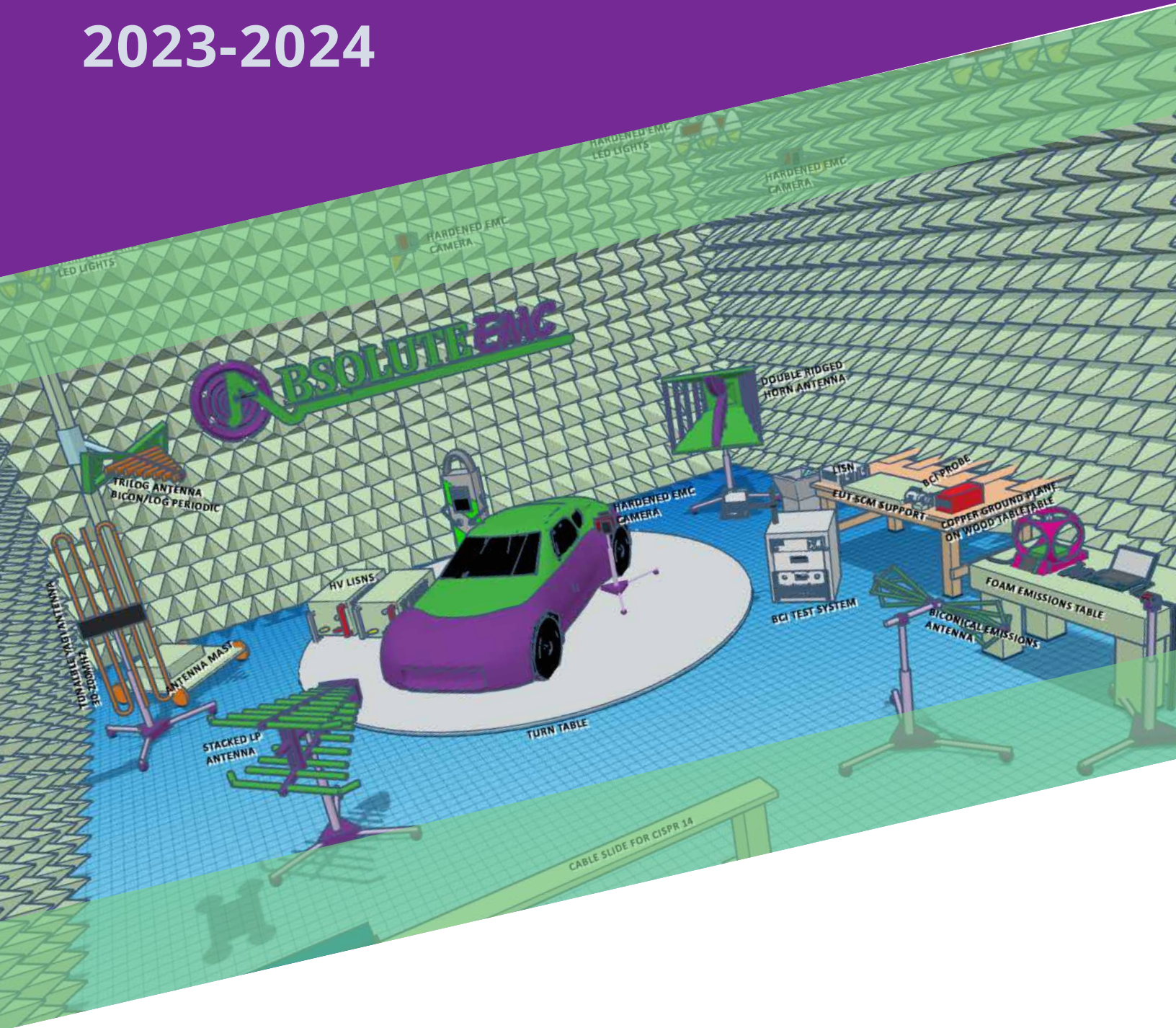


EMC/RF PRODUCT CATALOG

2023-2024



EMC TEST EQUIPMENT AND SERVICES
THE SECRET FOR **ABSOLUTE VALUE**



We understand and react to our customers' requirements for each project, allowing for a quick/high-quality response. We track all response times and customer feedback, reviewing, and improving continuously. With a long history and knowledge in the EMC market, we fully realize the importance of deadlines and targets. We are striving to take our customers' requirements and find the best available solution for both cost and turnaround time. If, for any reason, you are not satisfied with the performance of your experience with Absolute EMC, please inform us so we can find a resolution.



WELCOME

From our founder

I have been active in the EMC industry for all of my professional life, from working in and managing EMC test labs to being part of some of the leading manufactures and resellers in the industry. What I have taken to heart is to always treat everyone with respect and honesty. Honesty is paramount in a relationship, including any service and sales. As the EMC industry grows and becomes more mature, a troubling pattern of customer care has emerged, including long lead times, poor service turnarounds, and lack of communication regarding changes in delivery. Absolute EMC is working hard to change the status quo.

We all know unpredictable events can happen as the circumstances of 2020-22 and COVID 19, have made clear. Even when global uncertainty arises, we remain committed to clear communication with all partners. Since the founding of Absolute EMC, we have taken honesty as our core message.

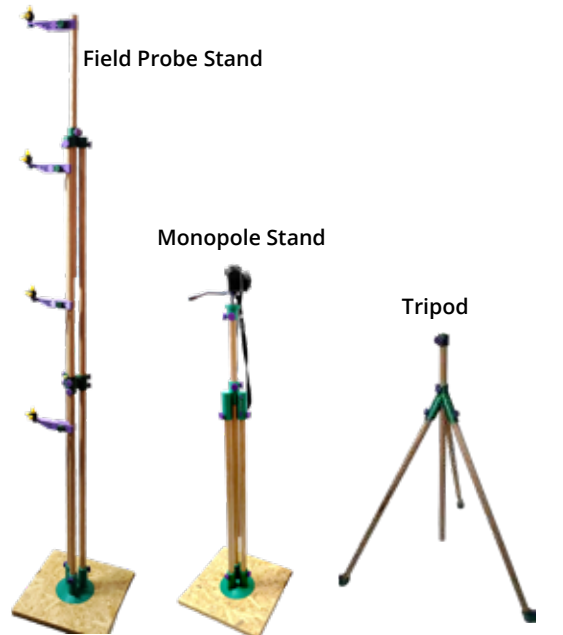
We have chosen to focus on the EMC industry and partnered with only exceptional quality manufactures that follow our same philosophies. We are making and building these partnerships from the ground to be responsive and transparent. Being a smaller company, we can be more personable and direct with our clients and customers. Streamlined operations allow for Absolute EMC to be responsive. You can have confidence to trust your future on us! Please check out all our products. My promise to you is you will always get straight forward honest answers and responses. Please hold us to a higher level of expectations, and we will not let you down.

Jason H. Smith
Engineer/President

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LOW COST POSITIONER



EMC TRIPOD AND MONOPOLE

Special Selected for EMC Environments

The Absolute EMC positioners products are all designed with minimal metal parts. The antenna thread is the only metal item. This has much less influence on any EMC testing. Cost is kept low by utilizing 1" wood dowels and 3D printed interconnections.

- Tripod
- Monopole
- Field probe stand
- All pieces fit with 1" dia. Wood dowels (Optional Fiber-glass)

Kits	Included Items
Tripod kit	(1x) tripod section, (1x) tripod head, (3x) tripod leveling feet, (1x) Leveling Bubble, (4x) 1" x 3' wood dowels
Tripod Deluxe kit	(1x) tripod section, (3x) tripod head, (includes 1 of each), (3x) tripod leveling feet, (1x) Leveling Bubble, (4x) 1" x 3' wood dowels, (1x) TP-Ball Head, (1x) TP- Cable Support, (1x) EMC EPS Block 1M, (1x) TP-Bag
Monopole kit	(1x) Monopole section, (1x) Monopole base, (1x) tripod head, (1x) Leveling Bubble, (4x) 1" x 3' wood dowels, (1x) MP- Ballast Bag
Monopole Deluxe kit	(1x) Monopole section, (1x) Monopole base, (3x) tripod head (one of each), (1x) Leveling Bubble, (7x) 1" x 3' wood dowels, (1x) MP- Ballast Bag, (1x) TP-Ball Head, (1x) TP- Cable Support, (1x) EMC EPS Block 1M, (1x) TP-Item Tray, (1x) Monopole Extension
Field Probe Stand	(1x) MP-Section, (1x) MP-Extension, (1x) MP-Base, (4x) MP-Probe Adaptor, (1x) MP- Ballast Bag, (1x) Leveling Bubble, and (7x) 1" x 3' wood dowels

COMPONENTS

Tripod Section	TP-Head	TP-Leveling Bubble	TP-Leveling Feet	TP-Cable Support	TP-Weight Ballast	TP-Ball Head
Monopole Section	Monopole Base	MP-Ballast Bag	MP-Extension	TP-22mm Antenna	TP-Item Tray	MP-Probe Adapter
TP-Bag	TP-Bag Deluxe	MP-Rotator (cantilever camera over test table)				

CUSTOM DESIGNS

Log Periodic Rotator	Horn Antenna Rotator	Current Clamp Center Spacer Kit

COAX CABLES & SUPPORTS



EMC COAX CABLES

Special for EMC Environments

The Absolute Coax series of cables are designed specifically to meet the requirements for EMC testing. Each industry has requirements that are unique. EMC is no different. Absolute EMC has gone through the selection process to only offer the best performance quality and value.

3 series to meet EMC requirements:

- Series AB-A - A great choice for applications with medium power and lower frequency. Best cost option.
- Series AB-B: Suited for high frequency emissions up to 40 GHz.
- Series AB-C: Best coax with the best performance available up to 18GHz. High power low loss.

Series	Frequency Range	Power @ 1GHz	Loss @ 1 GHz	Loss @ 18 GHz	Outer Diameter
AB-A	Up to 18 GHz	410 Watts	0.130 dB/ft (0.427 dB/m)	0.640 dB/ft (2.100 dB/m)	0.163 in (0.414 cm)
AB-B	Up to 40 GHz	590 Watts	0.110 dB/ft (0.362 dB/m)	0.511 dB/ft (1.677 dB/m)	0.144 in (0.366 cm)
AB-C	Up to 18 GHz	1800 Watts	0.049 dB/ft (0.159 dB/m)	0.230 dB/ft (0.755 dB/m)	0.310 in (0.787 cm)



EPS TEST TABLE

Expanded Polystyrene Permittivity <1.04

Simple, inexpensive solution for your EMI testing. It is made from durable, expanded polystyrene (EPS) material and can be customized to your requirements. Complies with CISPR, ISO, & IEC requirements. Shipped flat and assembled on site. Greatly reducing shipping costs. 1.5x1x0.8m Options:

- Vinyl Decal with your company logo covering top
- Epoxy coating over top increase durability
- HDPE 24"x48" (61x 122CM) top protector

EPS SUPPORT BLOCKS

PERMITTIVITY <1.04

10 x 10 x 5cm Block w/ logo decal	10 x 10 x 5cm Block	70cm High block	1m x 2m x 5cm Sheets	1m x 5cm EPS Bars	High Load Table



WOOD TEST TABLE

All Wood Construction (No Metal Fasteners)

The table is built to be shipped flat to reduce shipping costs and assembled on site easily and quickly.

Options:

- Aluminum or copper ground plane
- Customized for your needs, wheels, bottom shelf
- Braided copper ground straps, Copper ground straps

REAL-TIME EMI RECEIVER

EMSCOPE = 2 RECEIVERS + LISN



9kHz - 30MHz (110MHz Option)

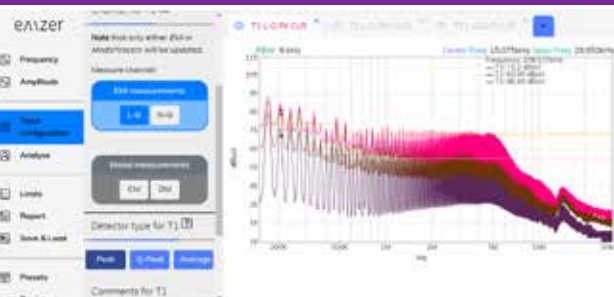
2x Real-Time EMC Receivers
Measure Line and Neutral simultaneously
Measure Common and Differential mode simultaneously

- Detectors: PEAK, AVG, QP
- RBW: 200Hz, 9 kHz, 120 kHz **CISPR**
1 kHz & 10 kHz **MIL**
- Integrated Pre-amp and Transient limiter
- Measure whole span at once, Dwell 1 - 15 seconds
- LISN:
 - 50 Ω || (50 μH + 5 Ω) / 250 μH (CISPR)
 - 16Amps, 325Volts, DC-60Hz
 - Artificial hand (510 Ω + 220 pF / 4 mm banana)
- Use Receivers with any LISN, Current clamp, probe,...
- Ethernet/USB and fiber optically isolated
- Access Software through any web browser

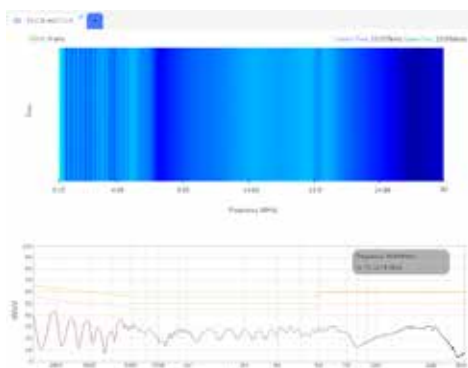
EMSCOPE Options:

- UPGR-110** Enhance frequency range from 9 KHz-30 MHz to 9 KHz-110 MHz
- UPGR-OSC** Additional software license for Time Domain Analysis (Oscilloscope mode)
- Fiber/USB Converter** Fiber optic converter to plug EMSCOPE directly to USB port (Ethernet to fiber optic Converter standard)
- EUT SOCKET** Standard socket is US. Specify other: EU, UK, ...

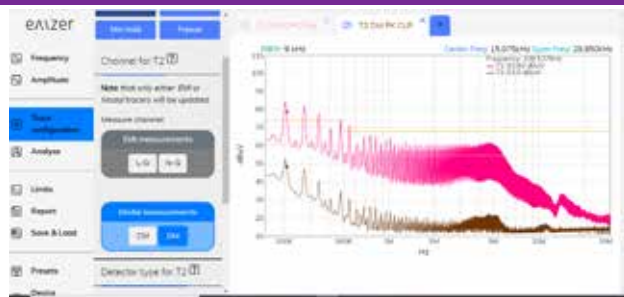
EMBEDDED SOFTWARE FEATURES



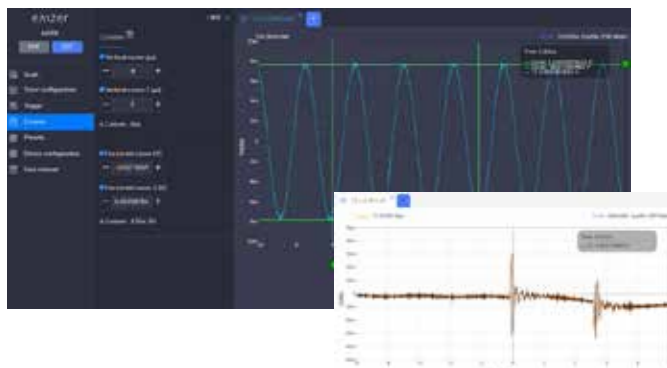
Setup measurements for each line and detector with limit lines. Save, compare, and report. Measure real-time:
 $(\text{Line} + \text{Neutral}) * (\text{Peek} + \text{AVG} + \text{QP}) = 6 \text{ traces}$



Water fall display over time. See how your product changes emissions over time, and in different modes of operation.



Only receiver capable of simultaneously modal measurements: Common Mode (CM) and Differential Mode (DM). Design filtering correctly saves \$



Optional Scope, see transients and emissions in the time domain. A very useful tool for trouble shooting and eliminating unwanted emissions.

EMSCOPE-RX2

Frequency: 9 kHz - 30MHz (Optional 110 MHz)

Same features as the EMSCOPE without the built in LISN. The 2 channel receiver can be used with other LISNs if:

- Higher power/current rating is required than the standard 16 amps
- MIL-STD LISNS
- ISO/Automotive 5μH LISNS



EMSCOPE-RX4 4 CHANNEL RECEIVER FOR 3PHASE

Frequency: 9 kHz - 30MHz (Optional 110 MHz)

Use with external LISNs for 3 phase applications as well as single phase. Measure up to 4 lines simultaneously. Measure CM and DM simultaneously for all lines.



EMSCOPE-RX4-LZ2 4 CHANNEL RECEIVER FOR 3-P

Frequency: 9 kHz - 30MHz (Optional 110 MHz)

Same 4 channel receiver as EMSCOPE-RX4 but includes a single phase 16 amp LISN. The built in LISN can be utilized for the more common single phase testing. When 3 phase testing is required, the system can be hooked up to a 3 phase LISN



EMSCOPE Options:

- UPGR-110** Enhance frequency range from 9 KHz-30 MHz to 9 KHz-110 MHz
- UPGR-OSC** Additional software license for Time Domain Analysis (Oscilloscope mode)
- Fiber/USB Converter** Fiber optic converter to plug EMSCOPE directly to USB port (Ethernet to fiber optic Converter standard)
- EUT SOCKET** Standard socket is US. Specify other: EU, UK, ...

LIZN

Frequency: 9 kHz - 30 MHz

16-A single-phase dual-port line impedance stabilization network
LIZN is a new Line Impedance Stabilization Network fully compliant to CISPR 16-1-2 that facilitates the simultaneous measurement in both lines and the extraction of common- and differential-mode



EMZ10-200M TRANSIENT LIMITER

Frequency: 9 kHz - 200 MHz

High Power 5 W transient limiter up to 200 MHz to protect the instrument
10dB ±1dB Attenuation
Type N (f) RF Connections



NEW LOW NOISE AMPLIFIERS



Standard Bench Top Type N (f) SE version connects directly to Antenna or receiver (specify connector configuration)

Pre-Amplifiers 1 & 3 GHz

High Quality protected power supply, High P1dB, Low noise figure

Model	Frequency	Gain	NF	P1dB	Notes
EMC9135	9 kHz - 1 GHz	35 dB	2.5 dB	+13 dBm	Optional Pulse ESD Protector
EMC9145	9 kHz - 1 GHz	45 dB	2.5 dB	+13 dBm	Optional Pulse ESD Protector
EMC1150	10 kHz - 1 GHz	50 dB	2.5 dB	+13 dBm	Optional Pulse ESD Protector
EMC330N	20 MHz - 3 GHz	30 dB	5 dB	+10 dBm	Optional Pulse ESD Protector
EMC001330	9 kHz - 3 GHz	30 dB	6 dB	+14 dBm	Optional Pulse ESD Protector
EMC001340	9 kHz - 3 GHz	40 dB	6 dB	+14 dBm	Optional Pulse ESD Protector

Each unit can be offered as a bench top unit or with a remote power supply (SE)



Standard Bench Top Type N (f) SE version connects directly to Antenna or receiver (specify connector configuration)

Pre-Amplifiers 6 & 8 GHz

High Quality protected power supply, High P1dB, Low noise figure

Model	Frequency	Gain	NF	P1dB	Notes
EMC03640	30 MHz - 6 GHz	40 dB	2.5 dB	+10 dBm	Optional Pulse ESD Protector
EMC01640AP	10 MHz - 6 GHz	40 dB	2.5 dB	+15 dBm	Optional Pulse ESD Protector
EMC1640	500 MHz - 6 GHz	40 dB	2.5 dB	+10 dBm	Optional Pulse ESD Protector
EMC003835B	30 MHz - 8 GHz	35 dB	3.0 dB	+10 dBm	EMC003835SE Remote PS

Each unit can be offered as a bench top unit or with a remote power supply (SE)



"B" Version Bench Top Type N (f) "SE" version connects to Antenna or Mast Boom

Pre-Amplifiers 18 GHz

High Quality protected power supply, High P1dB, Low noise figure

Model	Frequency	Gain	NF	P1dB	Notes
EMC00031830	30 MHz - 18 GHz	30 dB	3.0 dB	+15 dBm	EMC00031830SE Remote PS
EMC051835	0.5 - 18 GHz	35 dB	3.0 dB	+10 dBm	EMC051835SE Remote PS
EMC051845	0.5 - 18 GHz	45 dB	3.0 dB	+15 dBm	EMC051845SE Remote PS
EMC118A45	1 - 18 GHz	40 dB	1.0 dB	+20 dBm	EMC118A45SE Remote PS

Each unit can be offered as a bench (B) top unit or with a remote power supply (SE)



"B" Version Bench Top Type N (f) "SE" version connects to Antenna or Mast Boom

Pre-Amplifiers 26 GHz

High Quality protected power supply, High P1dB, Low noise figure

Model	Frequency	Gain	NF	P1dB	Notes
EMC12630	1 - 26.5 GHz	30 dB	4.0 dB	+13 dBm	EMC12630SE Remote PS
EMC12635	1 - 26.5 GHz	35 dB	4.0 dB	+15 dBm	EMC12635SE Remote PS
EMC012645	0.1 - 26.5 GHz	45 dB	4.5 dB	+10 dBm	EMC012645SE Remote PS

Each unit can be offered as a bench (B) top unit or with a remote power supply (SE)



"B" Version Bench Top Type N (f) "SE" version connects to Antenna or Mast Boom

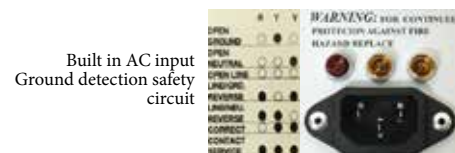
Pre-Amplifiers 40 GHz

High Quality protected power supply, High P1dB, Low noise figure

Model	Frequency	Gain	NF	P1dB	Notes
EMC184040	12 - 40 GHz	40 dB	5 dB	+8 dBm	EMC184040SE Remote PS
EMC184045	18 - 40 GHz	45 dB	3 dB	+8 dBm	EMC184045SE Remote PS
EMC184055	18 - 40 GHz	55 dB	3 dB	+8 dBm	EMC184055SE Remote PS

Each unit can be offered as a bench (B) top unit or with a remote power supply (SE)

- Use preamplifier to:
- Compensate for Cables losses at high frequencies
 - Compensate for high antenna factors
 - Increase the sensitivity of receivers and spectrum analyzers
 - Read smaller RF and Microwave signals
 - Increase your usable dynamic range
 - Place near the measurement instrumentation or close to the antenna



Built in AC input Ground detection safety circuit

NEW COMB GENERATORS



CE Comb Generators 400 MHz

Verify LISNs & ISNs

Model	Frequency	Step Freq.	Connector
CG-10/500	10 kHz - 30 (400) MHz	10 & 500 kHz	IEC320 C14, RJ11, RJ45
CG-10/500L	10 kHz - 30 (400) MHz	10 & 500 kHz	IEC320 C14
CG-50/500	50 kHz - 30 (400) MHz	50 & 500 kHz	IEC320 C14, RJ11, RJ45
CG-50/500L	50 kHz - 30 (400) MHz	50 & 500 kHz	IEC320 C14
CG-100/500	100 kHz - 400 MHz	100 & 500 kHz	IEC320 C14, RJ11, RJ45

Each unit includes USB charger & wooden case



CE & RE Comb Generators 7.5 GHz

Verify LISNs & RE (OATS/CHAMBERS/TEM/GTEM)

Model	Frequency	Step Freq.	Connector
CG-10L510R	10 kHz - 30 (400) MHz	10 & 500 kHz	IEC320 C14 (power)
	10 MHz - 1 GHz	5 & 10 MHz	SMA, with antenna
CG-50L10100R	50 kHz - 30 (400) MHz	50 & 500 kHz	IEC320 C14 (power)
	10 MHz - 7.5 GHz	10 & 100 MHz	SMA, with antenna

Each unit includes USB charger & wooden case



RE Monopole Comb Gen. 30MHz

Verify RE in Chambers

Model	Frequency	Step Freq.	Connector
CG-50/500R	50 kHz - 30 MHz	50 & 500 kHz	Monopole antenna

Unit includes USB charger



RE Comb Generators 1 GHz

Verify RE (OATS/CHAMBERS/TEM/GTEM)

Model	Frequency	Step Freq.	Connector
CG-01-05	5 MHz - 1 GHz	5 MHz	SMA, with antenna
CG-01-10	10 MHz - 1 GHz	10 MHz	SMA, with antenna
CG-01-25	25 MHz - 1 GHz	25 MHz	SMA, with antenna
CG-01 5/10	5 MHz - 1 GHz	5 & 10 MHz	SMA, with antenna

Each unit includes USB charger & wooden case



RE Comb Generator 7.5 GHz

Verify RE (OATS/CHAMBERS/TEM/GTEM)

Model	Frequency	Step Freq.	Connector
CG08-100R	100 MHz - 7.5 GHz	100 MHz	SMA, with antenna
CG08-10/100R	10 MHz - 7.5 GHz	10 & 100 MHz	SMA, with antenna

Each unit includes USB charger & wooden case



RE Comb Generators 18 & 40 GHz

Verify RE (OATS/CHAMBERS/TEM/GTEM)

Model	Frequency	Step Freq.	Connector
CG118-100CF	100 MHz - 18 GHz	100 MHz	SMA, with antenna
CG118-250RF	1 GHz - 18 GHz	250 MHz	Antenna Attached
CG118-250CF	1 GHz - 18 GHz	250 MHz	SMA, with antenna
CG126-250R	1 GHz - 26 (40) GHz	250 MHz	Antenna Attached
CG126-250C	1 GHz - 26 (40) GHz	250 MHz	2.92, with antenna
CG140-1000R	1 GHz - 40 GHz	1 GHz	Antenna Attached
CG140-1000C	1 GHz - 40 GHz	1 GHz	2.92, with antenna

Each unit includes USB charger & wooden case

SPECIAL HIGH FIELD ANTENNAS

HIRF ANTENNAS AND ANTENNA ARRAYS FOR HIGH FIELDS

NEW



Covering 400MHz to 18GHz

Capable of reaching DO 160 CAT L and MIL-STD-464 Levels

- Offering a selection of:
 - Antenna arrays
 - Lens Antennas
- Focal length of 1m
- High Gain
- Reach field with commercially available power
- Positioners Included
- Easy polarization changes
- Common Bands: 400 - 1000 MHz, 1 - 2, 2 - 4, 4 - 6, 6 - 8, 8 - 18 GHz
- Contact us for your needs



FULL 200 V/M @ 1 METER WITH NO COMPROMISES



SY3-EMC Tuning Yagi Antenna

Able to reach 200V/m at a 1 meter test distance with less than 2.5kW. Since the antenna is tuned for the frequency, harmonics are filtered out.

- 30 - 200 MHz
- Harmonics reduced by >25dB
- Field probe is only measuring the fundamental, test frequency
- Easy control and connection to industry 3rd party software
- Includes everything needed to auto-tune to match the chamber:
 - Antenna, Stand, OptimizIR-EMC, Measurement probe, Connection cables
- OptimizerIR-EMC measured hundreds of antenna lengths to find ideal gain and VSWR less than <3:1

HARD TO FIND MIL-STD CE/RE COMPONENTS

Rejection Filter 50, 60, or 400 Hz	Tunable Notch FT. 10k-15M, 15-100M	Tunable Notch FT. 100-375, 375-1000M	Tunable Notch FT. 1-2.2 GHz	Tunable Notch FT. 2.2-3.1, 3-6.5 GHz	Tunable Notch FT. 6.5-10 GHz	Stub Radaiator & 10µF Cap

AC POWER MEASUREMENTS

HARMONICS AND FLICKER

IEC 61000-3-2, IEC 61000-3-3



- 16 bit USB based data acquisition - works with Laptops & Desktop PC's
- Very accurate Windows-7, 8, 10 compatible power analyzer with data storage
- Advanced reporting, data storage & replay features
- Control for most power sources incl. Ametek© Pacific Power© Teseq© etc.
- ISO-17025 Accredited Calibration with detailed data available
- Built-in Reference Impedance per IEC TR 60725 available
- Small form factor works with 120 & 220/230 public power supply

H&F SINGLE AND 3 PHASE

Systems up to 75Amps w/ Flicker Impedance



Compliant too:

- IEC 61000-3-2 Ed. 3.2 & Ed. 5.0
- IEC 61000-3-3 Ed. 1.2 and 3.0
- IEC 61000-3-11 Ed. 1 & 2
- IEC 61000-3-12 Ed. 1 &
- Including: GB/T 14549 for China, NMX-J-550/3-2 for Mexico, JIS-C 61000-3-2 : 2019 for Japan, and GB 17625.2-2007 for China

Series	Power	Flicker Reference Impedance	EUT Connection
HFa-1S	1p 16 amp 350V		IEC plug
HFa-1-16	1p 16 amp 350V		Schuko and universal plug
HFa-1-16-Ref	1p 16 amp 350V	IEC 60725 Reference Impedance 16amp	Schuko and universal plug
HFa-3-16	3p 16 amp 350V (500V opt.)		Schuko and CEE Norm - Red 3 Phase 5 Pin Plug (3P+N+E)
HFa-3-16-Ref	3p 16 amp 350V (500V opt.)	IEC 60725 Reference Impedance 16amp	Schuko and CEE Norm - Red 3 Phase 5 Pin Plug (3P+N+E)
HFa-3-35	3p 35 amp 350V (500V opt.)		Schuko and CEE Norm - Red 3 Phase 5 Pin Plug (3P+N+E)
HFa-3-35-Ref	3p 35 amp 350V (500V opt.)	IEC 60725 Reference Impedance 35amp	Schuko and CEE Norm - Red 3 Phase 5 Pin Plug (3P+N+E)
HFa-3-75	3p 75 amp 350V (500V opt.)		Schuko and CEE Norm - Red 3 Phase 5 Pin Plug (3P+N+E) for >40amps screw terminals
HFa-3-75-Ref	3p 75 amp 350V (500V opt.)	IEC 60725 Reference Impedance 75amp	Schuko and CEE Norm - Red 3 Phase 5 Pin Plug (3P+N+E) for >40amps screw terminals

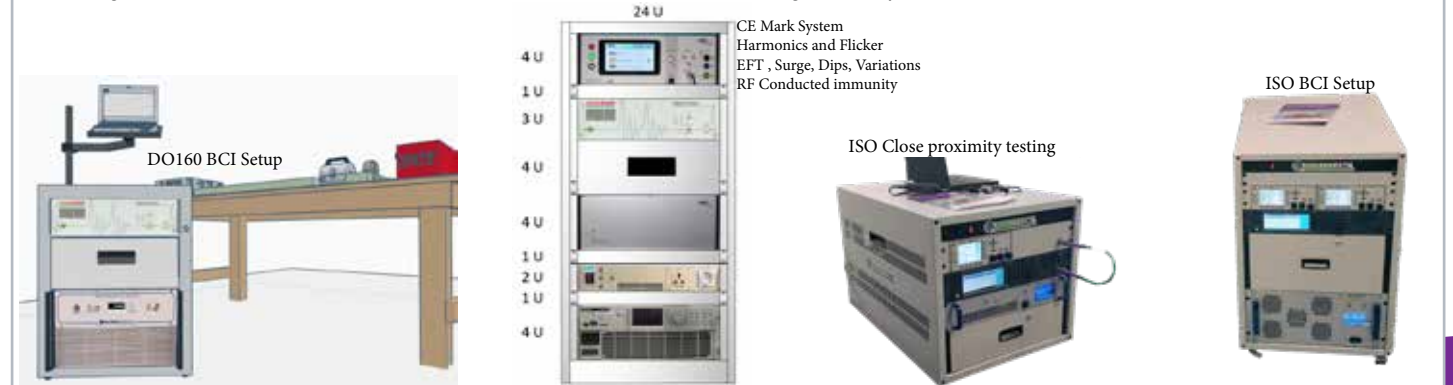
Matching AC source can be quoted or ordered separately

Reference impedance is tailored to the programmable power supply used. Please let us know the make and model

Optional systems can further include testing for: IEC 61000-4-11, -4-34, -4-13, -4-14, -4-17, -4-27, -4-28, ...

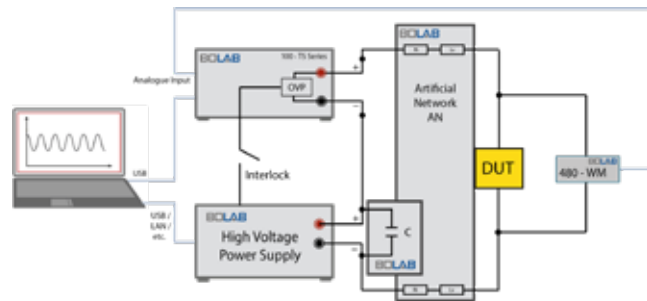
SYSTEM INTEGRATIONS AND 19" RACKS

Offering equipment integrations into 19" racks for desk top or floor standing. Custom fixtures and product mounting, PC mounting, grounding, cooling fans, drawers, power distribution,.... Install existing equipment, purchase with new system or a combination of new and used, Contact us with your requirements.



HV TEST SYSTEMS FOR EV

SYSTEMS UP TO 1500 VOLTS, 1080 AMPS 540KW!



Fastest DC Systems Available

Meet the latest and upcoming requirements with one system
LV 123, VW 80300, ISO 21498, MNM 11123, PSA,...

