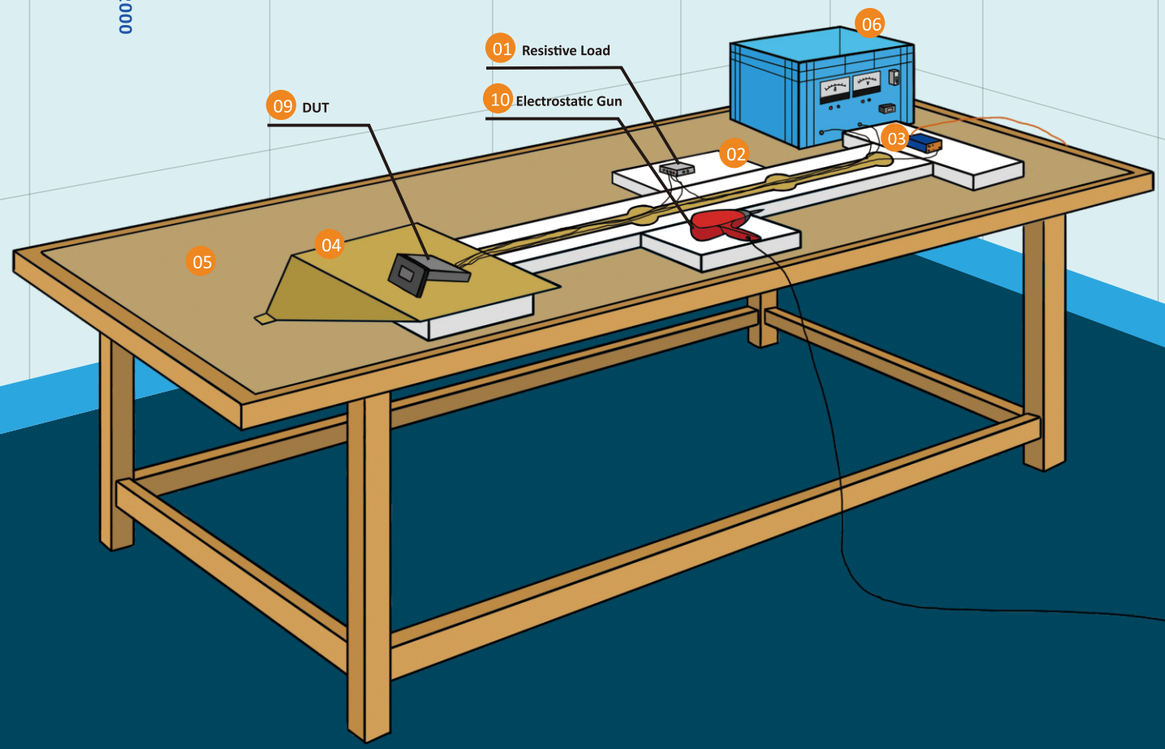
The Single Core design pioneered by CHANGEN in the optic transceiver products has greatly saved the test engineer's time.

04 Field Coupling Plane for ESD PCF2000 (P66)

The processing size is accurate and reliable, which can provide a larger sample area.

05 ESD Test Table (P46)

Can be equipped with ground wire and electrostatic discharge brush, the specific thickness can be customized.



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The Single Core design pioneered by CHANGEN in the optic transceiver products has greatly saved the test engineer's time.

06 Battery Box (P65)

The battery box is designed to make the test table more compact and easy to monitor and protect the battery.

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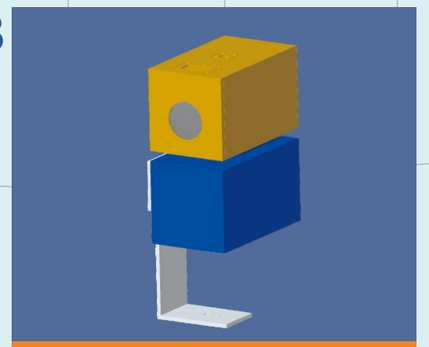
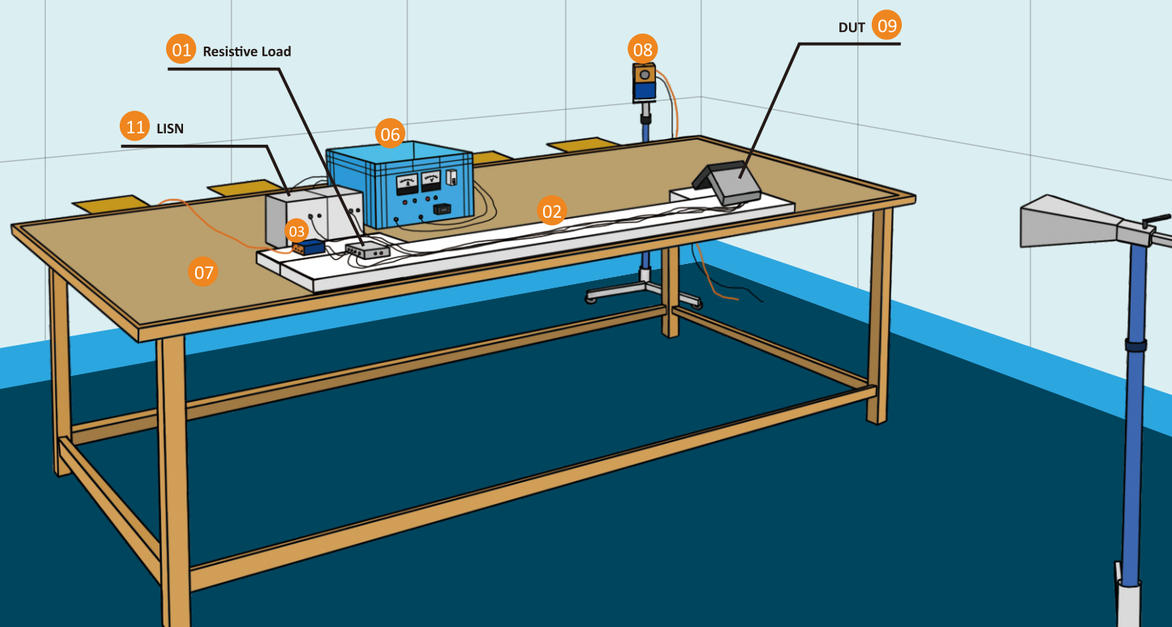
A metal ground plate was laid on the wooden test table.

08 EMC Full HD Camera (P37-P38)



The simple shielded camera design is CHANGEN's unique patents, making any cable between the camera and the PTZ unnecessary.



BUS Optic Transceiver List

Brand	CHANGEN 誠臻®															
Model	OPT-SENT1-A1	OPT-LIN22-A1	OPT-CCXPI-A1	OPT-CANLS-A1	OPT-CANHS-A1	OPT-CANFD-A1	OPT-CANHS-OBD	OPT-FLEXR-A1	OPT-ETN1K-A1	OPT-ETHER-A1	OPT-FPDL3-A1	OPT-GMSL1-A1	OPT-RS232-A1	OPT-RS485-A1	OPT-USB20-A1	OPT-USB30-A1
Description	SENT Optic Transceiver	LIN Optic Transceiver	CXPI Optic Transceiver	LS CAN BUS Optic Transceiver	HS CAN BUS Optic Transceiver	CAN FD Optic Transceiver	OBDII Optic Transceiver	FlexRay Optic Transceiver	IT Ethernet Optic Transceiver	Vehicle Ethernet Optic Transceiver	FPD-LINKIII (LVDS) Optic Transceiver	GMSL (LVDS) Optic Transceiver	RS232 Optic Transceiver	RS485 Optic Transceiver	USB2.0 Optic Transceiver	USB3.0 Optic Transceiver
Max Speed (Theoretical Value)	33kbps (SAE J2716 compatible)	20kbps	20kbps	125kbps	1Mbps	5Mbps	1Mbps (Ford OBDII compatible)	10Mbps	10Mbps 100Mbps 1000Mbps	100Mbps 1000Mbps	2.5Gbps	3.12Gbps	750kbps	20Mbps	480Mbps	5Gbps
EMI Feature	Comply With CISPR 25:2016 Class 5 *															
EMS Feature	Radiation susceptibility up to CW 300V/m, Radiation susceptibility up to radar wave 600V/m *															
Adjustable Terminal Resistance	/	/	/	side dip switch (7 Groups Optional)	side dip switch (3 Groups Optional)		/	side dip switch (3 Groups Optional)	/	/	/	/	/	/	/	/
Adjustable Ground Capacitor	/	/	/	side dip switch (4 Groups Optional)	side dip switch (5 Groups Optional)	/	/	/	/	/	/	/	side dip switch (4 Groups Optional)	/	/	/
Built-in ESD Protection	side dip switch (2 Groups Optional，30kV)						/	side dip switch (2 Groups Optional，30kV)	Built-in (30kV)		Built-in (25kV)		Built-in (15kV)	Built-in (35kV)	Built-in (25kV)	
Fiber	Single Core, ST, multi mode 62.5/125μm								Single Core, LC, single mode 9/125μm				Single Core, ST, multi mode 62.5/125μm		Single Core, LC, single mode 9/125μm	
Built-in Battery	Li-ion battery						/	Li-ion battery								
Battery Continuous Work Time	>24h						/	>24h	>8h	>12h	>8h		>24h		PC Port:>8h;Extension Port: depending on the USB device power consumption	
Standard	SAE J2716 -2016	Lin Spec V2.2a	SAE J3076 -2015	ISO 11898 -3:2006	ISO 11898 -2:2016		ISO 11898 -2:2016	ISO 17458	IEEE 802. 3		/	/	/	/	USB2.0	USB3.0
Built-in Battery Capacity Indicator	4 Levels						/	4 Levels		2 Levels	4 Levels				2 Levels	
Wide Voltage External Power Supply	DC 12V to 42V							/					DC 12V to 42V		/	
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)															
Origin	P.R.China															

* For detailed test method,please contact with CHANGEN.

Analog Optic Transceiver List

Brand	CHANGEN 誠臻®		
Model	OPT-AN50K-A1	OPT-AN01M-A1	OPT-HBAV8-A1
Description	50kHz Analog Signal Optic Transceiver	1MHz Analog Signal Optic Transceiver	CVBS (8MHz) Analog Signal Optic Transceiver
Transmission Frequency	DC to 50kHz (sine wave)	DC to 1MHz (sine wave)	up to 8MHz for Video Bandwidth
Test Scope	Audio Products (can be equipped with microphone)	Automobile Instruments	Car Cameras
EMI Feature	Comply With CISPR 25:2016 Class 5 *		
EMS Feature	Radiation susceptibility to CW 300V/m, Radiation susceptibility to radar wave 600V/m *		
Fiber	Single Core, ST, multi mode 62.5/125μm		
Signal Connector	BNC, Female		
Built-in Battery	Li-ion battery		
Built-in Power Indicator	4 Levels		
Temperature	-40°C to 90°C		
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)		
Host Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)		
Origin	P.R.China		

* For detailed test method,please contact with CHANGEN.

SENT Optic Transceiver (OPT-SENT1-A1)

Newest SENT optic transceiver!
Built-in and switchable ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support external power supply!
Intuitive battery power indicator!
Super EMI performance!

Specification

Max speed	33kbps (fully SAE J2716 compliant)
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin3 to GND / Pin7 to SENT)
ESD Protector	Selectable via side dip switch between 30kV / no protection
Built-in battery	Li-ion battery
Continuous work time	>24 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

LIN Optic Transceiver (OPT-LIN22-A1)

Newest LIN BUS optic transceiver!
Built-in and switchable ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support external power supply!
Intuitive battery power indicator!
K-line compatible!
Super EMI performance!

Specification

Max speed	20kbps (fully LIN 1.0, LIN 1.1, LIN 1.2, LIN 1.3, LIN 2.0, LIN 2.1, LIN 2.2, LIN 2.2A and SAE J2602 compliant)
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin3 to GND / Pin7 to LIN)
Mode Selection	Selectable via side dip switch between Master / Slave
ESD Protector	Selectable via side dip switch between 30kV / no protection
Built-in battery	Li-ion battery
Continuous work time	>24 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

CXPI Optic Transceiver (OPT-CCXPI-A1)

Newest CXPI optic transceiver!
Compatible with standard JASO CXPI and SAE CXPI!
2.4kbps to 20kbps speed!
Built-in and switchable ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Super EMI performance!

Specification

Speed	2.4kbps to 20kbps
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin3 to GND / Pin7 to CXPI BUS)
ESD Protector	Selectable via side dip switch between 30kV / no protection
Built-in battery	Li-ion battery
Continuous work time	>24 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

LS CAN BUS Optic Transceiver (OPT-CANLS-A1)

Newest LS CAN BUS optic transceiver!
Adjustable capacitors for CAN_H / CAN_L to GND!
Built-in and switchable ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support external power supply!
Intuitive battery power indicator!

Specification

Max speed	125kbps (fully ISO 11898-3:2006 compliant)
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin2 to CAN_L / Pin7 to CAN_H)
BUS terminal resistance (RTH / RTL)	Selectable via side dip switch from 560Ω/1kΩ/2kΩ/2.7kΩ/3.3kΩ/5.1kΩ/∞
CAN_H/CAN_L ground capacitor	Selectable via side dip switch from 110pF/220pF/330pF/∞
ESD Protector	Selectable via side dip switch between 30kV / no protection
Built-in battery	Li-ion battery
Continuous work time	>24 hours (From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

HS CAN BUS Optic Transceiver (OPT-CANHS-A1)

Newest HS CAN BUS optic transceiver!
Adjustable capacitors for CAN_H / CAN_L to GND!
Built-in and switchable ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support external power supply!
Intuitive battery power indicator!

Specification

Max speed	1Mbps (fully ISO 11898-2:2016 compliant)
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin2 to CAN_L / Pin7 to CAN_H)
BUS terminal resistance (RTH / RTL)	Selectable via side dip switch from 60Ω/120Ω/∞
CAN_H/CAN_L ground capacitor	Selectable via side dip switch from 22pF/47pF/220pF/470pF/∞
ESD Protector	Selectable via side dip switch between 30kV / no protection
Built-in battery	Li-ion battery
Continuous work time	>24 hours (From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

CAN FD Optic Transceiver (OPT-CANFD-B1)

Newest CAN FD BUS optic transceiver!
Adjustable capacitors for CAN_H / CAN_L to GND!
Built-in ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support external power supply!
Intuitive battery power indicator!

Specification

Max speed	12Mbps (fully ISO 11898-2:2016 compliant)
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin2 to CAN_L / Pin7 to CAN_H)
BUS terminal resistance (RTH / RTL)	Selectable toggle switch from 60Ω/120Ω/∞
CAN_H/CAN_L ground capacitor	Selectable toggle switch from 22pF/470pF/∞
ESD Protector	30kV
Built-in battery	Li-ion battery
Continuous work time	>72 hours (From fully charging)
Battery capacity indicator	2 levels indicator
Temperature	0°C to 60°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

OBDII Connector (OPT-CANHS-OBD)

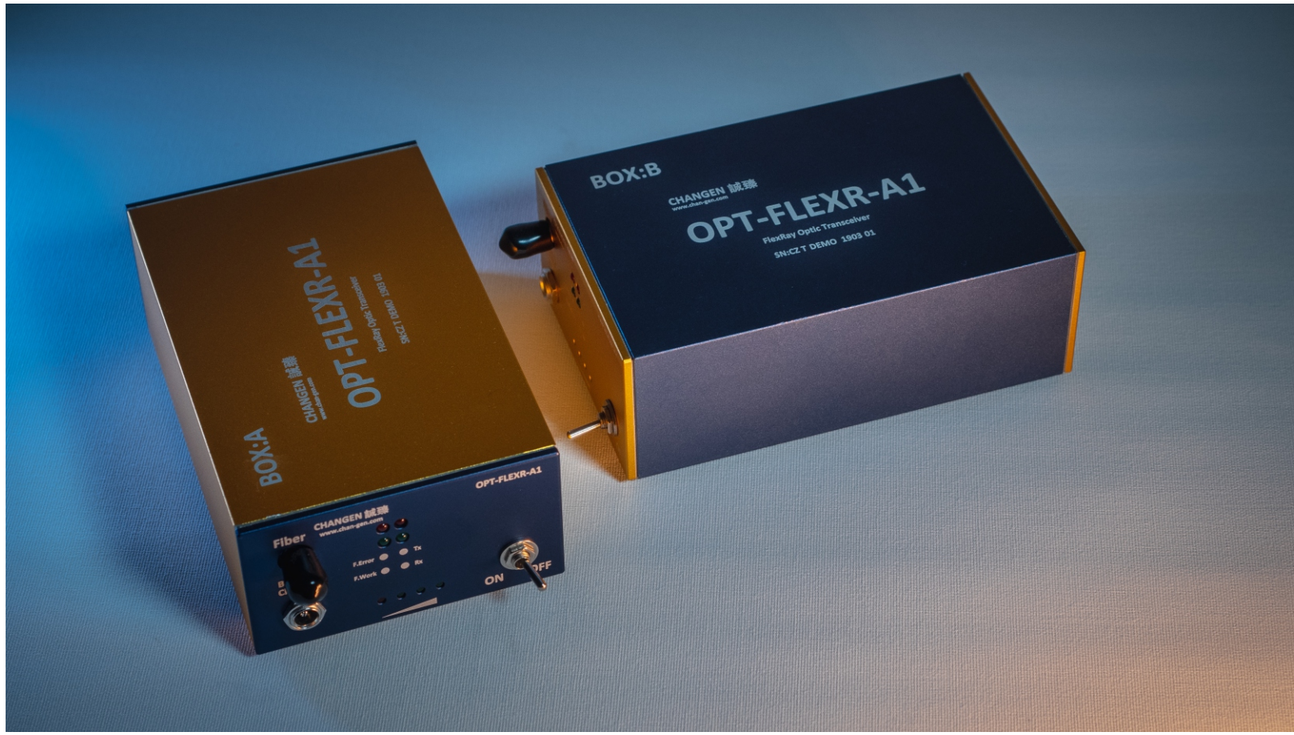
Newest optic transceiver with OBDII connector!
Built-in 4 High Speed CAN channels!
Support FORD OBDII Definition!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Fully OBDII specification compliant!
Share power supply from OBDII!

Specification

Channels	4
BUS type for each channel	High speed CAN (fully ISO 11898-2:2016 compliant)
Max speed	1Mbps
Fiber	Single Core, ST, multi mode 62.5/125μm
Fiber connectors	4
OBDII	16pin, plug
BUS terminal resistance	120Ω
CAN_H / CAN_L ground capacitor	470pF
OBDII power supply	DC12V-42V
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	190mm(L) × 60 mm(W) × 22 mm(H)
Origin	P.R. China

FlexRay Optic Transceiver (OPT-FLEXR-A1)

Newest FlexRay BUS optic transceiver!
Built-in and switchable ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support external power supply!
Intuitive battery power indicator!



Specification

Max speed	10Mbps (fully ISO 17458-4:2013 compliant)
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin2 to BM / Pin7 to BP)
BUS Terminal Resistance (RTH / RTL)	Selectable via side dip switch from 90Ω/1.3kΩ/∞
ESD Protector	Selectable via side dip switch between 30kV / no protection
Built-in battery	Li-ion battery
Continuous work time	>24 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

IT Ethernet Optic Transceiver (OPT-ETN1K-A1)

Newest IT Ethernet optic transceiver!
Built-in ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support 10Mbps/100Mbps/1000Mbps self-adaptive!
Intuitive battery power indicator!

Specification

Max speed	10Mbps/100Mbps/1000Mbps self-adaptive
Fiber	Single Core, LC, single mode 9/125μm
Ethernet connector	Rj45
ESD Protector	30kV
Built-in battery	Li-ion battery
Continuous work time	>8 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40 to 90°
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimension	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

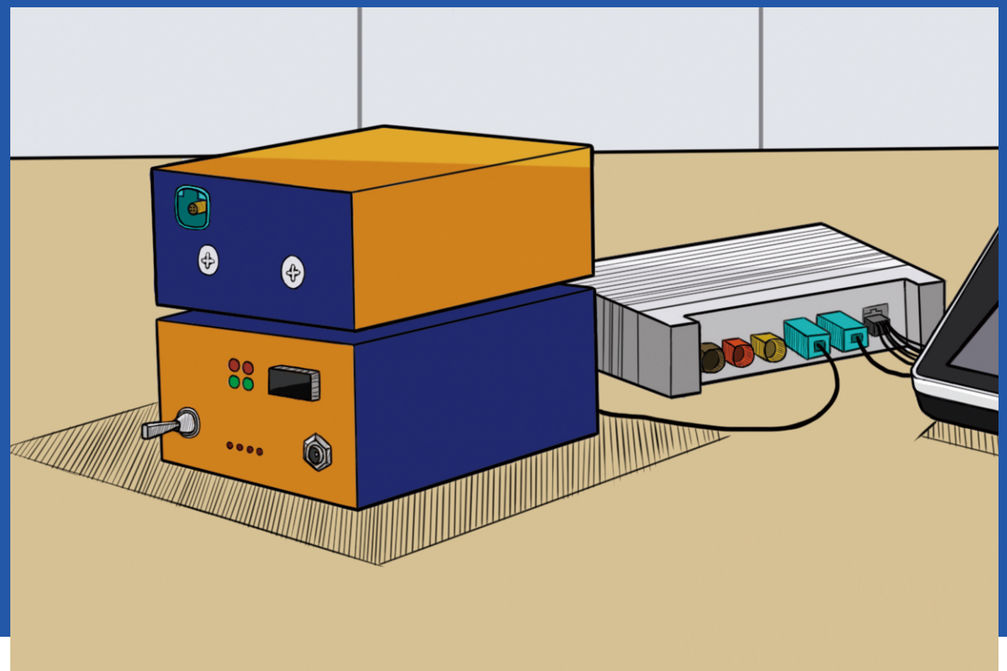
Vehicle Ethernet Optic Transceiver (OPT-ETHER-A1)

Newest vehicle Ethernet optic transceiver!
100Mbps/1000Mbps Selectable via one switch!
Master / Slave selectable via one switch!
Built-in ESD protector can resist up to 30kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Support pass-through between IT Ethernet and vehicle Ethernet! *

* Please purchase additional accessories from CHANGEN.

Specification

Max speed	100Mbps/1000Mbps can be set
Working mode	Master / Slave
Pass-through	Support IT Ethernet <-> vehicle Ethernet
Wireless standard	IEEE 802.3bw(100BASE-T1),IEEE 802.3bp(1000BASE-T1)
Chip Compatible test	Broad Reach (100Mbps/1000Mbps) Marvel I(100Mbps/1000Mbps) NXP (100Mbps) Realtek (100Mbps/1000Mbps)
Fiber	Single Core, LC, single mode 9/125μm
Connector	HSD type Z (Pin 4:Data+ / Pin 2:Data- / Pin1:GND)
ESD Protector	30kV
Built-in battery	Li-ion battery
Continuous work time	>12 hours(From fully charging)
Battery capacity indicator	2 levels indicator
Temperature	-40 to 90°
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimension	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China



FPD-LINKIII(LVDS) Optic Transceiver (OPT-FPDL3-A1)

Compatible with FPD-LINK III Serializer / Deserializer from Texas Instruments!
Built-in ESD protector can resist up to 25kV!
Specialized for strict vehicle electronics EMC testing!
Radiation susceptibility up to CW 300V/m!
Resistance to 200mA BCI!
Self-interference is 6dB lower than CISPR 25 Class 5 limits!
Radiation susceptibility up to radar wave 600V/m!

Specification

Max speed	2.5Gbps
Fiber	Single Core, LC, single mode 9/125μm
Connector	4 pins HSD (type Z)
Chip compatibility	FPD-LINK III Serializer / Deserializer from Texas Instruments
Built-in battery	Li-ion battery
Continuous work time	>8 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

GMSL(LVDS) Optic Transceiver (OPT-GMSL1-A1)

Newest GMSL (LVDS) optic transceiver!
Built-in ESD protector can resist up to 25kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Resistance to 200mA BCI!
Self-interference is 6dB lower than CISPR 25 Class 5 limits!

Specification

Max speed	3.2Gbps
Fiber	Single Core, LC, single mode 9/125μm
Connector	4 pins HSD (type Z)
Chip compatibility	GMSL (gigabit multimedia serial link) Serializer / Deserializer from MAXIM
Built-in battery	Li-ion battery
Continuous work time	>8 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

RS232 Optic Transceiver (OPT-RS232-A1)

Newest RS232 optic transceiver!
Adjustable capacitors for TxD / RxD to GND!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Built-in ESD protector can resist up to 15kV!
Intuitive battery power indicator!

Specification

Max speed	750kbps
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin2 to RxD / Pin3 to TxD / Pin5 to GND)
TxD / RxD Ground Capacitor	Selectable via side dip switch from 150pF/470pF/1nF/∞
ESD Protector	15kV
Built-in battery	Li-ion battery
Continuous work time	>24 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

RS485 Optic Transceiver (OPT-RS485-A1)

Newest RS485 optic transceiver!
Support PROFIBUS!
Built-in ESD protector can resist up to 35kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Intuitive battery power indicator!

Specification

Max speed	20Mbps
Fiber	Single Core, ST, multi mode 62.5/125μm
BUS connector	D-Sub 9 Female (Pin1 to 485A (+) / Pin2 to 485B (-))
ESD Protector	35kV
Built-in battery	Li-ion battery
Continuous work time	>24 hours(From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80 mm(W) × 44 mm(H)
Origin	P.R. China

USB2.0 Optic Transceiver (OPT-USB20-A1)

Newest USB 2.0 optic transceiver!
Compatible with USB 1.1 and USB 2.0!
Max 12Mbps in USB1.1 mode!
Max 480Mbps in USB 2.0 mode!
Built-in ESD protector can resist up to 25kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Intuitive battery power indicator!

Specification

Max speed	480Mbps@USB 2.0 / 12Mbps@USB 1.1
Fiber	Single Core, LC, single mode 9/125μm
USB connector	PC port: USB Type B × 1 Extension port: USB Type A × 1
USB extension current	500mA (Max)
ESD Protector	25kV
Built-in battery	Li-ion battery
Continuous work time	PC Port:>8h (From fully charging) Extension Port: depending on the USB device power consumption
Battery capacity indicator	2 levels indicator
Charging port	Type-C
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80mm(W) × 44mm(H)
Origin	P.R. China

USB3.0 Optic Transceiver (OPT-USB30-A1)

Newest USB 3.0 optic transceiver!
Max theoretical speed up to 5Gbps!
Built-in ESD protector can resist up to 25kV!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Intuitive battery power indicator!

Specification

Max speed	Max theoretical speed up to 5Gbps!
Fiber	Single Core, LC, single mode 9/125μm
USB connector	USB Type A
USB extension current	500mA (Max)
ESD Protector	25kV
Built-in battery	Li-ion battery
Continuous work time	PC Port:>8h (From fully charging) Extension Port: depending on the USB device power consumption
Battery capacity indicator	2 levels indicator
Charging port	Type-C
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80mm(W) × 44mm(H)
Origin	P.R. China

20kHz Dual Channel Analog Signal Optic Transceiver (OPT-AN20K-B2)

Newest optic transceiver that Max transmission signal frequency up to 20kHz! *
Specialized high sensitive mic is optional for this product!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Specially for audio product testing!
Tx / Rx transceivers can be used in chambers!

* The frequency here refers to sine wave.

Specification

Transmission frequency	DC-20kHz
Channels	2
Resoltion	16 Bit
Fiber	Single Core, LC,Single mode 9/125μm
Signal connector	D-sub9, Female
Input signal voltage	≤±16V, knob stepless adjustment
Built-in battery	Li-ion battery
Continuous work time	>8h (From fully charging)
Battery capacity indicator	2 levels indicator
Temperature	-40°C to 90°C
Charging port	Type-C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	192mm(L) × 80mm(W) × 44mm(H)
Origin	P.R. China

1MHz Analog Signal Optic Transceiver (OPT-AN01M-A1)

Newest optic transceiver that Max transmission signal frequency up to 1MHz! *
Specially for vehicle instruments testing!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Intuitive battery power indicator!
Tx / Rx transceivers can be used in chambers!

* The frequency here refers to sine wave.

Specification

Transmission frequency	DC-1MHz
Fiber	Single Core, ST, multi mode 62.5/125μm
Signal connector	BNC, Female
Input signal voltage	≤ ±16V, knob stepless adjustment
Built-in battery	Li-ion battery
Continuous work time	>5h (From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80mm(W) × 44mm(H)
Origin	P.R. China

CVBS(8MHz) Video Signal Optic Transceiver (OPT-HBAV8-A1)

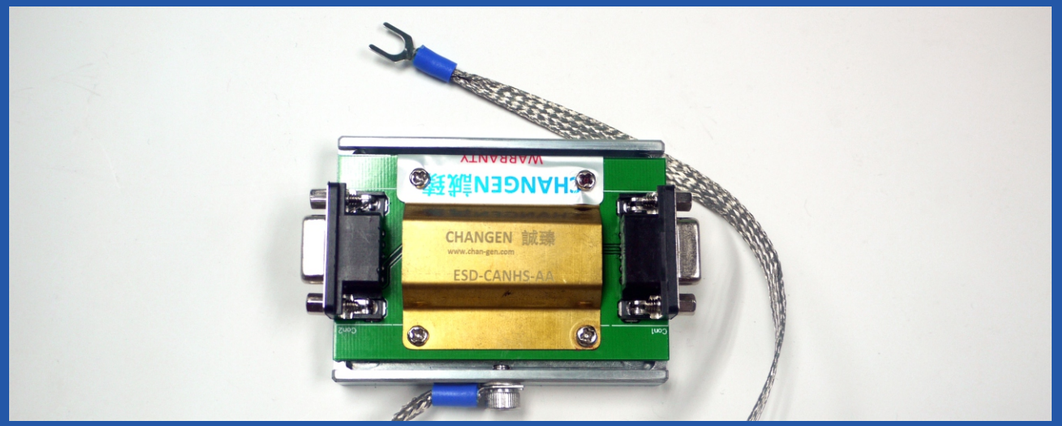
Newest CVBS video signal optic transceiver!
Specially for vehicle camera testing!
Video bandwidth up to 8MHz!
Radiation susceptibility up to CW 300V/m!
Radiation susceptibility up to radar wave 600V/m!
Intuitive battery power indicator!

Specification

Video bandwidth	8MHz
Fiber	Single Core, ST, multi mode 62.5/125μm
Input signal type	CVBS
Built-in battery	Li-ion battery
Continuous work time	>8h (From fully charging)
Battery capacity indicator	4 levels indicator
Temperature	-40°C to 90°C
Warranty	Optic transceiver: 36 months Accessories: 12 months (Accessories mean optic fiber, convertor, charger, instrument container)
Dimensions	128mm(L) × 80mm(W) × 44mm(H)
Origin	P.R. China

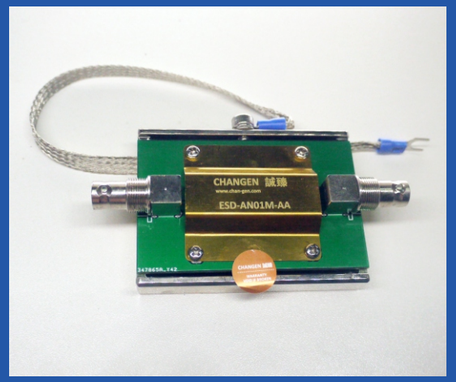
HS CAN BUS ESD protection device (ESD-CANHS-AA)

This ESD protection device can resist up to 30kV, fully protect test auxiliary equipment against ESD pulses;
Max speed 1Mbps;
The electrostatic energy strung into the CAN bus will be directly led into the ground wire with very low impedance by the protection circuit, so as to ensure the safety of auxiliary equipment.



LIN ESD protection device (ESD-LIN22-AA)

This ESD protection device can resist up to 30kV, fully protect test auxiliary equipment against ESD pulses;
Max speed 20kbps;
The electrostatic energy strung into the LIN bus will be di rectly led into the ground wire with very low impedance by the protection circuit, so as to ensure the safety of aux iliary equipment.



Analog ESD protection device (ESD-A51V8-AA)

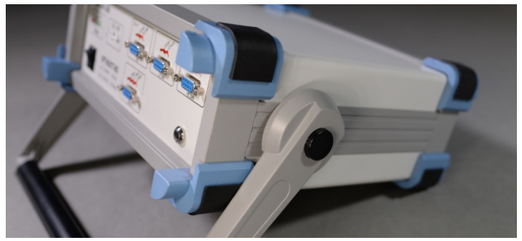
This ESD protection device can resist up to 30kV, fully protect test auxiliary equipment against ESD pulses;
For CHANGEN devices OPT-AN50K-A1, OPT-AN01M-A1, OPT-HBAV8-A1.

We provide 3-year warranty for ESD protection devices.
The following conditions are not covered by the warranty if the device was:
1) Immersed in water 2) lost the function of protection module 3) damaged by obviously drop or collision.

* Please contact CHANGEN for more customized ESD protection devices.

BUS Optic Transceiver Tester (OPT-BUSTT-BS)

- Newest BUS optic transceiver tester!
- Support LIN, LS CAN, HS CAN and CAN FD!
- ONE-KEY for shifting different BUS and bit speed!
- Extreme bus load for simulating the worst condition!
- Support external power supply!
- Intuitive battery power indicator!