- Complete turnkey system offering
- Or use your existing HV power supply
- High Power Artificial Network, Liquid cooling
- High Power Bi-pass Capacitors, Liquid cooling
- Grow the system as your needs change
 - Just add rack modules in the field
- Quick servicing, pull module and keep testing

System Components Example

- BLS HV Power Supply, Sized for application
- BLS xxx-70R-TS 4-Quadrant Test System
 - Built In Arbitrary control,
 - In series with HV PS, Sized for application
 - Can be used separately for low voltage testing 12, 24, 48V
- BLS Cx 10000-22-15 Bi-pass Capacitor to protect DC source from AC
- BLS AN-ABCD-300 Optional Artificial Network built per the required standard
- BLS 400-631 AnyWave+WaveMaster software for HV PS
 - See page 14 about software
- BLS 480 WM-HV Load Measurement
- WaveMaster software Licenses for Test System
- On-site Training, on-line e-learning management system

Power 0 ...	HV DC power Supply			4-Quadrant Amplifier System	
	Voltage	Max DC Current RMS		Model	Max AC Current RMS
18 kW	1000V	54 A	+	120-70R-TS	76 A
27 kW	1500V	54 A	+	120-70R-TS	76 A
36 kW	1000V	108 A	+	140-70R-TS	152 A
54 kW	1000V	162 A	+	160-70R-TS	228 A
54 kW	1500V	108 A	+	140-70R-TS	152 A
108 kW	1500V	216 A	+	160-70R-TS	228 A
162 kW	1500V	324 A	+	200-70R-TS	380 A
216 kW	1500V	432 A	+	220-70R-TS	456 A
270 kW	1500V	540 A	+	280-70R-TS	684 A
...	+
540 kW	1500V	1080 A	+	2 x 280-70R-TS	1,368 A

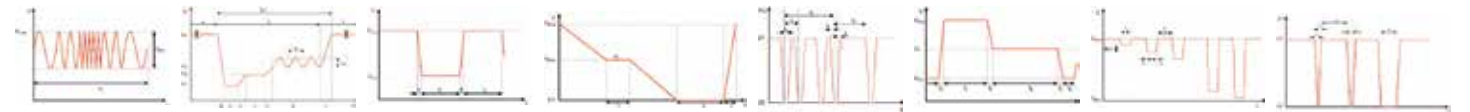
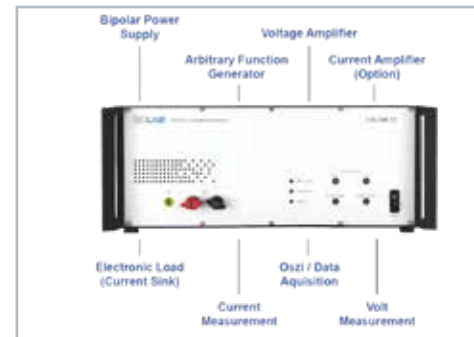
AUTOMOTIVE LOW VOLTAGE

BLS-XXX-70R-TS 4-QUADRENT TEST SYSTEMS

Advanced Test System

Features:

- Closed system Voltage offset is auto corrected
- No (zero) over/under shoot
- Measure and see the output in real time
- Integrated AnyWave and flexible WaveMaster Software (Page 14)
- No Waveform size limit, no loss in resolution
- Standards Library, updated continuously
- Modular design: grow system as needs increase, easy service



Models	Voltage Min	Voltage Max	Current (Inrush)	Output Power	Speed (Small Signal)	19" rack height
BLS-105-70R-TS	-30 V	+70 V	19 A (40 A)	500 W	200 kHz (1 MHz)	3 U
BLS-110-70R-TS	-30 V	+70 V	40 A (100 A)	1000 W	200 kHz (1 MHz)	4 U
BLS-120-70R-TS	-30 V	+70 V	76 A (190 A)	2000 W	200 kHz (500 kHz)	14 U
BLS-130-70R-TS	-30 V	+70 V	114 A (285 A)	3000 W	200 kHz (500 kHz)	18 U
BLS-140-70R-TS	-30 V	+70 V	152 A (380 A)	4000 W	200 kHz (500 kHz)	22 U
BLS-150-70R-TS	-30 V	+70 V	190 A (475 A)	5000 W	200 kHz (500 kHz)	26 U
BLS-160-70R-TS	-30 V	+70 V	228 A (570 A)	6000 W	200 kHz (500 kHz)	30 U
BLS-180-70R-TS	-30 V	+70 V	304 A (760 A)	8000 W	200 kHz (500 kHz)	2 x 22 U
BLS-200-70R-TS	-30 V	+70 V	380 A (950 A)	10,000 W	200 kHz (500 kHz)	2 x 26 U
BLS-220-70R-TS	-30 V	+70 V	456 A (1,140 A)	12,000 W	200 kHz (500 kHz)	2 x 30 U
BLS-250-70R-TS	-30 V	+70 V	570 A (1,425 A)	15,000 W	200 kHz (500 kHz)	3 x 26 U
BLS-280-70R-TS	-30 V	+70 V	684 A (1,710 A)	18,000 W	200 kHz (500 kHz)	3 x 30 U

Units with voltage ranges -30 to +35V, and -75 to +75 Volts available



BLS-280-70R-TS 18 kW Amp System (36kW and larger systems available)

Flexibility

- Can be offered as a flexible system: Use each 6kW rack independently and bring the 3 racks together when 18kWatts is required. (Available for smaller systems)
- Each module has its own indication for functional capability
- In case of a defective module, only this module needs to be sent for repair
- System will still function without a module

ARTIFICIAL NETWORK AN-SERIES

LV123, ISO 21498, MBN 11123, VW 80300, IEC 61851-23, & Custom

- Liquid cooled for stable resistance temperature and constant ohmic value.
- True continuous current loading without degradation, ideal for in-the-loop testing during the development stage of HV components.
- 2x tighter tolerance than required in ISO 21498. Accredited DAKKS calibration available upon request.
- Modular and upgradeable system that grows with your testing needs.
- Self-monitoring, safe and reliable system

Model	LV123	VW 80300	ISO 21498	MBN 11123	Current
BLS-AN-AB-60	✓	✓			60 Amps
BLS-AN-CD-60			✓	✓	60 Amps
BLS-AN-ABCD-60	✓	✓	✓	✓	60 Amps
BLS-AN-AB-300	✓	✓			300 Amps
BLS-AN-CD-300			✓	✓	300 Amps
BLS-AN-ABCD-300	✓	✓	✓	✓	300 Amps

Options	Description
BLS 100I4	Internal 4 Channel Isolation Amplifier <ul style="list-style-type: none"> • Bandwidth 290 kHz (-3dB) • For Potential Separation of analog Inputs and Outputs of the Amplifier .
BLS 100VR	Adjustable Internal Resistor 0 ... 200 mΩ
BLS 100AC-OVP	Over Voltage Protection for the serial operation of a high voltage DC power supply and a 4 quadrant amplifier system.
BLS FIS 80-200	Electronic Switch for short interruptions <ul style="list-style-type: none"> • 80 V / 200 A • 1 x Power Switch • 16 x Signal Switch • Including WaveMaster Software License
BLS 100S	Sensing (0 V / 0,5 V / 1 V / 2 V) standard in systems > 1 KW
BLS 100CS200	Current sensor standard in systems > 1 KW
BLS 100K	Compensation network to run as current amplifier



ARBITRARY WAVEFORMS

AnyWave

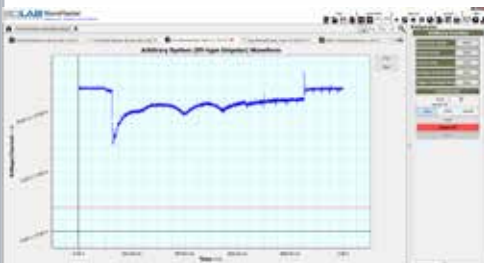
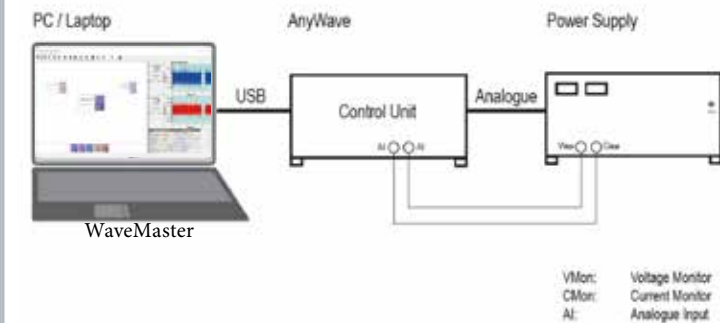


AnyWave Advanced Hardware

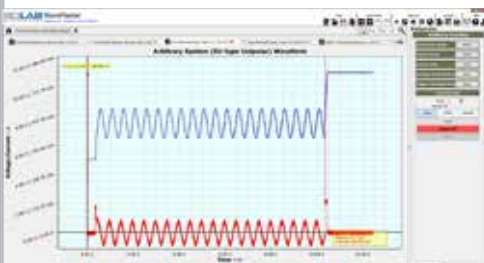
Same Advanced Technology built into each Test system is available as a stand alone controller. Combined with WaveMaster Software anything is possible.

- 2.85MS/s Output sampling rate
- 2 channels 16Bit resolution
- 300 kS/s Input sampling rate
- 2 buffer system for endless uninterrupted pulses
 - No loss of fidelity, always maximum resolution
- Trigger inputs / outputs for real time actions
- (starting waveform / activating measurement)

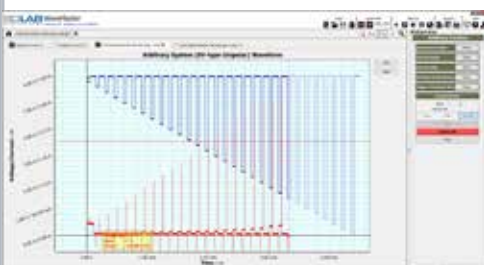
WAVEMASTER



Import waveforms from other sources such as Oscilloscope



Synchronize 2 wave forms to 2 different power sources, (ex. FORD CI 230)

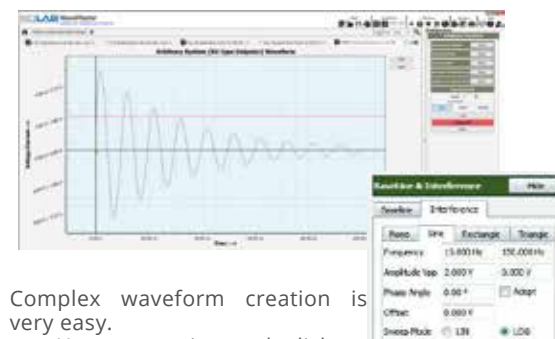


Measure and compare voltage and current to the generated wave form. In this example Blue (voltage) follows the voltage waveform precisely and red (current) is shown in comparison

WaveMaster Advanced Software

The WaveMaster Software complements the test systems and AnyWave offering with an easy to use interface, while maintaining expert control.

- Gain direct access to a Responsive in-house software design team
- Importing Real Waveforms (e.g. from Oscilloscopes)
- Complete Standard Waveform Libraries
 - Updates available for download
- Protocol/Test Reports with Recorded Data
- DLLs for Python, LabView, CANoe, C#, C++, ANSI C, etc.
 - Auto code Generators
- Easy to use graphic waveform editor and tabular input
- Reference waveform and data acquisition with live graphics
- See real-time measured current and voltage output
- Optional Software control of HILO/TEST generators for EFT, MicroPulse, Load Dump, (WF 1, 2a, 3a, 3b, 5a, & 5b)
- Contact us to see a live Web Demo of the system in action



Complex waveform creation is very easy.

- You can point and click to create a wave shape then edit this to refine the parameters.
- You can define segments and parameters individually
- You can copy/paste and create in a table format
- Create testing loops to modify waveform parameters over a stepped range

4-QUADRANT AMPLIFIERS

BLS-XXX-XXR 4-QUADRENT AMPLIFIERS

Voltage amplifiers and Current amplifiers



Features:

- DC - 200 kHz bandwidth DC
- DC up to 1 MHz (small signal -3 dB)
- Output voltage 35 V / 70 V / 75 V
- Rise / fall time up to 100 V/μs
- Analogue control input 0 ... ±10 V for control of voltage and current
- Monitor outputs for measured voltage and current values
- Modularly extensible via master-slave mode
- Parallel and Series Connections for two or more units
- USB interface standard, LAN optional,
- -TS option turns any amplifier into a test system, Including: measurement, ARB, SW

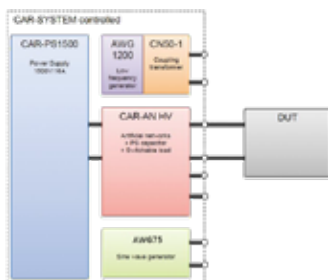
Models	Voltage Min	Voltage Max	Max Current (Inrush)	Output Power	Speed (Small Signal)	19" rack height
BLS-105-35R	-30 V	+35V	15 A (40 A)	400 W	200 kHz (1 MHz)	3 U
BLS-110-35R	-30 V	+35V	38 A (100 A)	1000 W	200 kHz (1 MHz)	4 U
BLS-120-35R	-30 V	+35V	76 A (190 A)	2000 W	200 kHz (500 kHz)	14 U
BLS-130-35R	-30 V	+35V	114 A (285 A)	3000 W	200 kHz (500 kHz)	18 U
BLS-140-35R	-30 V	+35V	152 A (380 A)	4000 W	200 kHz (500 kHz)	22 U
BLS-150-35R	-30 V	+35V	190 A (475 A)	5000 W	200 kHz (500 kHz)	26 U
BLS-160-35R	-30 V	+35V	228 A (570 A)	6000 W	200 kHz (500 kHz)	30 U
BLS-180-35R	-30 V	+35V	304 A (760 A)	8000 W	200 kHz (500 kHz)	2 x 22 U
BLS-200-35R	-30 V	+35V	380 A (950 A)	10,000 W	200 kHz (500 kHz)	2 x 26 U
BLS-220-35R	-30 V	+35V	456 A (1,140 A)	12,000 W	200 kHz (500 kHz)	2 x 30 U
BLS-250-35R	-30 V	+35V	570 A (1,425 A)	15,000 W	200 kHz (500 kHz)	3 x 26 U
BLS-280-35R	-30 V	+35V	684 A (1,710 A)	18,000 W	200 kHz (500 kHz)	3 x 30 U

Models	Voltage Min	Voltage Max	Max Current (Inrush)	Output Power	Speed (Small Signal)	19" rack height
BLS-105-70R	-30 V	+70 V	19 A (40 A)	400 W	200 kHz (1 MHz)	3 U
BLS-110-70R	-30 V	+70 V	38 A (100 A)	1000 W	200 kHz (1 MHz)	4 U
BLS-120-70R	-30 V	+70 V	76 A (190 A)	2000 W	200 kHz (500 kHz)	14 U
BLS-130-70R	-30 V	+70 V	114 A (285 A)	3000 W	200 kHz (500 kHz)	18 U
BLS-140-70R	-30 V	+70 V	152 A (380 A)	4000 W	200 kHz (500 kHz)	22 U
BLS-150-70R	-30 V	+70 V	190 A (475 A)	5000 W	200 kHz (500 kHz)	26 U
BLS-160-70R	-30 V	+70 V	228 A (570 A)	6000 W	200 kHz (500 kHz)	30 U
BLS-180-70R	-30 V	+70 V	304 A (760 A)	8000 W	200 kHz (500 kHz)	2 x 22 U
BLS-200-70R	-30 V	+70 V	380 A (950 A)	10,000 W	200 kHz (500 kHz)	2 x 26 U
BLS-220-70R	-30 V	+70 V	456 A (1,140 A)	12,000 W	200 kHz (500 kHz)	2 x 30 U
BLS-250-70R	-30 V	+70 V	570 A (1,425 A)	15,000 W	200 kHz (500 kHz)	3 x 26 U
BLS-280-70R	-30 V	+70 V	684 A (1,710 A)	18,000 W	200 kHz (500 kHz)	3 x 30 U

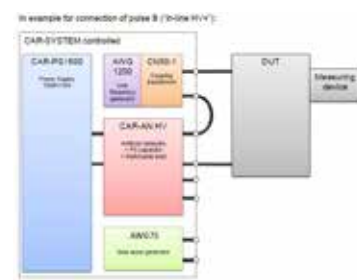
Models	Voltage Min	Voltage Max	Max Current (Inrush)	Output Power	Speed (Small Signal)	19" rack height
BLS-105-75R	-75 V	+75V	19 A (40 A)	500 W	200 kHz (1 MHz)	3 U
BLS-110-75R	-75 V	+75V	40 A (100 A)	1000 W	200 kHz (1 MHz)	4 U
BLS-120-75R	-75 V	+75V	76 A (190 A)	2000 W	200 kHz (500 kHz)	14 U
BLS-130-75R	-75 V	+75V	114 A (285 A)	3000 W	200 kHz (500 kHz)	18 U
BLS-140-75R	-75 V	+75V	152 A (380 A)	4000 W	200 kHz (500 kHz)	22 U
BLS-150-75R	-75 V	+75V	190 A (475 A)	5000 W	200 kHz (500 kHz)	26 U
BLS-160-75R	-75 V	+75V	228 A (570 A)	6000 W	200 kHz (500 kHz)	30 U
BLS-180-75R	-75 V	+75V	304 A (760 A)	8000 W	200 kHz (500 kHz)	2 x 22 U
BLS-200-75R	-75 V	+75V	380 A (950 A)	10,000 W	200 kHz (500 kHz)	2 x 26 U
BLS-220-75R	-75 V	+75V	456 A (1,140 A)	12,000 W	200 kHz (500 kHz)	2 x 30 U
BLS-250-75R	-75 V	+75V	570 A (1,425 A)	15,000 W	200 kHz (500 kHz)	3 x 26 U
BLS-280-75R	-75 V	+75V	684 A (1,710 A)	18,000 W	200 kHz (500 kHz)	3 x 30 U

Options	Description
BLS 100I4	Internal 4 Channel Isolation Amplifier <ul style="list-style-type: none"> • Bandwidth 290 kHz (-3dB) • For Potential Separation of analog Inputs and Outputs of the Amplifier .
BLS 100VR	Adjustable Internal Resistor 0 ... 200 mOhm
BLS 100AC-OVP	Over Voltage Protection for the serial operation of a high voltage DC power supply and a 4 quadrant amplifier system.
BLS 100K	Compensation network to run as current amplifier <ul style="list-style-type: none"> • Programed board based on load characteristics • up to 5 different loads per board (boards are user swappable)
BLS 100S	Sensing (0 V / 0,5 V / 1 V / 2 V) standard in systems > 1 KW
BLS 100CS200	Current sensor standard in systems > 1 KW

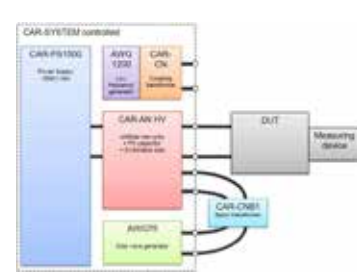
HV AUTOMOTIVE GENERATORS



Transient Emission



Immunity Test -Pulse A



Immunity Test -Pulse B

Designed for testing passive and active components and devices:

- Transient Emission Test
- Immunity Test -Pulse A
- Immunity Test -Pulse B
- Compact Construction
- With 1,500 V Capability
- Customer Friendly Control
- Secure (Voltage Control, Earthing Switch)
- Space for Extensions (Higher Power Supply)



CAR-AN-HV HV ARTIFICIAL NETWORK

ISO 7637-4 Emissions and Immunity Pulse A & Pulse B
CAR-HVC: HV Control unit, with touch screen, 7" capacitive. Switchable load for high voltage battery. Residual voltage monitoring with ground switch. Switchable Capacitor 100µF
CAR-AN4: HV Artificial Network. 2x artificial network; According to ISO 7637-4 50Ω termination

Accessories: CAR-Remote, Coupling balun, Emergency Stop, External Warning lights



CAR-CN HV COUPLING TRANSFORMER

Frequency: 30Hz - 300kHz **1800V / 50 or 100 Amps**
 CAR coupling network is used to couple, according ISO 7637-4:2020, the required sinusoidal disturbances into the DUT. This transformer also facilitates DC isolation of the LF generator from the DUT.



CAR-AWG 75 HIGH FREQ. SIMULATOR

Frequency: 100kHz - 250MHz **75W**
 CAR arbitrary waveform generator 75 is a compact EMC testing system for creating sinusoidal disturbances on high voltage supply lines of vehicles per test pulse A of ISO 7637-4:2020.



CAR-AWG 1200 LOW FREQ. SIMULATOR

Frequency: 1Hz - 300KHz **70V / 40Amps**
 CAR arbitrary waveform generator 1200 is a compact EMC testing system for creating sinusoidal disturbances on high voltage supply lines of vehicles as of ISO 7637-4:2020 test pulse B.



CAR-PS1500 HV BATTERY SIMULATOR

15kW, 100V/µs **600V / 30A, 1500V / 10A**
 The CAR PS 1500 is a high voltage power supply for the HILO CAR-TEST-SYSTEM. It is controllable on the front panel or via HILO-Remote software.
 • Can be stacked in parallel for use up to 100Amps!



CAR CNB1 COUPLING BALUN

7637-4 pulse A line-to-line-coupling
 CAR coupling balun transformer CAR-CNB1 is used for immunity testing against line-to-line coupled fast transients a balun according to e.g. ISO/ 7637-4:2020

AUTOMOTIVE GENERATORS



CAR-SYS 14 EFT/BURST, MICRO-SEC, & CDN

Easy front panel control, w/ 7" color touch-panel display. The CAR-SYS 14 allows the generation of transient immunity test pulses, #1, #2a and #3. It contains a coupling decoupling network (CDN), triggered load switch, an Ethernet interface board, and an integrated fast pulse voltage divider to measure impulses.

- ISO 7637
- Pulse 1: 1-5/2000µs, 600 V
- Pulse 1: 1-5/1000µs, 600 V
- Pulse 2a: 1 / 50µs, 600 V
- Pulse 3: 5/100 ns, 800 V

Model	Description	Power Amp	Power µ-switch	Load Dump	Transient Emissions
CAR-SYS 14 I	50 Amp CDN	CAR-AWG 1200	CAR-PFS 80 I	PG 2804	CAR-TE 21 I
CAR-SYS 14 II	100 Amp CDN	CAR-AWG 3000	CAR-PFS 80 II	PG 2804	CAR-TE 21 II
CAR-SYS 14 III	200 AMP CDN	CAR-AWG 6000	CAR-PFS 80 II	PG 2804	CAR-TE 21 II

Optional Accessories: HILO CAR-Remote Software, CDN 2012, CAR ICC, CAR Cal Kit, BCK 400 F



CAR-PG 2804 LOAD DUMP SIMULATOR

Easy front panel control, w/ 7" color touch-panel display. PG 2804 includes generation of pulses #5 / Test A and Test B. It is designed to be connected to the power supply interface of the CAR-TESTER, or use on its own with available CDN.

- Load Dump Generator
- ISO 16750-2 (ISO 7637)
- Pulse #5 / Test A / Test B
- Ri = 0.5 / 1 / 2 / 4 / 8 Ω

Model	Description	Rise Time	Fall Time	Clamping Level "B"
CAR PG 2804	Load Dump Changed capacitor	10 ms	50-400 ms (5 steps)	set in 22 V Steps
CAR PS-LD	Load Dump Amplifier based	12-20 ms	40-100 ms	Variable

Optional Accessories: HILO CAR-Remote Software, CAR Cal Kit, CAR LD CoBo 50A or 100A



CAR-PFS 80 POWER FAIL SWITCH < 1 µs

Easy front panel control, w/ 7" color touch-panel display. The CAR-PFS-80 is an automotive power fail simulator, designed for performing fast voltage dips and drops (micro-interruptions) faster than 1 µs according to standard requirements, mainly from vehicle manufacturers.

- Voltage dips and interruptions
- Rise-/ fall times <1µs
- Battery voltage: 80V DC
- Battery current: 50A, 100A
- IO line switching 2A, 70V, <10 µs
- Option for additional relay switches

Model	Description	Power Amp 4quad	or Power Supply
CAR-PFS 80 I	50 Amps	CAR-AWG 1200	CAR-PS 66-55
CAR-PFS 80 II	100 Amps	CAR-AWG 3000	CAR-PS 66-110

Optional Accessories: HILO CAR-Remote Software, CAR PFS RCAL Kit



CAR-TE 21 TRANSIENT EMISSIONS

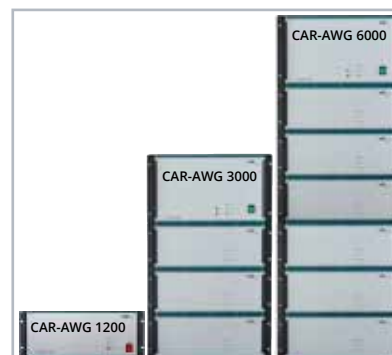
Easy control, w/ 7" color touch-panel display. The CAR-TE 21 is used to check the transient transition behavior when switching loads on the vehicle's electrical system. It consists of two triggered circuit breakers (electronic and mechanically), an artificial network (LISN), and a control unit.

- ISO 7637-2, CISPR 25, CISPR 16-1-2
- Triggered load switch:
 - Mechanical & Electronic
- 50 / 100 Amp, 800V
- Shunt resistors 10, 20, 40, 120 Ω
- Life-Time Use Counter

Model	Description	Power Amp 4quad	or Power Supply
CAR-TE 21 I	50 Amps	CAR-AWG 1200	CAR-PS 66-55
CAR-TE 21 II	100 Amps	CAR-AWG 3000	CAR-PS 66-110

Optional Accessories: HILO CAR-Remote Software

AUTOMOTIVE BATTERY SYM



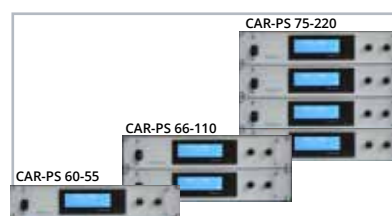
CAR-AWG XXXX FAST BATTERY SIMULATOR

The CAR arbitrary waveform generator is a compact EMC testing system for performing voltage variations on supply lines of vehicles.

- Bandwidth DC-200kHz
- Signal Bandwidth DC-1MHz (small signal)
- 4-Quadrant Amplifier
- Fast rise time up to 70V/µs
- Sense lines
- Arbitrary waveform up to 16MSa / 20MSa/s
- Selectable output impedance 0-200mΩ
- Over-voltage protection

Model	Current	Voltage	Output impedance	Slew Rate	Size weight
CAR-AWG 1200	40 Amp (100A short)	+75V, -75V	0-200 mΩ	70 V/µs	4U / 15 kg
CAR-AWG 3000	100 Amp (200A Short)	+70V, -30V	0-200 mΩ	70 V/µs	20U / 70 kg
CAR-AWG 6000	200 AMP (400A Short)	+70V, -30V	0-200 mΩ	70 V/µs	34U / 120 kg

Accessories: HILO CAR-Remote Software (required)



CAR-PS XX-XX DC BATTERY SIMULATOR

Power supply to expand the CAR-SYS 14 for the tests according to ISO 7637 and ISO 16750-2. Lower cost than the CAR-AWG if one does not need a 4-quadrant supply.

- Battery simulator
- Vehicle voltages: 12V/ 24V/ 42V/ 48V/ 70V (or specific)
- Fast rise time up to 10V/µs
- Battery current: 50A/ 100A/ 200A

Model	Range 1	Range 2	Slew Rate	Size weight
CAR-PS 66-55	0-33 V, 0-55 Amps	0-66 V, 0-55 Amps	10 V/µs	2U / 15 kg
CAR-PS 66-110	0-33 V, 0-110 Amps	0-66 V, 0-110 Amps	10 V/µs	4U / 30 kg
CAR-PS 75-220	0-33 V, 0-220 Amps	0-74 V, 0-110 Amps	10 V/µs	8U / 60 kg

Accessories: HILO CAR-Remote Software (required)

ACCESSORIES



CAR-REMOTE

Software Meet ISO 17025 quality and reporting requirements. Preprogrammed standards,...



CDN 2012

Matching Network 10 kHz - 150 kHz for extending the range of CDN EMCL-20 and CDN BCI-P1



CAR ICC

Inductive Coupling Clamp For Burst/EFT pulse injection onto I/O and screened cables.



CAR CAL KIT

Automotive Loads For use in verification. 0.5, 0.8, 1, 2, 4, 8, 10, 20, & 50Ω



BKC 400F

EFT Calibration Kit EFT/Burst pulse verification and calibration kit. 50Ω & 1000Ω



CAR PFS RCAL KIT

Load Resistors kit For E10 & E13 of LV124. Used with CAR PFS80



CAR-TG20

Designed according strict specifications of Ford standards R130, CI220 and CI 260



SAFETY

Safety Switch, Warning lights, Foot trigger



MULTI-CE5 5 kV

Multi Waveform Generator

The most versatile and easy to use multifunction generators on the planet!

- 7" touch screen display unit
- Compact Multi Generator
- Including Burst, Surge and Power Fail Simulator
- 5 kV pulses
- Including 16A 1-Phased de-/coupling network D.U.T. and EFTG outputs on the front
- Many accessories (mag-field, voltage variations, 3 phase,...)

Standard	Pulse	Levels	Required Option	Accessories
IEC 61000-4-4	Burst 3/50ns	5kV		EFTC 2012 for I/O lines
IEC 61000-4-5	Surge 1.2/50 μ s, 8/20 μ s	5kV / 2.5 kA		IMP8
IEC 61000-4-8	AC Magnetic fields	300A/m		HI 200-CE, VPS 250-16
IEC 61000-4-9	Pulsed Magnetic fields	1000A/m		HI 200-CE, IMP8
IEC 61000-4-11	AC Voltage dips/variations		PFS-CE 16	VPS 250-16
IEC 61000-4-29	DC Voltage Dips		PFS-CE 16	DC sources

Optional Accessories: HILO Remote Software, BCK 400 F, SCK 105 inBox, IMP 8, CDN's

EFTG-CE5 5 kV

EFT/Burst 5/50 ns

Stand-alone EFT/Burst simulator. Including EFT network, CDN and easy to use interface.



Standard	Accessories
IEC 61000-4-4	EFTC 2012 for I/O

Optional Accessories: HILO Remote Software, BCK 400 F, CDN's

CWG-CE5 5 kV

Surge 1.2/50 μ s

Stand-alone combination wave/surge simulator. Including surge network, CDN and easy to use interface.



Standards	Accessories
IEC 61000-4-5	IMP8
IEC 61000-4-9	IMP8, HI 200-CE

Optional Accessories: HILO Remote Software, SCK 105 inBox, IMP 8, CDN's

PFS-CE-16

Voltage Dips/Variations

Stand-alone POWER FAIL SIMULATOR. Including a power fail switch, CDN, and a variable power source.



Standards	Accessories
IEC 61000-4-11	
IEC 61000-4-29	
IEC 61000-4-8	HI 200-CE

Optional Accessories: HILO Remote Software
*IEC 61000-4-34 up to 200A system available



MULTI-CE7 7 kV

Multi Waveform Generator

The most versatile and easy to use multifunction generators on the planet!

- 7" touch screen display unit
- Compact Multi Generator
- Including Burst, Surge, RingWave, 10/700 Telecom, and Power Fail Simulator
- 7 kV pulses
- Including 16A 1-Phased de-/coupling network
- IEC/ANSI coupling
- D.U.T. and EFTG outputs on the front
- Many accessories

Standard	Pulse	Levels	Required Option	Accessories
IEC 61000-4-4	Burst 3/50 ns	5 kV		EFTC 2012 for I/O lines
IEC 61000-4-5	Surge 1.2/50 μ s, 8/20 μ s	7 kV / 3.5 A		IMP8
IEC 61000-4-5	Surge 10/700 μ s	7 kV	TS-CE Telecom	
IEC 61000-4-8	AC Magnetic fields	300 A/m		HI 200-CE, VPS 250-16
IEC 61000-4-9	Pulsed Magnetic fields	1000 A/m		HI 200-CE, IMP8
IEC 61000-4-11	AC Voltage dips/variations		PFS-CE 16	VPS 250-16
IEC 61000-4-12	Ring Wave 100 kHz	7 kV	RW-CE	
IEC 61000-4-29	DC Voltage Dips		PFS-CE 16	DC sources

Optional Accessories: HILO Remote Software, BCK 400 F, SCK 105 inBox, IMP 8, CDN's

CWG-CE7 7 kV

Surge 1.2/50 μ s

Stand-alone combination wave/surge simulator. Including surge network, CDN and easy to use interface.



Standards	Accessories
IEC 61000-4-5	IMP8
IEC 61000-4-9	IMP8, HI 200-CE

Optional Accessories: HILO Remote Software, SCK 105 inBox, IMP 8, CDN's

RW-CE7 7 kV

Ringwave 100 kHz

Stand-alone Ringwave simulator. Including Ringwave network, CDN and easy to use interface.



Standard	Accessories
IEC 61000-4-12	

Optional Accessories: HILO Remote Software, SCK 105 inBox, IMP 8, CDN's

TS-CE7 7 kV

Telecom 10/700 μ s

Stand-alone Telecom simulator. Including Telecom network, CDN and easy to use interface.



Standard	Accessories
IEC 61000-4-5	

Optional Accessories: HILO Remote Software, SCK 105 inBox, IMP 8, CDN's

ACCESSORIES

CDNs



EFTC 2012

Capacitive coupling clamp for coupling EFT to screened I/O lines built according to IEC 61000-4-4.



HI200-CE

Magnetic loop antenna built per IEC 61000-4-8/-9 requirements. Includes current transformer. (Requires IMP8 for -4-9)



VPS 250-16

Motor driven variac for setting dip voltage or voltage variations. According to IEC 61000-4-11. AC 50Hz or 60Hz input required.



BCK 400F

EFT Verification/Calibration kit per IEC 61000-4-4, including loads and voltage dividers for easy uses with 500MHz scope.



SCK 105 INBOX

Surge Verification/Calibration kit for measurement open voltage pulse and shorted current pulse wave forms per IEC 61000-4-5.



EFTC-CK

Capacitive clamp Verification/Calibration kit. Includes plate, adapter, and support required per IEC 61000-4-4.



IMP8

18µF impedance required on direct output of surge generator per IEC 61000-4-5. Used for calibration, and direct coupling.



HILO REMOTE

Software for easy test sequencing and reporting. Meets quality requirements for ISO 17025. Comes with fiber to LAN adapter.



MISC.

Warning Light
Safety Switch
Foot Pedal Trigger
Equipment Rack



16 AMP 3 PHASE

Model	Description
CDN 5416	3*480V, 16A, 5kV B, S
CDN 7416	3*480V, 16A, 7kV B, S, R

Option for 690V and ANSI coupling



32 AMP 3 PHASE

Model	Description
CDN 5432	3*480V, 32A, 5kV B, S
CDN 7432	3*480V, 32A, 7kV B, S, R

Option for 690V and ANSI coupling



63 AMP 3 PHASE

Model	Description
CDN 5463	3*480V, 63A, 5kV B, S
CDN 7463	3*480V, 63A, 7kV B, S, R

Option for 690V and ANSI coupling



125 AMP 3 PHASE

Model	Description
CDN 54125	3*480V, 125A, 5kV B, S
CDN 74125	3*480V, 125A, 7kV B, S, R

Option for 690V and ANSI coupling



200 AMP 3 PHASE

Model	Description
CDN 54200	3*480V, 200A, 5kV B, S
CDN 74200	3*480V, 200A, 7kV B, S, R

Option for 690V and ANSI coupling



CDN 2402/2410

Automated CDN for up to 4 lines
2.5 kV Surge, 2.5 kV EFT
CDN 2402: up to 48V/2A
CDN 2410: up to 240V/10A



CDN 2802

Automated CDN for up to 8 lines
2 kV Surge, 2 kV EFT
8 I/O Lines, up to 48V/2A



CDN 5404

Manual CDN for up to 4 lines
5 kV Ringwave, 5 kV DOW
4 lines up to 250V/4A, for 8 lines 2x CDN 5404 can be used



CDN 504 SYM

Manual CDN symmetrical lines
5 kV Surge, 5 kV Telecom (fig10)
CDN 504 sys: 4 line
250VAC / 350VDC, 2A



CDN 508 SYM

Manual CDN symmetrical lines
5 kV Surge, 5 kV Telecom (fig10)
CDN 508 sys: 8 line
250VAC / 350VDC, 2A



CDN 504 U

Manual CDN unsymmetrical
5 kV Surge, 5 kV Telecom (fig9)
5kV Ringwave (fig8)
CDN 504 sys: 4 line
250VAC / 350VDC, 6A



CDN 508 U

Manual CDN unsymmetrical
5 kV Surge, 5 kV Telecom (fig9)
5kV Ringwave (fig8)
CDN 508 sys: 8 line
250VAC / 350VDC, 6A

B= Burst/EFT, S=Surge 1.2/50, R=Ringwave

DAMPED OSCILLATORY WAVE

COMBINATION WAVE



IPG 2554

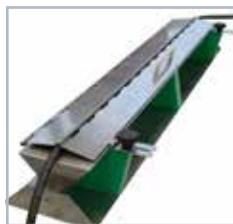
Damped Oscillatory Wave (DOW)

Easy front panel control, w/ 7" color touch-panel display. The IPG 2554 allows the generation of damped oscillatory wave (DOW) immunity test pulses, covering both slow and fast waveforms per the requirements of IEC 61000-4-18.

- Versatile and upgradeable
- Different configurations possible
- External data line CDN 5404
- Internal 16 A / 400 V, 3-phased coupling/de-coupling network (690V option)
- Common and differential mode
- Integrated monitor port 100:1 voltage divider

Model	Description	Max Levels	Repetition rate	
IPG 2554	100 kHz, 1, 3, 10, 30 MHz DOW	3 kV Slow, 4 kV fast	400 Hz Slow, 5 kHz Fast	
IPG 2554 Slow	100 kHz, & 1 MHz DOW	3 kV	400 Hz	Upgradeable to add fast wave forms
IPG 2554 Fast	3, 10, 30 MHz DOW	4 kV	5 kHz	Upgradeable to add slow wave forms

Optional Accessories: HILO Remote Software, EFTC-2012, CDN 5404



EFTC 2012

Capacitive coupling clamp For coupling EFT to screened I/O lines built according to IEC 61000-4-4.



CDN 5404

Manual CDN for up to 4 lines 5 kV Ringwave, 5 kV DOW 4 lines up to 250V/4A, for 8 lines 2x CDN 5404 can be used



IPG 2553

Magnetic DOW

Easy front panel control, w/ 5" color touch-panel display. The IPG 2553 allows the generation of magnetic damped oscillatory wave (DOW) immunity test pulses, per the requirements of IEC 61000-4-10. Includes radiating loop.

- Magnetic damped oscillatory wave (DOW)
- Frequency: 100 kHz or 1.0 MHz
- Repetition rate: 40 Hz and 400 Hz
- Test Level: 10 A/m - 100 A/m

Optional Accessories: HILO Remote Software



CWG-CE5

5 kV / 2.5 kA

Surge Voltage: 1,2/50 μ s; Current: 8/20 μ s

5kV Combination Wave generator meeting the requirements of IEC 61000-4-5 and IEC 60060. Includes a single phase 16 amp CDN, 7" color touch-panel display, and monitor ports for both voltage and current waveforms.

Model	CDN 5416	CDN 5432	CDN 5463	CDN 54125	CDN 54200
3*480V, 5 kV	16 Amp	32 Amp	63 Amp	125 Amp	200 Amp

Option for 690V and ANSI coupling Optional: HILO Remote Software, CDNs for data lines, IMP8



CWG-CE7

7 kV / 3.5 kA

Surge Voltage: 1,2/50 μ s; Current: 8/20 μ s

7kV Combination Wave generator meeting the requirements of IEC 61000-4-5 and IEC 60060. Includes a single phase 16 amp CDN, 7" color touch-panel display, and monitor ports for both voltage and current waveforms.

Model	CDN 7416	CDN 7432	CDN 7463	CDN 74125	CDN 74200
3*480V, 7 kV	16 Amp	32 Amp	63 Amp	125 Amp	200 Amp

Option for 690V and ANSI coupling Optional: HILO Remote Software, CDNs for data lines, IMP8



PG 10-504

10 kV / 5 kA

Surge Voltage: 1,2/50 μ s; Current: 8/20 μ s

10kV Combination Wave generator meeting the requirements of IEC 61000-4-5 and IEC 60060. Includes a 7" color touch-panel display and monitor ports for both voltage and current waveforms.

Model	CDN 10416	CDN 10432	CDN 10463	CDN 104125	CDN 104200	CDN 10216
3*480V, 10 kV	16 Amp	32 Amp	63 Amp	125 Amp	200 Amp	Single phase

Option for 690V and ANSI coupling Optional: HILO Remote Software, CDNs for data lines, IMP8, PA 503, 505



PG 12-804

12 kV / 6 kA

Surge Voltage: 1,2/50 μ s; Current: 8/20 μ s

12kV Combination Wave generator meeting the requirements of IEC 61000-4-5 and IEC 60060. Includes a 7" color touch-panel display and monitor ports for both voltage and current waveforms.

Model	CDN 12416	CDN 12432	CDN 12463	CDN 124125	CDN 124200	CDN 12216
3*480V, 12 kV	16 Amp	32 Amp	63 Amp	125 Amp	200 Amp	Single phase

Option for 690V and ANSI coupling Optional: HILO Remote Software, CDNs for data lines, IMP8, PA 503, 505



PG 24-2500

24 kV / 12 kA

Surge Voltage: 1,2/50 μ s; Current: 8/20 μ s

24kV Combination Wave generator meeting the requirements of IEC 61000-4-5 and IEC 60060. Includes a 7" color touch-panel display and monitor ports for both voltage and current waveforms. Shown with PA 504 protective cover.

Optional: HILO Remote Software, CDNs for data lines, IMP8, PA 503, 505

TELECOM GENERATORS



IPG 620 / 1050 / 1272

High Voltage Pulse Generator 6kV / 10kV / 12 kV

Lightning surges 1.2/50 μ s according to IEC 60. Pictured with PA 503 protective cover.