Specification

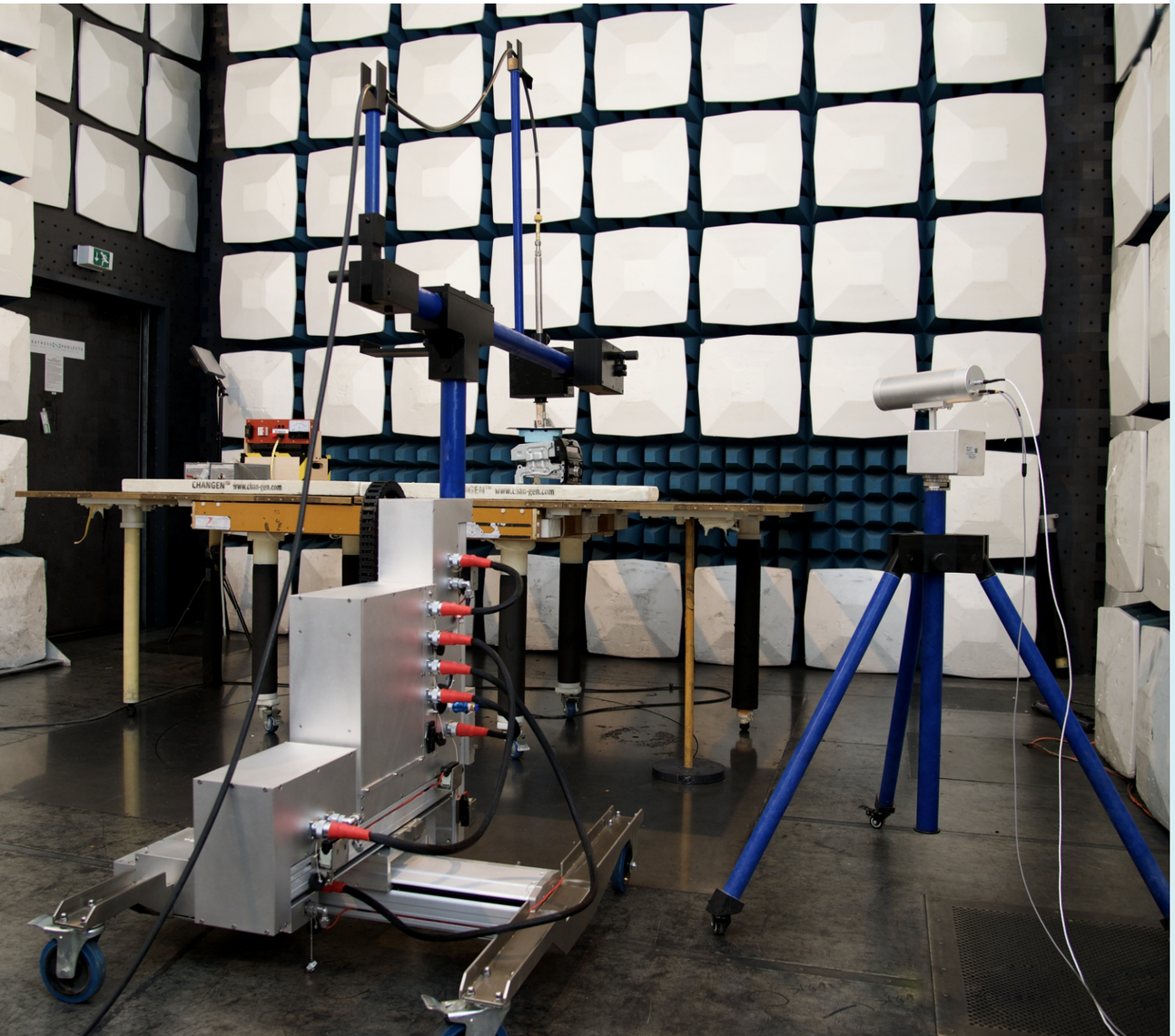
BUS type	LIN / Low Speed (LS) CAN / High Speed (HS) CAN / CAN FD
BUS connector	D-Sub 9 Female
LIN Configuration	LIN Version: 2.1 Bit speed: 9.6kbps/19.2kbps
LS CAN Configuration	R_{RTL}/R_{RTH}: 560Ω, 220pF(CAN_H / CAN_L to GND) Bit speed: 60kbps/125kbps
HS CAN Configuration	R_{RTL}/R_{RTH}: 120Ω, 470pF(CAN_H / CAN_L to GND) Bit speed: 125kbps/250kbps/500kbps
CAN FD Configuration	R_{RTL}/R_{RTH}: 120Ω, 470pF(CAN_H / CAN_L to GND) CAN FD version: MCAN 3.2 Bit speed: 1Mbps/1.25Mbps/2.5Mbps
Built-in battery	Li-ion battery
Continuous work time	>8h (From fully charging)
Battery capacity indicator	4 levels indicator
Battery charger	DC 12V, 1A
Temperature	-40°C to 90°C
Warranty	36 months
Dimensions	250mm(L) × 250mm(W) × 112mm(H)
Origin	P.R. China

Electrical Mast for Handy Transmitter Test (HTM555)

PATENTED

HTM555's behavior is designed to behave like a human.

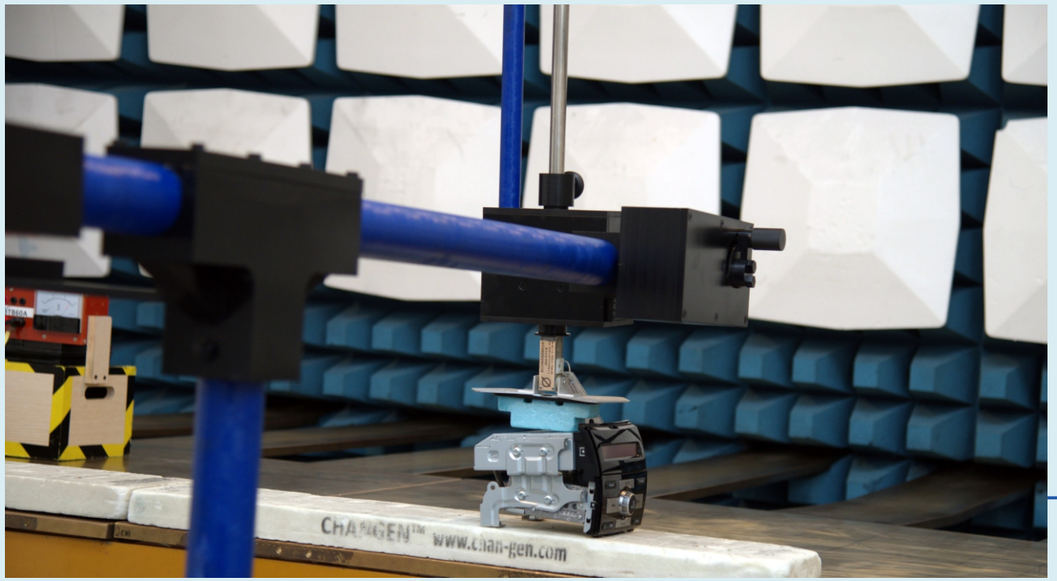
All the actions during the test were realized, including forward / backward, left / right, up / down, and horizontal / vertical of the antenna transmitting surface, and rotation based on 0/90 degrees of the antenna transmitting surface. CHANGEN calls this a five-dimensional action. The movement in dimensions can cover all test Status. This device is in compliance with GMW 3097: 2019 section 3.4.4 related requirements, and support Wanding Mode.

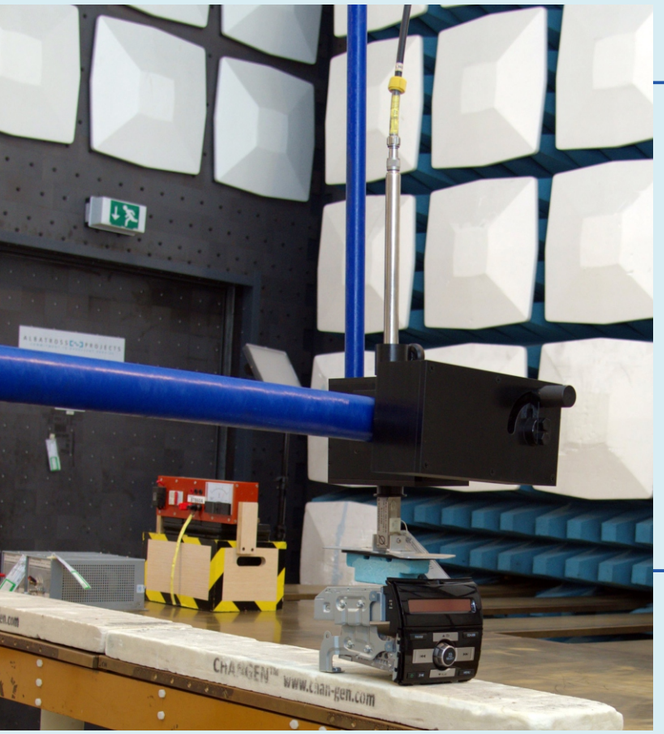


Specification

Three-dimensional motion (X/Y/Z)	500mm × 500mm × 500mm (customizable)
Motor	Each axle with one stepper motor
Test standard	ISO11452-9 / GMW3097
Test mode	Wanding Mode
Position accuracy sensor	10 bits
Position accuracy	±2mm
Max load antenna	2kg
Antenna in-position sensor (patented technology)	Built-in
Antenna rotation sensor (patented technology)	Built-in
Antenna 0/90 degrees non-metallic cylinder (patented technology)	Built-in
Test cable mast	Built-in
Minimum required compressed air pressure / inlet diameter	0.5Mpa / 8mm
Built-in controller power supply	AC 100V-240V, 50Hz/60Hz
Fiber	Single core ST single mode 9/125μm
Fiber length	20 meters
Controller power	AC 100-240V, 50Hz/60Hz
Controller port	USB 2.0
Antenna mast metal shield	Al-alloy
Antenna mast diamensions(package size)	195cm(L) × 110cm(W) × 110cm(H)
Remote control software	CHANGEN, Control Panel for HTM555
EMS performance	in compliance with ISO 11452-9
EMI performance	in compliance with IEC 61326 series
Warranty	12 months

* This product has passed the German TÜV Rheinland certification and meets CE relevant requirements.





Advantages

- According to international standards and the requirements of automobile manufacturers, the distance from the antenna to conductive materials, absorbing materials and operators is strictly limited.
- In order to meet these stringent requirements, CHANGEN uses at least three latest patented technologies.
- Based on the level of awareness of non-metallic materials, HTM555 uses compressed air and plastic components to achieve vertical / horizontal and 0/90 degrees motion changes.
- All movements are monitored and controlled by the antenna control software.

Optional Configuration

HTM555 basic version	Motorized antenna movement in 3D space Pneumatic Control Position indicator Antenna status indicator
HTM555 standard version	Based on the basic version, the following features are added: Automatically calculates the number of moving steps based on the 3D size of the DUT Long-term software update service
HTM555 professional version*	Based on the Standard version, the following features are added: Automatically calculates the number of moving steps based on the test frequency and the field strength distribution of the broadband antenna.
Extended warranty	HTMSSSEXT1, extended one-year warranty HTM555EXT2, extended two-year warranty HTM555EXT3, extended three-year warranty

* Note: This version is not currently available.

Considering the different operating procedures in different labs, HTM555 series products are with different versions: basic version, standard version and professional version.

Testing can be made easier by using the standard version; the software can calculate the number of steps before being confirmed by the engineer. Each move step is listed and recorded. Taking this a step further, considering the electric field distribution of broadband antennas (in t he international standard ISO 11452-9: 2012 Chapter B.2.3), the movement of the antenna is more complicated, using the professional version can solve this problem well.

Light Intensity Monitor (LM118P)

LM118P is the fifth generation light intensity monitor developed by CHANGEN. It is very helpful to obtain the objective result of the performance of vehicle head lights and rear lights in the EMS test. Normally, during the EMS tests, the subjective results are always found in the test report. These results are deficient for the car factory to judge the EMC performance of the DUT.

LM118P can convert the light strength to DC voltage (≤12V). The output voltage can be measured by oscilloscope and record by data recorder. This kind of result is a relative value, not an absolute value. In addition to the above features, the non-metallized design of the probe has almost no negative effect on the RF energy distribution around the DUT. There are more outstanding designs can be found on LM118P once you tried.

Advantages

- The self-test function of the LM118 is useful for test engineers to adjust the probe status.
- Battery is REMOVED.
- Extremely small size and easy to fix on the antenna mast(CHANGENTM PM0812) for variable angle / position adjustment.

  Compact size for storage and extremely low negative effect for radiation field around the DUT.

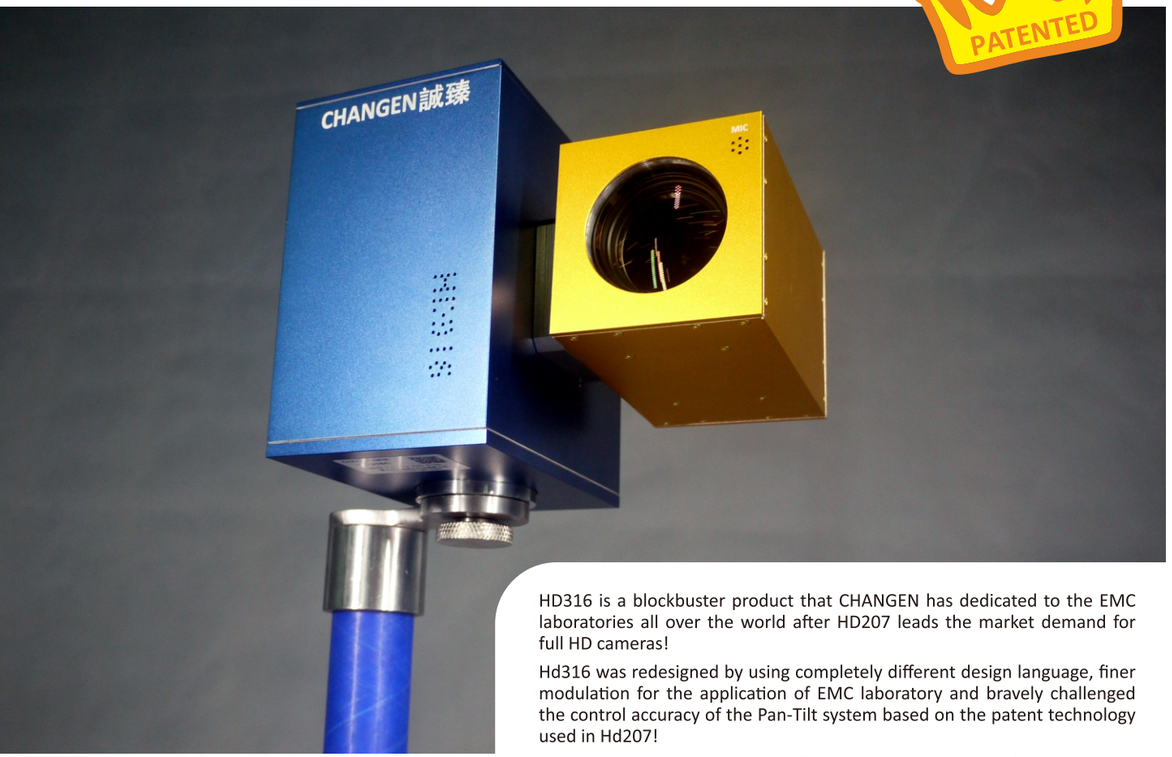
Features

- The response time is quick to nanosecond (ns) level.
- Validated for EMC at INFINITE V/m field strength.
- The receiver is dual-channel with digital display.
- Each channel can work independently and can be used as a backup for each other.
- Each channel has a highlight / low light adjustment knob.
- Multiple channels can work concurrently, the operation of each channel will not affect the normal operation of other channels.
- Continuously changing output voltage based on the monitored light intensity change (≤12V DC).
- Excellent solution for obtaining objective evaluation results of vehicle headlight and taillight performance in EMS test.

Specification

Wavelength Sensitivity (λ)	430nm - 1010nm
Output Voltage	0 – 12V (direct ratio to the monitored light intensity)
Output Connector	BNC (F, 50Ω)
Continuous Work Time (h)	Infinite
Input Voltage (for receiver)	AC 100-240V, 50Hz
Dimensions	Detector: 50mm × Φ25mm Receiver: 483mm × 200mm × 44mm
Screw	3/8" inches
Warranty	36 months
Optional Accessories	Probe holder (CHANGEN PM812 with manual gimbal, multi-probe version can be customized)
Temperature	0°C-50°C
Humidity	10-95%
Probe holder	Gimbal
Probe cable	Fiber

EMC Full HD Camera (HD316)



PATENTED

HD316 is a blockbuster product that CHANGEN has dedicated to the EMC laboratories all over the world after HD207 leads the market demand for full HD cameras!

Hd316 was redesigned by using completely different design language, finer modulation for the application of EMC laboratory and bravely challenged the control accuracy of the Pan-Tilt system based on the patent technology used in Hd207!

The domestically produced 32X optical zoom full HD camera and CHANGEN's newly designed Pan-Tilt system to match its excellent performance, make the observation position of the camera can still be fine adjusted through professional software after the achievement of 32X optical zoom, the degree of delicacy is unprecedented.

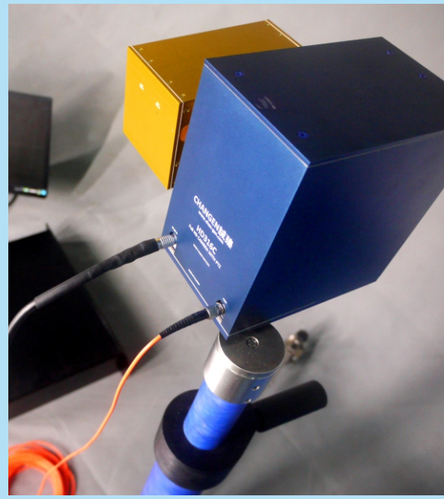
Specification

Sensor Type	1/2.8" CMOS
Day / Night Mode	Yes
ES	1/1'-1/30000'
Focal Length	4.3-129.0mm
Aperture	F1.6-F4.4
Optical Zoom	32x
Digital Zoom	Yes
Focus	Auto / Manual
FOV	58.9°-2.11°
Compression	H.265 / H.264
Max Frames	30fps@2048 × 1536 / 30fps@1920 × 1080(60Hz) 25fps@2048 × 1536 / 25fps@1920 × 1080(50Hz)
Built-in Mic	8kHz, mono,16-bit
Built-in Speaker	Yes
Fiber Connector	ST, single type, 62.5/125µm
Enclosure	Al-alloy
Camera Diamension (contain Pan-Tilt)	220mm(L) × 160mm(W) × 150mm(H)
EMS performance	Radiation susceptibility up to CW 300V/m, radar wave 600V/m.Frequency range DC-18GHz
EMI performance	6dB below CISPR 25 Class 5 limit
Warranty	12 months

Features

- The full HD image quality of 32x optical zoom must be a nightmare without a perfect Pan-Tilt. CHANGEN's new Pan-Tilt design perfectly solves this problem. Performing detailed observation from a distance will become a new trend of video surveillance in the EMC laboratory.
- Single fiber design has always been the design language highly praised by CHANGEN. The complexity of the design can bring convenience for the testers in use and maintenance. CHANGEN used this technology from the optical transceiver to the shielded camera. This will be the first time in the world for similar products to use this new technology.
- The hidden design of the cable is one of the technologies included in CHANGEN's global invention patent, which solved the hidden danger in testing and use of the complicated cable. In the design of HD316, CHANGEN also exerted the patented technology of this invention, simplifying the wire of the camera with complicated functions to only one power cord and one fiber.
- The built-in speaker and microphone system are re-optimized design, and the clear sound quality will bring a new testing experience to the testers!
- Camera control comes standard with 1TB* video storage space, test video can be recorded if you want!!

*Note: HD316EM4 option can be selected to expand to a larger 4T video storage space



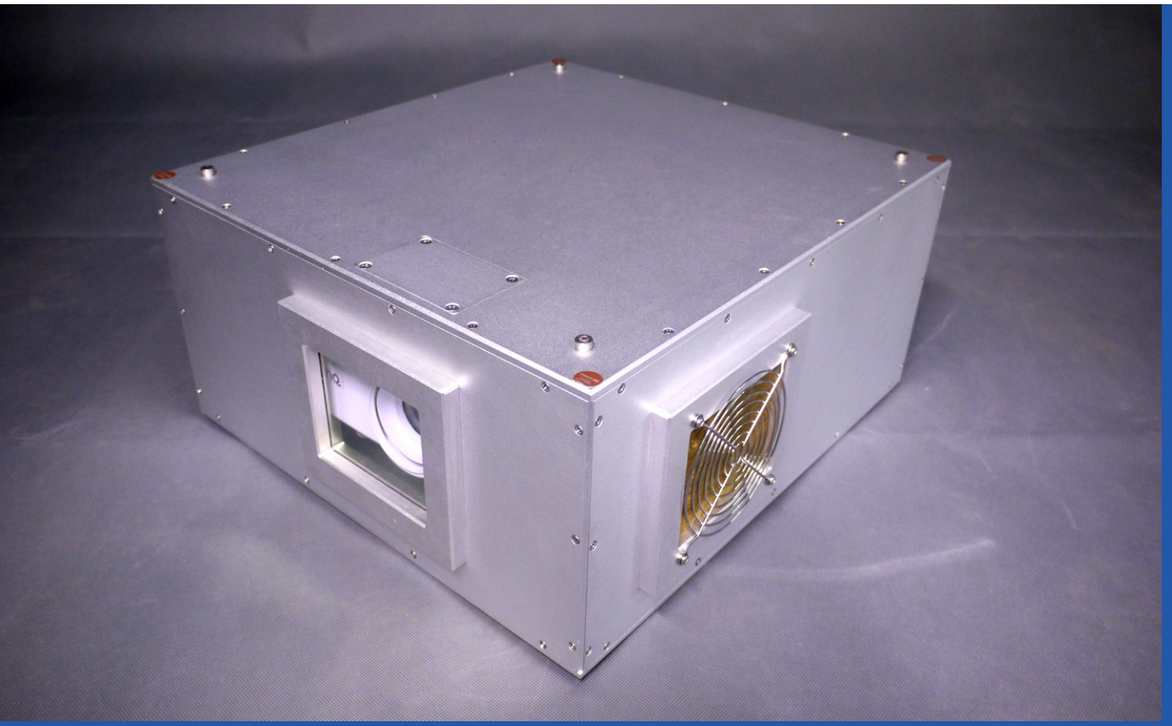
Basic Config

Shielded power supply	HD316SP, AC100-240V, 50Hz
Shielded cameral power supply cord	HD316PW5, 5 meters
Fiber	20 meters, ST connector, 62.5/125µm multi mode,single core
Controller	

- √ Can customize up to 16 sets HD316 optical fibers input simultaneously
- √ Support one HDMI output (max resolution: 4k)
- √ Customizable multi-screen output
- √ Support audio output, headphones or active speakers
- √ Wireless keyboard / mouse 1 sets
- √ Official operating system
- √ Standard 1TB video storage, larger capacity can be customized
- √ Single screen output picture supports single picture or multiple pictures
- √ Support microphone access
- √ Two USB 2.0 access (for wireless keyboard and mouse and video file copy)
- √ 19 inch standard case

Option Config

Camera	HD316C
Pan-Tilt	HD316PT
Single controller	HD316MC
Multi controller	HD316MCx (x=2 -16)
Multi-screen output	HD316ESx (x=2 - 16)
Extended storage	HD316EM4, 4T video storage
Extended battery pack	HD316BT
HD monitor	equipped according to user needs
Camera holder	HD316M1, height:0.9-1.4 meters HD316M2, standard height:0.9 meters HD316Mx, height customizable
Camera power supply cord	HD316SPW8, 8 meters HD316SPW10, 10 meters HD316SPWX, height customizable
Extended warranty	HD316EW1, extended one-year warranty HD316EW2, extended two-year warranty



Shielding Room Projector (HDB207)

CHANGEN provided a new projector for EMC laboratory, which not only retains the high resolution and high brightness of the projector, but also meets the EMS / EMI requirements. It ensures the normal use of the projector in the anechoic chamber / shielding room, and the performance is not interfered; it perfectly realizes the stable projection of test pictures in the laboratory, and can switch the computer picture connected to the projector through the infrared remote control.

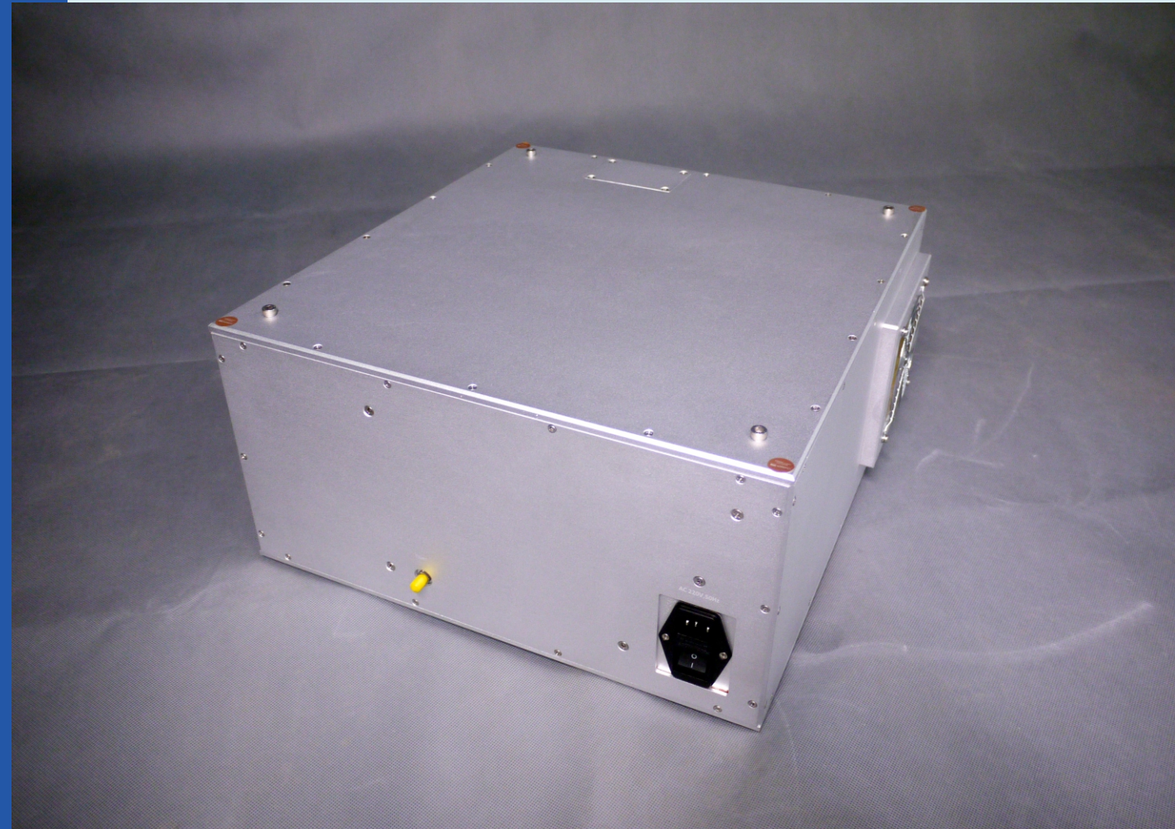
Function

- Newest shielding room projector!
- The projection can be realized in the anechoic chamber, which is convenient for rectification and monitoring!
- Max resolution up to 1920 × 1080!
- Comply with CISPR 22 test requirement! *
- Radiation susceptibility up to CW 300V/m!
- Radiation susceptibility up to radar wave 600V/m!

*Note: CISPR 25 compliant projector is customizable.

Specification

Max resolution	Full HD 1920 × 1080(actual resolution)
Fiber	Single core, ST, single mode 9/125μm
Input vedio port (controller side)	VGA□HDMI
Warranty	12 months
Dimensions	462mm × 444mm × 212mm
Origin	P.R.China



Low Permittivity Supporting Material

PATENTED

Specification

Relative permittivity	$\varepsilon_r \leq 1.4$ (see the third-party test report provided by CHANGEN for details)
Relative permeability	$\mu_r \leq 1.1$ (see the third-party test report provided by CHANGEN for details)
standard	CISPR 15* / CISPR 16-2-1* / ISO 11452 series / ISO 7637 series / ISO 10605 series / specifications of each OEM
Dimensions	see basic config
Dimension Tolerance	Length / Width: ± 5mm, Height: 0mm / + 2mm, hole depth: ± 2mm (if any)
Compressive strength	3.0 kg/cm²
Closure rate	≥93%
Water absorption rate	≤2%
Thermal conductivity	≤0.024 W/m × K
Dimensional instability	≤1.2%
Temperature resistance	-60°C to +250 °C
Recommended use	place test harness during test
Tips	1. Due to material characteristics, irregular pores may appear on the surface of the product. This is normal and totally does not affect performance. 2. The material has a hard texture and needs to be processed with professional equipment. It is not recommended that users process the probe hole and injection clamp hole by themselves to avoid unnecessary material loss and personal injury during processing.

* Note: The dielectric constant of the supporting material used in the CISPR 15 CDNE method was revised to $\varepsilon_r \leq 1.4$ according to the 2019 IEC meeting.

Basic Config

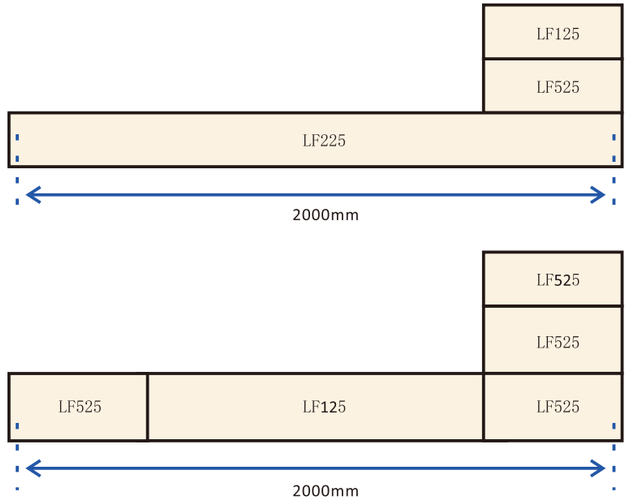
Model	Remark
CHANGEN LF525	500mm(L) × 200mm(W) × 50mm(H)
CHANGEN LF125	1000mm(L) × 200mm(W) × 50mm(H)
CHANGEN LF225	2000mm(L) × 200mm(W) × 50mm(H)
CHANGEN LF125 BCI	1000mm(L) × 200mm(W) × 50mm(H)BCI test
CHANGEN LF125 BCI-300	1000mm(L) × 300mm(W) × 50mm(H)BCI test
CHANGEN LF225 BCI	2000mm(L) × 200mm(W) × 50mm(H)BCI test
CHANGEN customized	Customizable according to needs

In order to solve the problem that there is no suitable supporting material with low permittivity ($\varepsilon_r \leq 1.4$) in the vehicle accessories EMC laboratory for a long time, CHANGEN invited the top domestic experts in materials science to make use of the aerospace technology to create a solid and durable supporting material with low low permittivity. This material solves the problems of soft, low strength, poor heat resistance and easy breakage of the traditional foams.

Typical application-RE / RI test

In order to make better use of CHANGEN's low dielectric constant materials in the test, here are some suggestions for your reference.

RE / RI test: The materials used are LF125, LF225 and LF525.



CDNE100 special for lighting equipment testing

- Newly designed supporting material special for CISPR 15:2008 CDNE test.
- The shape of a square top hat is very convenient for tester's operation.
- The design of 200mm length for each edge can be defined freely and fully meet the test standard requirements, no extra measurement is needed.
- Perfectly support the EUT with one cable or two cables, or control / communication lines.
- Specially designed cable-pressing block can ensure the cable be positioned according to the standard requirements.
- Two cable-pressing blocks* provided as standard accessary with one set CDNE100.

* More cable-pressing blocks can be ordered separately.

Pressed with CDNE100P

Cable-Pressing Block CDNE 100P

Specification

Model	CDNE100
Standards	CISPR 15:2018,CISPR 16-2-1:2014+A1,Clause 9
Colour	White
Relative permittivity	ε,≤1.4 (see the third-party test report provided by CHANGEN for details)
Whole size	1000mm × 1000mm (±5mm)
Size of EUT area	600mm × 600mm（±5mm)
Hight of cable supporting area	30mm(+10mm/0mm)
Length of cable supporting area	200mm(±20mm)
Hight of EUT area	100mm(±2mm)
Temperature resistance	−60°C to +250 °C

* Note: Size of whole product and EUT area could be customized.

Option Config

Model	CDNE100P
Dimension	600mm(L) × 200mm(W) × 50mm(H)
Function	hold cables

Dimension

According to the updated requirement of Lights EUT test：

- A distance of 200mm±20mm shall be maintained between the CDNE and EUT;
- The edge of the RGP shall be at least 200mm beyond the perimeter of the EUT;
- The size of the EUT area is 600mm × 600mm;
- The whole size of the supporting material CDNE100 is 1000mm × 1000mm;
- When using this supporting material CDNE100, the test engineer only needs to place the EUT on the edge of the EUT area, put CDNE close to CDNE100, and CDNE100 not close to the wall. This will avoid the repeated meaturements during the test engineer's operation.

Features

- Each dimension of the CDNE supporting material is comply with the test requirements, all four sides are with cable ties, so the EUT can be placed by one side or two sides in the EUT area.
- CDNE100 is equipped with two cable-pressing blocks, and two EUTs can be tested concurrently. There are nine cable grooves with three different dimensions on each plate, three of them with up to 8mm depth and width, three up to 10mm and three up to 12mm, which are suitable for different diameters of the cables.
- Customized product is available by your requests.

Low Permittivity Material Test Table (LPTT-15108 / LPTT-557)

In order to solve the problem that there is no suitable low reflection test table [made of low permittivity (ε, ≤ 1.4) supporting material] in the EMC laboratory for a long time, CHANGEN invited the top domestic experts in materials science to make use of the aerospace technology to create a solid and durable supporting material with low dielectric constant.

This material solves the problems of soft, low strength, poor heat resistance and easy breakage of the traditional foams.

The low permittivity material test table is made of this new material.

Specification

Relative permittivity	ε,≤1.4 (see the third-party test report provided by CHANGEN for details)
Relative permeability	μ,≤1.1 (see the third-party test report provided by CHANGEN for details)
standard	ANSI 63.4 / CISPR 16 and similar / relative standards
Dimensions	LPTT-15108: 1500mm (L) × 1000mm(W) × 800mm(H) LPTT-557: 500mm (L) × 500mm(W) × 700mm(H) costomizable,such as 2000mm (L) × 1000mm(W) × 900mm(H)
Dimension Tolerance	±5mm
load-bearing	LPTT-15108: >200kg / LPTT-557: >100kg
Compressive strength	3.0 kg/cm²
Closure rate	≥93%
Water absorption rate	≤2%
Thermal conductivity	≤0.024 W/m*K
Dimensional instability	≤1.2%
Temperature resistance	-60°C to +250 °C
Recommended use	Support DUT
Tips	Due to material characteristics, irregular pores may appear on the surface of the product; high temperature may cause the surface of the material discolo0red. This is normal and totally does not affect performance.

Common ESD Test Table

- Including horizontal coupling plate, vertical coupling plate 0.5mm thick insulation gasket, 2 meters long grounding wire with 470k ohms high voltage resistance at both ends, the metal material for the floor coupling surface can be customized.
- The ground plate can also be designed and installed according to customer requirements.

Specification

Common models	1.6m(L) × 0.8m(W) × 0.8m(H)

Vehicle ESD Test Table

- The metal materials of the horizontal coupling plate and grou nd reference plate: brass, copper, aluminum, stainless steel, g alvanized steel, etc. The thickness is not less than 1mm, and specific thickness can be customized.
- Equipped with grounding wire (including 470k ohms high-voltage resistance at both ends of the ground wire) and ESD brush.