Model	Waveform	Voltage	Energy	Standards
IPG 620	1.2/50 μ s	0.3-6 kV	20 J	ITU-T: K12, K17, k22, k44
IPG 1050	1.2/50 μ s	0.3-10 kV	50 J	ITU-T: K12, K17, k22, k44
IPG 1272	1.2/50 μ s	0.3-12 kV	72 J	ITU-T: K12, K17, k22, k44

Optional: HILO Remote Software, CDN 504/8 sym, PA 503, 505



PG 5-200-1 & -2

High Voltage Pulse Generator 5kV

Lightning surges 1.2/50 μ s according to IEC 60 & Switching surges 10/700 μ s.

Model	Waveform	Voltage	Energy	Standards
PG 5-200-1	10/700 μ s	0.2-5 kV	200 J	ITU-T: K12, K17, k20
PG 5-200-2	10/700 μ s	0.2-5 kV	200 J	ITU-T: K12, K17, k20
	1.2/50 μ s	0.2-5 kV	10 J	

Optional: HILO Remote Software, CDN 504/8 sym, PA 503, 505



PG 6-364 / 10-1000

High Voltage Pulse Generator 6kV / 10 kV

Model	Waveform	Voltage	Energy	Standards
PG 6-364	10/700 μ s	0.2-6.3 kV	360 J	ITU-T: K12, K17, k20
	1.2/50 μ s	0.2-6.3 kV	20 J	
	Option: 0.5/700, 1/700, 0.5/1000, 1/1000, & 100/700 μ s pulses			
PG 10-1000	10/700 μ s	0.5-10 kV	1000 J	ITU-T: K12, K17, k20
	1.2/50 μ s	0.5-10 kV	50 J	

Optional: HILO Remote Software, CDN 504/8 sym, PA 503, 505



PG 12-1440 / 14-1960 / 20-4000

High Voltage Pulse Gen. 12 kV / 14kV / 20 kV

Model	Waveform	Voltage	Energy	Standards
PG 12-1440	10/700 μ s	0.2-12 kV	1400 J	ITU-T: K17, k20, k22, k44
	1.2/50 μ s	0.2-12 kV	70 J	
PG 14-1960	10/700 μ s	0.2-14 kV	1960 J	ITU-T: K17, k20, k22, k44
	0.5/700 μ s	0.2-14 kV	1960 J	
PG 20-4000	10/700 μ s	1-20 kV	4000 J	ITU-T: K17, k20, k22, k44

Optional: HILO Remote Software, CDN 504/8 sym, PA 503, 505



IPG 255 8 kV

Isolation Tester 1.2/50 μ s, 8kV
Testing of watt-hour meters, relays, etc. w/PA 503 cover

Acc. IEC 20255, EN 61036, ...

Optional: HILO Remote Software, PA 503, 505



IPG 506 5kV

Front Chopped Wave Generator
Measurements for:
DC Spark-over Voltage: 640V
Impulse Spark-over Voltage: 5kV
Acc. ITU-T, K12; w/PA 503 cover

Optional: HILO Remote Software, PA 503, 505



IPG 506-SYM 5 kV

Symmetric Front Ch. Wave Gen
Of 3-Pole Gas Discharge Tubes
DC Spark-over Voltage: 640V
Impulse Spark-over Voltage: 5kV
Acc. ITU-T, K12; w/PA 503 cover

Optional: HILO Remote Software, PA 503, 505



PIG 1500

Power Induction Generator
Testing of telephone equipment
0-1500 Veff, 600 Ω or 200 Ω

Acc. CCITT K20

Optional: HILO Remote Software, PA 503, 505



PG 6-432

Lifetime test of SPDs
10/700 μ s, 2*100A, 430 J
10/1000 μ s, 2*100A, 430 J

Acc. ITU-T: 12TR 1, K17, K20

Optional: HILO Remote Software, PA 503, 505



PG 6-500

Surge Voltage/Current Gen.
Testing 2 or 4 wire Telecom
2/10 μ s, 5kV / 100 or 500A

Acc. GR-1089-CORE Fig 4.2

Optional: HILO Remote Software, PA 503, 505



PG 2-750

Surge Current Generator
10/160 μ s, 4 line, 100A
10/560 μ s, 2 line, 100A
Acc. FCC Part 68, ANSI/TIA-968
Option: 10/1000 μ s, per GR-1089

Optional: HILO Remote Software, PA 503, 505



PG 4-641

Surge Current Generator
10/160 μ s, 480A

Acc. FCC Part 68, ANSI/TIA-968

Optional: HILO Remote Software, PA 503, 505

HIGH CURRENT PULSE

EMC 2015



Modular Pulse Generator

Easy front panel control, w/ 7" color touch-panel display. The EMC 2015 has been designed for dielectric testing of electric components, over-voltage protectors and electronic circuits acc. IEC, VDE etc. The basic version generates impulse currents with waveform 8/20 μ s up to 25 kA. In addition, various other plug-ins are also available.

- Versatile and upgradeable
- Purchase modules as you need them
- PA 503 protective cover included
- Many plugins available for your application
- Easy pulse setup and reporting

Model	Pulse Type	Pulse	Max Level	Energy
EMC 2015	Current (standard)	8/20 μ s	25 kA	1500 J
	Current Plug-in	10/50 μ s	5 kA	1500 J
	Current Plug-in	10/350 μ s	600 A	1500 J
	Current Plug-in	10/700 μ s	300 A	1500 J
	Current Plug-in	10/1000 μ s	200 A	1500 J
	Combination Wave Plug-in	1.2/50 μ s & 8/20 μ s	2x10 kV & 2x10 kA	1500 J, per VDE 0845-2
	Varistor Test Plug-in	8/20 μ s	3 kA	250 J
	Voltage Plug-in	10/700 μ s	10 kV	

Optional Accessories: HILO Remote Software

VOLTAGE ISOLATION

DIELECTRIC TESTING

UP TO 24KV

Lightning Surge

1.2/50 μ s

High voltage pulse generator meeting the requirements of IEC 60060. Includes 7" color touch-panel display, and monitor ports for both voltage and current waveforms.

Model	Pulse	Max Level	Energy
IPG 605	1.2/50 μ s	6 kV	5 J
IPG 620	1.2/50 μ s	6 kV	20 J
IPG 1012	1.2/50 μ s	10 kV	12 J
IPG 1050	1.2/50 μ s	10 kV	50 J
IPG 1218	1.2/50 μ s	12 kV	18 J
IPG 1272	1.2/50 μ s	12 kV	72 J
IPG 2025	1.2/50 μ s	20 kV	25 J
IPG 2436	1.2/50 μ s	24 kV	36 J

Optional: HILO Remote Software, PA 503, PA 505

INSULATION Ω MEASUREMENT

12 kV

IPG 1201

Measure 0.5 - 20 M Ω

Impulse generator meeting the requirements of IEC 60065. Includes 7" color touch-panel display and monitor ports for both voltage and current waveforms. The value of the insulation resistance is measured and reported.

Model	Resistance	Level	Energy
IPG 1201	0.5 - 20 M Ω	0.2 - 12 kV	0.072 J

Optional: HILO Remote Software, PA 503, PA 505

SOLAR PANEL

10 / 12 / 20kV

Surge

1.2/50 μ s

Impulse voltage tests of solar modules (photo-voltaic panels) with the standard surge voltage waveform 1.2/50 μ s according to IEC 60060-1/2 up to 20 kV acc. to IEC 61730-1/2 / EN 61730-1.

Model	Pulse	Max Level	Energy	Capacitance
PG 10-200	1.2/50 μ s	10 kV	250 J	0 - 183 nF
PG 12-360	1.2/50 μ s	12 kV	360 J	0 - 183 nF
PG 20-100	1.2/50 μ s	20 kV	100 J	10 - 183 nF

Optional: HILO Remote Software, CCK, CCK 20

HIGH CURRENT PULSES

- 7"/5" color touch panel display
- Well engineered setup and ease of use
- Protective safety covers available
- Many different options available to fit your needs



Model	Pulse	Max Level	Energy	Size
PG 6-200	8/20 μ s	5 kA	200 J	4U table top + Protective cover
PG 6-400	8/20 μ s	10 kA	400 J	4U table top + Protective cover
PG 6-2402	8/20 μ s	2x 25 kA	2400 J	10 U Table top + Protective cover
PG 10-10000	8/20 μ s	2x 50 kA	10000 J	1/2 rack + Protective cover
PG 20-7000	8/20 μ s	50 kA	7000 J	Full rack w/test chamber built-in
PG 20-10000	8/20 μ s	70 kA	10000 J	Full rack w/test chamber built-in
PG 20-14000	8/20 μ s	100 kA	14000 J	Full rack w/test chamber built-in
PG 10-2500	10/700 μ s	500 A	2500 J	Full rack w/test chamber built-in
PG 20-4000	10/700 μ s	500 A	4000 J	Full rack w/test chamber built-in
PG 10-4000	10/1000 μ s	500 A	4000 J	Full rack w/test chamber built-in
PG 10-8000	10/1000 μ s	1 kA	8000 J	Full rack w/test chamber built-in
PG 10-6000	10/50 μ s	10 kA	6000 J	Full rack w/test chamber built-in
PG 10-7000	10/350 μ s	2.5 kA	7000 J	Full rack w/test chamber built-in
PG 10-12500	10/350 μ s	5 kA	12500 J	Full rack w/test chamber built-in
PG 20-25000	10/350 μ s	10 kA	25000 J	Full rack w/test chamber built-in
PG 5-4500	1.5/5000 μ s	2x 125 A	4500 J	1/2 rack + Protective cover

Optional Accessories: HILO Remote Software

CAPACITOR TESTERS



IPG 809 8 kV

Capacitor Tester
1.7/46 μ s, 8 kV, 9 J
Capacitor range: 0.1-27 nF
Acc. IEC 60384-14, EN 132400, VDE 0565 etc

Optional: HILO Remote Software, PA 503, 505



PG 6-401 6 kV

Capacitor Tester
1.6/47 μ s, 6 kV, 400 J
Capacitors: 34, 47, 68, 100, 150, 220, 330, 470 nF
Acc. IEC 60384-14, EN 132400

Optional: HILO Remote Software, PA 503, 505



PG 10-150 10 kV

Capacitor Flammability Test
AC Adjusted 0-300V 16 Amps
Impulse storage: 3 μ F, 0.5-10 kV
Acc. IEC 60384-14

Optional: HILO Remote Software, PA 504

AC/DC VOLTAGE ISOLATION

HV MEASUREMENT



AC TEST EQUIPMENT UP TO 50 kV

Electrical Insulation
Testing the electrical insulation of components and power systems with AC levels. Ramp/step up voltage levels while current is monitored for leakage.

Model	Volt Ramp	Level	Current	Test Cabinet
AC Tester 6	0.1 - 10 kV/sec	10 kV	100 mA	Table top, PA504 incl.
HVTS 30-20	0.24 - 30 kV/sec	0.2 - 30 kV	1 - 20 mA	19" Rack
HVTS 30-40	0.24 - 30 kV/sec	0.2 - 30 kV	1 - 40 mA	19" Rack
HVTS 50-10	3 - 50 kV/sec	2 - 50 kV	1 - 10 mA	19" Rack

Optional: HILO Remote Software, rack can be fitted with integrated protective test bay



DC TEST EQUIPMENT UP TO 20 kV

Electrical Insulation
Testing the electrical insulation of components and power systems with DC levels. Ramp/step up voltage levels while current is monitored for leakage.

Model	Volt Ramp	Level	Current	Test Cabinet
HTS 20-5	0.1 - 10 kV/sec	0.2 - 20 kV	0.1 - 5 mA	Table top, PA503 option
HTS 20-10	0.1 - 10 kV/sec	0.2 - 20 kV	0.1 - 10 mA	Table top, PA503 option

Optional: HILO Remote Software, PA503 or PA 505

SAFETY TEST COVERS



PA 502
440 x 180 x 300 mm



PA 503
400 x 140 x 300 mm

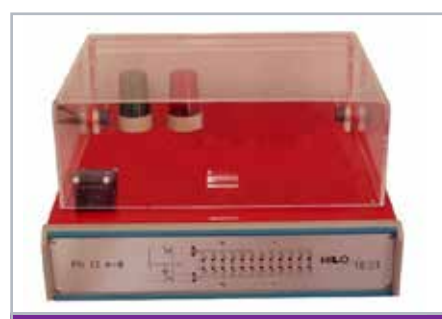


PA 504
460 x 300 x 550 mm



PA 505
400 x 250 x 400 mm

For High Voltage testing of components, prevents accidental contact, with ground rod, safety disable switch, and warning lights



PU SWITCH UNIT
User defined switch unit for easy DUT switching and production testing. Automates and saves time.



HCC HV CAP CHARGE
High Voltage Capacitor charging unit
Multiple units available
From 4 - 60 kV and 400 - 20 mA



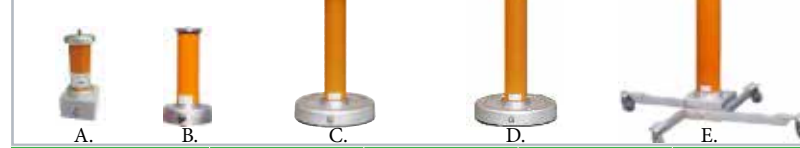
IPG 250 PULSE CAL
Impulse generator for calibration purposes. Step response measurement. rise time <3ns



HVM 2015

High Voltage Pulse Measurement

HVM 2015 can measure high voltage pulses up to 10kV or optional 20kV. Expanded up to 300kV with external HVT###RCR voltage dividers. Voltage dividers work manually as well.



	HVT 10 RCR	HVT 20 RCR	HVT 40 RCR	HVT 80 RCR	HVT 120 RCR	HVT 160 RCR	HVT 240 RCR	HVT 300 RCR
DC voltage	11 kV	22 kV	40 kV	80 kV	120 kV	160 kV	240 kV	300 kV
AC voltage	8 kV	15 kV	30 kV	60 kV	90 kV	120 kV	180 kV	230 kV
Pulse Voltage	20 kV	40 kV	100 kV	160 kV	200 kV	250 kV	360 kV	480 kV
Divider Ratio	1000:1	2000:1	2500:1	5000:1	5000:1	5000:1	5000:1	5000:1
Picture	A.	A.	B.	C.	D.	D.	E.	E.



ISM & WSM CURRENT SHUNTS

High Current Measurement Shunts

ISM - current measuring resistor for high pulse currents
WSM - current measuring resistor for high AC currents

Series	Versions	Peak	RMS	Resistance	Bandwidth
ISM Series	18	3 - 100 kA	8-1600 A	25 μΩ - 200 mΩ	2 - 200 MHz
WSM Series	12	10 - 150 kA	0.01-15 kA	4 μΩ - 0.6 mΩ	30 kHz - 1.5 MHz



VOLTAGE DIVIDER

Used for easy Pulse measurement to connect directly to a scope.

Model	Description
CDN 5463	12 kV, 10MHz, 100:1
CDN 7463	12 kV, 10MHz, 1000:1



SURGE CALIBRATION

Kit includes Voltage divider PVD 10-3 and Current shunt PSM 10-2. Used for pulse measurement.

Model	Description
SCK 105	12 kV / 10 kA, 10MHz
SCK 105 InBox	Same but in a housing



ULTRASONIC DETECTOR

Excellent acoustic directivity of the USD can be used to find Partial discharge in the field.

Model	Description
USD 3801	Laser Sight for Night use
USD 3802	Visual Sight for Daytime

ESD SIMULATORS

RF CONDUCTED IMMUNITY




SESD 216

Electrostatic Discharge Simulator

16kV

- IEC 61000-4-2 (150 pF / 330 Ω) MIL-STD-461G, DO-160
- Battery or mains operation
- 16,5 kV AIR / 10 kV CONTACT discharge
- Lightweight ergonomic design, weight distribution
- Programmable automatic test runs, optional intuitive software
- Predefined test levels acc. to the standard
- Displaying of the real discharge voltage at air mode
- Counter mode with and without automatic polarity change
- **Most advanced self-test diagnostics in the industry**
- Included: air & contact tip, ground strap, AC charger/mains power, carrying/storage case

Optional Accessories: SESD 30 S100 (software), SESD 272 (earth cable 2x470kΩ), SESD 8800-4 (2Ω 4GHz verification target), SESD 271 (VCP with SESD 272), SESD 30 T 1000 (Support Arm & Balancer), ESD Test Table



SESD 230








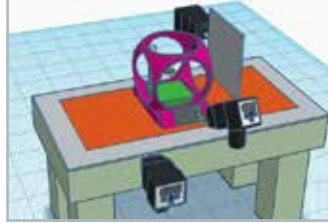
Electrostatic Discharge Simulator

30 kV

- IEC 61000-4-2 (150 pF / 330 Ω) MIL-STD-461G, DO-160
- Battery or mains operation
- 30 kV AIR / 30 kV CONTACT discharge
- Lightweight ergonomic design, weight distribution
- Programmable automatic test runs, optional intuitive software
- Predefined test levels acc. to the standard
- Displaying of the real discharge voltage at air mode
- Counter mode with and without automatic polarity change
- **Most advanced self-check diagnostics in the industry**
- Included: air & contact tip, ground strap, AC charger/mains power, carrying/storage case

Optional Accessories: SESD 30 S100 (software), SESD 272 (earth cable 2x470kΩ), SESD 8800-4 (2Ω 4GHz verification target), SESD 271 (VCP with SESD 272), SESD 30 T 1000 (Support Arm & Balancer), ESD Test Table

ACCESSORIES

 <p>ESD TEST TABLE Kit includes table, HCP, earth cable 2x 470kΩ, 0,05mm insulator, bleeder wire, and alternative low impedance earth cable</p>	 <p>SESD 271 Vertical Coupling plane w/ stand and earth cable 2x 470 kΩ,</p>	 <p>SESD 272 Earth cable w/ 2x 470 kΩ resistors</p>	 <p>SESD 8800-4 ESD Verification Target 2Ω (4GHz) to verify ESD wave form</p>
 <p>SESD 302X ESD test tips</p>	 <p>SESD S100 ESD Test Software + fiber-optic serial interface</p>	 <p>SESD 30 T 1000 Support arm and Balancer for production testing or long test times.</p>	



CDG 7000

4 kHz-400 MHz

Conducted Immunity Turnkey

Newest CI system for meeting many standards including IEC 61000-4-6, ISO 11452-4, MIL-STD-461G CS114, DO-160 BCI, and many more. The versatility of the system to meet so many standards provides the best value in the industry.

- RF signal generator, a RF-power amplifier, a 3-channel RF voltmeter and a directional coupler
- Frequency range (signal generator/power meter) 4 kHz - 1200 MHz
- HELIA 7 - Basic software included enables extensive reporting functions and EUT monitoring, (HELIA 7 - BCI required for BCI testing)
- Simple expansion with external amplifier via 2nd generator output
- SCPI command set enables easy integration into own software systems
- Temperature measuring input, e.g. for monitoring and displaying the BCI clamp temperature or DUT
- Input for external pulse modulation
- Configurable, digital 8-channel user port
- Warranty 3 years

Model	Amp Frequency	Amp Power	Test level	Standards
CDG 7000-25	100 kHz - 250 MHz	25 Watts	10V with 80% mod	Basic IEC 61000-4-6
CDG 7000-75	100 kHz - 400 MHz	75 Watts	30V with 80% mod, 200mA	IEC, ISO (full levels)
CDG 7000-75-10	10 kHz - 250 MHz	75 Watts	30V with 80% mod	IEC, MIL, DO,...

Optional Accessories: EM Clamps, BCI Clamps, Calibration fixtures, Attenuators, CDNs, BCI Software. All Coax cables provided with each setup.

ACCESSORIES

 <p>CDN EMCL-20/35 EM Clamp for cable diameters 20mm or 35mm</p>	 <p>CDN EMCL-NW_10 Matching Network 10 kHz - 150 kHz for extending the range of CDN EMCL-20 and CDN BCI-P1</p>	 <p>CDN ABCL-20 Decoupling Clamp 20mm According to IEC 61000-4-6</p>	 <p>CDN BCI-P1 Clamp Bulk Current Injection (BCI) with Calibration Set, 1 MHz - 400 MHz</p>																												
 <p>CDN BCI-P1_MT-1 Clamp Bulk Current Injection (BCI) & matching transformer with Calibration Set, 4 kHz - 400 MHz</p>	 <p>CDG CMP-45 / 46 Current Monitoring Probe 10kHz - 400MHz</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #008000; color: white;"> <th>Model</th> <th>Used for</th> </tr> </thead> <tbody> <tr> <td>CDG CMP-45</td> <td>Hinged clamp</td> </tr> <tr> <td>CDG CMP-46</td> <td>Closed clamp</td> </tr> </tbody> </table>	Model	Used for	CDG CMP-45	Hinged clamp	CDG CMP-46	Closed clamp	 <p>CDG A CMP-XX Calibration Jig for each BCI or monitor probe</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #008000; color: white;"> <th>Model</th> <th>Used for</th> </tr> </thead> <tbody> <tr> <td>CDN A BCI-P1</td> <td>CDN BCI-P1</td> </tr> <tr> <td>CDG A CMP-45</td> <td>CDG A CMP-45</td> </tr> <tr> <td>CDG A CMP-46</td> <td>CDG A CMP-46</td> </tr> </tbody> </table>	Model	Used for	CDN A BCI-P1	CDN BCI-P1	CDG A CMP-45	CDG A CMP-45	CDG A CMP-46	CDG A CMP-46	 <p>CDNS Many CDNs to match your application</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #008000; color: white;"> <th>Model</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CDN M1, M2, M3</td> <td>Mains (earth)</td> </tr> <tr> <td>CDN M4, M5</td> <td>Mains</td> </tr> <tr> <td>CDM AF#</td> <td>Non-Balanced</td> </tr> <tr> <td>CDN T#</td> <td>Balances pair</td> </tr> <tr> <td>CDN S#</td> <td>Shielded</td> </tr> <tr> <td>CDN USB/HDMI/Firewire/...</td> <td></td> </tr> </tbody> </table>	Model	Description	CDN M1, M2, M3	Mains (earth)	CDN M4, M5	Mains	CDM AF#	Non-Balanced	CDN T#	Balances pair	CDN S#	Shielded	CDN USB/HDMI/Firewire/...	
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MAGNETIC IMMUNITY



CDG 7000-75-10

IEC 60601-1-2 / IEC 61000-4-39 Turnkey

In combination with the CDG 7000-75-10 and a complete set for the corresponding frequency range, international standards (IEC 60601-1-2 ED. 4.1 / IEC 61000-4-39) for testing medical devices for electromagnetic compatibility can be carried out. These complete sets include a radiating loop, a loop sensor, the matching network for the impedance and a corresponding stand for the loops.

- 30 kHz at 8 A/m, 134.2 kHz at 65 A/m, 13.56 MHz at 7.5 A/m
- 9 kHz - 150 MHz at 1, 3, 10, & 30 A/m
- 150 kHz - 26 MHz at 0.1, 0.3, 1, & 3 A/m
- Additionally RF conducted immunity to IEC 61000-4-6 can be met with appropriate accessories.
- HELIA 7-MGA Software included
- Configurable, digital 8-channel user port
- Warranty 3 years



SET 9KHZ-150KHZ -1-2/-4-39

Coil set RL-120 & LS-040 incl. stand and matching network

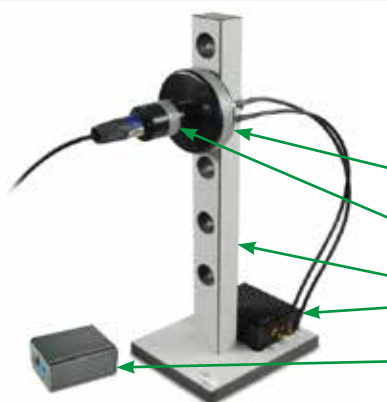
IEC 60601-1-2 Ed. 4.1 (30 kHz, 134.2 kHz) and IEC 61000-4-39 (9 kHz to 150 kHz)

Includes:

- MGA RL 120 – Radiating loop 120 mm as specified in IEC 61000-4-39 for 9 kHz – 150 kHz, IEC / EN 60601-1-2 and MIL-STD-461 / RS101, 3 m cable
- MGA LS 040 – Loop sensor 40 mm
- MGA RL 120 NW – Matching Network for MGA RL 120, matches loop to 50 Ohms of the CDG 7000 amplifier acc. to IEC 61000-4-39 and IEC / EN 60601-1-2 for immunity to magnetic fields 9 kHz - 150 kHz
- MGA RL 120 Stand – Stand for MGA RL 120 for tests
- Cable set

OPTION: CAPACITOR 1/2W 134.2 KHZ -1-2

Capacitor in housing (resonance matching) for RL-120 with matching network BNC male/ BNC female. When testing for IEC 60601-1-2: 134.2 kHz, 65 A/m, the required power can be halved from 46.3 dBm / 43 W to 43.1 dBm / 20 W with the optional resonance matching. The capacitor in the housing is plugged in front of the matching network.



SET 150KHZ-26MHZ -1-2/-4-39

Coil set RL-100-3 & LS-040-1 incl. stand and matching network

IEC 60601-1-2 (13.56 MHz) and IEC 61000-4-39 (150 kHz to 26 MHz)

Includes:

- MGA RL 100-3 – Radiating loop as specified in IEC 61000-4-39 and IEC / EN 60601-1-2 for 150 kHz – 26 MHz
- MGA LS 040-1 – Loop sensor 40 mm that attaches to MGA RL 100-3 at the correct distance of 50 mm as specified in IEC 61000-4-39 and IEC / EN 60601-1-2
- MGA RL 100-3 stand – for tests in stronger magnetic fields
- MGA RL 100-3 NW-60601 – Matching Network 60601 for MGA RL 100-3, matches MGA RL 100-3 to the IEC 60601-1-2 requirements
- MGA RL 100-3 NW-61000 – Matching Network 61000 for MGA RL 100-3, matches MGA RL 100-3 to the IEC 61000-4-39 requirements
- Cable set

OPTION: PREAMP 150KHZ-26MHZ -4-39

Preamplifier for CDG 7000-75-10 for tests according to IEC 61000-4-39
Sensor coil LS 040-1 provides too low an output level for the CDG 7000 for the lowest standard levels at low frequencies



MGA 1033

DC-250 kHz

Magnetic Emissions/Immunity Turnkey

The compact magnetic field generator and analyzer MGA 1033 allows susceptibility tests against magnetic fields from DC to 250 kHz according to the standard EN 55103-2 and there measurement according to EN 55103-1. In addition, EMC tests are possible according to various standards such as automotive, avionic and MIL-STD.





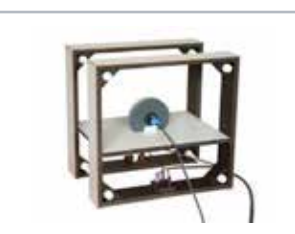







- Magnetic field tests and measurement DC to 250 kHz
- Complies to all relevant EMC, Automotive and Military Standards
- Magnetic field strength up to 1000 A/m at 1000 Hz
- Fully automated tests with tri-axial Helmholtz coil
- Wide choice of accessories
- Signal generator (DC - 250 kHz)
- Power amplifier with 800 W output power, DC - 1 MHz bandwidth
- Spectrum analyzer (16-bit, 1 MS / s sample rate)
- Self Calibration, Software controlled

Test Standards:

MIL-STD-461E/F, DO 160 Sec 19, IEC/EN 55103-2, IEC/EN 61000-4-8, ISO 11452-8, SAE J1113-2, SAE J1113-22, Ford ES-XW7T-1A278-AC, GM W3097, PSA B21, 7110, Renault 36-00-808, DC-11224, DC 10614 and similar standards.

Furthermore the MGA 1033 allows additional measurements and tests according to MILSTD-461E/F (CE101, CS101, CS109), EN 61000-4-16, IEC/EN 61543 and DO-160 Section19

ACCESSORIES

 <p>LS 040 Loop Sensor 40mm Diameter 51 turn 10 Hz - 1 MHz</p>	 <p>RL 120 Radiating loop 120mm Diameter 20 Turns DC - 500 kHz, 15 Amps</p>	 <p>RLS 133 Radiating & Sensor Loop 133mm Diameter 36 Turns DC - 500 kHz, 5 Amps</p>	 <p>MGA CT-50A/C CS101 Coupling transformer + differential amplifier for AC decoupling, 50 Amp, 0.5Ω Precision Resistor</p>								
 <p>MGA HCS 50-28 Helmholtz coil 50cm shown with loop sensor RLS 133</p>	 <p>MGA HCS 100-60 Helmholtz coil 100cm</p>	 <p>MGA HCS 125-75 Helmholtz coil 125cm</p>	 <p>MGA HCST 50-28 Tri-axial Helmholtz coil for automated 3 axis testing</p>								
 <p>MGA HCR 50-25 Helmholtz coil 50cm For DC Fields and Hz</p>	 <p>MGA ISS 19 Coupling Transformer DO-160 Sec 19 automatic test</p>	 <p>MGA BC 500 Feild Coil IEC 55103-2 20 Windings 50cm Diameter</p>	 <p>CNs EN 55103-2</p> <table border="1"> <thead> <tr> <th>EN 55103-2</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Figure B.1</td> <td>Common mode</td> </tr> <tr> <td>Figure B.2</td> <td>Calibration network</td> </tr> <tr> <td>Figure B.4</td> <td>Current transducer</td> </tr> </tbody> </table>	EN 55103-2	Description	Figure B.1	Common mode	Figure B.2	Calibration network	Figure B.4	Current transducer
EN 55103-2	Description										
Figure B.1	Common mode										
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Figure B.4	Current transducer										

LF IMMUNITY TESTING

STAND ALONE GENERATORS



PGA 1241 DC-300kHz

Conducted Immunity Turnkey

The power generator PGA 1241 is suitable for EMC testing in accordance with standard IEC / EN 61000-4-16 (Common Mode) and IEC/ EN 61000-4-19 (Differential Mode) in the frequency range from DC to 300 kHz.

- For EMC tests according to the standard IEC/ EN 61000-4-16, -19 and IEC/ EN 61543
- Power module with 5A / 250 W or 16A / 800 W
- For 300V short term test of IEC 61000-4-16, PGA 1331 is also required
- Signal generator with DC, sine, triangle and square waveforms
- External source can be added to internal signal
- Use of instrument is open for other low impedance loads. Applications including magnetic immunity with Helmholtz coils
- For testing where current is required (-4-19) any SCPI multi meter can be used
- Includes easy to use software through USB

Model	Frequency	Slew rate	Power	Output Current	Output Voltage
PGA 1241-5A	DC - 1 MHz	100 V/μs	260 Watts	5 Arms / ± 7.5 Apeak	50 Vrms / ± 75 Vpeak
PGA 1241-16A	DC - 1 MHz	100 V/μs	800 Watts	16 Arms / ± 24 Apeak	50 Vrms / ± 75 Vpeak
PGA 1241-PSG 300	External power source, Input for controlling an external voltage source.				

ACCESSORIES



PGA-1331

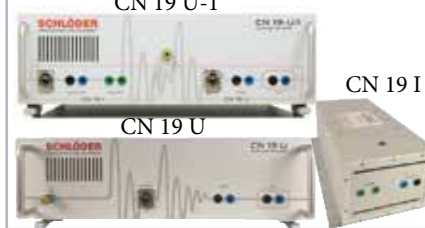
300V Source
DC, 16.66, 50, & 60 Hz / 1sec
Control with PGA 1240 / 1033



CN 1241-32/125

Switchable coupling network
M2, M3, M4, M5 for AC & DC
Automatic control with PGA 1240

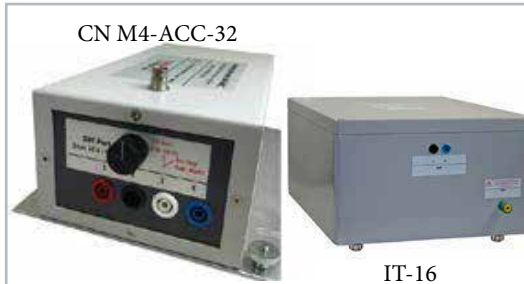
Model	Description
CN 1240-32	32 Amp, 4mm jack
CN 1240-125	125 Amp, 6mm jack



CN 19

Coupling network for differential voltage testing to IEC 61000-4-19 Fig 4

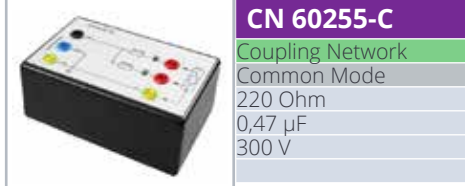
Model	Description
CN 19 U	Voltage testing 16A / 240V
CN 19 I	Current testing 10A / 30 V
CN 19 U-I	Both Current and Volt in one



CNs FOR IEC 61000-4-16

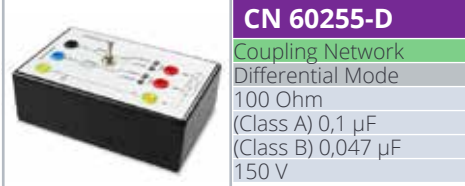
Coupling Network

Offering coupling networks for all AC and DC requirements of your EUT.
DC: M2, M3 (CN 1241 above)
AC: M2, M3, M4, M5 (CN 1241 above)
IO: AF2, AF4, AF8, RJ45, T2, T4, T8
Isolation Transformer for AC: IT-06, IT-16, IT-20



CN 60255-C

Coupling Network
Common Mode
220 Ohm
0,47 μF
300 V



CN 60255-D

Coupling Network
Differential Mode
100 Ohm
(Class A) 0,1 μF
(Class B) 0,047 μF
150 V



ZDIFF 1 OHM

Current shunt
EN 61000-4-19

SFT 2400

EFT/Burst 5 kV, 5/50 ns

Stand-alone EFT/Burst simulator. Including EFT network, CDN and easy to use interface. 5 & 100kHz (125kHz)



Optional Accessories: EMV Soft software, CWG 520/523/524 3-P CDNs, SFT 450-Set Calibration kit, SFT 415 Capacitive clamp, SFT 415-CS Calibration plate.

SFT 1400

EFT/Burst 5 kV, 5/50 ns

Stand-alone EFT/Burst simulator. Including EFT network and CDN. 5 & 100kHz (125kHz max)



Optional Accessories: EMV Soft software, CWG 520/523/524 3-P CDNs, SFT 450-Set Calibration kit, SFT 415 Capacitive clamp, SFT 415-CS Calibration plate.

SFT 1420

EFT/Burst 4.8 kV, 5/50 ns

Stand-alone EFT/Burst simulator. Including EFT network and CDN. 5 & 100kHz (2MHz max)



Optional Accessories: EMV Soft software, CWG 520/523/524 3-P CDNs, SFT 450-Set Calibration kit, SFT 415 Capacitive clamp, SFT 415-CS Calibration plate.

CWG 2500

Surge 4.4 kV, 1.2/50 μs

Stand-alone combination wave surge simulator. Including surge network, CDN and easy to use interface.



Optional Accessories: EMV Soft software, CWG 520/523/524 3-P CDNs, CWG 1525/1526-4/1526-10/1528 IO line CDNs, CWG 550/551/553 Connection impedances

CWG 1500

Surge 4.4 kV, 1.2/50 μs

Stand-alone combination wave surge simulator. Including Ringwave network and CDN.



Optional Accessories: EMV Soft software, CWG 520/523/524 3-P CDNs, CWG 1525/1526-4/1526-10/1528 IO line CDNs, CWG 550/551/553 Connection impedances

PG 01-2000

0.1/200μs 4 - 10kV

Stand-alone voltage pulse generator. Special requirements for VDE (FNN).



Optional Accessories: EMV Soft software, CWG 520/523/524 3-P CDNs, CWG 1525/1526-4/1526-10/1528 IO line CDNs, CWG 550/551/553 Connection impedances

VIS 1700

Voltage Dips/variation.

Stand-alone power line dips, interruptions, and variation system. Requires VIS 740 for dips.



Optional Accessories: EMV Soft software, VIS 740 Dip Transformer

VIS 740

40%, 70%, 80% Transformer

Transformer for setting dip voltage. Connected to VIS 1700.



TRANSIENT CHECK & EMC



VDIPS-SENSE

- Quick Go / No-Go check for Voltage dips testing
- IEC 61000-4-11 Dips/Drops & Variations
- Improve your quality with an easy check before each test sequence

DIPS CHECK



TRANS-SENSE

- Quick Go / No-Go check for EFT/Burst Pulse
- IEC 61000-4-4 EFT/Burst
- Improve your quality with an easy check before each test sequence

EFT CHECK



SURGE-SENSE

- Quick Go / No-Go check for Surge pulse
- IEC 61000-4-5 Surge (combination Wave)
- Improve your quality with an easy check before each test sequence

SURGE CHECK



ESD-SENSE

- Quick Go / No-Go check for ESD
- IEC 61000-4-2 ESD (Electro Static Discharge)
- Improve your quality with an easy check before each test sequence

ESD CHECK



CAB1001 INRUSH COMPENSATOR

- IEC 61000-4-11 Dips/Drops & Variations
- Meet the 500Amp inrush requirement with any power source
- Unique staggered and soft switch in this ensures that any down-line protection devices do not trip due to inrush



COIL SET 4-39_9K-150K EN 61000-4-39

- IEC 61000-4-39 Immunity to close proximity fields 9 kHz - 150 kHz
- Meets the requirements of IEC 60601-1-2, 30 kHz @ 8A/m, 134.2 kHz @ 65 A/m
- Special capacitor matching network included for 134.2 kHz
- Included both Tx and Rx loops



COIL SET 4-39_150K-26M EN 61000-4-39

- IEC 61000-4-39 Immunity to close proximity fields 150 kHz - 26 MHz
- Meets the requirements of IEC 60601-1-2, 13.56 MHz @ 8.5A/m
- Special matching network offered for 13.56 MHz levels
- Included both Tx and Rx loops



12 POSITION RELAY MONITOR

FOR HARSH EM ENVIRONMENTS

The relay monitor is used to monitor the status of up to 12 relay contacts. It continuously monitors each contact and reports the status (open / closed) on a small touch screen. When a contact changes, a radial indicator is checked to show a change has occurred, This change is also highlighted with a single audible beep.