Specification

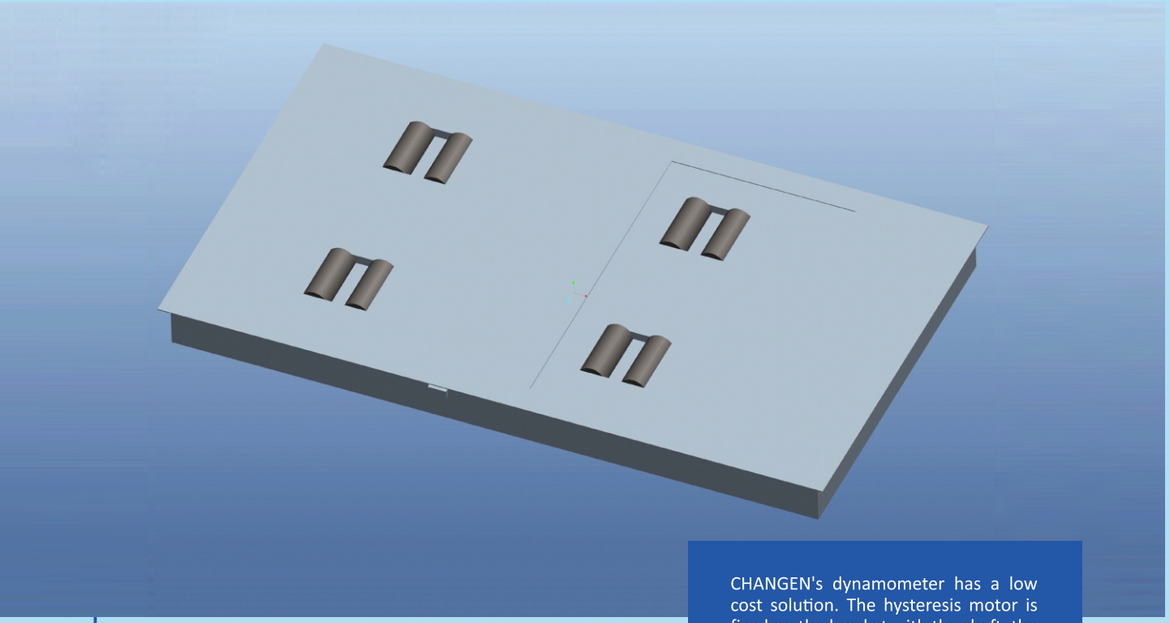
Common models	2.4m(L) × 1.2m(W) × 0.9m(H)
Recommendations	Economic choice: horizontal coupling plate: galvanized steel plate; ground reference plate: Aluminum Recommended choice: horizontal coupling plate and ground reference plate: stainless steel Luxury choice: horizontal coupling plate and ground reference plate: copper
Optional accessories	LF series supporting materials with relative permittivity ε, ≤1.4 (see P41-P42) Insulation Block (as defined in ISO 10605: 2008 6.5): IM500 (see P65) Dissipative mat (as defined in ISO 10605: 2008 9.3.2): DM500 (see P65)

Wooden Test Table

- Using high-quality oak material as the desktop panel, the thickness of the desktop can be customized according to user requirements. The default desktop thickness is 30mm, and the height can be customized within the range of 10 ~ 100cm.
- Metal parts such as nails, screws, etc. were not contained in this product. (Note: If casters are required, the contain of metal parts in the casters are unavoidable.)

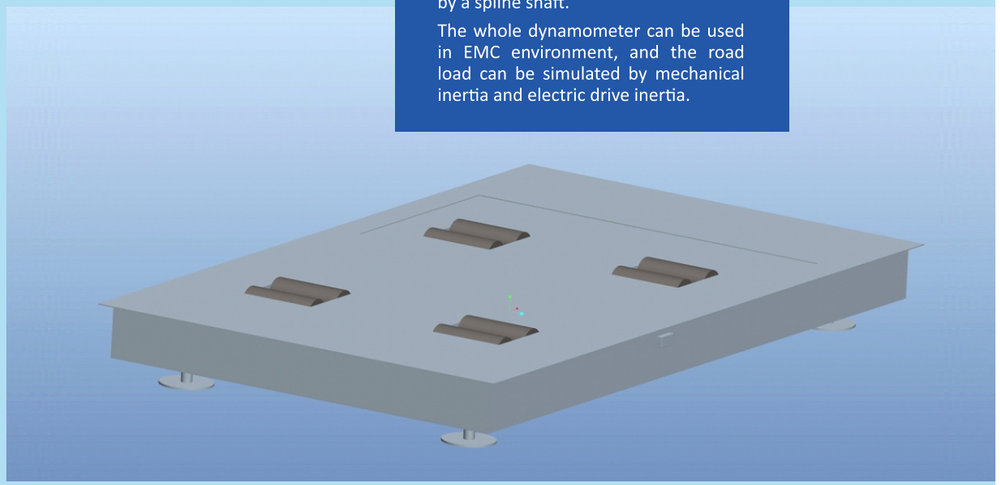
Common models	2.4m(L) × 1.2m(W) × 0.9m(H) (vehicle electronics) 1.6m(L) × 0.8m(W) × 0.8m(H) (EMC)

Passive Vehicle Dynamometer (CD745)



CHANGEN's dynamometer has a low cost solution. The hysteresis motor is fixed on the bracket with the shaft, the front and rear shafts are synchronized by a spline shaft.

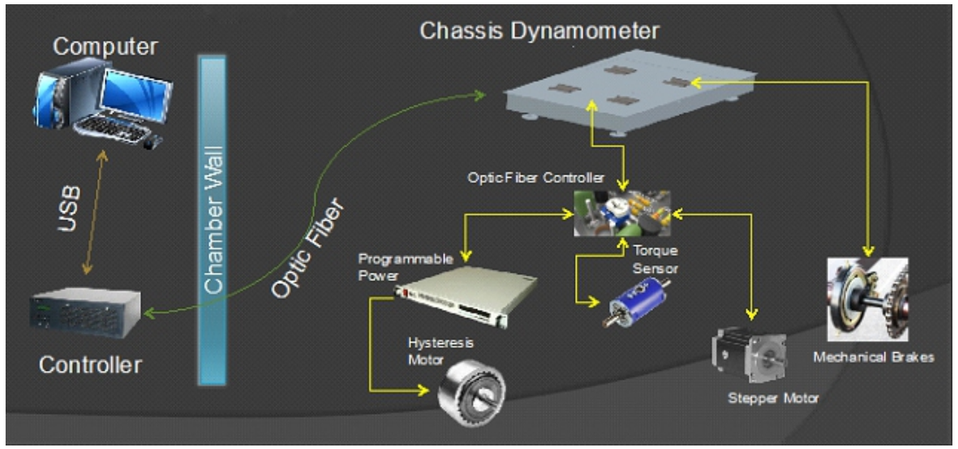
The whole dynamometer can be used in EMC environment, and the road load can be simulated by mechanical inertia and electric drive inertia.



Advantages

- Reliable EMC optimized components can ensure high anti-interference sensitivity;
- Dynamometer with very low EMI;
- Localization services and quick response.

Layout



Specification

Max traction force per wheel hub	3200N
Max power per wheel hub	100kW
Top speed	200km/h
Load	each axis can bear load
Mode	two-wheel drive, four-wheel drive, hybrid mode can be perfectly adapted
System power input	AC 100-240V/50Hz, 32A
Wheel hub diameter	450mm
Coaxial hub outer dimension	2200mm
Coaxial hub inner dimension	900mm
Wheelbase	2400 mm- 3400mm adjustable
Installation dimensions	7000mm(L) × 4000mm(W) × 500mm(H)
Maximum axle load	2500kg
Traction force measurement error	0.3%
Speed measurement error	0.3%
Traction control error	0.3%

*The anechoic chamber floor should be able to provide a carrying capacity of 4 tons per square meter.

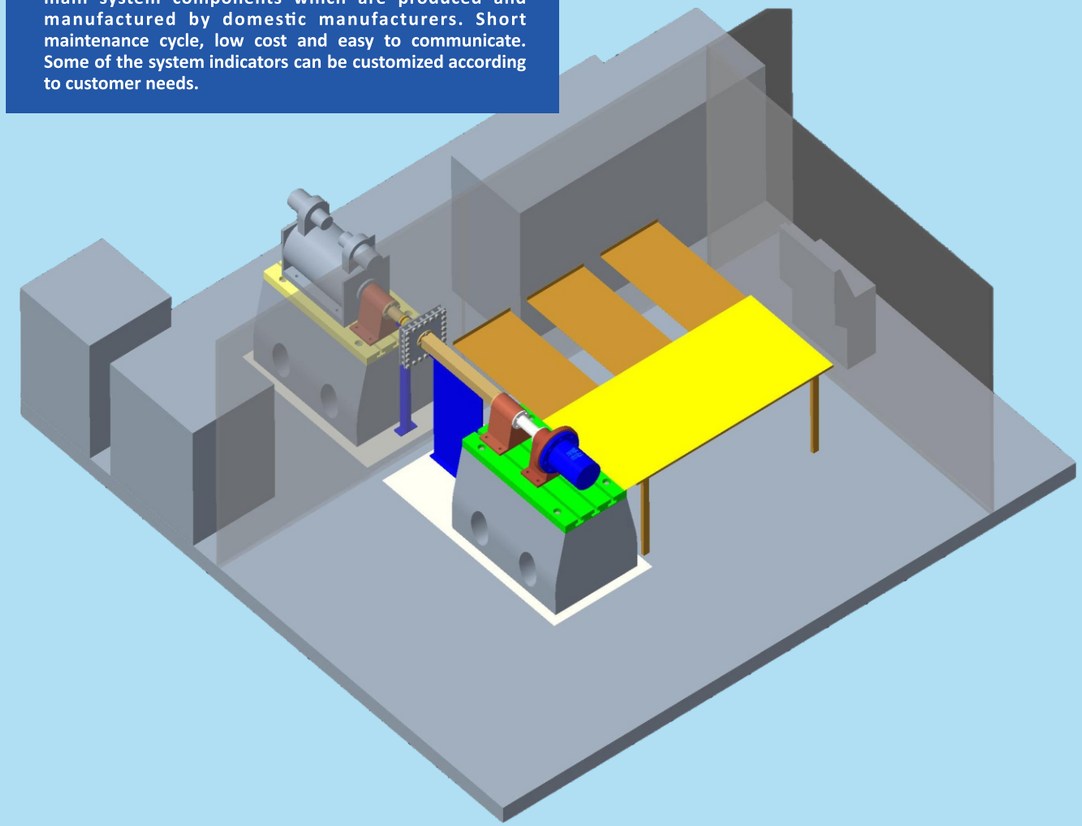
New Energy Vehicle Motor Dynamometer (EC300)

PATENTED

EC300 is a new energy automotive parts test system with independent intellectual property rights and complete functions, which is another dedication to the EMC industry after CHANGEN successfully designed and installed the first set of nationally produced EMC test dynamometers in China. Each indicator of the system is higher than or equal to similar indicator of the similar imported equipment.

The three major parts of new energy automobile battery, electric drive and motor can be tested and evaluated on Ec300.

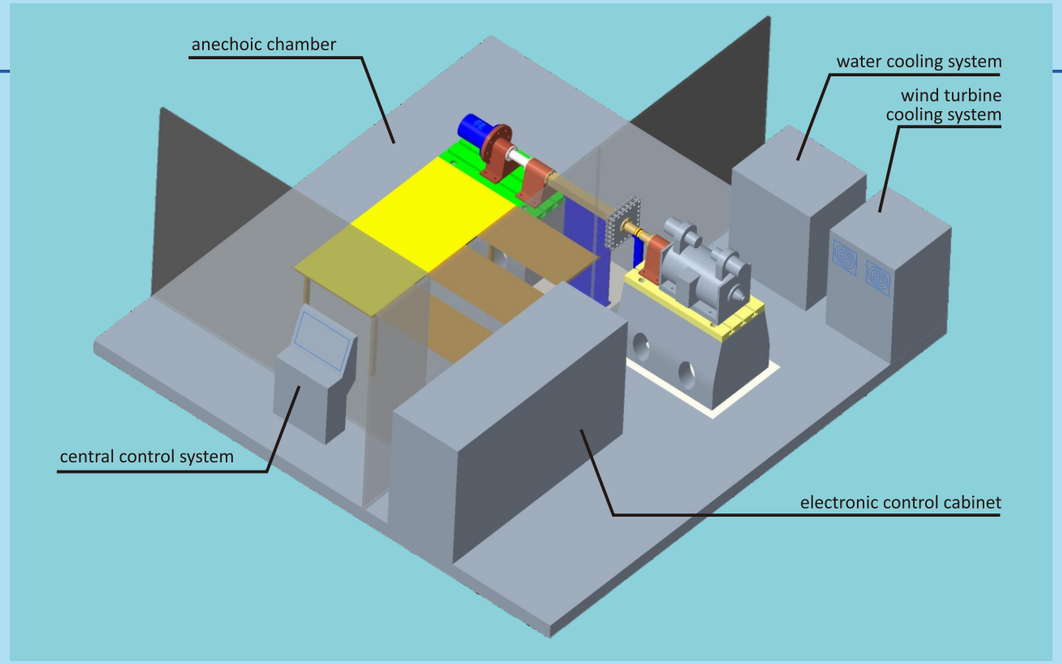
All system components of EC300 are designed domestically, including battery simulator system, dynamometer motor, dynamometer motor drive system, test bench and other main system components which are produced and manufactured by domestic manufacturers. Short maintenance cycle, low cost and easy to communicate. Some of the system indicators can be customized according to customer needs.



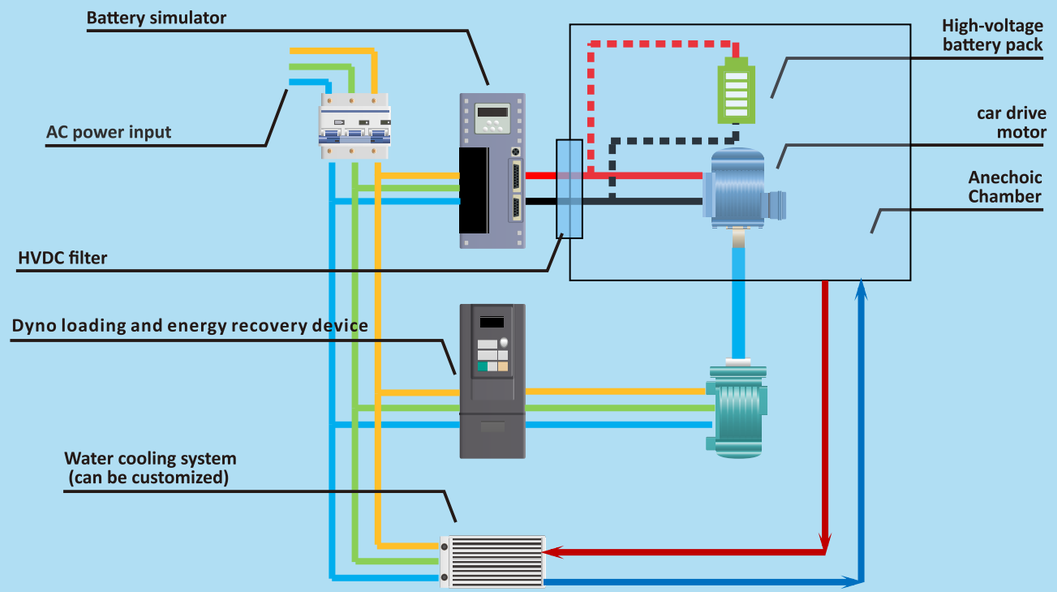
Testing ability

- High voltage battery pack charging and discharging state EMC test
- Drive motor loading state EMC test (passive mode)
- Drive motor energy recovery status EMC test (active mode)

Structure



Power distribution



Motor Dynamometer

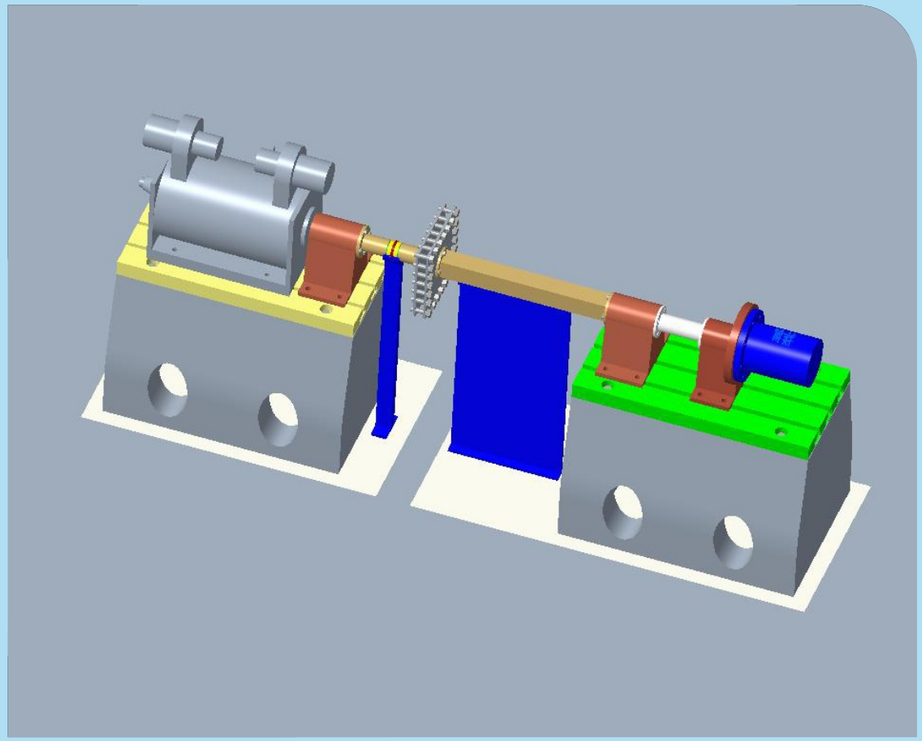
	dynamometer mode (passive mode) Motor	mode (active mode)
Max power	315kW	260kW
Max torque	900Nm(@4000rpm)	600Nm(@4000rpm)
Max speed	15000rpm	12000rpm
Main function	Load the sample by energy feedback to the grid mode.	Can drive the sample motor to work in "energy recovery" mode.
Measurement accuracy	speed ±1r/min,torque ±2%FSR	speed ±1r/min,torque ±2%FSR
Control accuracy	speed ±1r/min,torque ±2%FSR	speed ±1r/min,torque ±2%FSR
Loading stability	constant torque≤0.2%,constant speed≤0.1%	constant torque≤0.2%,constant speed≤0.1%