DEF-STAN & BESPOKE PROJECTS



DCS05 TEST GENERATOR

- Defense Standard 59-411 DCS05
- NEMP and Switching Level Generator
- 0.5, 1, 2, 3, 5, 10, 15, 35, 50 MHz, up to 100 A into 10 Ω load



DCS05 TEST CLAMP AND 10 OHM JIG

The test clamp and Jig have been designed specifically to Compliment Model DCS05 Test Generator. The 10 Ohm jig has it's own internal load that is it's impedance verified up to 50 MHz and is capable of continuous use at NEMP test levels. A suitable pulse attenuator is supplied with the clamp for testing to some of the lower switching levels.



DCS06 TEST GENERATOR

- Defense Standard 59-411 DCS06
- 100kHz Dampened pulse (Ringwave)
- 1200V open circuit level, 1000V into Clamp with 5Ω load
- Asynchronous or synchronizes up to 800Hz



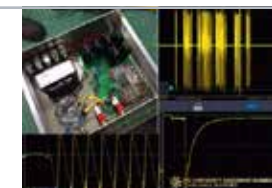
DCS06 TEST CLAMP

Model DCS06 Clamp is designed and tuned for optimal operation in the 100 kHz frequency range and provides efficient coupling of the Defence Standard 59-411 DCS06 pulse to the EUT at voltages up to 1 kV (single turn output) and 4 kV (4 turn output). A single turn monitor loop is provided for pulse amplitude measurement during test.

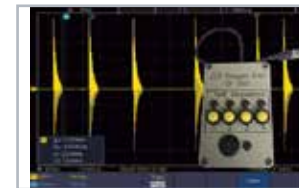


DCS12 TEST GENERATOR

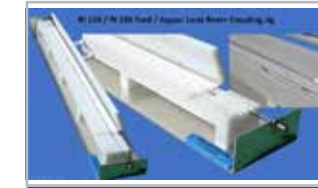
- Defense Standard 59-411 DCS12
- Testing of DC, Single and three-phase equipment
- There are three fixed outputs: 600 V, 750 V, and 2500 V
- 15.9 kHz ±10 %, 10.9 kHz ±10 %



FORD
CI 220 and RI 130



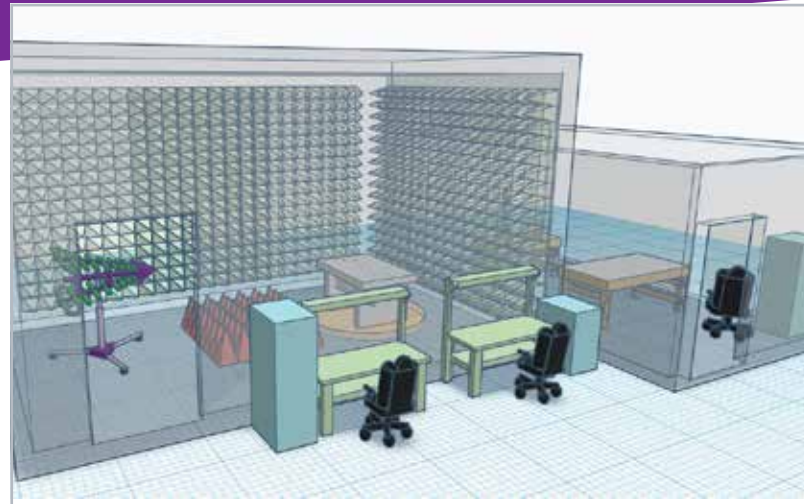
FORD
CI 250 trigger



FORD JIG
RI 130 and RI 150



ISO 10605
ESD Jig



TURNKEY RF SYSTEMS

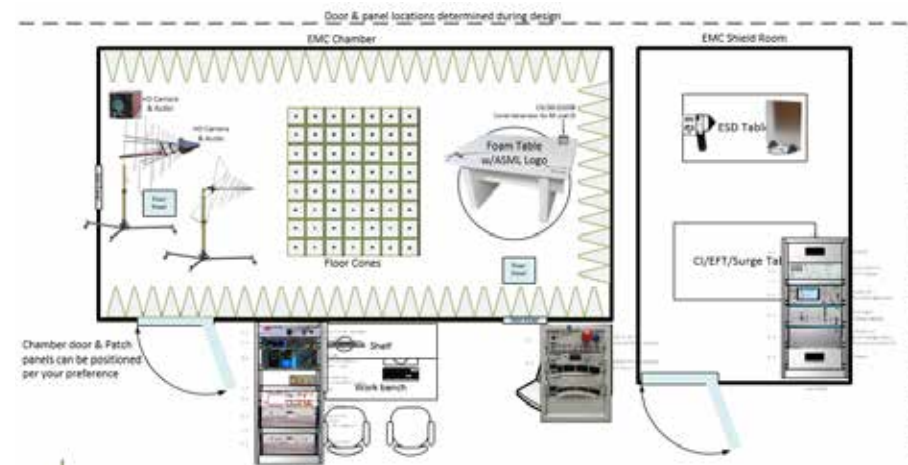
Emissions and Immunity

We offer all possible solutions from pre-compliance to full compliant test systems

- Designed to fit your budget
- Meet your test standards requirements
- Integrate & use existing equipment
- Commercial IT, medical, Automotive, MIL, Avionics,....
- Detailed proposals, field/loss calculations, Diagrams, includes training and Installation
- Selection of Software and Hardware that fits best the project

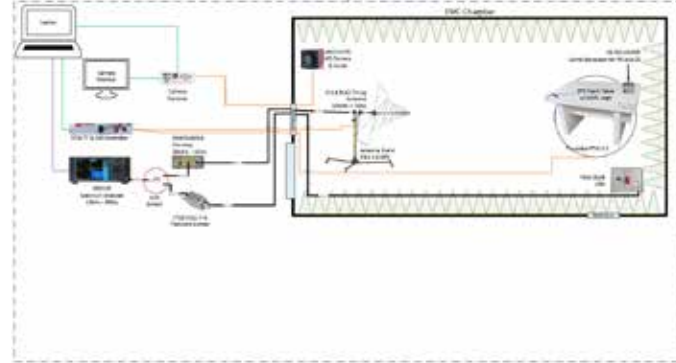
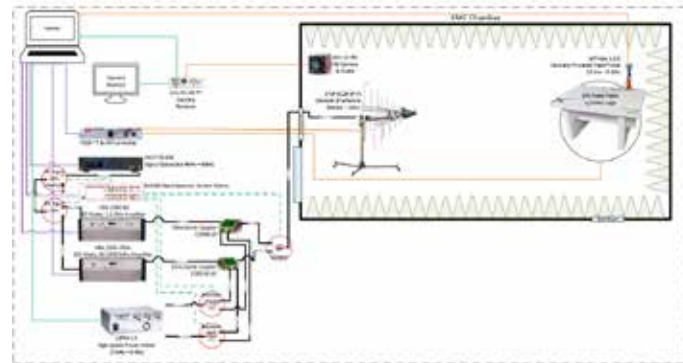
EXAMPLES OF SYSTEM DIAGRAMS

Pre-compliant System for CE/FCC Testing



RI Connections

RE & CE Connections



System designs for:

- MIL-STD-461 200V/m, Full standard...
- Automotive:
 - ISO 11452-2 RI ASLE
 - ISO 11452-8 Magnetic Immunity
 - ISO 11452-4 Bulk Current Injection
 - ISO 11452-9 Immunity to close proximity transmitters
- IEC 61000-4-3, -4-21, ...
- CISPR 32 (EN55032), CISPR 14, CISPR 11...

POD SET 1 - 18 GHZ

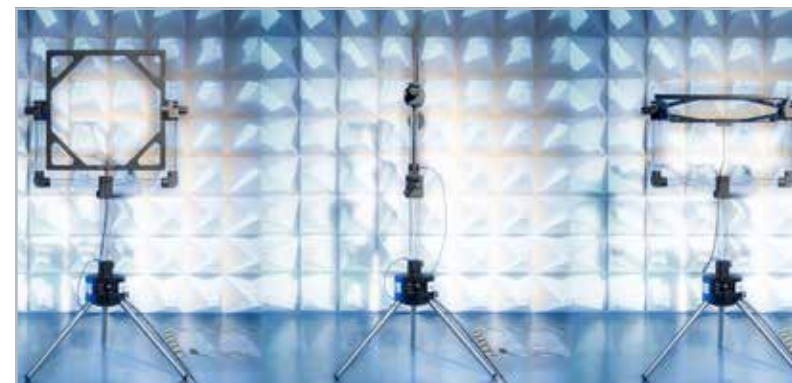
Site VSWR Dipoles & Positioner

The Precision Omni-directional Dipoles POD 16 and POD 618 are fully compliant to CISPR 16-1-4 for site validation above 1 GHz.

- POD 16: 1 GHz - 6 GHz, 3dB bw >65°
- POD 618: 6 GHz - 18 GHz, 3dB bw >60°
- Accredited calibration



Set #	POD 16 / 618	Site stand	Flight case	Antenna case	Software	Accredited Cal
MS4	Yes	Automatic	Yes	Yes	CalStan 11	Yes
MS1	Yes	Manual	Yes	Yes	CalStan 11	Yes
MS3	Yes	Manual	Yes	Yes	No	Yes
MS2	Yes	No	No	Yes	No	Yes



PLA SET 9 KHZ-30 MHZ

NSA Method

The PLA set consists of two active, battery powered loop antennas intended for site validation.

- Integrated tripod with laser alignment
- Very low noise floor
- Battery powered

Set #	PLA-T	PLA-R	Antenna Stand	PLA-TC	PLA-DC	Case	Software	Accredited Cal
MS5	Yes	Yes	Yes	Yes	Yes	Yes	CalStan 11 MNSA Module	Yes



PRD Precision Dipole

- Full set covering 30 - 1000 MHz
- Includes carrying case
- Accredited calibration
- Software for easy calculation



PCD 3100 Precision Bicon

- 30 - 1000 MHz
- 21 cm Width, 12.7 cm Length
- Accredited calibration
- Optional CalStan 11 software



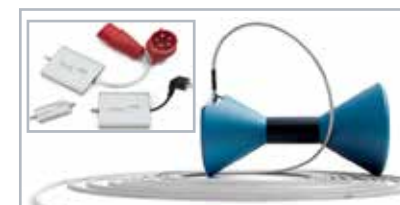
PCD 8250 Precision Bicon

- 80 - 3000 MHz
- 13 cm Width, 12.7 cm Length
- Accredited calibration
- Optional CalStan 11 software



CALSTAN 11 Software

Control your Receiver and automatic positioner for easy site validation. Save time and money



REFRAD X

- 10 kHz - 3 GHz (+LISN adapters RO16 (Inset picture))
- Accredited calibration
- Fiber link Option
- Synchronization with Generator & Receiver
- GTEM/TEM correlation to OATS

Set #	RefRad X	Conical Antenna	20dB Att	Fiber Link	Transport Case	Accredited Cal	Upgradeable
RR6	Yes	Yes	Yes	Yes	Yes	Yes	
RR5	Yes	Yes	Yes		Yes	Yes	Yes
RR4	Yes		Yes		Yes	Yes	Yes
RO10	Yes					Yes	Yes

COMB GENERATOR

FIELD PROBES



LSProbe 1.2 10 kHz- 8.2 GHz

Laser Powered RF Field Probe

Its standard frequency range is 10 kHz – 8.2 GHz. Best-in-class compensation of linearity, frequency and temperature guarantees accurate measurements from less than 0.1 to at least 1,000 V/m. A dynamic range of 100 dB is achieved for many frequencies, enabling field measurements at more than 10,000 V/m.

Variant	Description
1.2 E	10 kHz to 8.2 GHz 1,000 V/m, Sampling 2MS/s
1.2 F	10 Hz to 8.2 GHz 1,000 V/m, Sampling 2MS/s
1.2 G	10 kHz to 8.2 GHz 15,000 V/m, Sampling 2MS/s



LSProbe 2.0 9 kHz- 18 GHz

Laser Powered RF Field Probe

Its frequency range is 9 kHz to 18 GHz. The Field Probe's six-monopole antenna design ensures isotropic operation at all frequencies. LSProbe 2.0 Field Probe employs fine-grained compensation of linearity, frequency and temperature, guaranteeing accurate measurements from less than 1 V/m to at least 1 kV/m. A dynamic range of 60 dB is achieved for all frequencies. The detectors can be operated continuously at 500 kSamples/s or in burst mode at 2 MS/s. This enables direct radar pulse measurements and accelerated, frequency sweep-based measurements.

Accessory	Part No.	Accessory	Part No.
Upgrade CI-250+	1005	Cable Drum Small (<100m)	1331
CI-250+ Rack Kit+	3026	Cable Drum Large (>100m)	1332
LSProbe 1.2 ISO 17025 Accredited Calibration 10 kHz to 6 GHz	1201	Flexible Probe Stand	1306
LSProbe 1.2 ISO 17025 Accredited Calibration 10 kHz to 8.2 GHz	1202	Tabletop Probe Stand - Base	1307
LSProbe Accredited Linearity Test	1207	Tabletop Probe Stand - Mounting Pole XXXmm	1308(100mm), 1309(125mm), 1310(150mm), 1311(200mm), 1312(300mm)
19" Front Panel, 2x LSProbe Computer Interface, 1U	3022	Floor Probe Stand incl. Probe Mounting Bracket	1316
19" Front Panel, 2x LSProbe Computer Interface and 1x LSPM 1.0, 2U	3023	Floor Probe Stand, Additional Probe Mounting Bracket	1317
19" Front Panel, 10x LSProbe Computer Interface, 4U	3024	Floor Probe Stand, Additional Mounting Bracket for 3 Probes (ISO 11451-2)	1382
LSFrame 1.0 Product Integration Frame - Basic, 1U	3001	Fiber Connector Cleaning Kit incl. Fiber Microscope	1319
Optical Fiber Extension Cable Xm	1302(5m), 1303(10m), 1304(15m), 1305(20m), 1321(30m), 1322(50m), 1323(100m)	Sacrificial Cable Kit	1314
Outdoor Optical Fiber Extension Cable XXm	1334(20m), 1335(30m), 1336(50m), 1337(100m), 1338(200m), 1339(25m)	LSProbe 2.0 ISO 17025 Accredited Calibration 9 kHz to 18 GHz	1320



PROBE PACKAGES

LSFrame Systems

LSFrame is LUMILOOP's solution for straight-forward and reliable integration of one or more LUMILOOP products in a LAN-controlled, standard 19-inch form factor appliance. Configurations are only limited by your imagination. 4, 8, 10, up to 20 probe systems can be configured.

Options	Description
4x Probes	LSProbe 1.2, Variant E or LSProbe 2.0
8x Probes	LSProbe 1.2, Variant E or LSProbe 2.0

RF ACCESSORIES



LSPM 1.0 POWER METER

9kHz - 6 GHz Up to 3 channels

High-Speed Power Meter is high-speed, high accuracy, and high dynamic range RF Power Meter. Compensation of linearity, frequency, and a dynamic range of 90dB is achieved for many frequencies.

Part #	Description
2101	LSPM 1.0 Power Meter (9 kHz - 6 GHz), Single-Channel
2102	LSPM 1.0 Power Meter (9 kHz - 6 GHz), Dual Channel
2103	LSPM 1.0 Power Meter (9 kHz - 6 GHz), Triple-Channel



LSPM 2.0 POWER METER

9kHz - 26.5 GHz Up to 3 channels

High-Speed Power Meter is high-speed, high accuracy, and high dynamic range RF Power Meter. Compensation of linearity, frequency, and a dynamic range of 80dB is achieved for many frequencies.

Part #	Description
2111	LSPM 2.0 Power Meter (9 kHz - 26.5 GHz), Single-Channel
2112	LSPM 2.0 Power Meter (9 kHz - 26.5 GHz), Dual Channel
2113	LSPM 2.0 Power Meter (9 kHz - 26.5 GHz), Triple-Channel

Accessory	Part No.
LSPM+ UPGRADE - LSPM with 4.3" Touchscreen and Ethernet interface	2002
LSPM 1.0 ISO 17025 Accredited Calibration (9 kHz - 6 GHz)	2201(single), 2202(Dual), 2203(Triple)
LSPM 1.0 ISO 17025 Accredited Calibration (9 kHz - 26.5 GHz)	2211(single), 2212(Dual), 2213(Triple)
LSPM Accredited Calibration, Additional DaKs Certificate	2204
19" Front Panel, 2x LSPM 1.0, 2U	3025
19" Front Panel, 2x LSPM Computer Interface and 1x LSPM 1.0, 2U	3023



LSAOL RF Link 9 kHz - 6 GHz

Laser powered link

Great solution for RE measurements to remove any coax cable losses. High dynamic range if > 80dB. Integrated 2W power source for powering an extremal Pre-amp.

Model	Description
LSAOL 1.0	Laser Powered RF Link, 9kHz - 6GHz w/5-12VDC 2W power source
LSAOL 1.1	Laser Powered RF Link, 9kHz - 6GHz

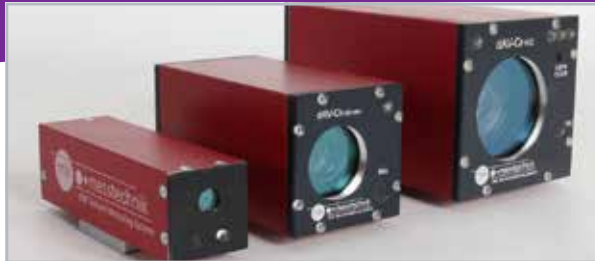


LSMux - RF Multiplexer

Switch Matrix 12:2 or 36:4 10 Watts

LSMux 1.0 RF Multiplexers are relay-based signal switches available as 12:2 and 36:4 models, supporting the switching of 12 or 36 RF inputs to two or four RF outputs. The multiplexers are qualified up to 6 GHz with higher frequency options available upon request.

FIBER-OPTIC CAMERAS



dAV-Cr-HD CAMERA

Fiber-optic, EMC Hardened HD Camera

The dAV-Cr-HD cameras are designed using the latest state of the art technology to build a high quality robust camera. Only 1 fiber is used for video and communication, making setup easy and hassle free. Each camera also has audio microphone as standard. Battery pack is housed separately to keep camera small.

Model	Description	Zoom	Optical	Sensor	Resolution	Lux	Mic	Power
dAV-Cr-HD-μ	micro size	0x	16x	1/2.45"	1920x1080	6	Yes	Battery/AC
dAV-Cr-HD-mini	Medium size	10x		1/3"	1920x1080	0.5	Yes	Battery/AC
dAV-Cr-HD	Full featured	10, 20, or 30x	32x	1/2.8"	1920x1080	0.5	Yes	Battery/AC
dAV-Cr-4K	Full featured	18x	12x	1/1.8" CMOS	3840x2160p30		Yes	Battery/AC

Optional: -HIRF further hardened for higher fields then 300V/m, 30x zoom for HD, Pan/tilt, ED-43 hand held external display, mounting...

MK-MOTION Motion Detection Software

The mk-motion analyses video images of a test object to detect deviations between target and actual behavior. The mk-motion motion detection software is thus an optimal support for your EMC technician in his daily requirements.

- Video capture has a high bandwidth demand and requires a powerful work station
- Basic license up to 4 image areas; Upgraded license up to 16 image areas can be monitored
- Options: Triggered Recording, OCR of text and numbers, Streaming to the network

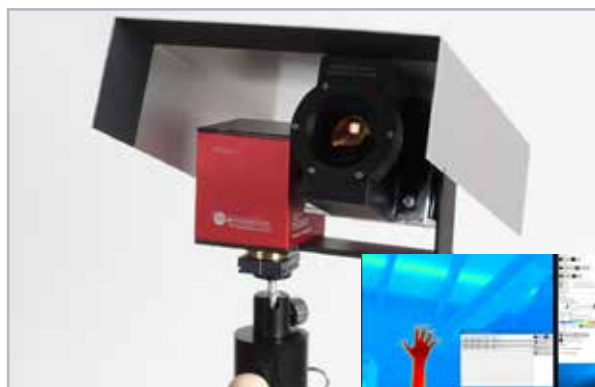


PT-02/03 PAN/TILT

Fiber-optic Controlled Pan/Tilt

The same fiber that controls the camera will control the PT-02/03. Positioning stops can be set with buttons on the unit.

Model	Description
PT-02	Chamber wall mount when it is not handled frequently
PT-03	Rugged for mobile use on tripod and in vehicle



OPTO-LWIR INFRARED

Infrared Camera System

The infrared camera opto-LWIR was developed specifically for EMC tests. In high field strengths with directional antennas (fire protection), an overload of the DUT or the absorbers can be detected early. The opto-LWIR camera is built into a closed aluminum housing which is also available in an IP 44 version (suitable for OATS). The IR picture of the DUT is transmitted with max. 60 fps in a measuring range of -20° C to +150° C. The temperature deviation is less than +/- 2.5° C. Optics and resolution (640x480 and 384x288 resp.) are customized. The transmission of the receiver to the PC is via an USB 3.0 interface (IR data) and ethernet (temperature sensors and camera control).



CAMERA MOUNTING OPTIONS

Each Application is Unique

Offering standard and custom solutions to match any application.

Model	Description
Monopod-wood	Floor standing, easy install, quick release clamps
Tripod-mini	Small tripod for bench-top use
Tripod-170	Classic tripod for mobile use, wheels optional
Wallmounts	Permanent mounting to chamber wall/ceiling
Seatbox	Sits on seat to monitor dashboard
Headrest mount	Locks to head rest to view dashboard



dAV-Rr-HD RECEIVER

Video Audio Receiver Up To 4 or 8 Channels

The basic version of the dAV receivers is the dAV-Rr which has an integrated loudspeaker with adjustable volume, an output for stereo transmission, and HDMI and BNC connectors for Video OUT.

Model	Description
dAV-Rr-HD-TT	Table-top housing 1-4 or 1-8 channels
dAV-Rr-HD-19"	Rack-mount housing 1-8 channels
dAV-R	Single channel receive (no camera control)



dAV-Rmrr 19" SWITCH MATRIX

Video Audio Receiver Up To 20 or 40 Channels

A 20x20 OR 40x40 A/V switch matrix with LC-display, as well as two loudspeakers are integrated by default. With the remote control at the front of the receiver, you can control the functions of the camera and move the pan/tilt unit.

Model	Description
dAV-Rmrr 19" 20	Rack-mount 20 channels
dAV-Rmrr 19" 40	Rack-mount 40 channels



RECEIVER ADD ONS

Quad-combiner, HD Recording, +options

Model	Description
-dAV Quad 4k	Combines 4 HD channels into a 4k output
-dAV HDrec	HD recorder of one or multiple channels
-dAV-R options -ccs	Software control w/ pan-tilt-zoom (USB)
-dAV-R options ethernet	pan-tilt-zoom over network
-dAV-R option -osd	Allow 3rd party software to output to screen (freq,test#,...)
-dAV-R option -stream	Allow stream software onto network and take snap shots



dAV-Rrc-Joy JOYSTICK

Bench-top Joystick Pan/Tilt/Zoom Control

Extends the function of the receiver to an easier to use desktop panel. It connects and is powered by the receiver. A software program is also available for PC control.

Model	Description
dAV-Rrc-Joy	Control up to 8 cameras w/ pan-tilt-zoom
dAV-Rrc-Joy-matrix	Control up to 16 cameras w/ pan-tilt-zoom



dAV-TRX INTERCOM

Bidirectional Audio Intercom System

The dAV-TRX system is used for the bidirectional optical transmission of AV signals at EMC tests (intercom). The dAV-TRX transceivers have an integrated microphone, a connector for an external microphone, and for an external (passive) loudspeaker (optional).

AUTOMOTIVE LINKS

ETHERNET LINKS T1

Automotive Ethernet T1

There are many chip-sets and technologies used for different automotive manufacturers. These chips sets all have their little differences and many times having the right chip-set matters for constant data transfer. Many choose to use the known chip-set for this reason.

- Rosenberger HSD connectors for robust EMC
 - Other options available
- Conversion networks to standards
- Each unit is battery powered (internal)
- Options for different cables/connections
- Options for rack-mount and multiple channels



Model	Type	Chip-set	Connector
optoLAN-88Q1010	100Base-T1	Marvell® 88Q1010	Rosenberger HSD
optoLAN-GB 88Q2112	1GBase-T1 & 100BaseT1	Marvell® 88Q2112	Rosenberger HSD
optoLAN-GB 89883	1GBase-T1 & 100BaseT1	Broadcom® BCM89883©	Rosenberger HSD
optoLAN-BCM89810	100Base-T1	Broadcom® BCM89810©	Rosenberger HSD
optoLAN-BCM89811-88Q1010	100Base-T1	88Q1010® & BCM89811©	Rosenberger HSD
optoLAN-TJA1100-MAX	100Base-T1	NXP® TJA1100©	Rosenberger HSD
-BroadR-Reach media converter HSD	100Base-T1	Converter	Rosenberger HSD
-BroadR-Reach GB media converter HSD	1GBase-T1	Converter	Rosenberger HSD

Note: new chip-sets are always being implemented with the changing technologies. Please contact us for your needs.

optoLVDS LINKS

Low Voltage Differential Signaling

optoLVDS is a specialized solution for each application. We can develop and work with you to match each requirement. This process is streamlined and simple, please contact us.



optoSENT LINKS

Asynchrony SENT Signals 8 Bit, 20 MS/s

The optoSENT system was developed for the transmission of asynchronous SENT signals (Single Edge Nibble Transfer) and exists in two different versions. Options: -o2 = second channel, -2-d bidirectional



optoSPI LINKS

SPI Signals 1Mbit/s

The optoSPI-HS system can be used for the bidirectional optical transmission of SPI signals with transmission rates of up to 1Mbit/s. It consists of two battery supplied transceivers connected to each other with an optical fiber.



optoCAN LINKS

Automotive CAN Bus

The optoCAN system can be used for the bidirectional optical transmission of CAN-signals with transmission rates of up to 10 Mbit/s (model dependent). It consists of two identical battery supplied transceivers connected to each other with an optical fiber.

- FD/HD/LS/SW to meet your needs
- Additional Links Flexray/K-line/LN
- 2x Battery powered transceivers
- Small compact
- Each unit is battery powered
- Optional: rack housing for outside the chamber for up to 8 different or same links



Model	Type	Speed	Connector	Notes
optoCAN-FD	Flexible Data	10 Mbits/s	Sub D9 (f)	Compatible with CAN-HS
optoCAN-HS	High Speed	1 Mbits/s	Sub D9 (f)	
optoCAN-LS	Low Speed	125 kbit/s	Sub D9 (f)	
optoCAN-SW	Single Wire	83 lbit/s	Sub D9 (f)	
optoFlex	Flexray Signals	10 Mbits/s	Sub D9 (f)	
optoK	L-Line Signals	30 kbit/s	Sub D9 (f)	
optoLIN	LIN Signals	20 kbit/s	Sub D9 (f)	

optoPSI5 LINKS

PSI5 Signals

50MS/s

The optoPSI5 system can be used for the bidirectional optical transmission of PSI5-signals with transmission rates of up to 50 MS/s. It consists of a transceiver, supplied by batteries, for the connection of a sensor, a simplex-62,5/125µm-multimode optical cable, and a receiver.



optoA2B LINKS

A2B Signals

The optoA2B can be used for the optical transmission of A2B signals. It consists of master and slave which are supplied by internal batteries and which are connected with an optical fiber.



EMC HARDENED DC SUPPLIES (NOT AUTOMOTIVE SPECIFIC)



BV-10/12D

+10V DC & -10V DC (10D)
+12V DC & -12V DC (12D)
Regulated, 200mA



BV-12S

+12V DC
Unregulated, 1A



BV-15S

3 to 15V DC
Regulated, 500mA



BV24S

+24V DC
Unregulated, 3A

Note: Many options available for power supplies. Please contact us for you needs

ANALOG/DIGITAL LINKS

ANALOG LINKS

Analog Voltage Signals

The Ux/xx series of analog links can be used for many applications where a voltage signal is needed to be monitored over long distances or in a high electromagnetic environment such as EMC testing. Filtering is used to maintain good signal quality without EMC effects.



Model	No. of Channels	Voltage	Bit	Speed	Connector
U-DC	1 Channel Tx, Multi channel Rx rack-mt	+/-60V input; +/- 6V or +/-12V output	16 bit	40 samples/s	BNC
U1/8	1 Channel	±5 V*	8 Bit	DC - 50 MHz	BNC
U1/12	1 Channel	±15 V*	10 Bit	DC - 10 MHz	BNC
U1/12-1M	1 Channel	±15 V*	10 Bit	DC - 1 MHz	BNC
U2/12	2 Channels	±15 V*	10 Bit	DC - 10 MHz	BNC
U2/12-1M	2 Channels	±15 V*	10 Bit	DC - 1 MHz	BNC
U8/12-1M	8 Channels	±15 V*	10 Bit	DC - 1 MHz	BNC
Ux/14	1-16 Channels	±15 V*	10 Bit	DC - 100 kHz	BNC or SUB-D

*Optional: -Voltage input range can be extended 2:1, 3:1, 5:1, and 10:1 with optional input dividers. Others on request.

optoTTL LINKS

TTL signal

40 MS/s

The optoTTL is used for the optical transmission of TTL (Transistor-Transistor Logic) digital signals. Up to 16 digital signals with a sampling rate of 40 MS/s (each channel) can be transmitted.

Model	Description
optoTTL-5-2-u	16 TTL Channels, 3.5 V or 5 V, 100 kHz
optoTTL-12-5-u	16 TTL Channels, 5 V or 12 V, 100 kHz
optoTTL-b-12	16 TTL bi directional Channels, 12 V, 100 kHz



dAV-x LINKS

Audio/Video Signal Transmission

Model	Description
dAV-a	Digital Audio Unidirectional Link Mono
dAV-b	Digital Audio Bidirectional Link Mono
dAV-v	Digital Video NTSC/PAL Unidirectional Link
dAV-TRX	Chamber Intercom System Mono



optoLAN ETHERNET

Ethernet

10/100/1000BaseT

The two identical transceivers are supplied by internal batteries and connected with an optical fiber.



Model	Description
optoLAN 100/1000Base-TX	1Gbit, 100BaseT, 10BaseT Ethernet, RJ45
optoLAN-100-MAX	100BaseT Ethernet, RJ45
optoLAN-Gb	1Gbit, 100BaseT, 10BaseT Ethernet, RJ45

optoRS SERIAL

Serial Interface

RS232 / RS485

The two identical transceivers are supplied by internal batteries and connected with an optical fiber.



Model	Description
optoRS232-HS	RS232 Signals, 116Bits/s
optoRS485	RS485 Signals, 1Mbit/s
optoUART	UART Signals, 1 Mbit/s
optoRS422	RS422 signals, 1 Mbit/s

optoUSB / opto1394

High Speed Data

USB 2.0 / 3.0 / IEEE 1394

The two identical transceivers are supplied by internal batteries and connected with an optical fiber.



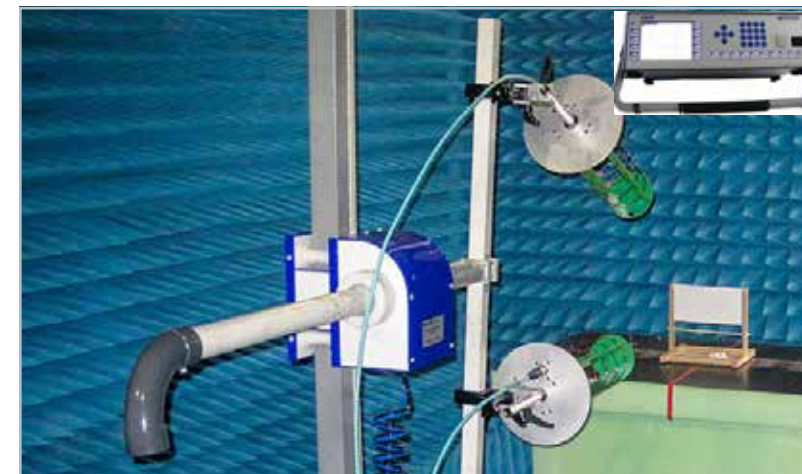
Model	Description
optoUSB2.0	USB 2.0, 480 Mbits/s, 4x USB-A
optoUSB2.0 -RBDIR	USB 2.0, 480 Mbits/s, USB adaption, EMI robust
optoUSB3.0	USB 3.0, 5 Gbit/s, not backwards compatible
opto1394	FireWire IEEE 1394, 400 Mbits/s, IEEE 1394 connect

POSTIONERS

EMC/EMI POSITIONING SYSTEMS

Wide selection of high quality reliable solutions

- Turntables
- Antenna masts & stands
- Bore-site masts
- Linear Postioners
- OAT/CTIA Postioners
- Dynamiters for EMC
- Customized solutions



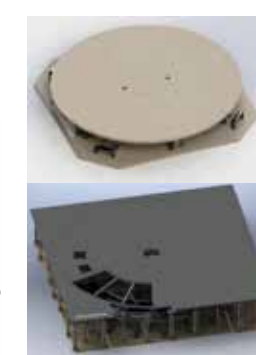
Manual Mast



High Load Antenna Mast



E-Field Postioner



Turntables Above GP or Below GP

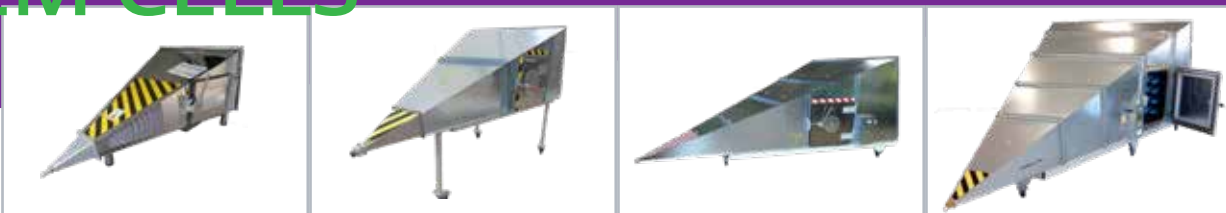


Dynamiters from Bikes to Buses



Pedal control Custom Solutions

GTEM CELLS







Model	GTEM 250 F	GTEM 450 / 550 F	GTEM 800	GTEM 1100
General Specs				
Frequency Range	DC - 20 GHz	0.01 - 20 GHz	0.01 - 20 GHz	0.01 - 20 GHz
Septum Height	250 mm,	450 / 550 mm,	800 mm	1100 mm
Vertical Orientation	Optional	Optional	Optional	Optional
Max EUT Size	20 x 20 x 15 cm	35x40x25 / 41x41x30 cm	62 x 62 x 50 cm	75 x 75 x 55 cm
6dB test Volume	8.3 x 8.3 x 8.3 cm	15x15x15 / 18x18x18 cm	26.5 x 26.5 x 26.5 cm	36.5 x 36.5 x 36.5 cm
Typical VSWR	1 : 1.2	1 : 1.2	1 : 1.2	1 : 1.2
VSWR @ Critical Freq.	≤1 : 1.6	≤1 : 1.6	≤1 : 1.6	≤1 : 1.6
Max Input Power	1 kW, (2.5 kW Pulsed)	1 kW, (2.5 kW Pulsed)	1 kW, (2.5 kW Pulsed)	1.5 kW, (2.5 kW Pulsed)
Input Connector	N or 7/16DIN*	N or 7/16DIN*	N or 7/16DIN*	N or 7/16DIN*
Nominal Impedance	50 Ω	50 Ω	50 Ω	50 Ω
Mechanical Specs:				
Window In Door	24 x 14 cm	20 cm Diameter	20 cm Diameter	20 cm Diameter
Outer Dim. LxWxH	125 x 64 x 44 cm	238 x 122 x 83 cm	400 x 220 x 150 cm	500 x 271 x 188 cm
Wheels Trolley	Option	+70 cm	+25 std., +70 cm opt.	+25 cm
Assembly Time	Shipped assembled	Shipped assembled or Kit - 2 days	Shipped assembled or Kit - 3 days	Kit - 3 days
Door Dim. WxH	30 x 20 cm	40 x 40 cm	60 x 60 cm	80 x 80 cm
Weight	~40 kg	~250 kg	~500 kg	~650 kg
Electrical Specs:				
Mains Connector	Fixed CEE (US opt.)	Fixed CEE (US opt.)	Fixed CEE (US opt.)	Fixed CEE (US opt.)
Mains Switch	16A Magneto-thermal	16A Magneto-thermal	16A Magneto-thermal	16A Magneto-thermal
Output Socket (EUT)	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.
Ground Connection	M6 bolt	M6 bolt	M6 bolt	M6 bolt
DC Filter	10A/250V, 2 wire	10A/250V, 2 wire	10A/250V, 2 wire	10A/250V, 2 wire
Channel For Fiber Leads	3 fibers	3 fibers	3 fibers	3 fibers
RF Feed-thru	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f
Absorber				
Standard	Ferrite + RAM	Ferrite + 35cm RAM	51cm EMC Truncated	55cm EMC Truncated
Similar Models		GTEM 400, 450, 500F	GTEM 750, 800F	GTEM 1000, 1100F