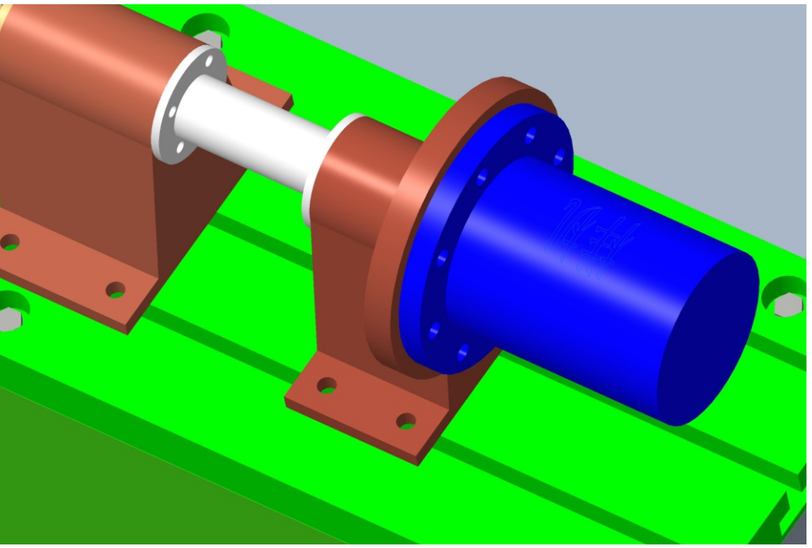
Battery simulator

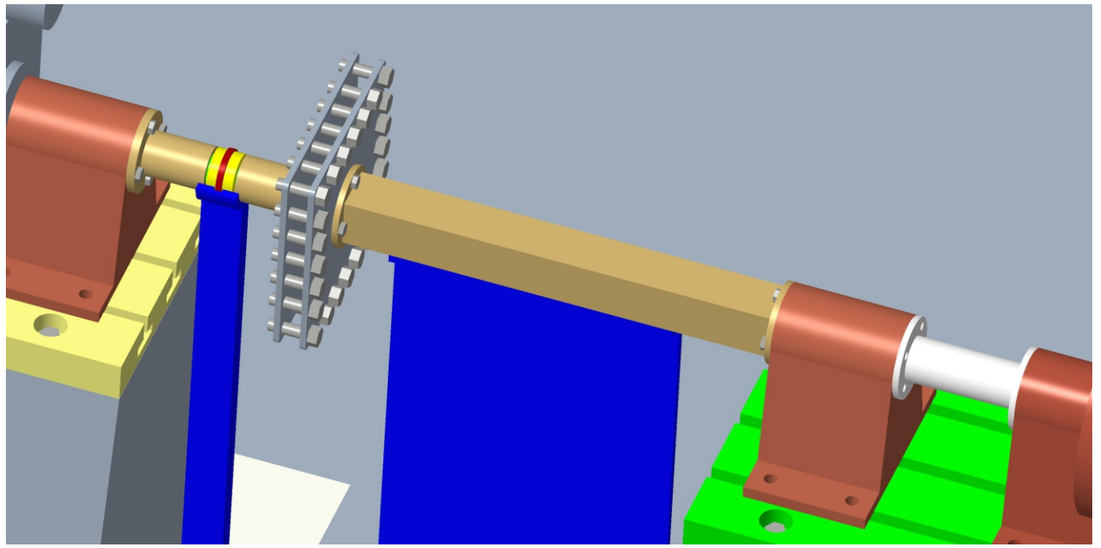
Rated output power	350kW
Peak output power	400kW (<60')
Rated output current	±700A
Peak output current	±800A (<60')
Output voltage	DC 24-800V(higher
+90% to -90% switching time	voltage customizable)
AC output voltage	<10msAC 350V-415V
AC frequency	47-53Hz

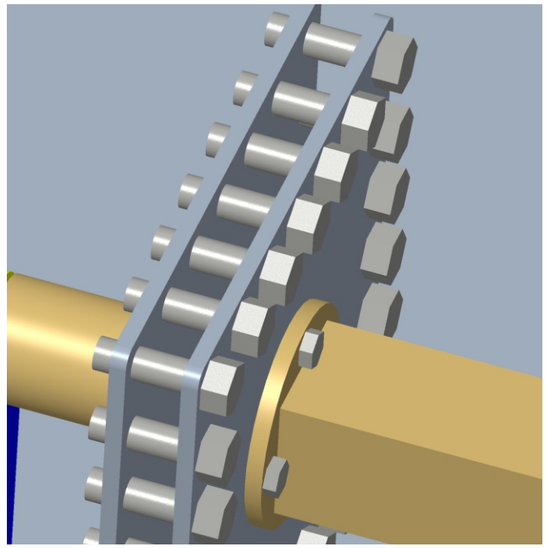
EMC features

EMI	6dB lower than CISPR 25 Class 5 limits
EMS	RI: CW 300V/m, PM: 600V/m



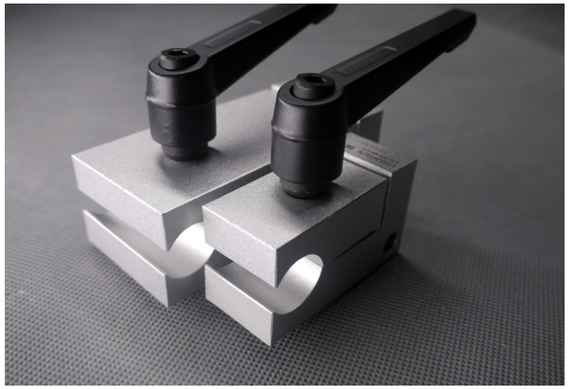






Antenna Adaptor (MA070, MA110)

The antenna adaptor can be used with TPM150 to assemble various test antennas. For special customized antenna adapters please contact CHANGEN.



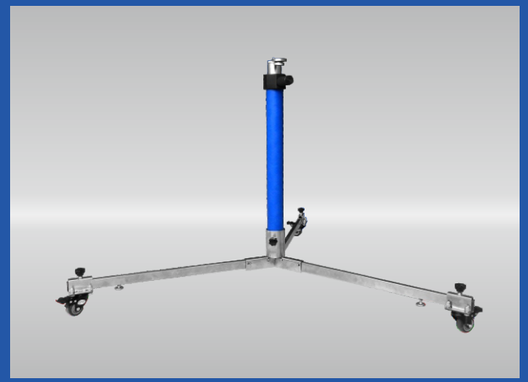
Universal Stand (TPM150)

The universal antenna stand uses retractable tripod structure makes it easy to install and operate. The height adjustment is very simple. It can be adjusted within the range of 0.9m-1.4m. The main body is made of non-metallic material to avoid reflection. The antenna can be directly attached to the 3/8” tripod thread, or by using an antenna adapter. CHANGEN can provide antenna adapter for customers to choose.

This antenna stand can be used as CHANGEN HD316 camera stand.

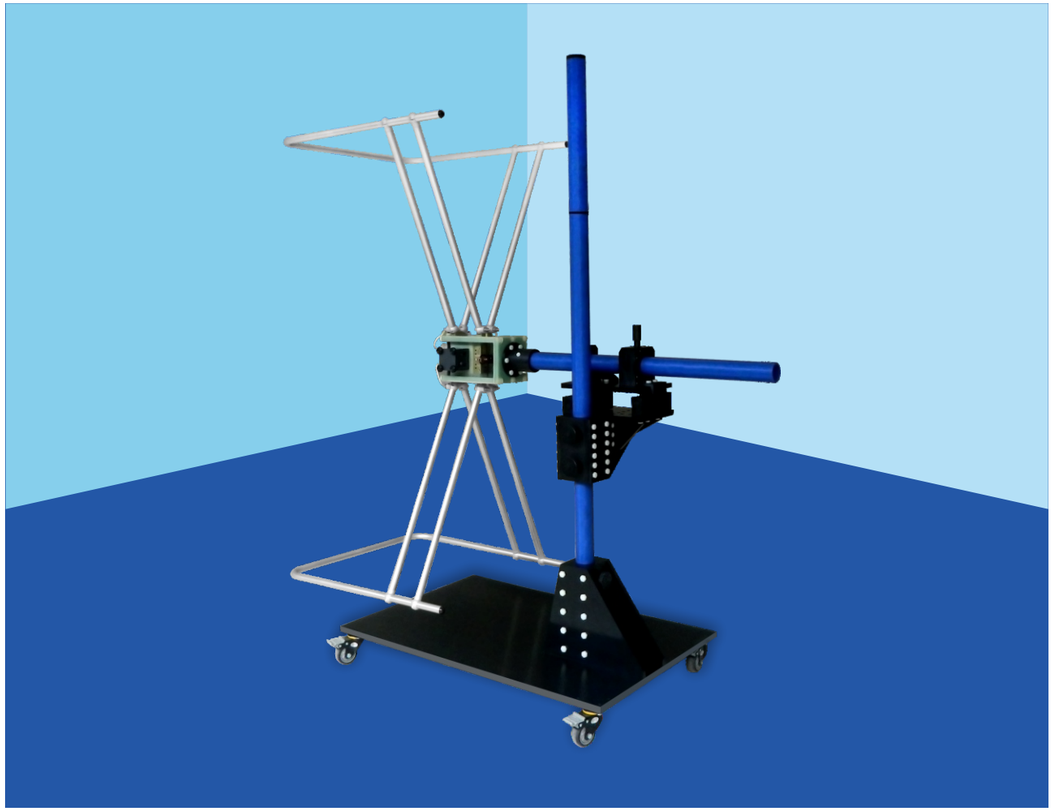
Position:Highest

Position:Lowest



Specification

Lifting height	0.9m-1.4m
Antenna Mount	3/8” thread or antenna adapter
Weight	10kg



Large Biconical Antenna Mast (AM2510)

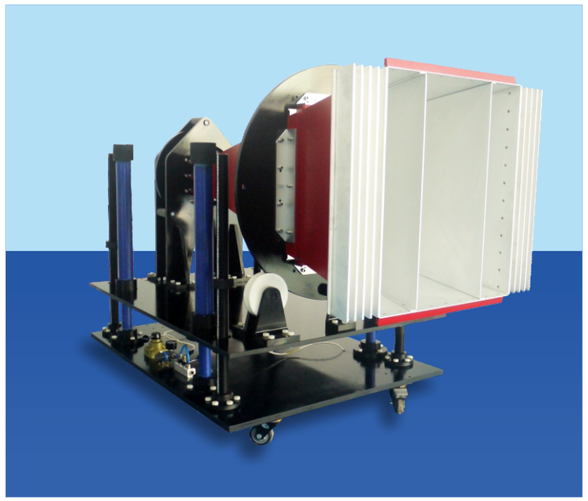
- AM2510 manual antenna mast is is specially designed for EMC test environment. The mast provides full manual control of antenna height, tilt, and polarization, and supports antennas up to 18kg in weight.
- AM2510 is constructed of high-quality, non-conductive materials to withstand the rigors of daily use in both EMI and EMS testing.
- The mounting arm can be adjusted according to customer needs, both small and large antennas can be supported by installing adapters.
- The positioning frame of the mast allows manual control of the antenna tilt to + 10%, the rotation of the antenna has an angle of 0 to 90, so that the user can quickly polarize. The mast can be secured with a locking pin. The mast equipped with four lockable swivel casters to move safely and easily.
- The vertical mast can be easily disassembled for storage or transportation between test sites.

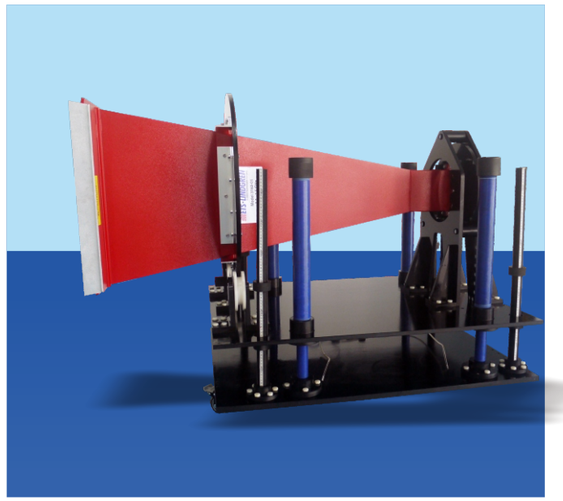
Advantages

- Stable mechanical structure.
- Manually control height, tilt, and offset.
- The load-bearing antenna is up to 18kg.
- Four lockable swivel casters can move safely and easily. The vertical mast can be easily disassembled for storage or transportation between test sites.

Pneumatic Lifting Antenna Mast (3162)

This antenna mast is for the installation and use of large horn antenna. The height of the antenna is adjusted by pneumatic lifting, the screw is matched with the nut, and the height is adjusted with a reference scale, which can improve the efficiency of test preparation and reduce the labor intensity of the tester. The coaxial bracket is used to fix the antenna, which can be easily adjusted for polarization.





Specification

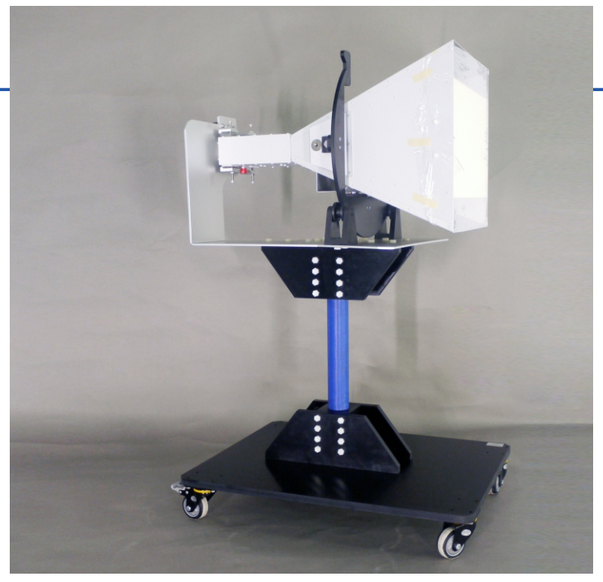
Height	adjustable height 0.8m-1.2m
Lifting method	Pneumatic assist
Antenna fixing method	Integrated coaxial bracket
Weight	25kg

Antenna Mast (9120J)

The antenna mast can meet the requirements of multiple brands of horn antenna on the market (please provide the antenna model before purchase). The antenna height is with two parts fixed height and adjustable height. The antenna can be adjusted by polarization positioning device.

Specification

Height	fixed height 1.0m, adjustable height 0.9m-1.2m
Antenna fixing method	Integrated coaxial bracket
Weight	25kg



Pneumatic Lifting Antenna Mast (9120K)

This antenna mast is for the installation and use of large horn antenna. The height of the antenna is adjusted by pneumatic lifting, the screw is matched with the nut, and the height is adjusted with a reference scale, which can improve the efficiency of test preparation and reduce the labor intensity of the tester. The coaxial bracket is used to fix the antenna, which can be easily adjusted for polarization.

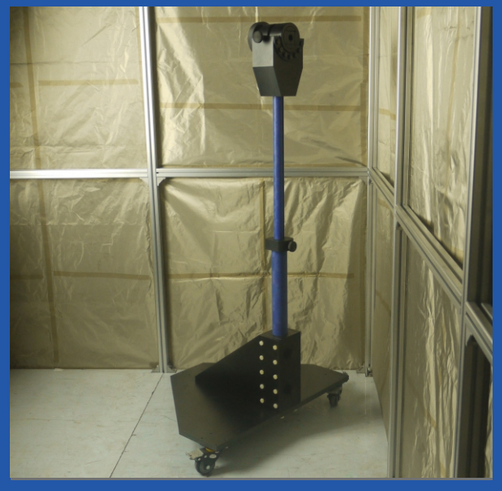
Specification

Height	adjustable height 0.8m-1.2m
Lifting method	Pneumatic assist
Antenna fixing method	Integrated coaxial bracket
Weight	25kg

Biconical Antenna Mast (VHBB9124+BBA9106)

The antenna mast is mainly used for the test antenna with a 22mm rod and needs polarization adjustment during the test. The test height is adjustable. The materials are non-metallic except casters (non-metallic casters can be provided according to customer needs).

Position:Highest



Position:Lowest

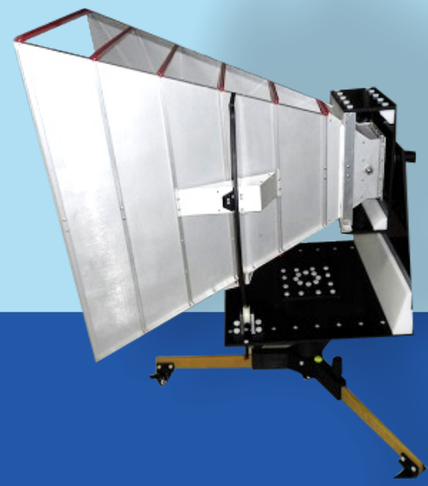
Specification

Height	adjustable height 0.8m-1.5m(or customized)
Antenna fixing method	clip antenna tail
Weight	35kg

Customized Antenna Mast

(In addition to design antenna stand according to test standard, we also provide customized antenna stand.)

01



Big Horn Antenna Mast

According to the customer's requirements, this antenna mast is made for ETS Lindgren 3106B.

02

Portable antenna mast (for on-site test)

- est antenna lift for outdoor test.
- Semi-automatic adjustable antenna mast.
- Except for swivel casters, all the other parts are made of sturdy epoxy resin, polyoxymethylene, nylon and other materials, which avoids potential EMF problems caused by metal materials to the greatest extent.
- Only need one person to complete the antenna movement, horizontal and vertical polarization flip.
- To ensure the antenna stand durable in use, storage state and test state were designed for customer to switch.

03

TOP SELLING

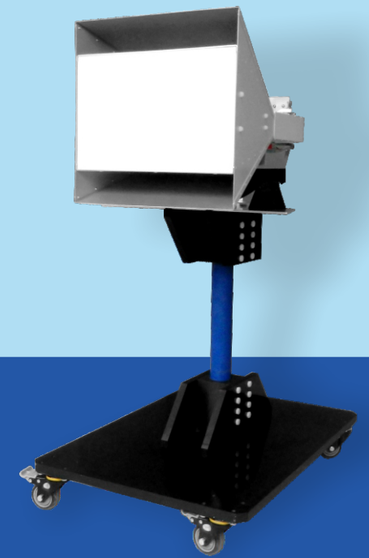
Monopole Antenna Support (MPF900)

The monopole antenna support is designed and manufactured strictly in accordance with standard requirements. The support is equipped with casters for easy movement. Except for swivel casters, all the other parts are made of non-metallic materials. The top surface is covered with copper plate, which can be perfectly connect to the test table.

The holes in the brass ground plate can fix most of the monopole antennas on the market.

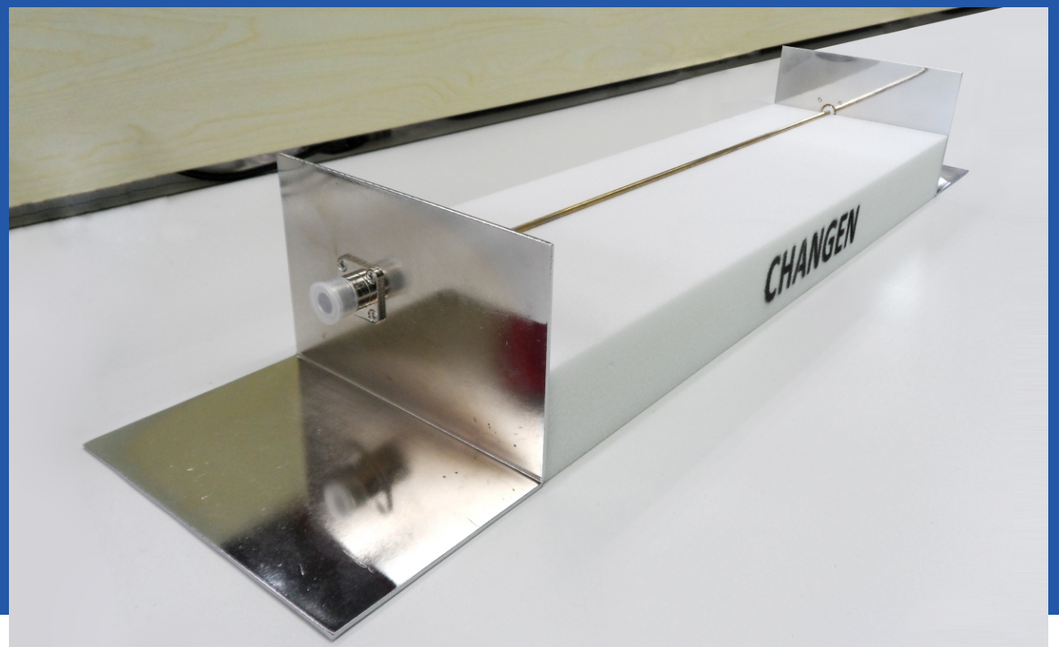
The suitable monopole antenna includes:
Schwarzbeck VAMP 9243
ETS-Lindgren 3301C
Rohde & Schwarz HFH2-Z6E
...

04



Other Antenna Masts

For more customized antenna masts, such as SCHWARZBECK big horn antenna mast, please contact CHANGEN.



Long Wire Antenna (MLWA500)

Specification

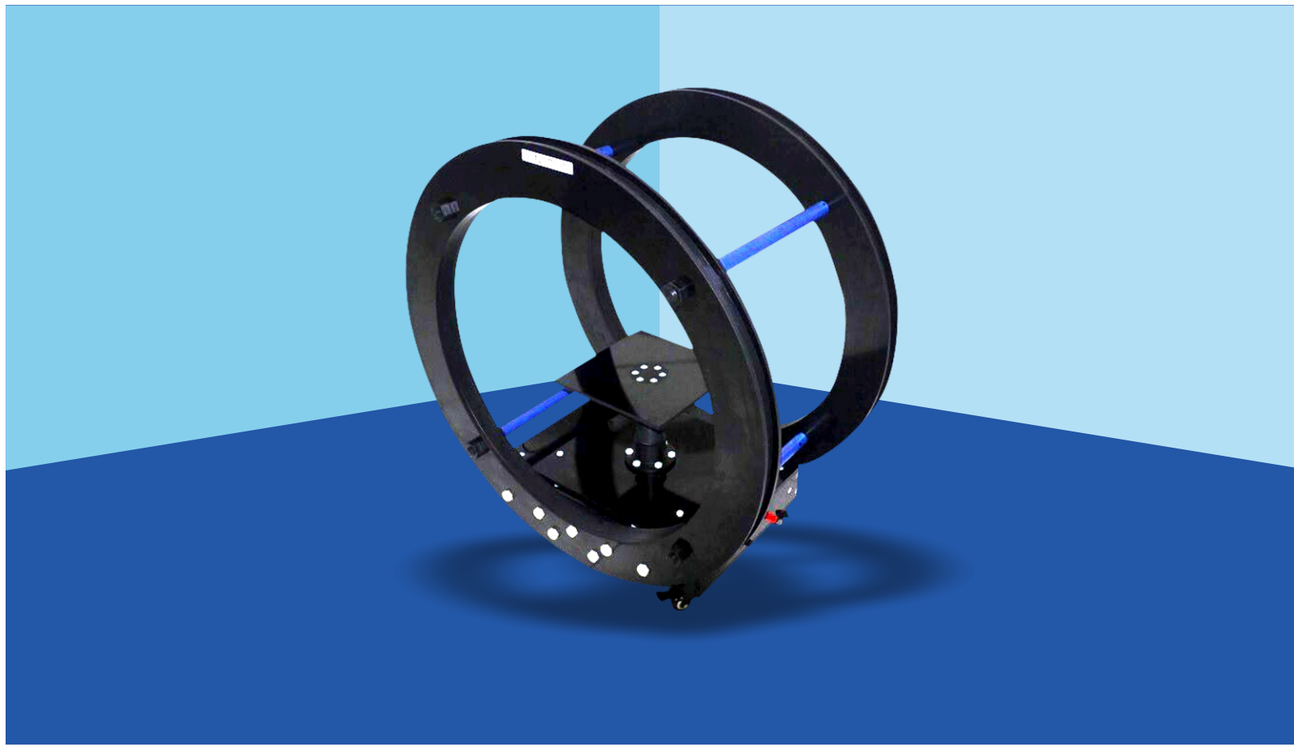
Model	MLWA500
Standard	CISPR 25:2016
Chapter	Annex J, J.3.2.2
Antenna length	500 ± 5mm
Antenna diameter	4 ± 0.2mm
Antenna height	50 ± 2mm
Antenna material	Brass
Plating Material	Nickel (optional)
Antenna connector(both ends)	50Ω type N (female)
Optional accessories	50Ω RF Termination 10dB attenuator
Supporting material between antenna and ground plate	CHANGEN low permittivity supporting material (ε_r<1.4)

Helmholtz Coil (HMC900)

- HMC-900 is a Helmholtz coil manufactured to produce a uniform magnetic field;
- The bottom of the coil is equipped with swivel casters that can move easily;
- The coil is made of solid non-metallic material, mainly composed of glass fiber and epoxy resin, which can minimize the reflection influence on EMC test;
- The coil can be customized according to customer requirements.

Specification

Coil diameter	900mm
Number of turns per coil	25
Wire model	AWG10
Coil factor	38.4（A/m/Ampere）
Max continuous current input	25A
Max Instantaneous current input	30A
Uniformity	in the column 300cm±10%
Connector	4mm
Line resistance (DC)	1.5Ω
Weight	55kg
Material	Glass fiber, epoxy resin

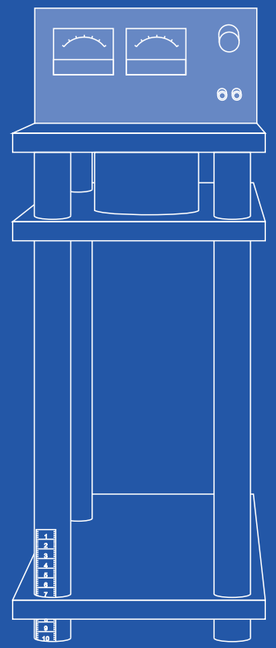


Electric Motor Load Test Stand (MTF515)

PATENTED

MTF515 is specially made for testing on-board motors (such as window motors, sun visor motors, wiper motors, seat motors, etc.) under no-load / load conditions. It is particularly suitable for EMC test and can also be used in other tests that require loading of the motor.

This stand uses a German original Mobac® brand hysteresis motor with very low EMI. The maximum torque can reach 29N·m, which fully meets the requirements of many international vehicle factories with a stall torque of 24N·m. The torque is controlled by current. As long as the specified current is provided, this test stand can provide the required torque for the motor under test, and the linearity is excellent.



Adavantages

- The specially designed stand structure ensures it will not deform significantly when a large torque is applied to the motor under test;
- The test stand is made of solid non-metallic materials, mainly including polyoxymethylene and epoxy resin, which can minimize the reflection influence on EMC test;
- The test stand can be matched with the mainstream brands motors through various customized mounting fixtures;
- The test stand has current display and adjustment function, can facilitate testers to directly adjust the torque control current on the test stand;
- The test stand is provided with a horizontal adjustment knob of the foundation;
- In order to adapt to different motor sizes, this test stand also has the function of adjusting the motor mounting plate height. it is convenient for testers to ensure the test consistency by using the ruler on the stand to observe and record.

Specification

Max torque	6.5N·m (customizable)
Dimension	according to the customer needs
Weight	depends on hysteresis motor specification and test stand
Material	formaldehyde, epoxy resin

High Voltage Battery Pack Load

Specification

- Max load voltage: 1kV, the cable access is fully covered with insulation material and fixed with a pressure plate, the material of the pressure plate is copper-nickel plating, and a cable with max diameter of 20mm can be fixed;
- Power: test power can be customized;
- Each group of loads has independent ammeters and switches, which can be used in a single group or multiple groups according to actual needs;
- The control method is manual, semi-automatic, or automatic;
- Each group of loads has independent space, and each group of loads is divided by a heat insulation layer, which can effectively isolate the mutual influence of heating devices during work and prolong the working life of heating devices;
- Each group of load has independent temperature controller and controls 2 axial-flow exhaust fans, which can ensure the timely discharge of heat during the test. The factory operating temperature is set to 30°C, which can also be adjusted by itself in a more practical range of 0 ~ 50°C;
- The working voltage of axial-flow exhaust fan is 220V AC (powered by laboratory indoor power supply), the fan is all-metal structure, can run at high temperature for a long time;
- The box material is stainless steel;
- To match the movement of the box on the test bench, casters are installed under the box;
- To move in and out of the laboratory, a special trolley is equipped. The plane height of trolley load box: 900mm;
- All components of this load box, except the fan, are passive components. The fan motor is an AC motor with excellent EMC performance.

Disturbance Power Track (DPT6300)

CHANGEN has introduced a retrofit solution of changing manual guide rail into electric guide rail, which can be used for laboratories to upgrade existing equipment.

The focus of this solution is the electric controller, which adopts the latest technology of the automobile industry, uses the top accessories to form the electric controller with low electromagnetic noise, uses the gear belt to drag, and the operation speed of the absorption clamp reaches up to 0.6 m/s, and has the function of fast and slow speed. Its precise parking is realized by precise gear matching. The solid mechanical structure can ensure electromagnetic compatibility and durability of the product.

Specification

Guide rail model	DPT6300
Controller Model	DPED6000
Input voltage	AC 220-240V, 50Hz(can be customized according to the actual situation of the laboratory)
Input power	100W
Output method:	gear drive
Enclosure material	Aluminum
Max running speed	0.4m/s
Controller	Handheld controller (with fast and slow speed adjustment)
Variable speed	dual-speed
Background noise	fully meets the test standard requirement of 6dB lower than limits

Advantages

- Meets CISPR 14-1 related requirements, variable speed control, extremely low background noise;
- Can be used for the electrification of manual guide rails;
- Can be used for the Electrical control transformation of disturbance power rail;
- The disturbance power test is included in standards GB 4343.1 / GB18387 / CISPR 13 / CISPR 14-1 / EN 55013 / EN 55014-1, which requires the use of guide rails for power absorption clamp running.

Six-Port RF Switch Box (RFS-RE126)

Typical application: The output port of RFS-RE126 is connected to the test input interface of the receiver or spectrum analyzer, signal analyzer. The other 6 input ports can be connected to test signals transmitted by different measurement antennas (such as log-periodic antennas) or measurement devices (such as LISN).

Advantages: It can avoid irreversible damage to equipment and cables caused by frequent disassembly and assembly of cables, reduce the measurement uncertainty of measured quantity val ues caused by cable switching, and improve the reliability of testing.

The following port configurations are available

- Output: SMA Female (frequency up to 26.5GHz)
- Input 1: BNC Female (frequency up to 4GHz)
- Input 2: N Female (frequency up to 18GHz)
- Input 3: N Female (frequency up to 18GHz)
- Input 4: N Female (frequency up to 18GHz)
- Input 5: SMA Female (frequency up to 26.5GHz)
- Input 6: SMA Female (frequency up to 26.5GHz)

Function

- Contains a set of SP6T RF switch modules;
- Low-loss precision RF connectors are used inside the switch box (VSWR <1.15@18GHz, VSWR <1.3@26.5GHz) and low-loss RF cables;
- Used in conjunction with RFS-MC16 to achieve remote control, and also supports manual control;
- The unconnected connectors are automatically terminated with 50 ohms;
- Support user customization (customizable maximum frequency, transmission power, connector type, etc.)

Customized Model

RFS-CCxxx, xxx represents the RF switching situation. The customized information of RF switch box is as follows:
(Alternatively, users can put forward the system operation requirements, and CHANGEN assists the users determine the specifications of the RF switch box.)

(1) One way to multiple ways

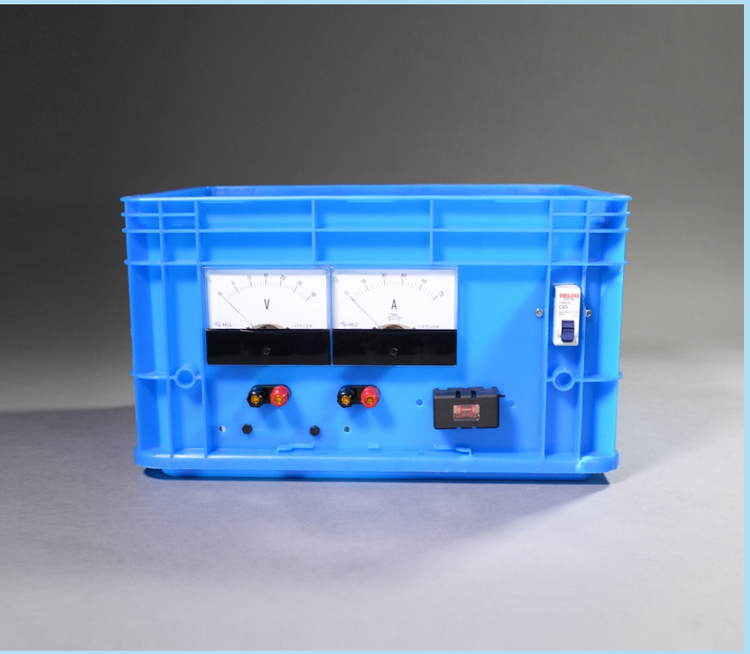
(2) Can be customized according to frequency

(3) Interface type can be selected: BNC <4GHz, N <18GHz, SMA <26.5GHz, etc.

(4) RF average power for each interface can be required

Conical metal housing

- This conical metal housing meets the technical requirements of CISPR 15: 2018 and all previous versions;
- The size of the opening of lampshade is 5mm × 5mm, the shape of the opening is a square, and it is made of stainless steel. Other dimensions fully meet the standard requirements, larger size CISPR15 conical metal housing can be customized for high-power energy-saving lamps;
- Meets CISPR 15 Clause 8.6 requirements for the conducted interference test of energy-saving lamps.