*7/16 DIN limits upper frequency range to 7.5 GHz




Model	GTEM 1300	GTEM 1600	GTEM 1800	GTEM 2100	GTEM 2600
Frequency Range	DC - 20 GHz	DC - 20 GHz	0.01 - 20 GHz	0.01 - 20 GHz	0.01 - 20 GHz
Septum Height	1300 mm	1600 mm	1800 mm	2100 mm	2600 mm
Vertical Orientation	NA	NA	NA	NA	NA
Max EUT Size	95 x 95 x 80 cm	110 x 110 x 80 cm	132 x 132 x 100 cm	155 x 155 x 100 cm	200 x 160 x 100 cm
6dB test Volume	43 x 43 x 43 cm	53 x 53 x 53 cm	58 x 58 x 58 cm	63 x 63 x 63 cm	87 x 87 x 87 cm
Typical VSWR	1 : 1.2	1 : 1.2	1 : 1.2	1 : 1.2	1 : 1.2
VSWR @ Critical Freq.	≤1 : 1.6	≤1 : 1.6	≤1 : 1.6	≤1 : 1.6	≤1 : 1.6
Max Input Power	1.5 kW, (2.5 kW Pulsed)	1.5 kW, (2.5 kW Pulsed)	1.5 kW, (2.5 kW Pulsed)	1.5 kW, (2.5 kW Pulsed)	1.5 kW, (2.5 kW Pulsed)
Input Connector	N or 7/16DIN*	N or 7/16DIN*	N or 7/16DIN*	N or 7/16DIN*	N or 7/16DIN*
Nominal Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Mechanical Specs:					
Window In Door	20 cm Diameter	20 cm Diameter	20 cm Diameter	20 cm Diameter	20 cm Diameter
Outer Dim. LxWxH	610 x 325.6 x 215.6 cm	710 x 358 x 255 cm	820 x 428 x 283 cm	933 x 480 x 306 cm	1100 x 566 x 361 cm
Wheels Trolley	+25 cm	+25 cm	+25 cm	+25 cm	+25 cm
Assembly Time	Kit - 4 days	SKit - 4 days	Kit - 5 days	Kit - 5 days	Kit - 6 days
Door Dim. WxH	80 x 120 cm	80 x 120 cm	100 x 160 cm	100 x 160 cm	100 x 160 cm
Weight	~1200 kg	~1300 kg	~1600 kg	~2000 kg	~2800 kg
Electrical Specs:					
Mains Connector	Fixed CEE (US opt.)	Fixed CEE (US opt.)	Fixed CEE (US opt.)	Fixed CEE (US opt.)	Fixed CEE (US opt.)
Mains Switch	16A Magneto-thermal	16A Magneto-thermal	16A Magneto-thermal	16A Magneto-thermal	16A Magneto-thermal
Output Socket (EUT)	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.	16Aac (L,N,PE) Schuko US adapter incl.
Ground Connection	M6 bolt	M6 bolt	M6 bolt	M6 bolt	M6 bolt
DC Filter	10A/250V, 2 wire	10A/250V, 2 wire	10A/250V, 2 wire	10A/250V, 2 wire	10A/250V, 2 wire
Channel For Fiber Leads	3 fibers	3 fibers	3 fibers	3 fibers	3 fibers
RF Feed-thru	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f	2x SMA, 1x Type N f-f
Absorber					
Standard	55cm EMC Truncated	55cm EMC Truncated	55cm EMC Truncated	55cm EMC Truncated	55cm EMC Truncated
Similar Models	GTEM 1250	GTEM 1500	GTEM 1750	GTEM 2000	GTEM 2500

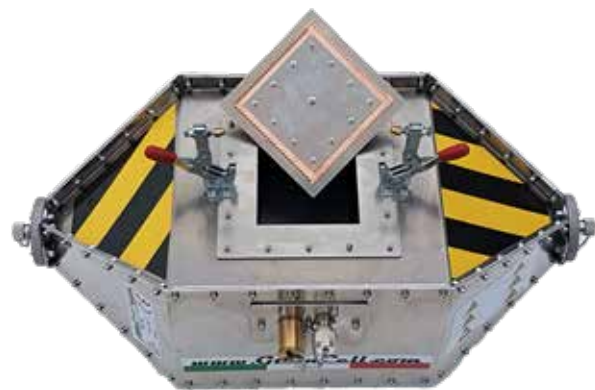
GTEM OPTIONS

 <p>VERTICAL</p> <p>In some cases vertical orientation can be used to reduce foot print and give better use.</p>	 <p>SAE PANEL</p> <p>standards SAE J1752/3 and IEC 61967-2 for testing ICs</p>	 <p>TROLLEY 250</p> <p>Wheeled trolley for floor standing option</p>	 <p>PANEL MM</p> <p>Multimedia Panel 2xUSB, 2xLAN, DB9, +standard</p>
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GTEM OPTIONS

 <p>MANIPULATOR</p> <p>EUT rotation through X Y Z Automatic or Manual</p>	<ol style="list-style-type: none"> AC filter 30A/2 wire (2PH+Ground) AC filter 16A/4 wires (3PH+N+Ground) 9-poles signal filter (DB9) 25-poles signal filter (DB25) RJ11 (RJ9) feed-thru connector RJ45 feed-thru connector Video camera system Technical panel pre-drilled for options Empty Technical panel Channel for fiber optic leads (3 couple) Additional RF feed-thru N-type connector Additional RF feed-thru SMA type connector Electrical safety interlock Indoor LED lighting 10W Gas / Water feed-thru plates Honeycomb panel Fans N.1 12x12cm High current/voltage solutions available
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TEM CELLS / CHAMBERS



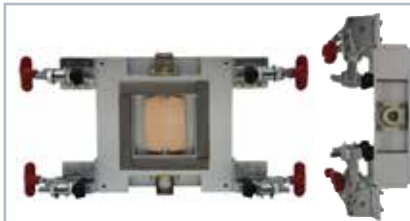
TEM CELL

Transverse Electro Magnetic (TEM)

Transverse Electro Magnetic (TEM) cell or Crawford cell (named after its inventor) is used to generate accurate electromagnetic waves over a wide frequency range: DC (0 Hz) to GHz. EM waves generated in the cell propagate in transverse mode and have the same characteristics as a plane wave. It can be used to calibrate E-field broadband probes for testing radiated E-field immunity as well as for measuring spectrum analyzer/EMI receiver.

Model	Frequency Range	Plate Height	Dimensions	Max Power	25W Field
TEM 200	DC-200 MHz	30 cm	130 x 70 x 62 cm	1.6 kW CW	118 V/m
TEM 500	DC-500 MHz	10 cm	60 x 30 x 22 cm	1 kW CW	350 V/m
TEM 1000 (shown)	DC-1 GHz	7.3 cm	54 x 45 x 18 cm	750 W CW	475 V/m
TEM 3000	DC-3 GHz	2.35 cm	15 x 8 x 6 cm	400 W CW	1.4 kV/m

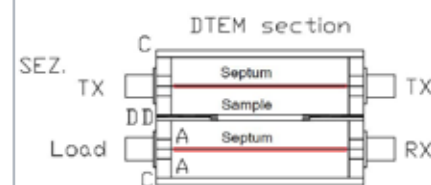
Optionals: Signal and power filtering, SAE setup for IC/PCB, wheeled Trolley for TEM 200, 50Ω loads



TEM 3000, 4000, & 6000

IC Stripline or TEM device

TEM6000 is a 6 GHz IC Stripline TEM Cell that generates the Electro-Magnetic field for testing small devices such as IC's, wireless communication modules, etc. Designed and meets requirements of: IEC 62132-8 : 2012, IEC 61967-2 : 2005, IEC 61967-8 : 2011, and SAE 1752-3



DTEM 500, 1000, 3000, 4000, & 6000

Dual TEM for measuring shielding effectiveness

Dual TEM Cell test fixture is the only one that can separate the electric and magnetic field couples. Both the near-field and the far-field measurements can also be measured by this technique. The Dual TEM Cell System consists of two TEM cells, coupled through an aperture.



OPEN TEM CELL

Transverse Electro Magnetic (TEM)

The advantage of these O-TEM cells is that they are open and it is very easy to control the functions of the EUT (Equipment Under Test). In comparison with other closed TEM-cells, the price is low. The field decreases rapidly outside the Open TEM-cells (approx. 33 dB at 1meter) and it is therefore possible to use an Open TEM-cell in ordinary facilities.

Model	Frequency Range	Plate Height	Dimensions	Max Power	25W Field
O-TEM 200 (shown)	DC-200 MHz	33.3 cm	180 x 160 x 73 cm	1.5 kW CW	105 V/m
O-TEM 500	DC-500 MHz	14.7 cm	97 x 81 x 32 cm	1 kW CW	215 V/m
O-TEM 1000	DC-1 GHz	7.3 cm	54 x 45 x 16.8 cm	750 W CW	480 V/m
O-TEM 3000	DC-3 GHz	2.5 cm	44 x 18 x 8 cm	400 W CW	1.4 kV/m

Optionals: Signal and power filtering, SAE setup for IC/PCB, wheeled Trolley for TEM 200, 50Ω loads



TEMZ 5233

DC - 420MHz

E- and H-field Probe Calibration

Closed, unsymmetrical 50 Ohm stripline (also called Crawford TEM Cell or TEM Cell) DC - 420 (600) MHz Crawford TEM Cell or TEM Cell for E-field probe and H-field probe calibration and for immunity testing ISO 11452-3, IEEE 1309 and EN 61000-4-20.



TEMZ 5234

DC - 840MHz

E- and H-field Probe Calibration

Closed, unsymmetrical 50 Ω stripline (also called Crawford-TEM-Cell or TEM Cell), DC - 840 (1200) MHz, for E- and H-field probe calibration and immunity testing of components. The TEMZ 5233 complies to the requirements of ISO 11452-3, IEEE 1309 and EN 61000-4-20.



SHIELDED CHAMBER

Shielded Effectiveness and other applications

Chamber can be customized easily for each application. Dimensions, filtering, feed-throughs, door, Vents/fans, antenna mounting, lights, cameras,... All can meet your needs without adding a customization price tag.

Model	Absorber	Door Size	Dimensions	Shielding	
SHB-50	10cm Flat foam	50 x 80 cm	100 x 74 x 100 cm	>60dB up to 100dB	
SHB-50A	10cm Flat foam	40 x 40 cm	62 x 57 x 104 cm w/trolley	>60dB up to 100dB	Window
SHB-100	Pyramidal Foam	~70 x 70 cm	~100 x 150 x 120 w/wheels	>60dB up to 100dB	Pictured, Side Material panel
SHB-200	Pyramidal Foam	100 x 160 cm	276 x 135 x 135 cm	>60dB up to 100dB	Window



REVERB CHAMBER

Reverb Chamber (RVC) or Mode-Stirred Chamber (MSC)

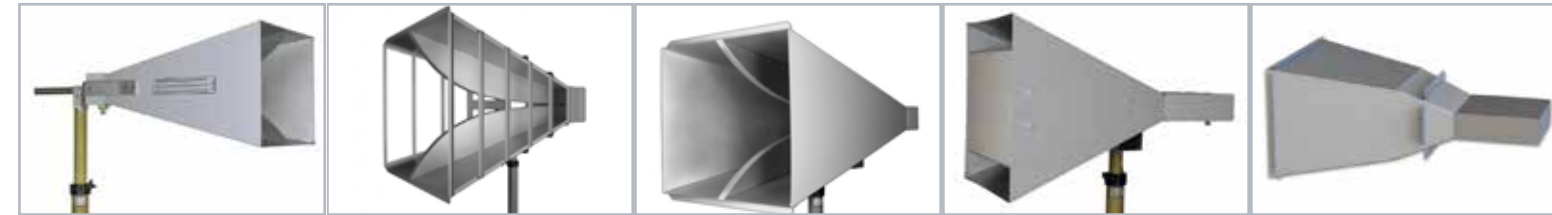
A reverberation chamber is a cavity resonator with a high Q factor. The spatial distribution of the electrical and magnetic field strengths is strongly inhomogeneous (standing waves). Tuner/stirrers (Z paddles) are rotated to change and move the standing waves around to make a more homogeneous field. The modular system is made with 3mm aluminum or 2mm galvanized steel.

Many possible sizes and options: filters and feed-through, windows, vents/fans antennas, antenna mounting, lighting, # of Stirrers, fitting stirrers in existing shield rooms, ...

HORN ANTENNAS



Model	BBHA 9120 A	BBHA 9120 B	BBHA 9120 C	BBHA 9120 D
General Specs				
Frequency Range	1 - 5 GHz	1 - 10 GHz	2 - 18 GHz	1 - 18 GHz
Usable Range	0.8 - 10 GHz	1 - 12 GHz	2 - 20 GHz	0.8 - 18 GHz
Antenna Factor	22 - 32 dB/m	25 - 33 dB/m	032 - 39 dB/m	25 - 44 dB/m
Antenna Gain	6 - 14 dBi	5 - 18 dBi	10 - 16 dBi	5 - 17 dBi
3dB Beamwidth "E"	90° - 10°	≈ 34°	29°	90° - 8°
Power	300 W CW	300 W CW	50 W CW	700-200 W CW
Connector	Type N (f)	Type N (f)	SMA (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
Size W x L x H (w/Tube)	245 x 220(408) x 142 mm	184 x 272 (480) x 128 mm	98 x 140 (345) x 69 mm	250 x 195 (408) x 142 mm
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215, BBV 9718 C



Model	BBHA 9120 E	BBHA 9120 F	BBHA 9120 G	BBHA 9120 J	BBHA 9120 K
General Specs					FORD/GM radar pulse
Frequency Range	0.5 - 6 GHz	0.2 - 2 GHz	0.4 - 2.8 GHz	0.8 - 6.2 GHz	400 MHz - 1.6 GHz
Usable Range	0.5 - 8 GHz				
Antenna Factor	17 - 28 dB/m	10 - 27 dB/m	14 - 32 dB/m	12 - 20 dB/m	
Antenna Gain	8 - 16 dBi	11.5 dBi +/-2.5 dB	8 dBi - 18 dBi	min 11dBi (f>1GHz)	600 V/m with <250 watts
3dB Beamwidth "E"	80° - 16°	45°	45°	48° .. 11°	
Power	500 W CW	500 W(N) (1.5 kW 7-16)	1.5 kW CW	500 W (N), (1 kW 7-16)	800 W (N), (1.4 kW 7-16)
Connector	Type N (f)	Type N (f) (7-16DIN Opt.)	7-16DIN (f)	Type N (f) (7-16DIN Opt.)	N (optional 7/16)
Mount	22 mm Tube	Center Mount M12, M10 & 3/8"	Center Mount M12 & 3/8"	Center Mount 3/8" + M12	Flange
Size W x L x H (w/Tube)	314 x 605(820) x 424mm	960 x 950 x 680 mm	550 x 990 x 460 mm	435 x 680 x 440 mm	1.1 x 1.85 x 0.8 m
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	PDG 9211	PDG 9211	PDG 9211	AM BBHA 9120 K



Model	BBHA 9120 LF	HWRD 650 & (HWRD 750)	BBHA 9120 L	HA 9250-12 & (HA 9251-12)
General Specs				Standard Gain Horn
Frequency Range	0.7 - 6 GHz	6.5 (7.5) - 18 GHz	3 - 40 GHz	1 - 2 GHz
Usable Range				0.92 - 2.2 GHz
Antenna Factor	21 - 30 dB/m	31 ... 37 dB/m		11 - 17 (12 - 15) dB/m
Antenna Gain	4 - 19 dBi	16 ... 21 dBi		≈ 20 dBi (max for 1 m)
3dB Beamwidth "E"	60° - 14°	12° - 19°		16° (17° - 11°)
Power	400 W CW	1 kW CW	10 W CW	2 kW CW
Connector	Type N (f)	WRD650D24 (WRD750D24)	SMA , 2.92 (f)	Type 7-16 DIN (f)
Mount	22 mm Tube	Flange	3/8", 1/4"	3/8", M12
Size W x L x H (w/Tube)	270 x 420(620) x 185 mm	124 x 241 x 104 mm		1.3 x 1.9 x 0.98 m (0.72 x 1.84 x 0.96 m)
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	Opt. Adaptor WRD-N, Opt. WRD tube 22mm	AA 9213, BBV 9719, BBV 9721, AA 9202	HA 9251 designed for best gain at 1m test dist.

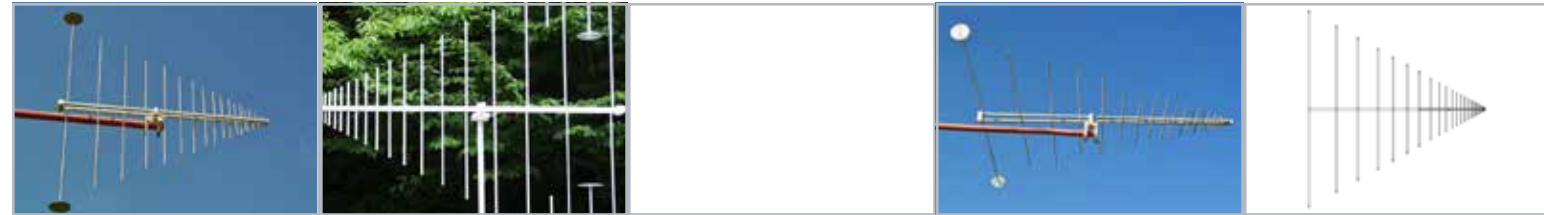


Model	HA 9250-24 & (HA 9251-24)	HA 9250-48 & (HA 9251-48)	HA 9250-818 & (HA 9251-818)	BBHX 9120 LF	BBHX 9120 E	CTIA 0710
General Specs						
Frequency Range	2 - 4 GHz	4 - 8 GHz	8 - 18 GHz	1 - 8 GHz	0.7 - 7 GHz	0.7 - 10 GHz
Usable Range	1.9 - 4.6 GHz	3.7 - 9 GHz		0.8 - 10.5 GHz	0.4 - 10 GHz	
Antenna Factor	17 - 21 (19 - 23) dB/m	23 - 30 (19 - 23) dB/m		20 - 34 dB/m	20 - 34 dB/m	25 - 39 dB/m (f > 1 GHz)
Antenna Gain	≈ 20 dBi (max for 1 m)	≈ 20 dBi (max for 1 m)	≈ 20 dBi (max for 1 m)	4 - 15 dBi	typ. 6 - 15 dBi	5 - 13 dBi (f > 1 GHz)
3dB Beamwidth "E"	16° (17° - 11°)	16° (21° - 12°)		70° - 10°	48° - 11°	75° - 40°
Power	2 kW CW	0.5 kW CW	0.5 kW CW	50 W CW	200 W CW	50 W CW
Connector	Type N or 7-16 DIN (f)	Type N or 7-16 DIN (f)	Type N N (f)	Type N (f)	Type N (f)	SMA (f)
Mount	3/8", M10	22 mm Tube (3/8" , 1/4")	22 mm Tube (3/8" , 1/4")	22 mm Tube	22 mm Tube	Flange: 6.2mm diam/75mm space
Size W x L x H (w/Tube)	600 x 952 x 446 mm (325 x 965 x 445 mm)	226 x 695 x 303 mm (164 x 492 x 224 mm)		190 x 420(600) x 190 mm	320 x 615 x 320 mm	235 x 200 x 235 mm
Accessories	HA 9251 designed for best gain at 1m test dist.	HA 9251 designed for best gain at 1m test dist.	HA 9251 designed for best gain at 1m test dist.	AA 9202, AA9202 POM AA 9203, RA9215	AA 9202, AA9202 POM AA 9203, RA9215	Option for 22mm tube

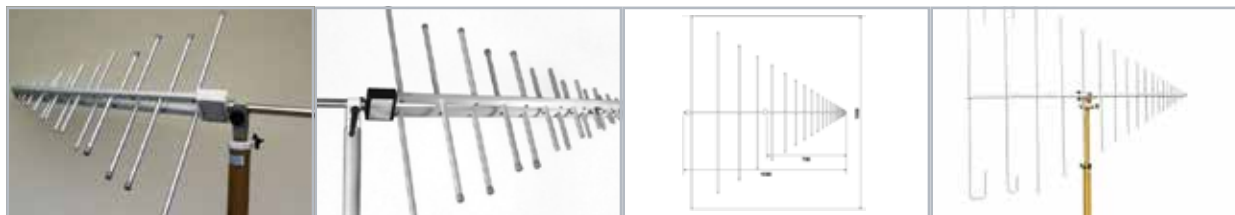
LOG-PERIODIC ANTENNAS



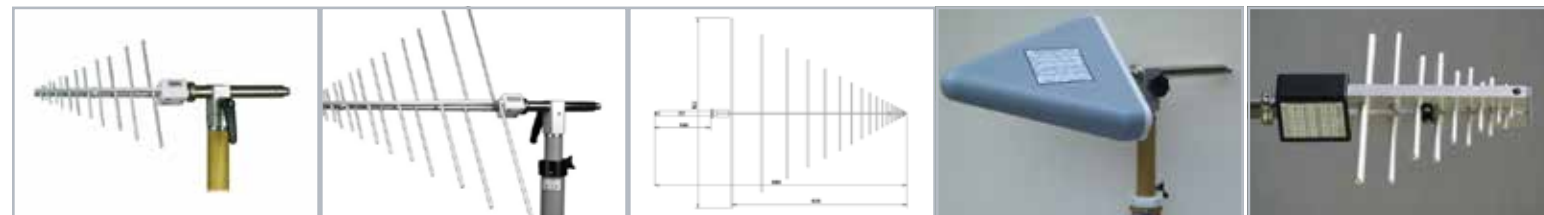
Model	HHALP 9108 A	VULP 9118 A	VULP 9118 B	VULP 9118 C
General Specs				
Frequency Range	250 - 2500 MHz	180 - 1500 MHz	160 - 1500 MHz	100 - 1400 MHz
Usable Range		180 - 2000 MHz	160 - 2000 MHz	100 - 2000 MHz
Antenna Factor	14 - 33 dB/m	10 - 32 dB/m	10 - 32 dB/m	6 - 28 dB/m
Antenna Gain	6.5 dBi +/- 1.2 dB	Typ. 6.5 dBi	Typ. 6.5 dBi	Typ. 6.5 dBi
3dB Beamwidth "E"	60° - 50°	70° - 43°	70° - 43°	70° - 43°
Power	1 kW CW	1 kW CW	1 kW CW	1 kW CW
Connector	Type N (f)	Type N (f)	Type N (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
Size W x L x H (w/Tube)	541 x 490(690) x 35 mm	750 x 640(980) x 80 mm	0.89 x 0.76(1.09)x 0.08 m	1.20 x 1.06(1.39) x 0.08 m
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215 Available as "Special" with folded elements



Model	VULP 9118 D	VULP 9118 E	VULP 9118 F	VULP 9118 G	VULP 9118 H
General Specs					
Frequency Range	95 - 1500 MHz	75 - 1500 MHz	55 - 1800 MHz	45 - 1500 MHz	30 - 1500 MHz
Usable Range	80 - 1800 MHz	50 - 1500 MHz			26 - 1800 MHz
Antenna Factor	4 - 33 dB/m	3 - 32 dB/m	2 ... 24 dB/m	0 ... 29 dB/m	-6 ... 31 dB/m
Antenna Gain	Typ. 6.5 dBi	6.5 dBi +/- 1.2 dB	6.5 dBi +/- 1.2 dB	6 dBi +/- 1.2 dB	6.2 dBi +/- 1.2 dB
3dB Beamwidth "E"	75° - 60°	75° - 60°	75° - 60°	75° - 60°	65° - 50°
Power	1 kW CW (1.5 kW 7-16DIN)	1 kW CW (1.5 kW 7-16DIN)	1 kW CW	1 kW CW	2 kW CW (30 MHz)
Connector	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)	Type N (f)	Type N (f)
Mount	Center mount	Center mount	Center mount	Center mount	Center mount
Size W x L x H (w/Tube)	1.87 x 1.94 x 0.08 m	1.87 x 1.94 x 0.08 m	2.15 x 2.27 x 0.08 m	2.53 x 2.67 x 0.08 m	4.85 x 5.12 x 0.38 m
Accessories	KG 9201 Available as "Special" with folded elements	KG 9201 Available as "Special" with folded elements (pictured)	KG 9201 Available as "Special" with folded elements	KG 9201 Available as "Special" with folded elements	

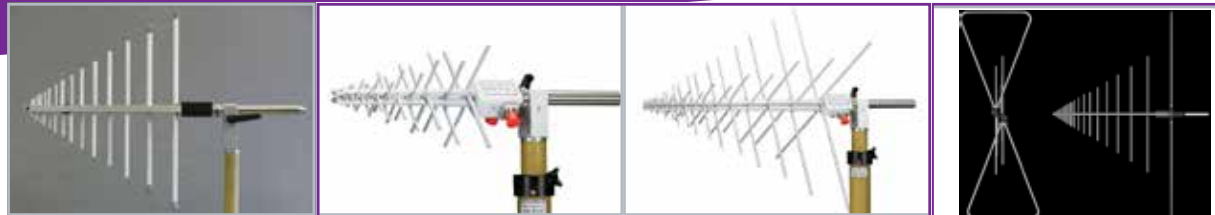


Model	VUSLP 9111	VUSLP 9111 B	VUSLP 9111 E	VUSLP 9111 F
General Specs				Disassembles Easily
Frequency Range	230 - 2300 MHz	200 - 3000 MHz	70 - 3000 MHz	80 MHz ... 3 GHz
Usable Range	200 - 4000 MHz	180 - 4000 MHz	65 - 4000 MHz	75 MHz ... 4 GHz
Antenna Factor	12 ... 32 dB/m	11 ... 33 dB/m	4 ... 35 dB/m	4 ... 35 dB/m
Antenna Gain	7 dBi +/- 1 dB	typ. 7 dBi +/- 1 dB	typ. 6.3 dBi +/- 1.3 dB	typ. 6.3 dBi +/- 1.3 dB
3dB Beamwidth "E"	65° - 45°	65° - 45°	65° - 45°	65° - 45°
Power	1 kW CW (230 MHz)	1 kW CW (<300 MHz)	1 kW CW (<300 MHz)	1 kW CW (<300 MHz)
Connector	Type N (f)	Type N (f)	Type N (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	Center mount 3/8", M12	Center mount 3/8", M12
Size W x L x H (w/Tube)	650 x 790 x 82 mm	776 x 900 x 82 mm	1.93 x 1.59 x 0.11 m	1.34 x 1.53 x 0.11 m
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	KG 9201	KG 9201, CCA 9111 F

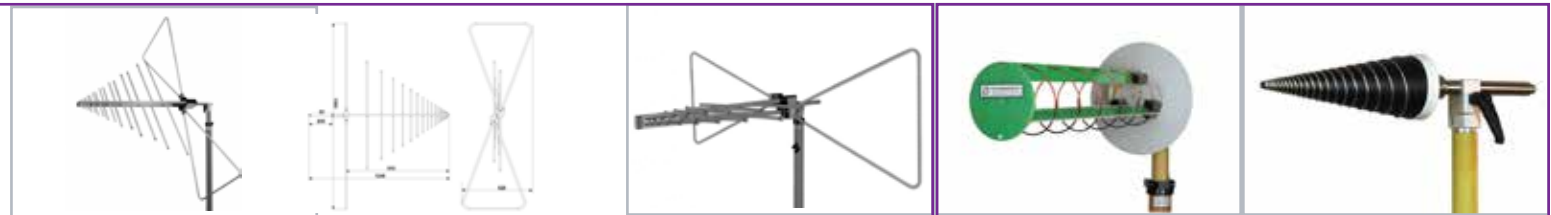


Model	USLP 9142	USLP 9143	USLP 9143 B	ESLP 9145	VUSLP 9111-1000
General Specs					
Frequency Range	0.7 - 5 GHz	300 MHz - 7 GHz	200 MHz - 7 GHz	1 - 18 GHz	0.8 - 3 GHz
Usable Range	0.7 - 8 GHz	250 MHz - 8 GHz	180 MHz - 8 GHz	0.7 - 20 GHz	0.75 - 4 GHz
Antenna Factor	23 ... 38 dB/m	14 ... 43 dB/m	11 ... 44 dB/m	22 ... 50 dB/m	22 ... 34 dB/m
Antenna Gain	4 ... 7 dBi	typ. 5.8 dBi +/- 1.3 dB	typ. 5.8 dBi +/- 1.3 dB	typ. 6 dBi +/- 1.2 dB	typ. 7 dBi +/- 1 dB
3dB Beamwidth "E"	75° - 50°	80° - 30°	65° - 45°	70° - 40°	65° - 40°
Power	1 kW CW (<300 MHz)	200 W (<500 MHz)	200 W (<500 MHz)	20 W CW	300 W (1 GHz)
Connector	Type N (f)	Type N (f)	Type N (f)	Type N (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
Size W x L x H (w/Tube)	200 x 455 (200) x 40 mm	550 x 430 (686) x 50 mm	778 x 885 x 60 mm	500 x 240 x 40 mm	220 x 460 x 65 mm
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA 9203, AA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215

LOG-PERIODIC CONT.



Model	VUSLP 9111-400	XSLP 9142	XSLP 9143	VULB 9162
General Specs	Log-Periodic	Dual Polarized	Dual Polarized	TRILOG
Frequency Range	400 MHz - 3 GHz	30 MHz - 3 GHz	45 - 1500 MHz	30 MHz - 7 GHz
Usable Range	340 MHz - 4 GHz	25 MHz - 4 GHz	50 - 1500 MHz	25 MHz - 8 GHz
Antenna Factor	15 ... 34 dB/m	7 - 35 dB/m	7 - 35 dB/m	7 - 43 dB/m
Antenna Gain	typ. 7 dBi +/- 1 dB	-14 - 7dBi	-14 - 7dBi	Typ. 6.4+/- 1.2 dBi
3dB Beamwidth "E"	65° - 50°	90° - 50°	90° - 50°	90° - 45°
Power	300 W CW (1 GHz)	100 W CW	10 W CW	100 W CW
Connector	Type N (f)	Type N (f)	Type N (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
Size W x L x H (w/Tube)	450 x 640 x 70 mm	1.50 x 1.24 x 0.62 m	1.50 x 1.29 x 0.62 m	1.50 x 1.29 x 0.62 m
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215



Model	VULB 9163	VULB 9164	VULB 9168	HLX 0810-LHCP	CLSA 0110 - RHCP
General Specs	TRILOG	TRILOG	TRILOG	Helical antenna	Spiral Antenna
Frequency Range	30 MHz - 3 GHz	30 MHz - 3 GHz	30 MHz - 1 GHz	750 - 1050 MHz	1 - 10 GHz
Usable Range	25 MHz - 4 GHz	25 MHz - 4 GHz	25 MHz - 2 GHz	600 MHz...1.1 GHz	0.8 - 11 GHz
Antenna Factor	7 - 35 dB/m	4 - 37 dB/m	8 - 30 dB/m	typ. 17-20 dB/m	typ. 25 ... 55 dB/m
Antenna Gain	-14 - 7dBi	-23- 7dBi	-13 - 7dBi	typ. 6 - 12 dBi	typ. -4...+6 dBi
3dB Beamwidth "E"	90° - 50°	78° - 45°	90° - 50°	56°-33°	60° - 125°
Power	100 W CW	1 kW CW	10 W CW	300 W CW	60 W CW
Connector	Type N (f)	Type N (f)	Type N (f)	Type N (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
Size W x L x H (w/Tube)	1.50 x 1.24 x 0.62 m	1.50 x 1.24 x 0.62 m	1.50 x 1.09 x 0.5 m	0.24 x 0.50(+0.2) x 0.24 m	0.24 x 0.50(+0.2) x 0.24 m
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203	AA 9202, AA9202 POM, AA 9203

STACKED LPDA ANTENNAS

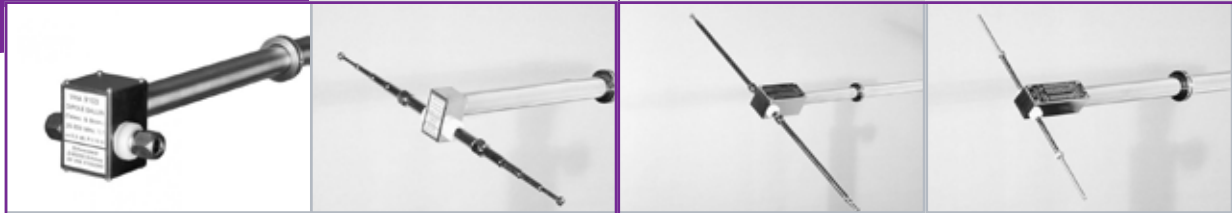


Model	STLP 9128 C	STLP 9128 D	STLP 9128 D SP	STLP 9128 E & SP
General Specs	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic
Frequency Range	200 - 1500 MHz	80 - 3000 MHz	80 - 3000 MHz	80 - 1500MHz
Usable Range	150 - 4000 MHz	65 - 4000 MHz	65 - 4000 MHz	65 - 3000 MHz
Antenna Factor	8 ... 24 dB/m	2 ... 30 dB/m	2 ... 32 dB/m	0 ... 25 dB/m
Antenna Gain	9 ... 10 +/- 1dBi	9 +/- 2 dBi	9 +/- 3 dBi	9 +0.8 / -1.5 dBi
3dB Beamwidth "E"	75° - 60°	75° - 60°	75° - 60°	75° - 60°
Power	1 kW CW (2 kW 7-16DIN)	1 kW CW (2 kW 7-16DIN)	1 kW CW (2 kW 7-16DIN)	1 kW CW (2 kW 7-16DIN)
Connector	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	Center mount 3/8", M12
Size W x L x H (w/Tube)	890 x 930 x 940 mm	1.85 x 1.46 x 2.0 m	1.48 x 1.48 x 1.34 m	2.16 x 1.66 x 1.94 m 1.4 x 1.74 x 1.5 m Sp.
Accessories	AA 9209	AA 9209	AA 9209	AA 9209



Model	STLP 9128 F	STLP 9129 & Sp	STLP 9148	STLP 9149	STLP 100-500
General Specs	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic
Frequency Range	70 - 1500MHz	70 MHz - 10 GHz	1 - 18 GHz	0.7 - 9 GHz	100 - 500 MHz
Usable Range	55 - 3000 MHz		0.7 - 20 GHz	0.6 - 10.5 GHz	75 - 550 MHz
Antenna Factor	-2 ... 25 dB/m	2 - 44 dB/m	20 - 49 dB/m	18 - 41 dB/m	-1 - 14 dB/m
Antenna Gain	9 +0.8 / -1.5 dBi	9 dBi ± 2.3 dB	typ. 8.6 dBi +/- 1 dB	typ. 10.3 dBi +/- 1.5 dB	11.5 dBi +/- 1.1 dBi
3dB Beamwidth "E"	75° - 60°	77° - 34°	58 +/-15°	46 ° +/-10°	53°
Power	1 kW CW (2 kW 7-16DIN)	500 W CW (<1 GHz)	50 W CW	300 W (<1 GHz)	5 kW CW
Connector	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)	Type N (f)	Type 13/30 female
Mount	Center mount 3/8", M12	Center mount 3/8", M12	22 mm Tube	22 mm Tube	22 mm Tube
Size W x L x H (w/Tube)	1.95 x 2.26 x 2.54 m	1.69 x 1.64 x 2.02 m 1.75 x 1.49 x 1.32 m Sp.	200 x 455 (200) x 40 mm	550 x 430 (686) x 50 mm	1.66 x 4.02 x 1.78 m
Accessories	AA 9209	AA 9209	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	

DIPOLE ANTENNAS



Model	VHA 9103	UHA 9105	VHAP	UHAP
General Specs	Half-Wave Dipole	Half-Wave Dipole	Precision 1/2 Wave Dipole	Precision 1/2 Wave Dipole
Frequency Range	30 MHz - 300 MHz	300 MHz - 1 GHz	30 MHz - 300 MHz	300 MHz - 1 GHz
Elements	2 sets of telescopic elements	set of telescopic elements	2 sets of telescopic elements	4 sets of telescopic elements
Antenna Factor	-2.1... +18.2dB/m	18 - 31 dB/m	18 - 31 dB/m	27 - 38 dB/m
Antenna Gain	typ.: +1.5 dBi	+ 1 dBi ... +1.8 dBi	typ.: +1.5 dBi	typ.: +1.5 dBi
3dB Beamwidth "E"	78 °	78 °	78 °	78 °
Power	300 W CW (1 GHz)	100 W CW	10 W CW	10 W CW
Connector	Type N (f)	Type N (f)	Type N (f)	Type N (f)
Mount	22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215, CCA Usually purchased as a set with 2 of each for NSA measurements.	AA 9202, AA9202 POM, AA 9203, RA9215, CCA Usually purchased as a set with 2 of each for NSA measurements.	AA 9202, AA9202 POM, AA 9203, RA9215, CCA Usually purchased as a set with 2 of each for NSA measurements.	AA 9202, AA9202 POM, AA 9203, RA9215, CCA Usually purchased as a set with 2 of each for NSA measurements.



Model	UHA 9125 C	UHA 9125 D	ILS	TETRA DIPOLE
General Specs	Half-Wave Dipole w/EMI Balun	Half-Wave Dipole w/EMI Balun	Instrument landing systems	TETRA (terrestrial trunked radio) networks
Frequency Range	0.75 - 2 GHz	1.0 - 3 (4) GHz	108 - 118 MHz (LOC, LLC) 320 - 340 MHz (G/S)	340 - 480 MHz
Elements	4 sets of Elements	6 sets of Elements	2 sets of Elements	
Antenna Factor	8 ... 24 dB/m	2 ... 30 dB/m	10 - 19 dB/m	20...23 dB/m
Antenna Gain	typ.: +2.15 dBi	typ.: +2.15 dBi	typ.: +1.5 dBi	typ.: +1.5 dBi
3dB Beamwidth "E"	78 °	78 °	80 °	80 °
Power	100 W CW	100 W CW	17W CW	17 W CW
Connector	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	BNC (f) Opt. Type N (f)	BNC (f) Opt. Type N (f)
Mount	22 mm Tube	22 mm Tube	3/8"	3/8"
Size W x L x H	150 x 358 x 55 mm	150 x 358 x 55 mm	50 x 80 x 55 mm	50 x 80 x 55 mm
Accessories	AA 9202, AA9202 POM, AA 9203, RA9215, CCA	AA 9202, AA9202 POM, AA 9203, RA9215, CCA	CCA	CCA

MONOPOLE ANTENNAS

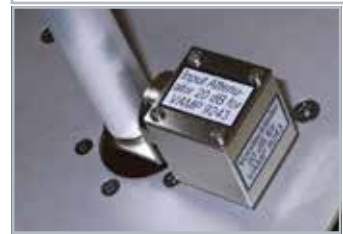
VAMP 9243

9 KHZ - 30 MHZ

Vertical Active Rod Antenna

The active monopole antenna VAMP 9243 consists of a vertical rod and an impedance matching amplifier. The rod has a standard length of 1m & 104 cm (other rod length on request) and can be considered short compared to the wave length in the frequency range 9 kHz-30 MHz

Meets the requirements of many standards such as: MIL-STD-461, CISPR 25



OPT. VT
20 dB plug in divider to measure high field strength



OPT. MIL461F
BONDING KIT for MIL-STD requirements. 70 cm Coax, angel bracket, and current blocking ferrite



OPT. CA 9243
Calibration Adapter for VAMP 9243. Matched resistive 6 dB voltage divider with a rod simulation capacitor.



OPT. GP
Aluminum Ground plane, 0.6 x 0.6 m

VAMP 9242

10 - 40 MHZ

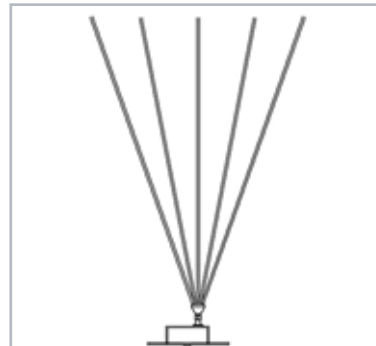
Vertical Passive Rod Antenna

20 Watts

The vertical passive monopole antenna VPMP 9242 is equipped with a 10 mm element fixture to accept several different element types, e.g. telescopic, biconical or collapsible conical elements. In order to improve the efficiency especially at frequencies below 25 MHz, the VPMP 9242 comes with a broadband toroid-transformer.

BNC connector, 3/8" screw mount

Requires separate purchase of rods:



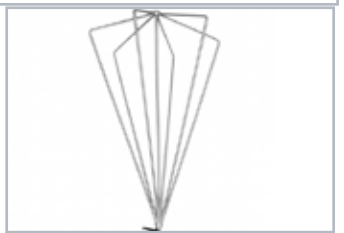
FBAB 9177
Collapsible-conical element set. 625 mm



FBAL 9178
Collapsible-conical element set. 950 mm



BBA 9106
Biconical element set 660 mm



BBAL 9136
Biconical element set 970 mm

VAMP 9241

DC - 300 MHZ

Vertical Passive Rod Antenna

2 kWatts

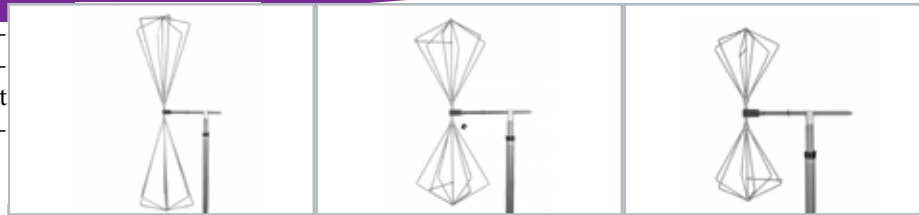
The vertical passive monopole consists of a flat aluminum base plate and a milled aluminum housing which has two N-connectors at the sides and an element clamping fixture on top. The element clamping fixture with a nominal diameter of 10 mm accepts the vertical rod of 0.5 m length, which is included in standard delivery. Optional top loading disc TLD 9241 shown in picture.

Additional rod elements available: BBA 9106, BBAL 9136, BBAK 9137, BBVK 9138, or collapsible elements FBAL 9177, FBAL 9178, or the telescopic elements of the VHA 9103



BICONICAL ANTENNAS

Schwarzbeck Biconical antennas are the most versatile on the market. All elements are interchangeable giving further use. If spaces are smaller to fit into or when more gain is needed for low frequency testing.



		BBAL 9136	BBA 9106	BBAK 9137	
		Large	Standard	Shortened	
	VHA 9103 B	Frequency Range	20 - 200MHz, Rx	30 - 300 MHz, Rx	45 - 450 MHz, Rx
		Power	10 W	10 W	10 W
		Connector	Type N(f)	Type N(f)	Type N(f)
		Size (W, D, L_H)	1.94 x 0.57 x 0.53 m	1.32 x 0.52 x 0.53 m	0.94 x 0.35 x 0.53 m
		Mounting	22 mm Tube	22 mm Tube	22 mm Tube
	VHBB 9124	Frequency Range	20 - 200MHz, Rx	30 - 300 MHz, Rx	45 - 450 MHz, Rx
		Power	10 W	10 W	10 W
		Connector	Type N (f)	Type N (f)	Type N (f)
		Size (W, D, L_H)	1.94 x 0.57 x 0.58 m	1.32 x 0.52 x 0.58 m	0.92 x 0.35 x 0.58
	HFBA 9122	Frequency Range	0.15 - 300 MHz, Rx	0.15 - 300 MHz, Rx	0.15 - 300 MHz, Rx
		Power	10 W	10 W	10 W
		Connector	Type N (f)	Type N (f)	Type N (f)
		Size (W, D, L_H)	1.94 x 0.57 x 0.58 m	1.32 x 0.52 x 0.58 m	0.92 x 0.35 x 0.55 m
	VHBA 9123	Frequency Range	20 - 200MHz, Tx/Rx	30 - 300 MHz, Tx/Rx	30 - 300 MHz, Tx/Rx
		Power	100 W	100 W	100 W
		Connector	Type N (f)	Type N (f)	Type N (f)
		Size (W, D, L_H)	1.98 x 0.57 x 0.58 m	1.36 x 0.52 x 0.58 m	0.96 x 0.35 x 0.58 m
	VHBC 9133	Frequency Range	20 - 200MHz, Tx	30-300 MHz, Tx	
		Power	1 kW	1 kW	
		Connector	Type N (f)	Type N (f)	
		Size (W, D, L_H)	1.94 x 0.57 x 0.58 m	1.32 x 0.52 x 0.58 m	
	VHBD 9134	Frequency Range	20 - 200MHz, Tx	30-300 MHz, Tx	
		Power	2.5 kW	2.5 kW	
		Connector	Type N (f) opt7-16 DIN (f)	Type N (f) opt7-16 DIN (f)	
		Size (W, D, L_H)	1.94 x 0.57 x 0.70 m	1.35 x 0.53 x 0.70 m	
	VHBD 9134-4	Frequency Range	20-200 MHz, Tx	30-200 MHz, Tx	
		Power	4 kW	4 kW	
		Connector	7-16 DIN (f)	7-16 DIN (f)	
		Size (W, D, L_H)	1.98 x 0.57 x 0.67 m	1.37 x 0.52 x 0.67 m	
	Mount	22 mm Tube	22 mm Tube		



	BBVK 9138	FBAL 9178	FBAB 9177	BBFA 9146	BBAE 9179
	Higher Freq	Collapsible (BBAL 9236)	Collapsible (BBA 9106)	Collapsible w/ extension Variable opening	Foldable, optimized for 1-meter testing
	60 - 600 MHz, Rx	20 - 200MHz, Rx	25 - 300 MHz		
	10 W	10 W	10 W		
	Type N(f)	Type N(f)	Type N(f)		
	0.72 x 0.26 x 0.53 m	1.96 x 0.9 x 0.53 m	1.25 x 0.6 x 0.58 m		
	22 mm Tube	22 mm Tube	22 mm Tube		
	60 - 600 MHz, Rx	20 - 200MHz, Rx	30-300 MHz, Rx		
	10 W	10 W	10 W		
	Type N (f)	Type N (f)	Type N (f)		
	0.72 x 0.26 x 0.58 m	1.96 x 0.9 x 0.58 m	1.25 x 0.6 x 0.58 m		
	22 mm Tube	22 mm Tube	22 mm Tube		
	0.15 - 300 MHz, Rx	0.15 - 300 MHz, Rx	0.15 - 300 MHz, Rx		
	10 W	10 W	10 W		
	Type N (f)	Type N (f)	Type N (f)		
	0.72 x 0.26 x 0.55 m	1.96 x 0.9 x 0.55 m	1.25 x 0.6 x 0.55 m		
	22 mm Tube	22 mm Tube	22 mm Tube		
		20 - 200MHz, Tx/Rx	30-300 MHz, Tx/Rx		
		100 W	100 W		
		Type N (f)	Type N (f)		
		1.96 x 0.9 x 0.58	1.25 x 0.6 x 0.58 m		
		22 mm Tube	22 mm Tube		
		20 - 200MHz, Tx	30-300 MHz, Tx	20 - 200 MHz, Tx	20 - 200 MHz, Tx
		1 kW	1 kW	1 kW	1 kW
		Type N (f)	Type N (f)	Type N (f)	Type N (f)
		1.96 x 0.9 x 0.58	1.25 x 0.6 x 0.58 m	0.85-3.95 x 3.70-0.55 x 0.6 m	1.5 x 0.57 x 0.58 m
		22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
		20 - 200MHz, Tx	30-300 MHz, Tx	20 - 200 MHz, Tx	20 - 200 MHz, Tx
		2.5 kW	2.5 kW	2.5 kW	2.5 kW
		Type N (f) opt7-16 DIN (f)	Type N (f) opt7-16 DIN (f)	Type N (f) opt7-16 DIN (f)	Type N (f) opt7-16 DIN (f)
		1.96 x 0.9 x 0.70	1.25 x 0.6 x 0.70 m	0.85-3.95 x 3.70-0.55 x 0.6 m	1.5 x 0.57 x 0.70 m
		22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube
		20 - 200MHz, Tx	30-200 MHz, Tx	30-200 MHz, Tx	30-200 MHz, Tx
		4 kW	4 kW	4 kW	4 kW
		7-16 DIN (f)	7-16 DIN (f)	7-16 DIN (f)	7-16 DIN (f)
		1.96 x 0.9 x 0.67 m	1.25 x 0.6 x 0.67 m	0.85-3.95 x 3.70-0.55 x 0.6 m	1.5 x 0.57 x 0.67 m
		22 mm Tube	22 mm Tube	22 mm Tube	22 mm Tube



BCOI 9180 #W BOOSTER COILS

Booster Coils for High Power Baluns

The booster coils are used to generate highest field strengths in conjunction with a high power balun (e.g. VHBA 9123, VHBC 9133, VHBD 9134, VHBD 9134-4) and radiating elements (e.g. BBA 9106, BBAL 9136, BBFA 9146, BBAE 9179, and others) in the frequency range from 20 MHz to approx. 60 MHz.

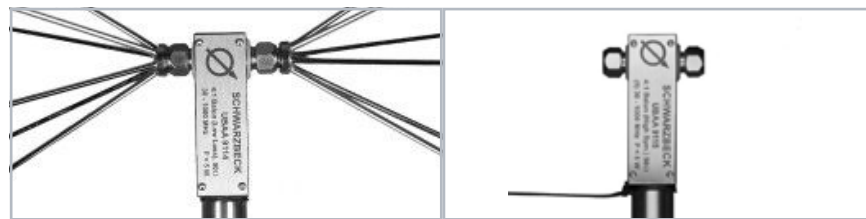
The BCOI 9180 5W comes with 5 turns and is standard, also available 4W = 4 turns and 3W = 3 turns. The *Holder Long* is required with BBAE 9179 elements



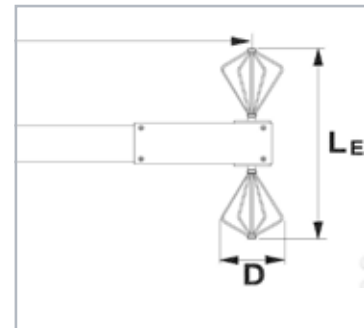
HOLDER LONG

Booster Coils Bracket

Plastic holders to be fixed at a high power balun e.g. VHBA 9123, VHBC 9133, VHBD 9134, VHBD 9134-4. The HOLDER LONG must be assembled to the balun to use BBAE 9179 with booster coils.



			UBAA 9114	UBAA 9115
	BBVU 9135	Biconical lg	Frequency Range 20 - 1000MHz, Rx	20 - 1000 MHz, Rx
			Power 5 W	5 W
			Connector Type N(f)	Type N(f)
			Size (W, D, L _H) 444 x 185 x 540 mm	444 x 185 x 540 mm
			Mounting 22 mm Tube	22 mm Tube
	BBUK 9139	Biconical sm	Frequency Range 30 - 1200MHz, Rx	30 - 1200 MHz, Rx
			Power 5 W	5 W
			Connector Type N (f)	Type N (f)
			Size (W, D, L _H) 330 x 130 x 540 mm	330 x 130 x 540 mm
			Mount 22 mm Tube	22 mm Tube
	BAOC 9216	Open Cone	Frequency Range 30 - 1000 MHz, Rx	30 - 1000 MHz, Rx
			Power 5 W	5 W
			Connector Type N (f)	Type N (f)
			Size (W, D, L _H) 276 x 155 x 540 m	276 x 155 x 540 m
			Mount 22 mm Tube	22 mm Tube
	BBOC 9217	Open Cone	Frequency Range 30 - 1000MHz, Rx	30 - 1000 MHz, Rx
			Power 5 W	5 W
			Connector Type N (f)	Type N (f)
			Size (W, D, L _H) 390 x 230 x 540 mm	390 x 230 x 540 mm
			Mount 22 mm Tube	22 mm Tube



SBA 9113 B

Small Biconical Antenna, Rx and Tx

- 80 MHz - 3 GHz, 20 watts, Type N(f)
- Harmonics measurements acc. to IEC61000-4-3 80-1000 MHz
- 140 x 49 x 560 mm

SB 9113

Small Biconical Antenna, Rx and Tx

- 500 MHz - 3 GHz, 20 watts, Type N(f)
- CISPR16-1-4:2007-02 Ed. 2.0 Site validation above 1 GHz
- 140 x 49 x 560 mm, Mini ver. available



SBA 9112

Small Biconical Microwave Antenna, Rx and Tx

- (1) 3 - 18 GHz, 10 Watts, Type N(f)
- CISPR16-1-4:2007-02 Ed. 2.0 Site validation above 1 GHz
- 190 x 20 x 560 mm, Delivered with transportation case

SBA 9119

Small Biconical Microwave Antenna, Rx and Tx

- 1 - 6 GHz, 20 Watts, Type N(f)
- CISPR16-1-4:2007-02 Ed. 2.0 Site validation above 1 GHz
- 190 x 50 x 560 mm, Delivered with transportation case



UBA 9116

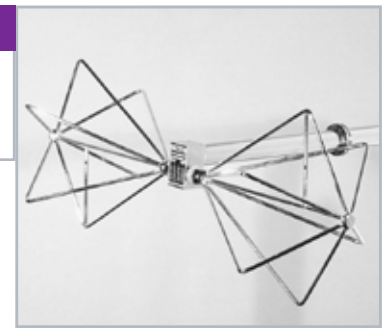
Biconical UHF Broadband Antenna, Rx and Tx

- (160) 300 -1000 (1100) MHz
- 5 watts, Type N(f)
- 325 x 100 x 520 mm

VUBA 9117

Biconical VHF-UHF Broadband Antenna

- (30) 150 -1000 MHz
- 5 watts, Type N(f)
- 325 x 100 x 520 mm



RS 16

Vertical Polarized Microwave Biconical Antenna

- (0,5) 1 - 6 (8,5) GHz, 50 Watts, Type N(f)
- Omni-directional H-plane pattern

RE 1790

Vertical Polarized VHF- UHF Biconical Antenna

- (170) 230 - 1000 (1100) MHz, 200 watts, Type N(f)
- Omni-directional H-plane pattern
- 250 x 250 x 760 mm



RE 4590

Vertical Polarized VHF- UHF Biconical Antenna

- (330) 450 - 1000 (1100) MHz, 200 watts, Type N(f)
- Omni-directional H-plane pattern
- 140 x 140 x 662 mm

RS 0460

Vertically Polarized Symmetrical Biconical Antenna

- 0.4 - 6 GHz, 100 watts, Type N(f)
- Omni-directional H-plane pattern
- 185 x 185 x 370 mm



EFG-03

E-Field Generator

- 10 kHz - 100 MHz, 3.5 kwatts, 7-16DIN(f)
- Can produce extremely high field in-between Elements
- Comes with 3 axis positioner

PASSIVE MAGNETIC, TX LOOP



Switch-able caps keep impedance match better to 50Ω

Model	HFRA 1356	HFRA SF02G	HFRA 5149	HFRA 5152
General Specs	Circular loop antenna	Tunable transmitting loop antenna	Circular loop antenna	Circular loop antenna
Frequency Range	13.56 ±185MHz	10 kHz - 30 MHz	9 kHz - 30 MHz	DC - 3 MHz
Number of Turns	2	1	1	3
Diameter of Loop	250 mm	500 mm	500 mm	250 mm
Input Conversion=1A/m	32 mV / 90 dBμV	Varies w/Freq. <95 dBμV	154 dBμV	
Max Input Short Time	800 mV / 118 dBμV, 1 min.	69 - 50 dBm Pulsed	100 watts, 1 min	31.5mA (630mV monitor)
Max Field Center	20A/m , 25 A/m 1min	ISO 14708-3 Class B	1.3A/m, 123 dBμA/m	378 mA/m
Power Input	16 W / 42 dBm	59 - 40 dBm CW	30 W / 35 dBm (100W)	31.5mA (630mV)
Connector	2x BNC (f)	Type N(f)	2x Type N(f)	2x BNC (f)
Mount	3/8" Thread	3/8" Thread	3/8" Thread	3/8" Thread
Size W x L x H	260 x 305 x 80 mm	525 x 800 x 130 mm	515 x 585 x 80 mm	260 x 305 x 80 mm
Accessories		Loop sensor HFRAE 5163(incl.)	including 50 Ohm 20 Watt termination	



Model	HFRA 5153	HFRA 5154	HFRA 5155	HFRA 5156	HFRA 5157
General Specs	Circular loop antenna	Circular loop antenna	Circular loop antenna	Circular loop antenna	Circular loop antenna
Frequency Range	0 - 30 (50) MHz	0.1 - 30 MHz	100 kHz - 100 (300) MHz	DC - 5 (10) MHz	0 - 30 MHz
Number of Turns	1	2	1	10	2
Diameter of Loop	180 mm	100 mm	50 mm	50 mm	100 mm
Input Conversion=1A/m					
Max Input Short Time	100 mA (1V monitor)	100 mA (5V)	0.44 A (4.4V)	100 mA (50V)	105 mA (48 V)
Max Field Center	0.597 A/m, 115 dBμA/m	1A/m, 120 dBμA/m	138.89 dBμA/m	20 A/m, 146 dBμA/m	1A/m, 120 dBμA/m
Power Input	4 Watts	0.5 W / +27 dBm	2 Watts	5 Watts	5 Watts
Connector	2x BNC (f)	2x BNC (f)	2x BNC (f)	2x BNC (f)	2x BNC (f)
Mount	3/8" Thread	3/8" Thread	3/8" Thread	3/8" Thread	3/8" Thread
Size W x L x H	230 x 190 x 80 mm	160 x 112 x 62 mm	105 x 60 x 62 mm	60 x 104 x 62 mm	160 x 112 x 62 mm
Accessories			Monitor probe HFS 1546		



Model	HFRA 5158	HFRA 5159	HFRA 5170	HFRA 5164
General Specs	Circular loop antenna	Circular loop antenna w/2 inputs 50Ω and open	Stacked Log-Periodic	Magnetic, handheld coil IEC 61000-4-39
Frequency Range	0 - 2 MHz	DC - 400 kHz (2 MHz)	0 - 30 MHz	10 kHz - 120 MHz
Number of Turns	10	28	1	3
Diameter of Loop	180 mm	250 mm	250 mm	100 mm
Input Conversion=1A/m			10:1	1 A current = 30 A/m
Max Input Short Time		110 mA	135 mA (1.35V monitor)	12A (5 min.)
Max Field Center		11 A/m, 141 dBμA/m	1.35 A/m, 123 dBμA/m	360 A/m (5 min.)
Power Input	5 Watts	5 Watts	4 Watts	
Connector	2x BNC (f)	3 x BNC	2x BNC (f)	BNC (f)
Mount	3/8" Thread	3/8" Thread	3/8" Thread	Handheld, 3/8" Thread
Size W x L x H	230 x 190 x 80 mm	260 x 305 x 80 mm	160 x 112 x 62 mm	158 x 112 x 45 mm
Accessories				Measurement loop: FESP 5134-1, LoopHolder5164-39, NFCN 1356



Model	FESP 5133-9	FESP 5132	FESP 5133-1330	FESP 5135	FESP 5133
General Specs	Magnetic, handheld coil	Magnetic, handheld coil MIL-STD-461 RS101, ISO 11452-8, EN 55103, IEC 61000-4-39	Magnetic, handheld coil VG95377	Magnetic loop EN 55103 - 2 A.3.1	Magnetic, handheld coil MIL-STD-461, EN 55103
Frequency Range	10 kHz - 3 MHz	0 - 150 kHz	0 - 20 (50) kHz	0 - 300 kHz	0 - 200 kHz
Number of Turns	9	20	225	20	36
Diameter of Loop	133 mm	120 mm	126 mm	500 mm	133 mm
Input Conversion=1A/m	1 A current = 10 A/m	1 A current = 100 A/m	1 A current = 858.2 A/m	1 A current = 32.016 A/m	1 A current = 100 A/m
Max Input Short Time	11 A (5 min.)	20 A (5 min.)	20 A	7 A (5 min.)	10 A (5 min.)
Max Field Center	380.4 A/m (5 min.)	1500 A/m (5 min.)	17 kA/m (50mm)	224 A/m (5 min.)	1385 A/m (5 min.)
Power Input					
Connector	Type N(f)	4 mm Banana	4 mm Banana	4 mm Banana Term.	4 mm Banana (BNC opt)
Mount	Handheld	Handheld	Handheld		Handheld
Size W x L x H	160 x 160 x 200 mm	160 x 160 x 300 mm	190x190x290 mm	500 x 500 x 140 mm	160 x 160 x 300 mm
Accessories		Measurement loop: FESP 5134-40, LoopHolder50			

HELMHOLTZ COILS



Model	AGEM 5520	HHS 5201-6	HHS 5201-98	HHS 5202-9
General Specs	Air gap electromagnet	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils
Frequency Range	DC	DC - 5 MHz	DC - 200 kHz	DC - 2.5 MHz
Number of Turns	2000	6	98	9
Diameter of Loop	335 mm	120 mm	84 mm	232 mm
Input Conversion		1 A input = 71.55 A/m	1 A input = 1598 A/m	1 A input = 55.52 A/m
Max Input		12 A continuous	12 A continuous	33 A continuous
Max Input Short Time	20 A 1 min. 5 A > 20 min.	40 A (1 min.)	40 A (1 min.)	55 A (5 min.)
Max Field Center	> 2.2 T	2860 A/m (1 min.) 60 mm	64 kA/m (1 min.)	3053 A/m (5 min.) 116mm
Connector	4 mm Banana (f)	4 mm Banana (f)	4 mm Banana (f)	4 mm (f), 7 mm screw
Size W x L x H	380 x 238 x 410 mm	290 x 220 x 130 mm	290 x 220 x 130 mm	0.20 x 0.25 x 0.39 m
Max DUT Size				11.3 x 11.3 x 11.3 cm



Model	HHS 5206-8	HHS 5206-16	HHS 5202-81	HHS 5204-12
General Specs	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils
Frequency Range	DC - 800 kHz	DC - 500 kHz	DC - 300 kHz	DC - 500 kHz
Number of Turns	8	16	81	12
Diameter of Loop	600 mm	600 mm	232 mm	400 mm
Input Conversion	1 A input = 19.23 A/m	1 A input = 138.17 A/m	1 A input = 500 A/m	1 A input = 42.93 A/m
Max Input	34 A continuous	33 A continuous	5 A continuous	30 A continuous
Max Input Short Time	55 A (5 min.)	55 A (5 min.)	6 A (5 min.)	60 A (5 min.)
Max Field Center	1060 A/m (5 min.)	2100 A/m (5 min.)	3000 A/m (5 min.) 116mm	2500 A/m (5 min.) 200mm
Connector	4 mm (f), 7 mm screw	4 mm (f), 7 mm screw	4 mm (f), 7 mm screw	4 mm (f), 7 mm screw
Size W x L x H	0.64 x 0.79 x 0.42 m	0.64 x 0.79 x 0.42 m	0.20 x 0.25 x 0.39 m	0.38 x 0.58 x 0.42 m
Max DUT Size	32.5 x 32.5 x 32.5 cm	32.5 x 32.5 x 32.5 cm	11.3 x 11.3 x 11.3 cm	21.5 x 21.5 x 21.5 cm

Model	HHS 5206-8	HHS 5206-16	HHS 5202-81	HHS 5204-12
General Specs	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils
Frequency Range	DC - 10 kHz	DC - 10 kHz	DC - 30 kHz	DC - 150 kHz
Number of Turns	100	100	132	10
Diameter of Loop	1 m	1 m	600 mm	1 m
Input Conversion	145 A/m (Coil Dist. 0.4m)	145 A/m (Coil Dist. 0.4m)	314.2 A/m	15 A/m (Coil Dist. 0.4 m)
Max Input	9 A continuous	15 A continuous	10 A continuous	10 A continuous
Max Input Short Time	15 A (5 min.)	20 A (5 min.)	15 A (5 min.)	20 A (5 min.)
Max Field Center	2183 A/m (5 min.)	2900 A/m (5 min.)	4713 A/m (5 min.)	300 A/m (5 min.)
Connector	4 mm (f)	4 mm (f)	4 mm (f), 7 mm screw	4 mm (f)
Size W x L x H	1.0 x 1.0 x 0.63 m	1.0 x 1.0 x 0.63 m	0.64 x 0.79 x 0.42 m	1.0 x 1.0 x 0.63 m
Max DUT Size	260 x 305 x 80 mm	260 x 305 x 80 mm	32.5 x 32.5 x 32.5 cm	260 x 305 x 80 mm



Model	HHS 5212-10	HHS 5213-50	HHS 5213-100	HHS 5215-10	HHS 5215-100
General Specs	Helmholtz Coils	Helmholtz Coils	Helmholtz Coils	Helmholtz Coils	Helmholtz Coils
Frequency Range	DC - 150 kHz	DC - 20 kHz	DC - 5 kHz	DC - 100 kHz	DC - 6 kHz
Number of Turns	10	50	100	10	100
Diameter of Loop	1.2 m	1.3 m	1.3 m	1.5 m	1.5 m
Input Conversion	12.4 A/m (Coil Dist. 0.48m)	48 A/m (Coil Dist. 0.75m)	100 A/m (coil Dist. 0.705m)	9.96 A/m (coil Dist. 0.6 m)	84.2 A/m (coil dist. 0.84m)
Max Input	10 A continuous	5 A continuous	9 A continuous	10 A continuous	10 A continuous
Max Input Short Time	20 A (5 min.)	8 A (5 min.)	15 A (5 min.)	20 A (5 min.)	20 A (5 min.)
Max Field Center	250 A/m (5 min.)	390 A/m (5 min.)	1501 A/m (5 min.)	200 A/m (5 min.)	2000 A/m (5 min.)
Connector	4 mm (f)	4 mm (f)	4 mm (f)	4 mm (f)	4 mm (f)
Size W x L x H	1.2 x 1.2 x 0.74 m	1.36 x 1.36 x 0.9 m	1.46 x 1.36 x 0.91 m	1.5 x 1.5 x 0.9 m	1.5 x 1.5 x 0.9 m



HHS 5230-100 DC TO 5 KHZ

Helmholtz-Coil precisely defined fields to SAE J551-17

Typical applications are magnetic immunity testing to whole vehicles according to SAE J551-17 (Vehicle Electromagnetic Immunity - Power Line Magnetic Fields).

- 100 Turns
- W: 2.0 x H: 3.10 x B: 3.18 m
- 650 A/m (5 min) @ coil Dist. = 1.8 m
- Recommended: NFCN 9731-100 compensation Network

NFCN COMPENSATION NETWORKS

Model	NFCN 9731-100	NFCN 9732-85	NFCN 9732-120	HFCN 9734
Use with Loop	HHS 5230-100	HHS 5206-8	HHS 5210-100	HHS 5206-16 HHS 5204-12 HHS 5202-9
Frequency	DC - 180 Hz	80 - 90 kHz	50 - 60 Hz	DC - 200 kHz
Max Current	8 A	11 A	15 A	32 A

MAGNETIC SYSTEM



MFPO 9760 & FESP 5410-1 AC

Current Transformer and Pulse Generator IEC 61000-4-8

The MFPO 9760 is a current transformer for the typical mains frequencies of 50 Hz / 60 Hz. It is used to feed the 1 m square induction coil FESP 5410-1. This coil can reach magnetic field strengths of 1000 A/m for short time and 360 A/m continuously in its center.

- 1 turn, 2x FESP 5410-1 can be combined to function as Helmholtz coil
- 360A/m with 400 A continuous [600 A (10 min)]
- >1000A/m for 5 seconds
- High field pulse Pulse 0.5---5 Seconds
- Input 230 V / 50/60 Hz / 16 A (US 5kW Power Transformer Available)

IEC 61000-4-39 & IEC 60601-1-2 CLOSE PROXIMITY FIELDS

					
Model	TEMH 6000	HFRA 5164	FESP 5134-1	FESP 5132	FESP 5134-40
Type	TEM Horn Antenna	Radiating Loop	Field Monitoring Coil	Radiating Loop	Field Monitoring Coil
Frequency	380 MHz - 6 GHz	10 kHz - 120 MHz	100 kHz - 300 MHz	DC - 150 kHz	5 kHz - 250 MHz
Loop turns		3	1	20	51
Loop Diam.		100 mm	40 mm	120 mm	40 mm
Current (max)	300 Watts	8A (12A 5min)	20 dB/m	10A (20A 5min)	
Connector	Type N, 22 tube	BNC, 3/8" Thread	BNC	4mm Banana	BNC, 1/4" thread
Dimensions	260 x 300 x 210 mm	158 x 112 x 45 mm	46 x 18 x 95 mm	0.16 m x 0.25 (0.3) m	70 x 31 x 45 mm
Options	Spacer 100	NFCN 1356 Loopholder 5164-39		LoopHolder50	
Standard	IEC 61000-4-39	IEC 61000-4-39 IEC 60601-1-2	Used with HFRA 5164	IEC 61000-3-39, IEC 60601-1-2 ISO 11452-8 MIL 461E RS101 EN 55103 5.18.3.2	Used with FESP 5132



Spacer 100



NFCN 1356

Loopholder 5164-39



LoopHolder50



SHUNT 9571 DC - 250 KHZ

Low Inductive Precision High Power Shunt, MIL-STD-461

Ideal for Automotive and MIL-STD requirements to measure low frequency current.

- 2 x 500 mΩ / 400 W
- 1 x 1 Ω / 800 W
- 1 x 250 mΩ / 800 W

MAGNETIC, Rx LOOP

ACTIVE LOOP ANTENNAS Rx

Magnetic Field Probes

Active, shielded loop antennas with nearly constant antenna factors over the entire frequency range. It can be used for testing according to CISPR, MIL, FCC, EN, ISO, ANSI, ETSI and many other standards. It can be used for the frequency selective measurement of magnetic fields (or fictive electric field).



Model	FMVB 1512	FMZB 1513	FMZB 1519 B	HMDA 1545	HFS 1546
Type	Active, Shielded hand-held loop antenna	Active, Shielded hand-held loop antenna	Active, Shielded Loop Antenna	Digital, Active, Shielded hand-held loop antenna	Active H-Field-Probe shielded Loop
Frequency	9 kHz - 30 MHz	9 kHz - 30 MHz	9 kHz - 30 MHz	9 kHz - 50 MHz	150 kHz - 400 MHz
Range (IF-BW)	Max: 162 dBμV/m (126 V/m), 110.5 dBμA/m (0.33 A/m)	30-130 dBμV/m (9kHz) 8-130 dBμV/m (200Hz)	30-130 dBμV/m (9kHz) 8-130 dBμV/m (200Hz)	46 - 120 dBmA/m 200μA/m - 1 A/m 3 1/2 digit LCD	-13,5 - 105 dBμA/m
Loop Diam.	150 mm	500 mm	500 mm	150 mm	50 mm
Antenna Factor	20 dB/m	20 dB/m	20 dB/m	+10 dB/m	-4.0 dB/Ωm
Mounting	22 tube x 40 mm	2 x 3/8" Thread	1/4", 3/8" Thread	22 tube x 195 mm	22 tube x 195 mm
Dimensions	165 x 350 x 45 mm	520 x 560 x 60 mm	520 x 585 x 120 mm	150 x 75 x 35mm	610 x 50 x 35 mm
Additional	Attenuation: 0 - 33 dB in 3 dB steps	Optional Case CCA 1613, longer handle			Optional Short version (pictured)
Standard		acc. to CISPR 16	acc. to CISPR 16		

See Page 70 for Magnetic field probes and near field probes

PASSIVE MAGNETIC ANTENNAS Rx

Rx-Loop Antennas Single Turn



Model	HFRAE 5160	HFRAE 5161	HFRAE 5162	HFRAE 5163
Type	VHF Rx Loop	HF Rx Loop	VLF Rx Loop	VLF-VHF Rx Loop
Frequency	1 - 300 MHz	70 kHz - 120 MHz	50 kHz - 30 MHz	9 kHz - 400 MHz
Loop Diam.	50 mm	100 mm	250 mm	50 mm
Antenna Factor	typ. 22.7 +/- 2.5 dB/Ωm typ. 74.2 +/- 2.5 dB/m	28 dB/Ωm nominal 79.5 dB/m nominal	20.5 dB/Ωm nominal 72 dB/m nominal	25 dB/Ωm nominal 76.5 dB/m nominal
Mounting	3/8" Camera thread	3/8" Camera thread	3/8" Camera thread	3/8" Camera thread
Dimensions	104 x 60 x 62 mm			
Connector	BNC(f)	BNC(f)	BNC(f)	BNC(f)
Standard		acc. to CISPR 16	acc. to CISPR 16	

ACTIVE ANTENNA PROBES



HS 5136
Hall-Sensor, Transverse probe
 The hall probe HS 5136 can be used to measure magnetic field strengths for immunity tests according to MIL STD 461 and various automotive standards.

- DC - 1 kHz
- 0 - 9000 A/m, Nominal conversion factor: 1 (A/m)/mV
- 12 VDC $\pm 3\%$ / 250 mA



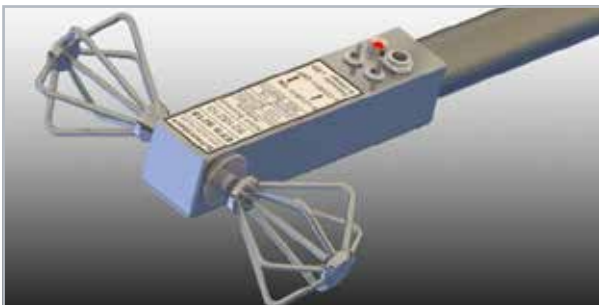
CP 9610 **DC - 1 MHz**
Galvanic Isolated Current Sensor
 Can withstand a maximum voltage of 210 VPK / VDC. The internal resistance of the conductive path is less than 3 m Ω , providing low power loss. The hall transducer is temperature compensated and allows high accuracy over temperature

- Sensing range: -40 A - +40 A
- Battery powered (24h run time) charge via USB



FS-SET 7100 B
Near-field Probe Set 9 kHz - 1 GHz
 Full near-field probe kit includes the following:

- HFSL 7101 Magnetic Active Probe, 9 kHz - 30 MHz
- HFSH 7102 Magnetic Active Probe, 4 MHz - 1000 MHz
- EFS 7103 Electric Active Probe, 9 kHz - 1000 MHz
- EW 7110 DC Separator for powering through coax
- ACDC 7110 AC power adapter



EFS 9218
Active Electric Field Probe

- Active electric field probes
- Battery powered ~10hr
- Built-in amplifier
- 9 KHz - 300 MHz
- 12 μ V/m - 65 V/m
- Opt. ACS 410, AC Power supply/Battery charger



FSH3D, FSE3D, ...
Field Probes for Handheld Analyzer
 Isotropic H/E-Field Antenna for the Rohde & Schwarz handheld spectrum analyzer FSH or the TS-EMF System:

Model	Frequency	Range	Active
FSH3D	9 kHz - 200 MHz	Magnetic	Active
FSE3D	30 MHz - 3 GHz	E-Field	Active
FSHPH	9 kHz - 300 MHz	Magnetic	Passive
FSHPE	9 kHz - 200 MHz	E-Field	Passive

GENERAL RF PRODUCTS



IGUU 2918
Calibration Pulse Generator for CISPR
 For many decades the Schwarzbeck Calibration Pulse Generators have been recognized as world wide standard. Their mechanical relay contacts generate spectrum beyond 1GHz with both high voltage and high precision.