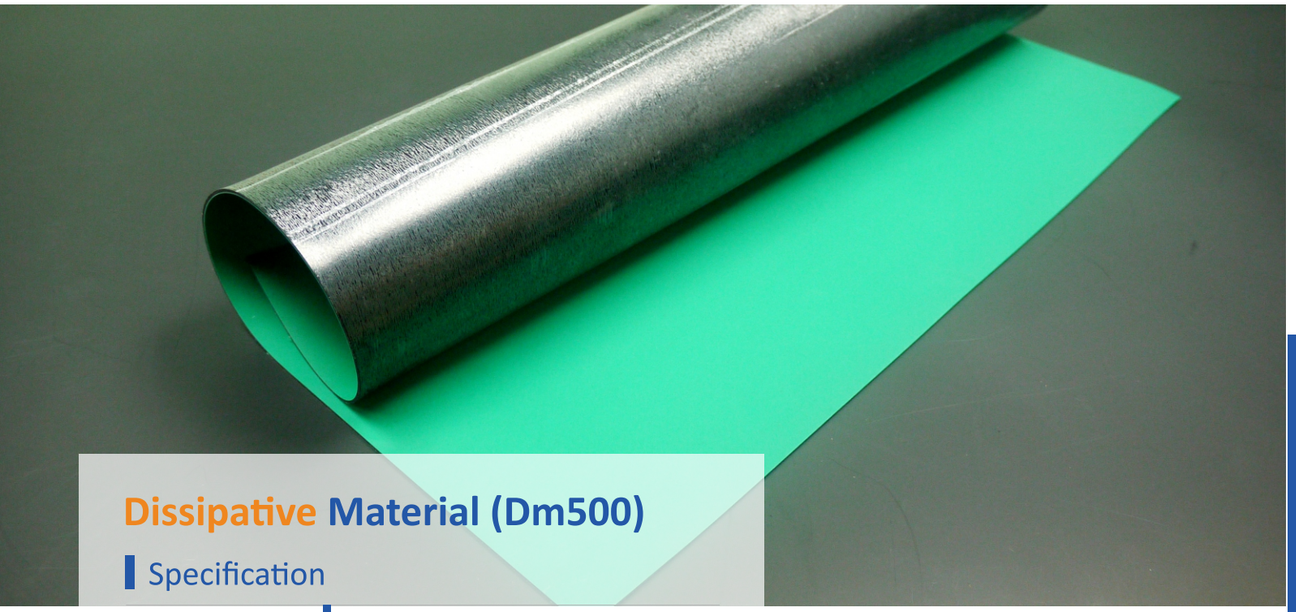


Battery Box

- Can realize voltage and current indication (mechanical meters)
- Equipped with automotive fuse
- Equipped with DC air-break switch
- DC high-current connector output
- Ground wire for automotive electronics test

Field Coupling Plane for ESD (FCP2000)

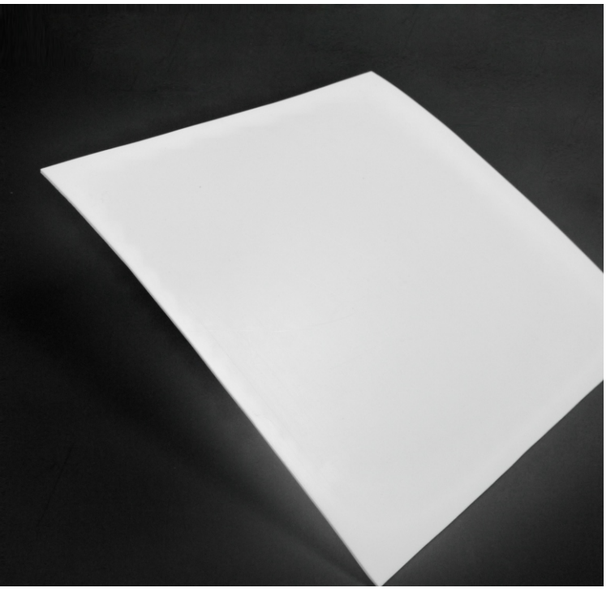
- The processing size is accurate and reliable, which can provide a larger sample placement area.
- Sample placement area size: 630mm × 300mm, coupling plate full length: 1980mm;
- The material laid under the coupling plate is CHANGEN's proprietary low permittivity material (test reports can be provided), which fully meets the standard requirements.
- The field coupling plate is usually made of copper which is easy to oxidize, to reduce test errors due to copper oxidation, CHANGEN provide users the electrostatic field coupling plates with copper materials that have undergone secondary surface treatment (such as Nickel plating, etc.) in addition to using high-quality copper materials,.
- The area where the samples are placed is marked to prevent users from failing to meet the standard requirements during the test.
- The bundle tie provided is convenient for users to fix the wiring harness and ensure the consistency of the test.



Dissipative Material (Dm500)

Specification

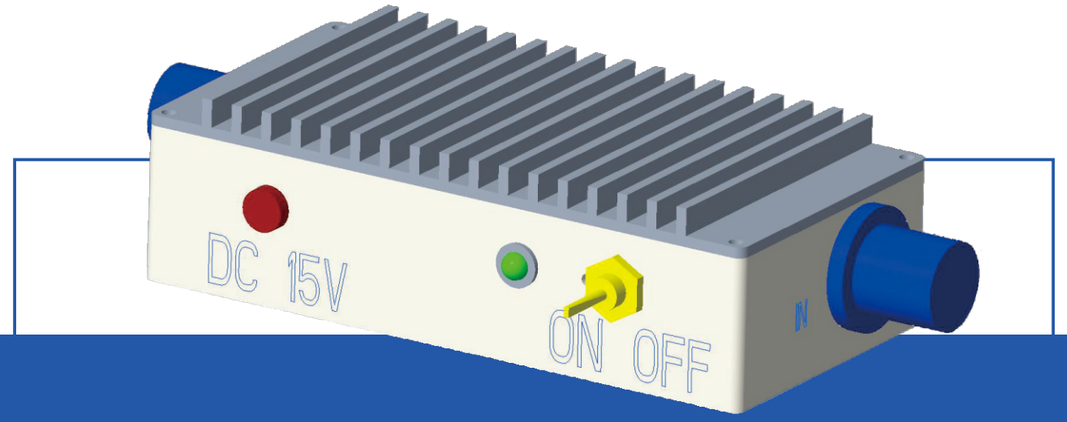
Model	DM500
Standard	ISO 10605
Reference chapter	9.3.2
Dimensions	500MM × 500MM (L × W)(TOLERANCE: 5 %)
Thickness	1.5~2 MM (TOLERANCE: 5%)
Color	SURFACE: GREEN, BOTTOM: BLACK
Surface resistance	10^7—$10^9\Omega$



Isolating Material (IM500)

Specification

Model	IM500
Standard	ISO 10605
Reference chapter	6.5
Dimensions	500MM × 500MM (L × W)(TOLERANCE: 5 %)
Thickness	2~3 MM (TOLERANCE:5%)
Color	WHITE OR OFF-WHITE
Withstand voltage	≥60KV/MM
Dielectric constant	2~5 (TYPICAL VALUE:2.5@10GHZ)

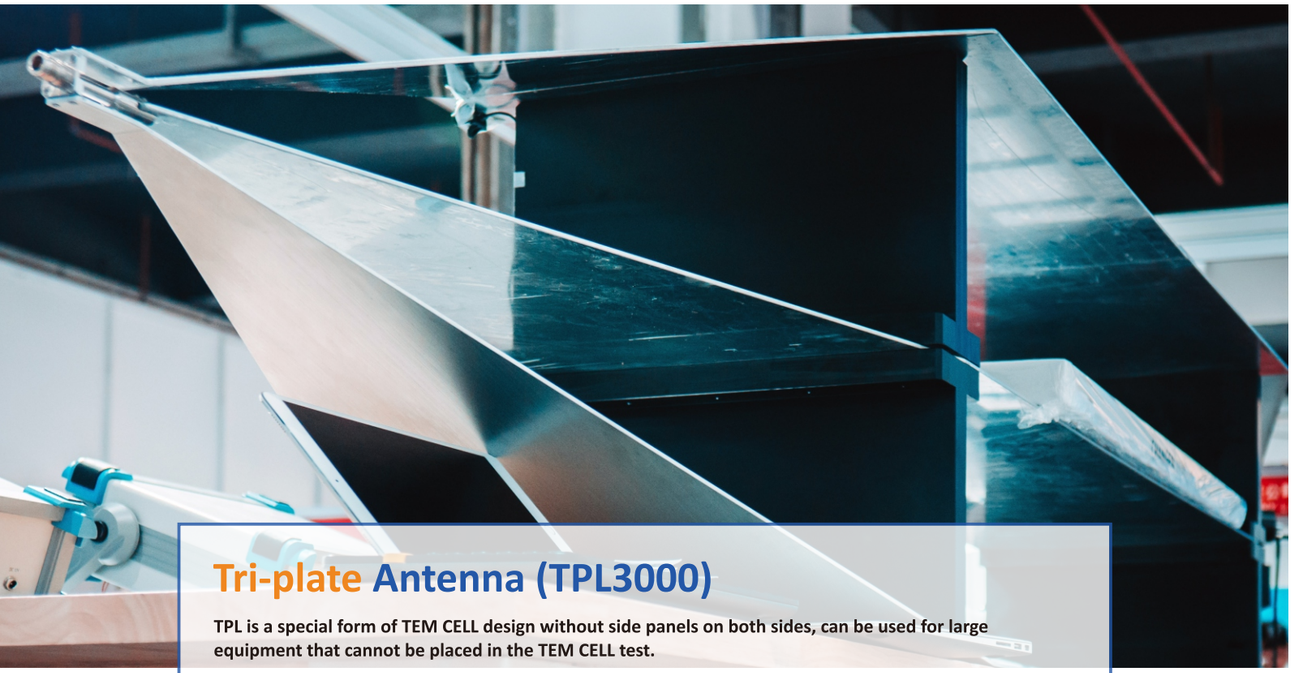


High Frequency Low Noise Preamplifier (customized) 100MHz-8GHz

1dB compression point output	10dBm
Gain	40dB
Noise coefficient	1.5dB
Gain flatness	2.0dB
Standing wave ratio	<2.3
Input connector	type N
Output connector	type N
Input voltage	DC 15V
Transformer input voltage	AC 220V

Low Frequency Low Noise Preamplifier (customized) 9kHz-300MHz

1dB compression point output	10dBm
Gain	40dB
Noise coefficient	1.3dB
Gain flatness	1.5dB
Standing wave ratio	<2.4
Input connector	type N
Output connector	type N
Input voltage	DC 15V
Transformer input voltage	AC 220V

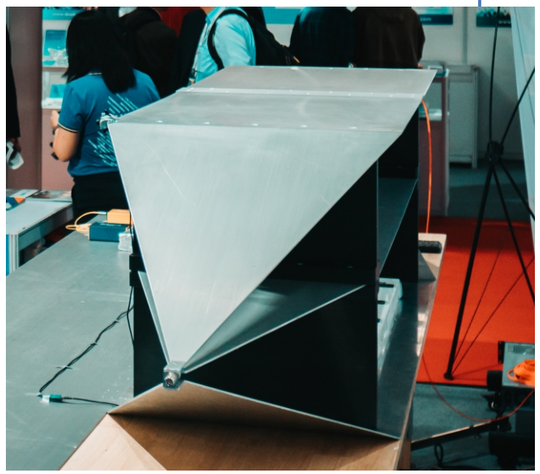


Tri-plate Antenna (TPL3000)

TPL is a special form of TEM CELL design without side panels on both sides, can be used for large equipment that cannot be placed in the TEM CELL test.

Specification

Reference specification	SAE J1113-25 JUL.2005
Frequency	10kHz-1000MHz
Dimensions	3000mm(L) × 600mm(M) × 1500mm(H) (including table height 900mm)
Extension ground plate	3000mm × 600mm
Connector	N type Female
TPL flat plate and extended ground plate material	aluminum
Support material	PVC
Pure wood test table dimensions	3000mm(L) × 1200mm(M) × 900mm(H)



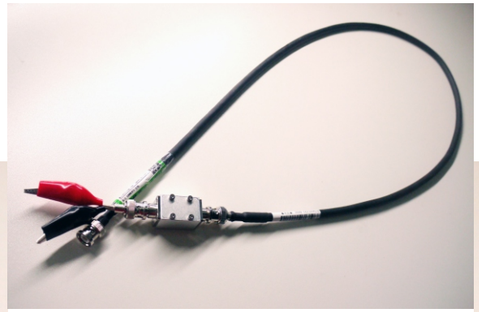
Voltage probe VP0505

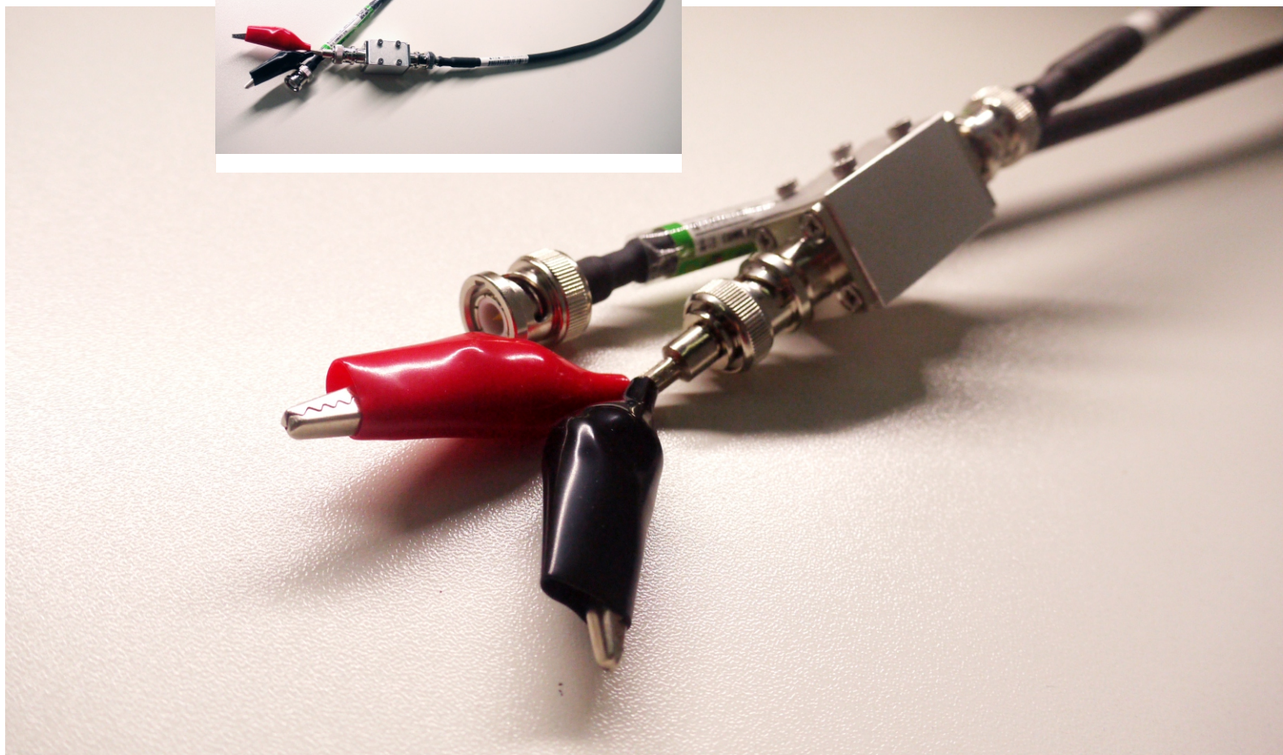
The VP0505 voltage probe is made in accordance with the relevant requirements of the TOYOYA engineering standard TSC0505G section 4.2.4.

The probe consists of three parts: coaxial cable, shielded capacitor box and measuring clip. The relevant requirements for the materials and dimensions of these three parts are detailed in TSC0505G. VP0505 fully meets the requirements of this standard.

Specification

Reference Specification	TSC0505G
Frequency	30MHz-475MHz
Dimensions	coaxial cable: about 1100mm (including connector) Shielded capacitor box: about 40mm (including connector) measuring clip: about 60mm (including connector)
Ceramic capacitor	1000pF
Connector	BNC
Coaxial cable model	1.5D-2V
Magnetic ring model	TDK HF70BB 6.4mm × 5.0mm × 3.2mm
Number of magnetic ring	197pcs
Measuring clip size (crocodile clip + wire)	50mm ± 5mm
Line loss index	Line loss index When the angle between the two crocodile clips is 0 degree, the insertion loss of 30MHz-240MHz is less than 2dB, and the insertion loss of 240MHz-475MHz is less than 4dB. (The larger the angle, the greater the insertion loss)



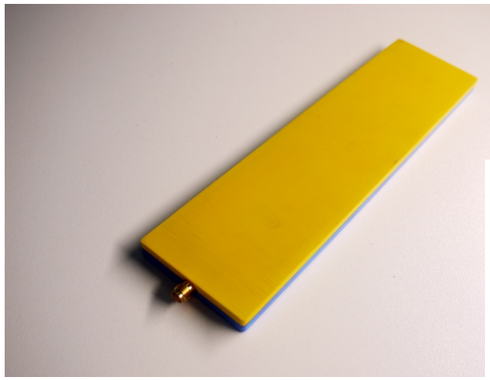


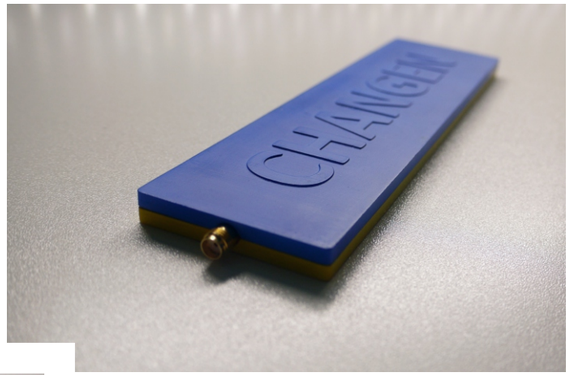
Panel Antenna (BSA18650)

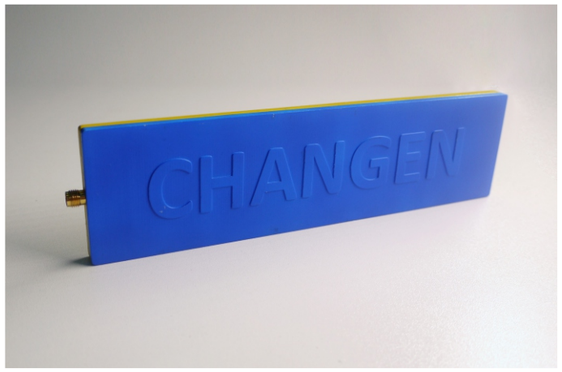
BSA18650 is a new antenna for handheld transmitter testing in automotive electronics immunity testing. The antenna is designed like a chip and with two units for transmitting and grounding. It is a supplement to the wide-band transmitting antenna described in ISO 11452-9. It is of great significance for the location of the sample gap, storage space, etc. where it is not convenient to place a large transmitting antenna.

Specification

Reference specification	ISO 11452-9 ed.2 (not yet released)
Input impedance	50Ω
Frequency	700MHz-3200MHz
Dimensions	186mm(L) × 50mm(W)
Max input power	20W
Connector	SMA type Female
Standing wave ratio	≤2dB (when environmental factors are satisfied)
Antenna transmitting surface	yellow







<< Business Communication Activities >>

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1)In May 2019, CHANGEN participated in EMC / China electromagnetic compatibility and microwave exhibition (Shenzhen)
2,3)In October 2019, CHANGEN participated in EMC / China electromagnetic compatibility and antenna exhibition (Shanghai)
4)In June 2019, CHANGEN participated in APEMC exhibition (Japan. Sapporo)
5)In October 2019, CHANGEN participated in the 83rd International Electrotechnical Commission (IEC) general meeting (Shanghai)

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