- Pulse range 0.1Hz to 1MHz (Band A/B/C/D)
- Test range: 9 kHz- 1000 MHz
- KU 9618 Coax Switch option easy EUT switching
- GPIB interface

SW CURRENT MEASUREMENT

	SW 9602	SW 9603	SW 9605	SW 9606
Frequency	0.01 - 200 MHz	9 kHz - 150 MHz	9 kHz - 80 MHz	9 kHz - 200 MHz
Wire Diameter	<6.5 mm	<14 mm	<23 mm	<23 mm
Impedance	1 Ohm	1 Ohm	1 Ohm	8 Ω for injection

SY 9223 PROFIBUS

SY 9223 PROFIBUS
 SY 9223 Profibus balun adapts a symmetrical signal to a coaxial line. Usually twisted pairs with an impedance of approx. 120 Ω are used to transmit the Profibus signals. The SY 9223 Profibus can be applied to use an existing triaxial wiring.

SY 9223-100, -120B, -135, & -150

CISPR 17
 Balun transforms an unsymmetrical signal at a 50 Ω source impedance into a galvanically isolated symmetrical signal at 100 Ω , 120 Ω , 135 Ω , or 150 Ω respectively, impedance in a wide frequency range. BNC to RJ45 Pin 4+5 and 4 mm banana female

SY 9223-CISPR 13

CISPR 13 fig. A.2, 50 Ohm 75 Ohm
 The isolation transformer corresponds to the wiring schematics of CISPR 13 Fig. A.2. It is equipped with a 50 Ω female N connector at its input and a female 75 Ω female N-connector at its output.

SY 9223-17-100 & SY 9223-17-0.1

CISPR 17 for filter measurements, 50 Ohm : 100 Ohm & 50 Ohm : 0.1 Ohm
 Two wideband transformers are required to transform the typical impedance of measurement devices from 50 Ω to 0.1 Ω or from 50 Ω to 100 Ω respectively

SY 9223-120

IEC61643-21
 Is a balun including a resistive adaption part. It transforms an asymmetrical 50 Ω signal (N-connector) into a symmetrical 120 Ω environment (screw terminals).

SY 9223-PLC, IN 9223-PLC

EN 50065-2-1 2003 + A1:2005
 Was designed for measurements acc. to EN 50065-2-1. The balun transformer offers galvanic isolation of the symmetrical and the unsymmetrical ports with a transformation ratio of 1:1. It can be used for both, immunity and emission testing of mains signaling devices.

LISN LINE IMPEDANCE STABILIZATION NETWORKS

Model	Tests	Impedance	Current	Voltage	Paths	Conn.	Cal Adpt.	Options
Automotive								
 NNHV 8123	CISPR 25 HV, BMW GS 95025-1, BCI	5μH 50 Ω	70 A AC 100 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8125	HVSE 8600
 NNHV 8123-200	CISPR 25 HV, BMW GS 95025-1, BCI	5μH 50 Ω	200 A 280 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 D	HVSE 8600
 NNHV 8123-400	CISPR 25HV, BMW GS 95025-1, BCI	5μH 50 Ω	400 A 500 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 F HYB	HVSE 8600 CAP 0.9-400
 NNHV 8123-800	CISPR 25 HV, BMW GS 95025-1, BCI	5μH 50 Ω	800 A 1000 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 F HYB	HVSE 8601 CAP 0.9-400
 NNHV 8123-1600	CISPR 25 HV, BMW GS 95025-1, BCI	5μH 50 Ω	1600 A	700V AC, 300V 400Hz 1000V DC	1	Type N(f)		HVSE 8602
 NNHV 8123-200R	CISPR 25 HV, BMW GS 95025-1, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	200 A 280 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 D	HVSE 8600
 NNHV 8123-400R	CISPR 25 HV, BMW GS 95025-1, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	400 A 500 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 F HYB	HVSE 8600
 NNHV 8123-800R	CISPR 25 HV, BMW GS 95025-1, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	800 A 1000 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 F HYB	HVSE 8601
 NNBM 8124	CISPR 25, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	70 A AC 100 A Max	250V AC, 130V 400Hz 500V DC	1	BNC(f)	KA 8125	N-connector
 NNBM 8124-200	CISPR 25, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	200 A AC/DC 280 A Max	700V AC, 700V 400Hz 1000V DC	1	BNC(f)	KA 8126 D	N-connector
 NNBM 8124-400	CISPR 25, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	400 A AC/DC 500 A Max	700V AC, 700V 400Hz 1000V DC	1	BNC(f)	KA 8126 F HYB	N-connector
 NNBM 8124-800	CISPR 25, ISO 7637-2, BCI	(5μH + 1 Ω) 50 Ω	800 A AC/DC 1000 A Max	400V AC, 300V 400Hz 1000V DC	1	BNC(f)	KA 8126 F HYB	N-connector
 BNB 8652	MBN 11123, ISO 21498-2	2 x 1 μH Rint = 50/25/10 mΩ	100A, 120A, 200A	1000 VDC	2	Type N(f)	Water cooled	
 BNB 8653	MBN 11123, ISO 21498-2	2 x 1 μH Rint = 50/25/10 mΩ	300A, 600A, 850A	1000 VDC	2	Type N(f)	Water cooled	
 BNB 8654	MBN 11123, ISO 21498-2	2 x 1 μH Rint = 50/25/10 mΩ	500A, 1000A, 1600A	1000 VDC	2	Type N(f)	Water cooled	
 BAN 8508	ISO 11452-7 or DC-10614		2 A - 8 A	100 V DC	1	BNC(f)		DC-Block 500
 BAN 8530	ISO 11452-7 or DC-10614		8 A - 30 A	100 V DC	1	BNC(f)		DC-Block 500

HVSE 8600 / 8601 / 8602

Shielded Enclosure for Automotive LISN CISPR 25 Ed. 4

The HVSE 8600 Shielded Enclosure (Shielding Box) is necessary for measurements of electric or hybrid vehicles.
 HVSE 8600: NNHV 8123, NNHV 8123-200, NNHV 8123-400, NNHV 8123R, NNHV 8123-200R, NNHV 8123-400R
 HVSE 8601: NNHV 8123-800, NNHV 8123-800R
 HVSE 8602: NNHV 8123-1600

Model	Tests	Impedance	Current	Voltage	Paths	Conn.	Cal Adpt.	Options
DO 160								
 NNBM 8126 A 890	DO160, MIL-STD Aircraft, Def-Stan	(5 μH + 5 Ω) 50 Ω	70 A AC/DC 100 A Max	530V 400Hz, 270V 890Hz 600V DC	1	BNC(f)	KA 8125	DO-160 CAL CAP 10-100 N-connector
 NNBM 8124	DO160, MIL-STD Aircraft, Def-Stan	(5μH + 1 Ω) 50 Ω	70 A AC 100 A Max	250V AC, 130V 400Hz 500V DC	1	BNC(f)	KA 8125	DO-160 CAL CAP 10-100 N-connector
 NNBM 8124-200	DO160, MIL-STD Aircraft, Def-Stan	(5μH + 1 Ω) 50 Ω	200 A AC/DC 280 A Max	700V AC, 700V 400Hz 1000V DC	1	BNC(f)	KA 8126 D	DO-160 CAL CAP 10-200 N-connector
 NNBM DO160-1500	DO160, MIL-STD Aircraft, Def-Stan	5 μH 50 Ω	200 A AC/DC 280 A Max	650V AC, 650V 400Hz 1500V DC	1	BNC(f)	KA 8125	DO-160 CAL CAP 10-200 N-connector
MIL-STD								
 NNBL 8225	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	20 A AC/DC	250V AC, 140V 400Hz 250V DC	1	BNC(f)	KA 8125	N-connector
 NNBL 8226	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	70A AC/DC 100A Max	250V AC, 140V 400Hz 250V DC	1	BNC(f)	KA 8126 D	N-connector
 NNBL 8226-HV	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	70A AC/DC 100A Max	800V AC, 140V 400Hz 800V DC	1	BNC(f)	KA 8126 D	N-connector
 NNBL 8226-2	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	70A AC/DC 100A Max	250V AC, 140V 400Hz 500V DC	2	BNC(f)	KA 8126 D	CAP 10-8226-2 N-connector
 NNBL 8229-HV	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	200 A AC/DC	800V AC, 1000V DC	1	BNC(f)	KA 8126 D	N-connector
 NNBL 8230	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	300A AC/DC 500A Max	250V AC, 140V 400Hz 500V DC	1	BNC(f)	KA 8126 F HYB	N-connector
 NNBL 8240	Mil-Std-461/462	(50μH + 5 Ω) 50 Ω	800A AC/DC 1000A Max	650V AC, 1000V DC	1	BNC(f)	KA 8126 F HYB	N-connector
CISPR 16-1-2 socket								
 NSLK 8117	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	2 x 10 A AC/DC Schuko	250V AC, 350V DC artificial hand	2	BNC(f)	KA 8127	N-connector
 NSLK 8127	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	2 x 16 A AC/DC Schuko	250V AC, 400V DC artificial hand	2	BNC(f)	KA 8127	RC, PLC N-connector
 NSLK 8126	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	2 x 16 A Schuko 4 x 16 A CEKON	250V AC, 400V 3P, 400V DC, artificial hand	4	BNC(f)	KA 8127, KA 8126	RC N-connector
 NSLK 8128	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	2 x 16 A Schuko 4 x 32 A CEKON	250V AC, 400V 3P, 400V DC, artificial hand	4	BNC(f)	KA 8127, KA 8128	RC N-connector
 NSLK 8163	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	4 x 63 A CEKON	400V AC, 700V 3P, 630V DC, artificial hand	4	BNC(f)	KA 8163	RC N-connector
CISPR 16-1-2 Wing Terminals								
 NNLK 8121	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	50 A AC/DC 100 A	250V AC, 400V 3P, 400V DC	4	BNC(f)	KA 8121	RC, 400/700V, HighCurrent, Fans, TC, N
 NNLK 8122	CISPR 16-1-2	50 μH + 5 Ω 50 Ω	50 A AC/DC	750V AC 1000V DC	2	BNC(f)	KA 8121	N-connector
 NNLK 8129	CISPR 16-1-2	50 μH 50 Ω	200 A AC/DC 300 A Max	250V AC, 400V 3P, 400V DC	4	BNC(f)	KA 8129	RC, 400/700V, Fans, TC N-connector
 NNLK 8129-2 HV	CISPR 16-1-2	50 μH 50 Ω	200 A AC/DC 300 A Max	1000V AC, 1000V DC	2	BNC(f)	KA 8129	RC, TC N-connector
 NNLK 8130	CISPR 16-1-2	50 μH 50 Ω	400 AAC/ DC500 A Max	250V AC, 400V 3P, 400V DC	4	BNC(f)	KA 8130	RC, 400/700V, TC N-connector
 NNLK 8140	CISPR 16-1-2	50 μH 50 Ω	800 A AC/DC 1000 A Max	1000V AC, 500V 400Hz, 1000V DC	1	BNC(f)	KA 8130	TC N-connector



CAP 10-100 / CAP 10-200 / CAP 10-8226-2

10uF Capacitors
CAP 10-100 & CAP 10-200 for tying Line to Ground to meet: DEF STAN 59, DO 160, or MIL 461F Aircraft
CAP 10-8226-2 for tying Line to Line for meeting MIL-STD-461 CS 101-4; CS106-3 Used on NNBL 8226-2



CAP 0.9-400

Extend the use of 8123 LISNS for 1uF testing

Capacitance of in total 1 uF parallel to a resistance of 1 MΩ at the input side of the LISN a 0.9 uF capacitor like the CAP 0.9-400 has to be connected to the mains terminals of the NNHV 8123-400 or NNHV 8123-800 LISN.



CMDM 8700

Common Mode / Differential Mode Switch for use with LISNs

9 kHz - 108 MHz, Measurement modes: Line A, Line B, Common mode, Differential mode



ARTIFICIAL HAND

CISPR 16-1-2, 220 pF + 510 Ω

Artificial hand simulates the capacitive coupling between device under test and human hand which rests on the device under test during regular operation.

CALIBRATION ADAPTORS

<p>KA 8127 Schuko male Fits NSLK 8127, NSLK 8126, NSLK 8128, R&S ESH3-Z5, ENV216</p>	<p>KA 8126 CEE / CEKON 16 A male 16 Amp 3-P Fits NSLK 8126</p>	<p>KA 8128 CEE / CEKON 32 A male 32 Amp 3-P Fits NNSLK 8128, R&S ENV432</p>	<p>KA 8163 CEE / CEKON 63 A male 63 Amp 3-P Fits NSLK 8163</p>
<p>KA 8127 F Schuko female Fits NSLK 8127, R&S ESH3-Z5, ENV216</p>	<p>KA 8126 CEE / CEKON 16 A female 16 Amp 3-P Fits NSLK 8126</p>	<p>KA 8128 F CEE / CEKON 32 A female 32 Amp 3-P Fits NSLK 8128, R&S ENV432</p>	<p>KA 8163 F CEE / CEKON 63 A female 63 Amp 3-P Fits NSLK 8163</p>
<p>KA 8127 NEMA NEMA male</p>			
<p>KA 8121 Fits NNK 8121, NSLK 8122 and NDTV 8160</p>	<p>KA 8129 Fits NNK 8129</p>	<p>KA 8130 Fits NNK 8130, NNBL 8230, NNBL 8240 and NNK 8140</p>	<p>MSS 9630 Braid current blocking cable N-male, N-female, length ca. 0.2-0.3 m</p>
<p>KA 8125 Fits NNBM 8124, NNBM 8125, NNBM 8126 A, NNBM 8125 BCI and NNBL 8225, NNHV 8123, NPLC 8500</p>	<p>KA 8126 D Fits NNBM 8126 D, NNBL 8226-HV, NNBL 8226, NNBL 8226-2, NNBM 8125 BCI with Option 200 A, NNBM 8124-200, NNBM 8126 G, NNHV 8123200</p>	<p>KA 8126 F Fits NNBM 8126 E, NNBM 8126 F, NNBM 8126 F HYB up to S/N 148</p>	<p>KA 8126 F HYB NNBM 8124-400, NNBM 8124-800, NNBL 8229 HV, NNBM 8126 F HYB starting from S/N 149, NNHV 8123-400</p>

M/F CONECTORS & REPLACMENT LISN TERMINALS



PULSE LIMITERS

Diode Pulse Limiter with built-in power attenuator and fuse lamp to protect sensitive measuring equipment. Use with LISN!



Model	VTSD 9561 D-BNC	VTSD 9561 D-N	VTSD 9561 F-BNC	VTSD 9561 F-N	VTSD 9562
General Specs	Diode Pulse Limiter	Diode Pulse Limiter	Diode Pulse Limiter	Diode Pulse Limiter	Partial Discharge Limiter
Frequency Range	DC ... 200 MHz	DC ... 200 MHz	DC ... 200 MHz	DC ... 200 MHz	150 kHz ... 1 MHz
Insertion Loss	20 dB +/- 0.5 dB	20 dB +/- 0.5 dB	10 dB +/- 0.5 dB	10 dB +/- 0.5 dB	
Fuse Lamp (RI)	Osram 2306	Osram 2306	Osram 2306	Osram 2306	Amplitude limited
Connector	BNC	Type N	BNC	Type N	BNC

SPECIAL LISN

The ECSS LISN 1 was developed following the „European Cooperation for Space Standardization“. The ECSS LISN 1 is used for DC mains lines.



Model	ECSS LISN 1	ECSS LISN 2	ECSS LISN 2-75A	ECSS LISN 3
Frequency Range	10 Hz - 150 MHz	10 Hz - 150 MHz	10 Hz - 150 MHz	10 Hz - 150 MHz
Impedance	(1.5 μH+0.1 Ω) 50 Ω	(2 μH+0.1 Ω) 50 Ω	(2 μH+0.1 Ω) 50 Ω	(0.7 μH+0.05 Ω) 50 Ω
Current	10 A (15 A Short time)	10 A (15 A Short time)	75 A (100 A Short time)	10 A (15 A Short time)
Voltage	200 V DC	200 V DC	200 V DC	200 V DC
Paths	2	2	2	2
Standard	ECSS-E-ST-20-07 Rev1	ECSS-E-ST-20-07 Rev1	ECSS-E-ST-20-07 Rev1	ECSS-E-ST-20-07 Rev1

Additional ECSS LISNs:
ECSS LISN 4 10A, 200V, 2 paths, no measurement output, 2.0 μH, 20 mF, switchable resistors, increased power dissipation.
ECSS LISN 5 10A, 200V, 2 paths, without measuring output, 2 μH. Like the ECSS LISN 2 but with 10mF capacitor 'C2' (instead of 5mF) and without 10μF capacitor 'C1' and 'C3' to ground, without resistors 'R2' and 'R5'.
ECSS LISN 6 10A, 200V, 2 paths, no measurement output, 0.5 μH.
ECSS LISN 7 10A, 200V, 2 paths, no measurement output, 1 μH.
ECSS LISN 8 10A, 50V, 2 paths, no measurement output, 3 μH.
ECSS LISN 9 - 75A 75A, 200V, 2 paths, no measurement output, 5 μH (like the ECSS LISN 2 - 75 A, but with 5 μH inductors instead of 2 μH).
ECSS LISN 10 10A, 200 VDC, 2 paths, 10 Hz - 150 MHz, no measurement output, L1=L2= 5 μH, R1=R2=100mOhm, R3=R4 = 50 Ohm, C1 = 1.4 mF.
ECSS LISN 11 10A, 200V, 2 paths, no measurement output, x=1 μH, y=25 mOhm, optional capacitor between the regulation wires = 1 mF.
ECSS LISN 12 10A, 200 VDC, 2 paths, 10 Hz - 150 MHz, no measurement output, L1= L2= 4 uH, R1=R2= 140 mOhm, optional capacitor between the regulation wires = 5mF.
ECSS LISN 13 5A, 40 VDC, 2 paths, no measurement output, 0.5 μH, 200 mOhm, 20 mF, switchable resistors.



Model	PVDC 8301	PVDC 8300	TEMP 8400	NPLC 8500
General Specs	Photovoltaic Inverters Common/Differential	Photovoltaic Inverters Common/Differential	Tempest LISN	PLC measurements ITU-T G.9901
Frequency range	0.15 MHz - 30 MHz	0.15 MHz - 30 MHz	9 kHz - 1 GHz	3 kHz - 148.5 kHz
Impedance	(150 +/- 30) Ω	(150 +/- 20) Ω	(50 +/- 10) Ω	1 Ω
Current	200 A (250 A Short time)	100 A (150 A Short time)	16 A (25 A Short time)	16 A _{rms}
Voltage	1500 V DC	1500 V DC	150 V AC	250 V AC 50Hz
Paths	2	2	2	1
Connector	BNC(f)	BNC(f)	Type N(f) Adapters to wing-terminals/ schuko/GB	
Options	-RC, -400 amps			

HPF 150 K - HIGH PASS FILTER

9kHz - 30 MHz, 50Ohm, 100 Watts, Type N(f)

HPF is a passive LC-Filter with female N-connectors in shielded metal housing with very steep slope according to CISPR 16-1-1. The main application is the elimination of noise below 150 kHz for conducted measurements.

HPF - HIGH PASS FILTER

35 - 1000 MHz, 50Ohm, 100 Watts, Type N(f)

HPF is a passive LC-Filter with female N-connectors in shielded metal housing with very steep slope according to CISPR 16-1-1. The main application is the spurious measurement of medical diathermal equipment with a fundamental frequency of 27.12 MHz

RF ACCESSORIES

LOW NOISE PRE-AMPLIFIERS

Low-Noise Preamplifiers are used to increase signal levels for measurements.



Model	BBV 9743 B	BBV 9744	BBV 9745	BBV 9718 D	BBV 9721
General Specs					
Frequency Range	10 MHz - 6 GHz	9 kHz - 6 GHz	9 kHz - 2 GHz	1 - 8GHz(0.5 - 20GHz)	18 - 40 GHz
Noise Figure	Typ. <2.7 dB (1.0 GHz)	2.5 dB (1.0 GHz)	2.5 dB (1.0 GHz)	2 dB	5.5 dB
Gain	Typ. +28 dB	+28 dB	+30 dB	+ 27dB (typ. 30 dB)	+30 dB (typ. 35dB)
Gain Flatness	< +/- 3 dB	< +/- 3 dB	< +/- 3 dB	< +/- 5.5 dB	< +/- 4 dB
1dB Compression	> -18 dBm (89 dBμV)	> -20 dBm (87 dBμV)	> -20 dBm (87 dBμV)	> -18 dBm (89 dBμV)	> -20 dBm (87 dBμV)
VSWR In/Out	< 2 : 1	< 2 : 1	< 2 : 1	< 2.5 : 1	< 2.6 : 1
Power	+ 10-15 V, 120 mA	+ 10-15 V, 120 mA	+ 10-15 V, 120 mA	Battery 3.7 V, 3.1 Ah Lithium Ion	+ 15 V / 600 mA DC Supply1 + (8...15)V/-100 mA DC Supply 2 PS 9721
Power Supply	PS 120/12	PS 120/12	PS 120/12	USB port, Charger	
Optional Battery					PS 9721 Battery Antenna mounts to BBV 9719, short Coax 2.92 connector (shown in picture)
Mounting	To antenna	To antenna	To antenna	Mounts to antenna's 22mm tube, 0.5m coax N-SMA	

COMB & NOISE GENERATORS

Comb Generators produce frequency spectrum lines with spacing. In combination with an antenna it can be used as an emission source for testing open area test sites, anechoic chambers or GTEM-cells.



Model	SG 9301	SG 9303	SG 9302 C	IGUF 2910
General Specs	Comb Generator	Comb Generator	Comb Generator	Pulse Generator (noise)
Frequency Range	30-1000 MHz	(0.01) 1 - 6 (8) GHz	0.1 - 18 GHz	up to 300MHz (1 GHz)
Frequency Spacing	100 Hz, 1 kHz, 10 kHz, 100 kHz, & 1 MHz	10 MHz & 100 MHz	100 MHz	
Operation	Battery	Battery	Battery	Battery
Charger	ACS 110	ACS 110	USB Port	LGA 9802
Connector	Type N (f)	Type N (f)	Type N (f)	BNC (f)
Suggested Accessories	DGA 9552 N 10 dB UBAA9114,BAOC 9216 Bicon	DGA 9552 N 10 dB SBA 9119 Mini Bicon	DGA 9552 N 10 dB SBA 9112 Mini Bicon	DGA 9552 N 10 dB

18 GHz

DGA 9552 N-# BIDIRECTIONAL ATTENUATOR

High Quality Bidirectional attenuator

- 5 watts CW/ 1kW peak, Low VSWR
- Available in 3, 6, 10, 20, 30, & 40 dB values
- Delivered with an individual calibration

CCA 9552A optional case

2 GHz

DGA 9553 BNC-# BIDIRECTIONAL ATTENUATOR

High Quality Bidirectional attenuator

- 1 watts CW, Low VSWR
- Available in 3, 6, 10, 20, & 30 dB values
- Delivered with an individual calibration

50 KHZ - 1 GHz

DC BLOCK 500

For the protection of measurement receivers from high DC levels. A lot of measurement setups require to decouple the device under test (DuT) from the measurement equipment DC wise. Measurement equipment for RF often provides an impedance of 50 Ω and does not provide galvanic isolation.

ANTENNA TRIPOD SYSTEM

AM 9144

Modular Antenna Mast System

The double telescopic antenna mast / tripod is continuously height-adjustable.

- Sturdy design for all antennas
- Fiberglass for low-reflectivity/high-strength
- Adjustable for uneven surface
- Screw antenna mount 3/8" for adapter
- Max height of 3m (configuration dependent)



Antenna Adapters	Telescoping Section	Mast Foot	Optional Wheels	Optional Extensions
AA9202, AA 9202 POM, AA 9203, AA 9209, AA 9205, RA 9215, KG 9201, PDG 9211, PPS 9208 Positioner, AA 9213, RS 9214	AM 9144 T-05 510-940 mm	AM 9144 M-VA Stainless Steel +100 mm	AM 9144 W-VA For M-VA/M-TILT Foot +50 mm	AM 9144 E-05 +430 mm
	AM 9144 T-08 700 - 1300 mm	AM 9144 M-GFK Fiberglass +50 mm	AM 9144 W-GFK For M-GFK Foot +50 mm	AM 9144 E-08 +600 mm
	AM 9144 T-09 800 - 1510 mm	AM 9144 M-TILT Stainless Steel, Tilt 20° +140 mm		AM 9144 E-09 +710 mm
	AM 9144 T-12 1050 - 1950 mm			AM 9144 E-12 +900 mm

ANTENNA ADAPTERS



AA 9202	AA 9202 POM	AA 9209	AA 9203	RA 9215	KG 9201
Mast Adapter	Mast Adapter	Heavy Duty Mast Adapter	Elevation Swivel Mast Adapter	Indexing 90 ° step Mast Adapter	Polarization swivel Mast Adapter
22 mm hole for most Antennas	22 mm hole for most Antennas	For: STLP 9128 E/E-SP/D/D-SP, STLP 9129	22 mm hole for most Antennas	22 mm hole for most Antennas	For VULP 9118 D,E,F,G and VUSLP 9111 E only
3/8" and 1/4" camera threads	3/8" camera thread	3/8" and 1/4" camera threads	3/8" and 1/4" camera threads	3/8" and 1/4" camera threads	3/8" camera thread



AA 9205	AA 9213	PDG 9211	PPS 9208	EA 9207	POSITIONER
Orthogonal Swivel Adapter	22 mm Mast Adapter	Polarization swivel fixture	Pneumatic polarization adapter	Adapter to EMCO Mast	Light Antenna adapter
22 mm hole for small Bicon	3/8" female thread to 22 mm tube BBHA 9170	For: Large Horn antennas: BBHA 9102 J,G,F,LF...	22 mm hole for most Antennas & PDG 9211	22 mm hole for most Antennas	For SBA 9113, 420 NJ
3/8" and 1/4" camera threads	22 mm mount	3/8" camera thread	3/8" camera thread	3/8" and 1/4" camera threads	22 mm mount

AUTOMOTIVE ANTENNAS



420NJ ELEMENTS

Elements for SBA 9113 Balun **360 MHz - 2.7 GHz**

Flat, broadband antenna elements for the SBA 9113 Balun (also compatible with SBA 9113B and SBA 9113 Short Version) for efficient immunity testing at close distances. Linear Polarization.

- 360 MHz - 2.7 GHz,
- Used with SBA 9113, -B, and -mini versions, 20 watts
- 240 x 109 x 2 mm
- Optional 50mm spacer made with RF transparent material Polystyrene



422NJ ELEMENTS

Elements for SBA 9119 Balun **800 MHz - 6 GHz**

The combination of the flat elements 422 NJ with SBA 9119-Balun provides remarkable field-strength levels with moderate transmit power. With approx. 10 Watt transmit power, one can reach field-strength levels of 300 V/m at a distance of 30 mm.

- 360 MHz - 2.7 GHz,
- Used with SBA 9119 and -mini versions, 20 watts
- 108 x 49 x 2 mm
- Optional 30mm spacer made with RF transparent material Polystyrene



POSITIONER
Light Antenna adaptor
For SBA 9113, 9118, 420NJ, 422NJ
22 mm mount



AA 9202
Mast Adapter
22 mm hole for most Antennas
3/8" and 1/4" camera threads



TSA ANTENNA SET

Tuned Sleeve Antennas **385 MHz - 2 GHz**

Tuned sleeve antennas are tuned half wave dipoles, with their axis aligned as a straight extension of the coaxial feed cable. The main applications of the TSA-antennas are immunity testing against handheld transmitters in the automotive industry within the VHF/UHF range according to ISO 11542-9 respectively manufacturer specific standards (e.g. Toyota TSC 7006G).

- 20 watts CW / 50 watts short time
- Type N(f)
- Includes transport case & the following:

Model	Nominal Frequency	Typ. VSWR	Frequency range	Standard
TSA 385	385 MHz	< 2.0 (< 1.5)	377 - 393 MHz (380 - 388 MHz)	ISO 11452-9
TSA 400	400 MHz	< 2.0 (< 1.5)	388 - 408 MHz (393 - 404 MHz)	ISO 11452-9
TSA 415	415 MHz	< 2.0 (< 1.5)	407 - 423 MHz (410 - 420 MHz)	ISO 11452-9
TSA 430	430 MHz	< 2.0 (< 1.5)	420 - 440 MHz (425 - 435 MHz)	ISO 11452-9
TSA 455	455 MHz	< 2.0 (< 1.5)	445 - 465 MHz (450 - 460 MHz)	ISO 11452-9 & Toyota
TSA 835	835 MHz	< 2.0 (< 1.5)	802 - 888 MHz (815 - 855 MHz)	Toyota TSC 7006G
TSA 880	880 MHz	< 2.0 (< 1.5)	833 - 956 MHz (851 - 927 MHz)	ISO 11452-9
TSA 900	900 MHz	< 2.0 (< 1.5)	862 - 952 MHz (883 - 918 MHz)	Toyota TSC 7006G
TSA 1270	1.27 GHz	< 2.0 (< 1.5)	956 - 1420 MHz (1010 - 1372 MHz)	Toyota TSC 7006G
TSA 1440	1.44 GHz	< 2.0 (< 1.5)	1241 - 1585 MHz (1380 - 1428 MHz)	Toyota TSC 7006G
TSA 1750	1.75 GHz	< 2.0 (< 1.5)	1230 - 1905 MHz (1292 - 1846 MHz)	ISO 11452-9
TSA 1950	1.95 GHz	< 2.0 (< 1.5)	1600 - 2220 MHz (1700 - 2130 MHz)	Toyota TSC 7006G

Each piece available individually



NMHA 6M ANTENNA SET

Normal Mode Tuned Helical Antennas **26 MHz - 2.7 GHz**

Nissan and Renault antenna set to test immunity against handy transmitters acc. to Nissan specification 28401NDS02 [6] and RENAULT 36-00-808/L (combined set) consisting of normal mode helical antennas, counterpoise, SBA 9113 with 420NJ elements and transport case.

- 20 watts CW / 50 watts short time
- BNC for NMHA, Type N(f) for SBA 9113
- Includes transport case & the following:

Model	Frequency	Nissan	Renault	Model	Frequency	Nissan	Renault
NMHA 26	26 MHz		36-00-808/M	NMHA 155	155 MHz	28401NDS02 [6]	
NMHA 28	28 MHz	28401NDS02 [6]	36-00-808/M	NMHA 165	160 & 165 MHz	28401NDS02 [6]	36-00-808/M
NMHA 30	30 MHz		36-00-808/M	NMHA 174	174 MHz		36-00-808/M
NMHA 40	40 MHz	28401NDS02 [6]		NMHA 190	190 MHz	28401NDS02 [6]	
NMHA 52	52 MHz	28401NDS02 [6]		NMHA 223	223 MHz	28401NDS02 [6]	
NMHA 75	75 MHz	28401NDS02 [6]		NMHA 350	350 MHz	28401NDS02 [6]	
NMHA 125	125 MHz	28401NDS02 [6]		SBA 9113 +420NJ +Spacer 50	360 - 2620 MHz	28401NDS02 [6]	36-00-808/M
NMHA 145	145 & 146 MHz	28401NDS02 [6]	36-00-808/M				

Each piece available individual



VW TL 82166 2016-02 SET

Matched Normal Mode Helical Antennas **26 MHz - 6 GHz**

Antenna kit for testing immunity against hand-held radios acc. to Volkswagen standard TL 82166:2009-05
For the frequency range 26-174 MHz matched normal mode helical antennas are used. For frequencies from 360 MHz and beyond the broadband SBA 9113 & SBA 9119 mini versions with 420 NJ & 422 NJ elements is used.

- 20 watts CW / 50 watts shot time
- BNC for NMHA, Type N(f) for SBA 9113 & SBA 9119
- Includes transport case & the following:

Model	Freq Band/System	Frequency Range	Unit Mock-up
NMHA 26.5	10 m band (CB radio, analog)	26 - 30 MHz	VW case small, MSS 9630
NMHA 27.5			
NMHA 28.5			
NMHA 29.5			
NMHA 71	4 m band (radio, analog)	68 - 87.5 MHz	VW case small, MSS 9630
NMHA 77			
NMHA 83.75			
NMHA 151	2 m band (radio, analog)	144 - 174 MHz	VW case large, MSS 9630
NMHA 166			
SBA 9113 Mini version +420NJ +Spacer 50	70 cm band (radio, analog/digital)	410 - 470 MHz	VW case large, MSS 9630
	TETRA / TETRAPOL (radio, digital)	380 - 876 MHz in various bands	VW case small, MSS 9630
	AMPS (mobile phone)	824 - 849 MHz	VW case small, MSS 9630
	GSM 850 and GSM 900 (mobile phone)	824 - 915 MHz in various bands	VW case small, MSS 9630
	23 cm band (radio, analog)	1200 - 1300 MHz	VW case small, MSS 9630
	GSM 1800 and GSM 1900 (mobile phone)	1710 - 1910 in various bands	VW case small, MSS 9630
	UMTS (mobile phone WCDMA & TD/CDMA)	1885 - 2025 MHz	VW case small, MSS 9630
Bluetooth/WLAN (data)	2400 - 2500 MHz	VW case small, MSS 9630	
SBA 9119 Mini version +422NJ +Spacer 30		700 - 6000 MHz	VW case small, MSS 9630

Each piece available individual

AUTOMOTIVE CONT.

HLC / FAN / EGG / PCD

The antennas are monopole antenna located in a PVC-housing for automotive immunity testing on component level. This antenna type is proposed in the standard ISO 11452-9.



Model	Frequency Range	Power	Connector	Size	Mounting	Standard	Pic #
HLC 27	26.96 - 27.4 MHz	50 Watts	BNC (f)	80 x 80 x 145 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	1.
HLC 146	144 - 148 MHz	50 Watts	BNC (f)	80 x 80 x 145 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	2.
HLC 170	169.8 - 173 MHz	50 Watts	BNC (f)	80 x 80 x 145 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	3.
FAN 405	380 - 430 MHz	50 Watts	BNC (f)	80 x 80 x 145 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	4.
FAN 450	430 - 470 MHz	50 Watts	BNC (f)	80 x 80 x 145 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	5.
EGG 900	890 - 915 MHz	50 Watts	SMA (f)	80 x 80 x 150 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	6.
EGG 1860	1710 - 2025 MHz	50 Watts	SMA (f)	80 x 80 x 85 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	7.
PCD 2440	2402 - 2480 MHz	50 Watts	SMA (f)	80 x 80 x 85 mm	22 mm tube, L = 30 mm & 3/8"	ISO 11452-9	8.

Can be sold as a kit with a case

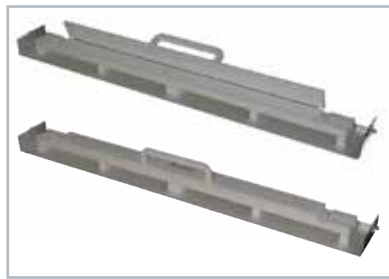


RS 9244 150 KHZ - 1 GHZ

Long Wire Antenna Called-out in CISPR 25 Ed4.

The radiation source RS 9244 complies to CISPR 25 Edition 4, which proposes the "Long Wire Antenna" and is used as reference source to evaluate the suitability of absorber lined shielded enclosures (ALSE) according to the 'Long Wire Antenna method'

- 150 kHz - 1 GHz
- Conductor: high 50 mm, diameter 4 mm
- Size: 700 x 105 x 150 mm
- Connectors: 2 x Type N(f)



TF 130-150

Wire Support Test Fixture FORD EMC-CS-2009 RI 130/150

- Fixture for testing to EMC-CS-2009 RI130 and RI150 requirements
- Size: 1350 x 150 x 150 mm
- Connectors: Type N(f)



VHIC 9260 9 KHZ - 30 (120) MHZ

Antenna Impedance Converter

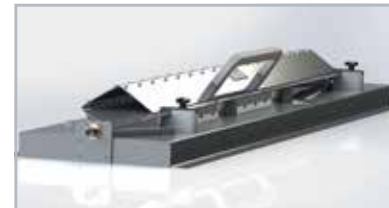
Antenna Impedance converter acc. CISPR 25 9 kHz - 30 (120) MHz.
Option ACS 110: Charger ACS 110



CA 9260 150 KHZ TO 6.2 GHZ

Artificial Antenna Network

The CA 9260 artificial antenna network (AAN) described in CISPR 25 Annex B, 150 kHz to 6.2 MHz, is used to measure the S21 of the Impedance converter VHIC 9260



CCC 9224

Capacitive Coupling Clamp

ISO 7637-3

- 50Ω impedance, For transients acc. to ISO 7637-3 or DC-10614 B.5.
- 1250mm x 300 mm x 150 mm, N female



CCP 9225

Capacitive Coupling Plate

DC-30 MHZ

MBN 10284-2 2011-04

The main application is to conduct CV-tests (capacitive voltage measurements) in conjunction with the impedance converter VHIC 9260. The construction complies to the automotive manufacturer standard MBN 10284-2 2011-04, Annex B.



TK TSC7508G

Voltage probe according to Toyota TSC7508G. Aluminum housing, C=1000 pF, with BNC female connectors. Including 1 meter of RG 223 cable with BNC male connectors and measurement clip (BNC male to 2x crocodile clips).

OTHER AVAILABLE AUTOMOTIVE PRODUCTS



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VAMP 9243

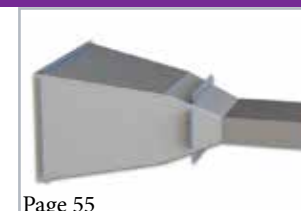
Emissions Testing



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VAMP 9241

ALSE Validation



Page 55

BBHA 9120 K

FORD/GM Radar Pulse



Page 74

LISNs

ISO/CISPR



Page 35

Mag System

ISO/MIL/...



TEMZ 5231

DC - 220 MHz

50 Ω Stripline ISO 11452-5 w/Opt. FOLDAWAY

The unsymmetrical 50 W stripline complies to the requirements of ISO 11452-5. The stripline can be used to create TEM-waves up to max. 220 MHz. The field-strength distribution at TEM-mode operation inside the stripline is very homogeneous.



TEMZ 5232

DC - 220 MHz

90 Ω Stripline ISO 11452-5 w/Opt. FOLDAWAY

Open, unsymmetrical 90 Ω stripline for automotive immunity testing of components. (A wooden frame construction is required to bear the stripline, not included in delivery) The power rating of the resistor is 60 W, which is sufficient for generating field-strengths up to 500 V/m

BNB 8652 / 8653 / 8654

HV AN/LISN ISO 21498-2:2021, MBN 11123

System is designed for continuous operation
1000 VDC. 50mΩ, 25mΩ, & 10mΩ Water cooled.

- BNB 8652 - Output 100A/120A/200A Selectable
- BNB 8653 - Output 300A/600A/800A Selectable
- BNB 8654 - Output 500A/1000A/1600A Selectable



SY 9223-7637-4

Balanced-to-Unbalanced Transformer/Balun

CISPR 15 LUMINARY TESTING



HXYZ 9170 2 m DIAM.

3-Dimensional Loop Antenna Van Veen

According to EN 55015 / 4.4, the magnetic field strength of fluorescent lighting luminaries has to be measured if the operating frequency is above 100 Hz. The measurement is done with a triple loop antenna as shown. The Unit under Test is positioned under operating conditions in the center of the triple loop antenna. To measure the magnetic field strength without turning, there are loops in X-, Y- and Z direction. A current transformer converts the loop current into an appropriate voltage. Ferrite chokes reduce braid current on the coaxial cables which would cause wrong measurement. Shown with **HXYZ 9170 Socket**, stand for mounting antenna



HXYZ 9170 3M 3 m DIAM.

3-Dimensional Loop Antenna Van Veen

According to EN 55015 / 4.4, the magnetic field strength of fluorescent lighting luminaries has to be measured if the operating frequency is above 100 Hz. The measurement is done with a triple loop antenna as shown. The Unit under Test is positioned under operating conditions in the center of the triple loop antenna. To measure the magnetic field strength without turning, there are loops in X-, Y- and Z direction. A current transformer converts the loop current into an appropriate voltage. Ferrite chokes reduce braid current on the coaxial cables which would cause wrong measurement.

HXYZ 9170 OPTIONS



HFCD 9171

Calibration Dipole for HXYZ 9170. Recommended AM 9144 antenna tripod & CDA 9271 adapter



CDA 9271

Adapter to hold HFCD 9171 on Antenna tripod AM 9144



HXYZ 9170 UMSCHALTBOX

3 in one coaxial switch for manual / remote operation including cable set



ADAPTORS

Unschaltbox adapter to receivers: ESPI, ZVR, ESCI, ESCS, FSB, or ESL, ESR



VDHH 9502

Van der Hoofden Test Head 20 kHz - 10 MHz

The "Van der Hoofden" test head VDHH 9502 is used to determine the exposure of humans to radiation caused by luminaries. The measurement is based on DIN IEC 62493:2015 and VDE 0848-493.



NTFM 8131

T-LISN, are used to measure the asymmetrical interference voltage on symmetrical data or telecommunication lines for luminaries.

Furthermore it can be used for measurements according to CISPR 32 and CISPR 15.



SY 9501

The balanced to unbalanced transformer SY 9501 is designed according to the standard EN 55015 (CISPR 15). This balun is used to measure the attenuation of luminaries (lighting equipment) up to 1.605 MHz. Luminary attenuation measurements require a 50 Ω - LISN (e.g. NSLK 8127), an EMI receiver with tracking generator (e.g. FCKL 1528) and the suitable dummy lamps.



CDNE

Coupling Decoupling Network

These CDNs have been built for testing to EN 55025 & CISPR 15 over the range of 30MHz - 300MHz. For the emissions testing of Luminaries which carry higher tolerances than IEC 61000-4-6 immunity testing, CDNE cannot be used for immunity. For measurements on DuTs without PE one has to use the CDNE M2. For measurements using PE, N and L the CDNE M3 has to be used.

Model	Frequency range	Lines	Voltage	Current	Connector
CDNE M2	30-300 MHz	2 Line (no PE)	400VDC / 277VAC	16 Amp	4mm safety jacks
CDNE M3	30-300 MHz	3 Line (with PE)	400VDC / 277VAC	16 Amp	4mm safety jacks

CDNE CALIBRATION ACCESSORIES

- CA CDNE M2 Part A**
Shorting adapter required for calibration
- CA CDNE M3 Part A**
Shorting adapter required for calibration
- CA CDNE Part B**
Shorting adapter required M2 or M3



SR 100-6W B

Adapter for the calibration of a CDN (e.g. ISN S1, ISN S8) or a CDNE. Therefore it matches the 50 Ω measurement port to the 150 Ω system. Built per the requirements of IEC 61000-4-6, CISPR 15, CISPR 16-1-x.

DUMMY LAMPS FOR CISPR 15



Model	Type	Standard	Length	Diam	Watts
Single Capped Twin Tube Dummy Lamps with Socket G23					
LN G23	Socket	Fig 4e, CISPR 15	47 mm		
RS G23 / 85	Tube	IEC 85 mm	38 mm	13 mm	5 W
RS G23 / 115	Tube	IEC 115 mm	68 mm	13 mm	7 W
RS G23 / 145	Tube	IEC 145 mm	98 mm	13 mm	9 W
RS G23 / 215	Tube	IEC 215 mm	168 mm	13 mm	11 W



Model	Type	Standard	Length	Diam	Watts
Single Capped Quadruple Tube Dummy Lamps w/ Socket G24					
LN G24	Socket	Fig 4f, CISPR 15	45 mm		
RS G24 / 95	Tube	IEC 95 mm	50 mm	13 mm	10 W
RS G24 / 130	Tube	IEC 130 mm	85 mm	13 mm	13 W
RS G24 / 150	Tube	IEC 150 mm	105 mm	13 mm	18 W
RS G24 / 170	Tube	IEC 170 mm	125 mm	13 mm	26 W



Model	Type	Standard	Length	Diam	Watts
Single Capped Twin Tube Dummy Lamps with Socket 2G11					
LN 2G11	Socket	Fig 4d, CISPR 15	67 mm		
RS 2G11 / 225	Tube	IEC 225 mm	158 mm	15 mm	18 W
RS 2G11 / 320	Tube	IEC 320 mm	253 mm	15 mm	24 W
RS 2G11 / 415	Tube	IEC 415 mm	348 mm	15 mm	36 W
RS 2G11 / 535	Tube	IEC 535 mm	468 mm	15 mm	55 W



Model	Type	Standard	Length	Diam	Watts
Linear Dummy Lamps 15 mm Diameter with Socket G5					
LN G5	Socket	Fig 4c, CISPR 15	20 mm		
RS G5 / 136	Tube	IEC 136 mm	96 mm	15 mm	4 W
RS G5 / 212	Tube	IEC 212 mm	172 mm	15 mm	6 W
RS G5 / 288	Tube	IEC 288 mm	248 mm	15 mm	8 W
RS G5 / 517	Tube	IEC 517 mm	477 mm	15 mm	13 W
RS G5 / 549	Tube	IEC 549 mm	509 mm	15 mm	14 W
RS G5 / 849	Tube	IEC 849 mm	809 mm	15 mm	21 W
RS G5 / 1449	Tube	IEC 1449 mm	1409 mm	15 mm	35 W



Model	Type	Standard	Length	Diam	Watts
Linear Dummy Lamps 20 mm Diameter with Socket G13 / 25					
LN G13 / 25	Socket	Fig 4a, CISPR 15	75 mm		
RS G13 / 25 / 438	Tube	IEC 438 mm	288 mm	20 mm	15 W
RS G13 / 25 / 590	Tube	IEC 590 mm	440 mm	20 mm	18 W
RS G13 / 25 / 720	Tube	IEC 720 mm	570 mm	20 mm	16 W
RS G13 / 25 / 895	Tube	IEC 895 mm	745 mm	20 mm	30 W
RS G13 / 25 / 970	Tube	IEC 970 mm	820 mm	20 mm	36 W
RS G13 / 25 / 1047	Tube	IEC 1047 mm	897 mm	20 mm	38 W
RS G13 / 25 / 1200	Tube	IEC 1200 mm	1050 mm	20 mm	36 W
RS G13 / 25 / 1500	Tube	IEC 1500 mm	1350 mm	20 mm	58 W



Model	Type	Standard	Length	Diam	Watts
Linear Dummy Lamps 28 mm Diameter with Socket G13 / 38					
LN G13 / 38	Socket	Fig 4a, CISPR 15	75 mm		
RS G13 / 38 / 590	Tube	IEC 590 mm	440 mm	28 mm	20 W
RS G13 / 38 / 970	Tube	IEC 970 mm	820 mm	28 mm	25 W
RS G13 / 38 / 1200	Tube	IEC 1200 mm	1050 mm	28 mm	115 W
RS G13 / 38 / 1500	Tube	IEC 1500 mm	1350 mm	28 mm	140 W
RS G13 / 38 / 1800	Tube	IEC 1800 mm	1650 mm	28 mm	160 W
RS G13 / 38 / 2400	Tube	IEC 2400 mm	2250 mm	28 mm	125 W



Model	Type	Standard	Length	Diam	Watts
Single Capped Twin Tube Dummy Lamps with Socket 2G7					
LN 2G7	Socket	CISPR 15	47 mm		
RS 2G7 / 85	Tube	IEC 85 mm	38 mm	13 mm	5 W
RS 2G7 / 115	Tube	IEC 115 mm	68 mm	13 mm	7 W
RS 2G7 / 145	Tube	IEC 145 mm	98 mm	20 mm	9 W
RS 2G7 / 215	Tube	IEC 215 mm	168 mm	13 mm	11 W



Model	Type	Standard	Length	Diam	Watts
U-shape Tube Dummy Lamps with Socket 2G13					
LN 2G13	Socket	CISPR 15	75 mm		
RS 2G13 / 310	Tube	IEC 310 mm	235 mm	20 mm	20 W
RS 2G13 / 607	Tube	IEC 607 mm	532 mm	20 mm	40 W
RS 2G13 / 765	Tube	IEC 765 mm	690 mm	20 mm	65 W



Model	Type	Standard	Length	Diam	Watts
Circular dummy lamps					
LN G10q / 28 / 216	Socket/Tube	Fig 4b, CISPR 15	IEC 216 mm	20 mm	22 W
LN G10q / 32 / 311	Socket/Tube	Fig 4b, CISPR 15	IEC 311 mm	28 mm	32 W
LN G10q / 32 / 413	Socket/Tube	Fig 4b, CISPR 15	IEC 413 mm	28 mm	40 W



Model	Type	Standard	Length	Diam	Watts
Single Pin Linear Dummy Lamps with Socket Fa6					
LN Fa6	Socket pair	CISPR 15	75 mm		
RS Fa6 / 1200	Tube	IEC 1200 mm	1050 mm	28 mm	32 W
RS Fa6 / 1500	Socket/Tube	IEC 1500 mm	1350 mm	28 mm	50 W

Model	Type	Standard	Length	Diam	Watts
Conical Covers					
Conical Cover	Test fixture for energy saving lamps with E27 socket according to Fig. 7b CISPR 15				
Option E14	Adapter E27-E14 to insert E14 lamps				
Option B22d	Adapter E27-B22d to insert B22d lamps				
Option GU10	Adapter E27-GU10 to insert GU10 lamps				

CDN Selection

When using a CDN, the # of lines to be tested needs to match up with the CDNs # of lines. For Example: a M3, M4, or M5 CDN can not be used to test a product with 2 main lines. A M2 CDN must be used. An exception is the S-Type CDNs. Since in this case the immunity is only coupled and decoupled onto one point, the shield, a higher conductor CDN can be used to test less lines.



CDN M TYPE

Mains Coupling Decoupling Net-

Coupling Decoupling Network (CDN) built to the requirements of IEC 61000-4-6. CDNs have a common mode impedance of 150 Ohm. M Type are for testing:

- Mains
- Unscreened lines
- Unbalanced lines
- AC or DC
- High current
- Each CDN incl. 2 Shorting adapters

Model	Frequency Range	No. Lines	Voltage	Current	Connector
CDN M1 16A 1000V	0.15 - 230 MHz	1	500 VAC / 1000 VDC	16 Amp	4 mm safety
CDN M2 16A 1000V	0.15 - 230 MHz	2	500 VAC / 1000 VDC	16 Amp	4 mm safety
CDN M2 32A 1000V	0.15 - 230 MHz	2	500 VAC / 1000 VDC	32 Amp	4 mm safety
CDN M2 63A 1000V	0.15 - 230 MHz	2	500 VAC / 1000 VDC	63 Amp	Multi-Contact 6 mm
CDN M2 125A 1000V	0.15 - 230 MHz	2	500 VAC / 1000 VDC	125 Amp	Multi-Contact 6 mm
CDN M2/M3PE 16A	0.15 - 230 MHz	2 or 3 switch	250 VAC / 400 VDC	16 Amp	4 mm safety
CDN M3PE 16A 1000V	0.15 - 230 MHz	3 (incl. PE)	500 VAC / 1000 VDC	16 Amp	4 mm safety
CDN M3 32A 1000V	0.15 - 230 MHz	3	500 VAC / 1000 VDC	32 Amp	4 mm safety
CDN M3PE 32A 1000V	0.15 - 230 MHz	3 (incl. PE)	500 VAC / 1000 VDC	32 Amp	4 mm safety
CDN M4 16A 1000V	0.15 - 230 MHz	4	500 VAC / 1000 VDC	16 Amp	4 mm safety
CDN M4PE 16A 1000V	0.15 - 230 MHz	4 (incl. PE)	500 VAC / 1000 VDC	16 Amp	4 mm safety
CDN M4 32A 1000V	0.15 - 230 MHz	4	500 VAC / 1000 VDC	32 Amp	4 mm safety
CDN M4PE 32A 1000V	0.15 - 230 MHz	4 (incl. PE)	500 VAC / 1000 VDC	32 Amp	4 mm safety
CDN M4 63A 1000V	0.15 - 230 MHz	4	500 VAC / 1000 VDC	63 Amp	Multi-Contact 6 mm
CDN M5PE 16A 1000V	0.15 - 230 MHz	5 (incl. PE)	500 VAC / 1000 VDC	16 Amp	4 mm safety
CDN M5PE 32A 1000V	0.15 - 230 MHz	5 (incl. PE)	500 VAC / 1000 VDC	32 Amp	4 mm safety
CDN M5PE 63A 1000V	0.15 - 230 MHz	5 (incl. PE)	500 VAC / 1000 VDC	63 Amp	Multi-Contact 6 mm
CDN M5PE 125A 1000V	0.15 - 230 MHz	5 (incl. PE)	500 VAC / 1000 VDC	125 Amp	Multi-Contact 6 mm



CDN AF TYPE

Unscreened / Unbalanced Lines

Coupling Decoupling Network (CDN) built to the requirements of IEC 61000-4-6. CDNs have a common mode impedance of 150 Ohm. AF Type are for testing:

- Unscreened lines
- Unbalanced lines
- Low current
- Each CDN incl. 2 Shorting adapters

Model	Frequency Range	No. Lines	Voltage	Current	Connector
CDN AF2	0.15 - 230 MHz	2	100 VAC / 150 VDC	4 Amp	4 mm safety
CDN AF3	0.15 - 230 MHz	3	100 VAC / 150 VDC	4 Amp	4 mm safety
CDN AF4	0.15 - 230 MHz	4	100 VAC / 150 VDC	4 Amp	4 mm safety
CDN AF6	0.15 - 230 MHz	6	100 VAC / 150 VDC	4 Amp	4 mm safety
CDN AF8	0.15 - 230 MHz	8	100 VAC / 150 VDC	4 Amp	4 mm safety



CDN S TYPE

Screened Lines

Coupling Decoupling Network (CDN) built to the requirements of IEC 61000-4-6. CDNs have a common mode impedance of 150 Ohm. S Type are for testing:

- Coax Cables
- Screened or shielded lines
- Each CDN incl. 1 Shorting adapters

Model	Frequency Range	No. Lines	Voltage	Current	Connector
CDN S1 BNC	0.01 - 230 MHz	1	100 VAC / 150 VDC	0.25 Amp	BNC 50 Ω
CDN S1 BNC 75	0.01 - 230 MHz	1	100 VAC / 150 VDC	0.25 Amp	BNC 75 Ω
CDN S2 XLR3-1	0.01 - 230 MHz	2	100 VAC / 150 VDC	0.25 Amp	XLR3-1 GND:PIN1
CDN S2 XLR3-3	0.01 - 230 MHz	2	100 VAC / 150 VDC	0.25 Amp	XLR3-1 GND:PIN3
CDN S4 4xBNC	0.01 - 230 MHz	4	100 VAC / 150 VDC	0.25 Amp	4- BNC 50 Ω
CDN S4 XLR4	0.01 - 230 MHz	4	100 VAC / 150 VDC	0.25 Amp	XLR4 female
CDN S4 DIN5-1	0.01 - 230 MHz	4	100 VAC / 150 VDC	0.25 Amp	DIN5 GND:PIN1
CDN S8 RJ45	0.01 - 230 MHz	8	100 VAC / 150 VDC	0.25 Amp	RJ45
CDN S9 SUBD	0.01 - 230 MHz	9	100 VAC / 150 VDC	0.25 Amp	Sub-D9 pin
CDN S9 USB3.0	0.01 - 230 MHz	9	100 VAC / 150 VDC	0.25 Amp	USB 3.0
CDN S15 VGA	0.01 - 230 MHz	15	100 VAC / 150 VDC	0.25 Amp	Sub-D15 HD (VGA)
CDN S19 HDMI	0.01 - 230 MHz	19	100 VAC / 150 VDC	0.25 Amp	HDMI
CDN S24 USB-C	0.01 - 230 MHz	24	100 VAC / 150 VDC	0.25 (5) Amp	USB-C
CDN S25 SUBD	0.01 - 230 MHz	25	100 VAC / 150 VDC	0.25 Amp	Sub-D25 pin



CDN T TYPE

Balanced / Unscreened Lines

Coupling Decoupling Network (CDN) built to the requirements of IEC 61000-4-6. CDNs have a common mode impedance of 150 Ohm. T Type are for testing:

- Unscreened lines
- Balanced lines
- Telecommunication ports
- Unshielded twisted pairs
- Each CDN incl. 2 Shorting adapters

Model	Frequency Range	No. Lines	Voltage	Current	Connector
CDN T2	0.01 - 230 MHz	2	100 VAC / 150 VDC	0.25 Amp	4 mm safety
CDN T2 16A	0.01 - 230 MHz	2	100 VAC / 150 VDC	16 Amp	4 mm safety
CDN T4	0.01 - 230 MHz	4	100 VAC / 150 VDC	0.25 Amp	4 mm safety
CDN T4 4A	0.01 - 230 MHz	4	100 VAC / 150 VDC	4 Amp	4 mm safety
CDN T4 RJ45	0.01 - 230 MHz	4	100 VAC / 150 VDC	0.25 Amp	RJ45
CDN T8 RJ45	0.01 - 230 MHz	8	100 VAC / 150 VDC	0.25 Amp	RJ45

CDN CALIBRATION ACCESSORIES



SR 30/4

Shorting adapter required for use with SR 100-6W B. Each CDN comes with 2 shorting adapters specific to the CDN, the SR 30/4 is a spacer for 30mm separation.



SR 100-6W B

Adapter for the calibration of a CDN (e.g. ISN S1, ISN S8) or a CDNE. Therefore it matches the 50 Ω measurement port to the 150 Ω system. Built per the requirements of IEC 61000-4-6, CISPR 15, CISPR 16-1-x.

ABSORBING CLAMPS



MDS 21 C 30 - 1000 MHz

EMI Absorbing Clamp to CISPR 16

Before this EMI Absorbing Clamp has been introduced, most EMI (Radio Interference) Measurement had to be performed as a Field-strength Measurement on an open field antenna range (e.g. in 10 m distance on a clear place without any reflecting obstacles). This meant quite some effort and depended on weather conditions.

With this clamp the EMI work becomes simple for testing domestic (household) equipment and Electric Tools per EN 55014.

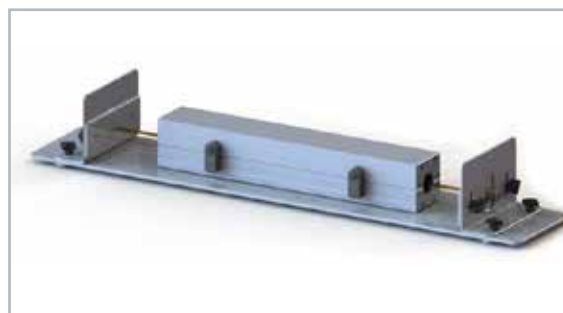


CDAM 1614 10 - 1000 MHz

Common Mode Absorption Device

Common Mode Absorption Device consists of many precision cut ferrite half-toroids, which are embedded in a gray plastic housing. The unique floating toroid bearing ensures a perfect fit of the ferrite surfaces. Cable bundles or coaxial cables with a maximum diameter of 26 mm are accepted by the clamp without disassembling connectors or interrupting any circuitry.

- Quick locks easy open/close
- Large diameter 26 mm
- Broad frequency range
- High quality rugged construction



CAL CMAD 1614

Calibration Fixture for CMAD 1614 & Others

The fixture consists of an aluminum base plate with two side-plates, adjustable in height and position and each of them equipped with N-connector and inner conductor fixture. A variety of inner conductors with 4 mm diameter is part of the delivery. The calibration fixture was designed for measurements acc. to CISPR 16-1-4 sections 9.5 and 9.6



CNA 280

A-Type CDN for Coaxial Antenna Inputs

- The CNA280 meets the specifications of the standard CISPR 16-1-2 A1, figure C1 (unit type A) and CISPR 16-1-3, app. B, Fig. 9.
- It is also required to calibrate EMI absorbing clamps like the MDS 21.

ISN & RF VOLTAGE PROBES



ISN PER. CISPR 22/32

8 Wire Impedance Stabilization Network

T-ISN is used to perform common mode disturbance voltage measurements on unshielded twisted pairs (UTP) or communication ports with 2, 4, 6 or 8 wires according to CISPR 22:2005 or EN 55022:2006.

T-ISN also can be used for IEC 61000-4-6 immunity measurements of disturbance voltages (requires SR 100-6W B & SR 30/4). Alternatively CDN-T8 can not be used as T-ISNs. T-ISN are built with tighter tolerances.

Model	Type	CISPR 22	Frequency range	Line Type ISN	Line Type CDN
NTFM 8158	CAT6 RJ45	Figure D.3	150 kHz - 30 MHz (80 MHz CDN)	T2, T4, T8 Balanced pair	T8 Balanced pair
CAT5 8158	CAT5 RJ45	Figure D.3	150 kHz - 30 MHz (80 MHz CDN)	T2, T4, T8 Balanced pair	T8 Balanced pair
CAT3 8158	CAT3 RJ45	Figure D.3	150 kHz - 30 MHz (80 MHz CDN)	T2, T4, T8 Balanced pair	T8 Balanced pair
ISN S8	S8 RJ45	Figure D.11	150 kHz - 230 MHz (230 MHz CDN)	S2, S4, S8 Shielded	S2, S4, S8 Shielded
ISN S1	S1 BNC	Figure D.9	150 kHz - 230 MHz (230 MHz CDN)	S1 coax 50 Ω	S1 coax 50 Ω
NTFM 8131	T-2	Figure D.1	150 kHz - 30 MHz	T2 Balanced pair	NA



8158 MAG BASE

The magnetic fixture 8158 Mag Base can be used to fix NTFM 8158, CAT5 8158, or CAT3 8158 to a steel wall vertically. It is capable of holding approximately 2.5 kg whereas the ISN mentioned above weigh not even 500 g.



PILOT ISN

IEC 61851-21-1 impedance stabilization network which can be used to measure disturbance voltages of PLC



CVP 9222 C 9 kHz-100 MHz

High Impedance Capacitive Voltage Probe

For measurements of the asymmetrical disturbance voltage on cables without interrupting and unlimited EuT operation.

- acc. to CISPR 22 / EN 55022 Section C 1.3
- 9 kHz - 100 MHz
- Battery operated for up to 40 hours
- Flat frequency response



TK 9261 50 kHz-700 MHz

50 Ω Active Voltage Probe

The TK 9261 is an active high-impedance RF voltage probe equipped with an internal impedance transformer which allows using it with 50 Ω measurement devices

- 100 kHz - 100 MHz Flat Response up to 700MHz with short ground
- 50 Ω impedance for Receiver use



TK94## 9 kHz-30 MHz

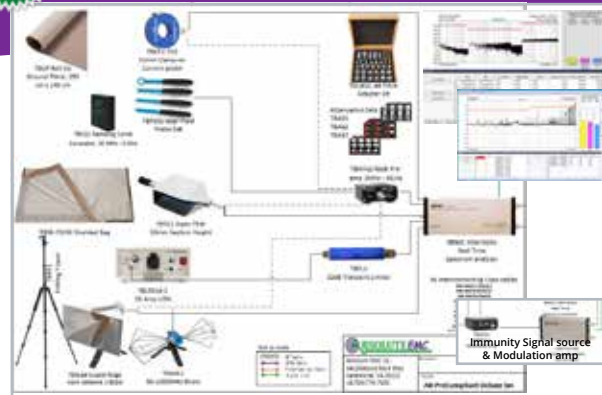
50 Ω Voltage Probe

Especially designed for measuring power electronic equipment, e.g. switching power supplies with a strong disturbance spectrum in the kHz-frequency range.

Model	Frequency range	Input	HF Volts	AC Volts	DC Volts	Attenuation
TK 9417	(10) 150 kHz - 30 MHz	2.5 kΩ	<30 V	<250V	<500 V	34dB
TK 9420	9 kHz - 30 MHz	1.5 kΩ	<30 V	<2.5 kV	<4.4 kV	30dB
TK 9421	(9) 150 kHz - 30 MHz	1.5 kΩ	<100 V	<10 kV	<15 kV	30dB
TK 9422	(9) 150 kHz - 30 MHz	5 kΩ	<100 V	<10 kV	<15 kV	40dB



PRE-COMPLIANT EMC SYSTEMS



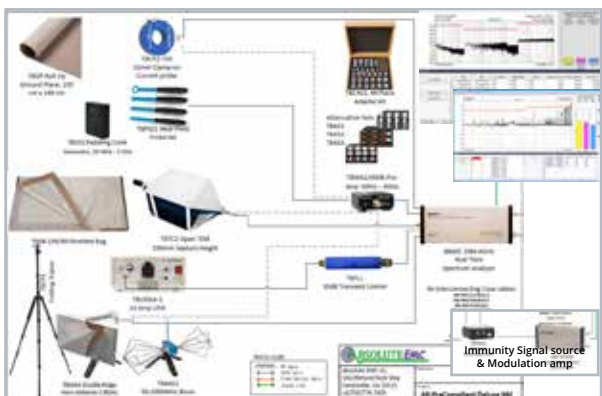
AB-PRE-COMPLIANT KITS-SM

Low Cost Kits for Emissions and Immunity

Contains all the tools you need to investigate Conducted &, Radiated emissions. Use the test cell and shielded back in a rf shielded environment. Incl. Spectrum Analyzer, Software, antennas, near filed probes Current probes, LISN, TEM Cell, pre-amp, selection of coax and connectors.

Model	Frequency	Test Volume	Real time SA	
-Sm	1 Hz - 4.4 GHz	6.3 x 4.3 x 2 cm	No	
-Deluxe Sm	9 kHz - 6 GHz	6.3 x 4.3 x 2 cm	Yes	Shown

Kits can be configured for you needs. add/remove items



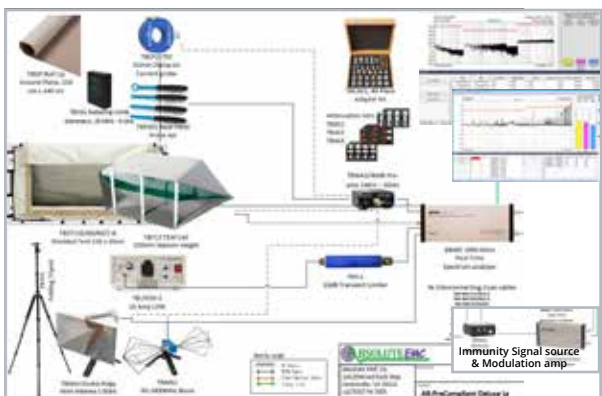
AB-PRE-COMPLIANT KITS-MD

Low Cost Kits for Emissions and Immunity

Contains all the tools you need to investigate Conducted &, Radiated emissions. Use the test cell and shielded back in a rf shielded environment. Incl. Spectrum Analyzer, Software, antennas, near filed probes Current probes, LISN, TEM Cell, pre-amp, selection of coax and connectors.

Model	Frequency	Test Volume	Real time SA	
-Md	1 Hz - 4.4 GHz	7.6 x 9.3 x 3.3 cm	No	
-Deluxe Md	9 kHz - 6 GHz	7.6 x 9.3 x 3.3 cm	Yes	Shown

Kits can be configured for you needs. add/remove items



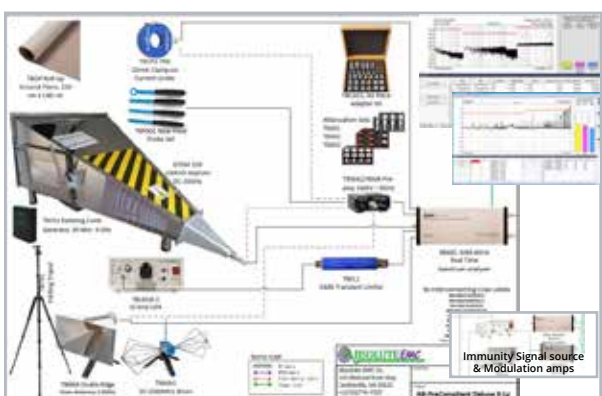
AB-PRE-COMPLIANT KITS-LG

Low Cost Kits for Emissions and Immunity

Contains all the tools you need to investigate Conducted &, Radiated emissions. Use the test cell and shielded back in a rf shielded environment. Incl. Spectrum Analyzer, Software, antennas, near filed probes Current probes, LISN, TEM Cell, pre-amp, selection of coax and connectors.

Model	Frequency	Test Volume	Real time SA	
-Lg	1 Hz - 4.4 GHz	12 x16 x 5 cm	No	
-Deluxe Lg	9 kHz - 6 GHz	12 x16 x 5 cm	Yes	Shown

Kits can be configured for you needs. add/remove items



AB-PRE-COMPLIANT KITS-X-LG

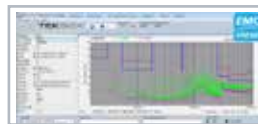
Low Cost Kits for Emissions and Immunity

Contains all the tools you need to investigate Conducted &, Radiated emissions. Use the test cell and shielded back in a rf shielded environment. Incl. Spectrum Analyzer, Software, antennas, near filed probes Current probes, LISN, GTEM Cell, pre-amp, selection of coax and connectors.

Model	Frequency	Test Volume	Real time SA	
-X-Lg	1 Hz - 4.4 GHz	20 x 20 x 15 cm	No	
-Deluxe X-Lg	9 kHz - 6 GHz	20 x 20 x 15 cm	Yes	Shown

Kits can be configured for you needs. add/remove items

PRE-COMPLIANCE TESTING



EMC VIEW PRE-COMPLIANT RE/CE TEST SOFTWARE

It is a perfect complement for automated testing using our LISNs and TEM Cells

A built-in amplitude correction enables correction and conversion coefficients for cables, amplifiers, attenuators, LISNs, TEM cells, antennas, RF current probes, striplines and capacitive coupling clamps.



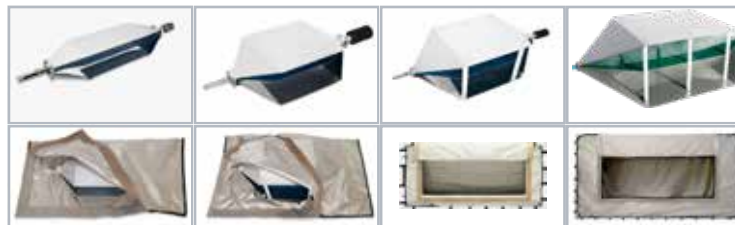
TBPS01-TBWA2/20DB OR 40DB 6 GHz

EMC Near-field Probe Set + 20/40dB Wide-band
The H20, H10, H5 and E5 are magnetic field (H) and electric field (E) probes for radiated emissions EMC measurements. The probes are used in the near field of sources of electromagnetic radiation. Includes 20 or 40dB preamplifier 10 MHz - 6 GHz



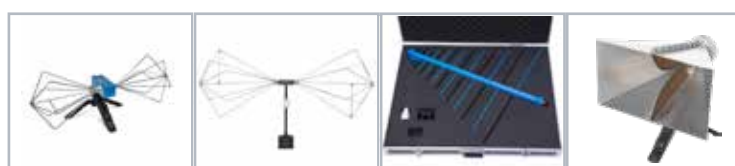
TBCP CURRENT CLAMPS 1 GHz

TBCP1 - 25mm Fixed Aperture; 10 kHz -200MHz, 30 kHz -250, or -500MHz
TBCP2 - 32mm Snap On; , 30 kHz -250, -500 or -750 MHz
TBCP3 - 17mm Fixed Aperture; 30 kHz - 1000 MHz
TBCP4 - 32mm Fixed Aperture; 10 kHz-250, -500, or -750 MHz



TBTC TEM CELLS & SHIELDING TENTS 3 GHz

TBTC0 - 3 GHz, Area under Septum 19 x 7 x 2.8 cm
TBSB-70/40 - Bag 70 x 40 cm
TBTC1 - 1.2 GHz Area under Septum 19 x 13 x 5 cm
TBSB-105/60 - Bag 105 x 60 cm
TBTC2 - 800 MHz Area under Septum 23 x 28 x 10 cm
TBST-86/49/45/2-B - Tent 86 x 48 x 48 cm, Incl filtering
TBTC3 - 700 MHz Area under Septum 36 x 48 x 15 cm
TBST-120/60/60/2-B - Tent 124 x 64 x 60 cm, Incl filtering



TBMA ANTENNAS 8 GHz

TBMA1 - Small Biconical 30 -1000 MHz, 2 W, AF 16.3 - 41.91 dB/m
TBMA2 - Biconical Antenna 30 - 300 MHz, 100 W, AF 10.8 - 26.3 dB/m
TBMA3 - LP Antenna 250 - 1300 MHz, 100 W, AF 14.2 - 27.5 dB/m
TBMA4 - Double Ridge Horn 1 - 8 GHz, 100W, AF 24 - 43 dB/m



TBL LISNS 30 MHz

TBLC08 - 50µH, CISPR 16 LISN, 8 Amp, 2 path, 9kHz - 30 MHz, 10dB Att
TBL5016-2 - 50µH, CISPR 16 LISN, 16 Amp, 2 path, 9kHz - 30 MHz, 10dB
TBL5016-1 - 50µH, CISPR 16 & MIL LISN, 16Amp, 1 path, 9kHz - 100 MHz
TBL0550-1 - 5µH, Auto/DO..LISN, 50 Amp, 1 Path, 100 kHz - 150 MHz



LISN ACCESSORIES COMB GEN. 6 GHz

TBOH01 - 5µH, Auto/DO..LISN, 10 Amp, 1 Path, 100 kHz - 110 MHz
TBLM LISN MATE - Measure Common/Differential mode from 2x LISNs
TBFL1 - Transient Limiter 10dB
TBCG1 - Comb Gen, 100Hz step, 100-6000MHz
TBCG2 - (not shown) Freq muli, input 1-350MHz, Step 1-2500MHz



TBAS ACCESSORY SETS 8 GHz

TBAS1 - 2W Type N Attenuator Set, 3, 6, 10, & 20 dB
TBAS2 - 1W SMA Attenuator Set, 3, 6, 10, 15, 20 & 30 dB, 2x 50Ω term
TBAS3 - 10W Type N Attenuator Set, 3, 6, 10, & 20 dB
TBCAS1 - Coax Adapter Set, 44 Pieces, BNC, SMA, Type-N, RCA, & SMB
TBGP - (not shown) Roll Up Ground Plane, 250 x 140 cm



TBMD MODULATIONS AMPLIFERS 3 GHz

TBMDA1 - 20 - 3000 MHz, Gain 20dB, 22dBm,
TBMDA2 - 10 - 1500 MHz, Gain 40dB, 27dBm
TBMDA3 - 10 - 1000 MHz, Gain 40dB, 37dBm
TBMDA4B - 100 kHz - 75 MHz, Gain 47dB, 37dBm
Internal Modulation: CW, 1kHz 80%AM, 1kHz 50%, 217 Hz, 12.5% PM



TBDA DRIVER AMPLIFERS 3 GHz

TBDA1/14 - 20 - 3000 MHz, Gain 14dB, N.F. 4 dB
TBDA1/28 - 20 - 3000 MHz, Gain 28dB, N.F. 4 dB
TBLPA1 - 50 - 1000 MHz, Gain 40dB, N.F. 2.5 dB
TBHDR1 - 30 kHz - 1500 MHz, Gain 24dB, N.F. 2.7 dB

PARTNERS

e\zer

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TEST

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PROFESSIONAL EMC EQUIPMENT

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