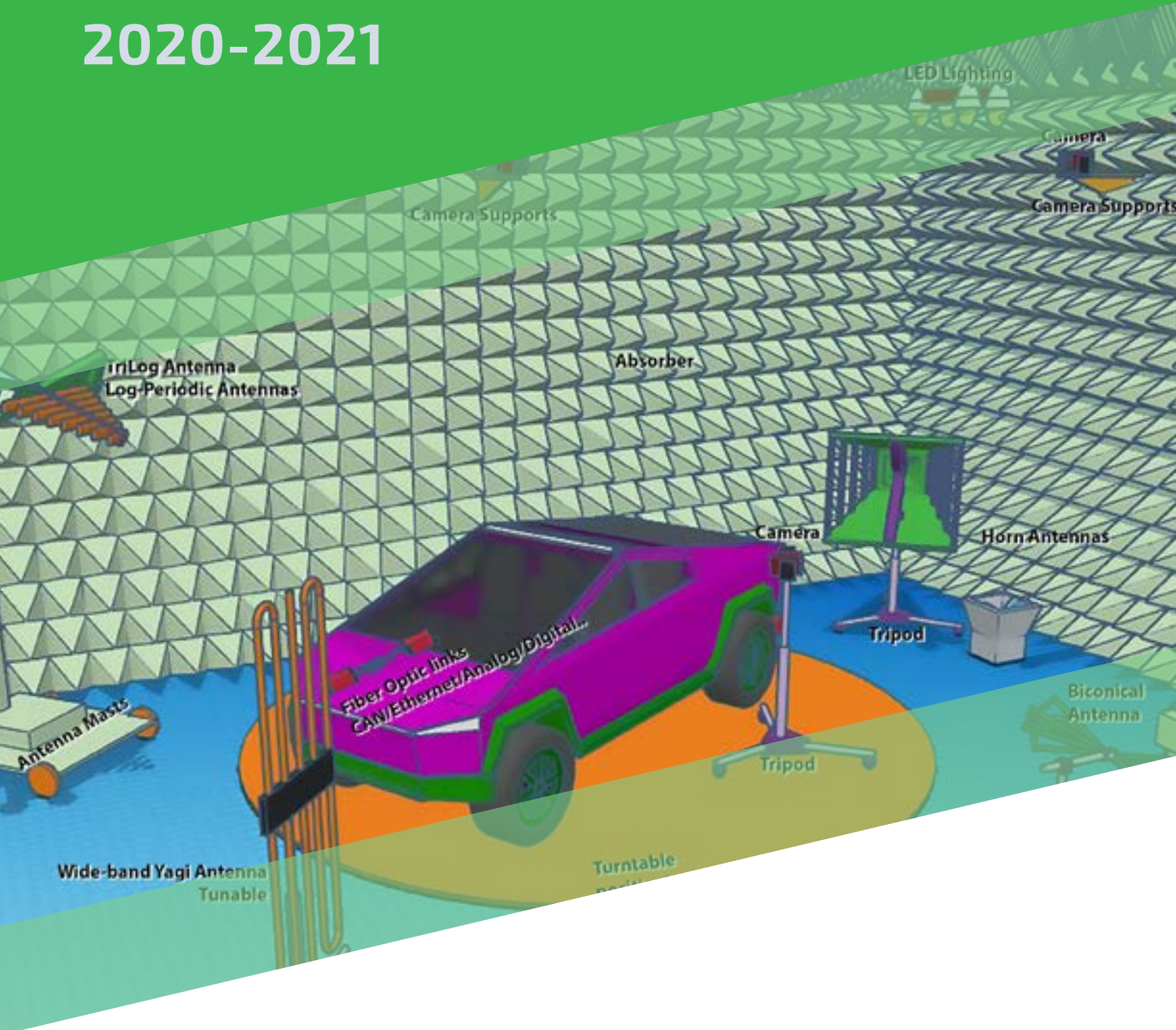


EMC/RF PRODUCT CATALOG 2020-2021



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

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 time, poor service turnarounds, and lack of communication changes in delivery. Absolute EMC is working hard to change the status quo.

We all know unpredictable events can happen, and given the circumstances of 2020 and COVID 19, have made that 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



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.



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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 14 I
CAR-SYS 14 II	100 Amp CDN	CAR-AWG 3000	CAR-PFS 80 II	PG 2804	CAR-TE 14 II
CAR-SYS 14 III	200 AMP CDN	CAR-AWG 6000	CAR-PFS 80 III	PG 2804	CAR-TE 14 III

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



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, 200A
- 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		
CAR-PFS 80 III	200 Amps	CAR-AWG 6000	CAR-PS 75-220		

Optional Accessories: HILO CAR-Remote Software



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 if used on its own, a CDN is available.

- 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 PG2804 Coupling box 50A



CAR-TE 14

Transient Emissions

Easy front panel control, w/ 7" color touch-panel display. The CAR-TE 14 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), a control unit.

- ISO 7637
- Triggered load switch:
 - Mechanical & Electronic
- 50 / 100 / 200A, 800V
- Shunt resistors integrated

Model	Description	Power Amp 4quad	or Power Supply		
CAR-TE 14 I	50 Amps	CAR-AWG 1200	CAR-PS 66-55		
CAR-TE 14 II	100 Amps	CAR-AWG 3000	CAR-PS 66-110		
CAR-TE 14 III	200 Amps	CAR-AWG 6000	CAR-PS 75-220		

Optional Accessories: HILO CAR-Remote Software



CAR-AWG

Arbitrary Waveform Generator

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

- Battery simulator
- Bandwidth DC-200kHz
- Signal Bandwidth DC-1MHz (small signal -3dB)
- 4 quadrant amplifier
- Fast rise time up to 100V/μs
- Sense lines
- Arbitrary waveform up to 16MSa / 20MSa/s
- Selectable output impedance 0-200mΩ
- Over-voltage protection

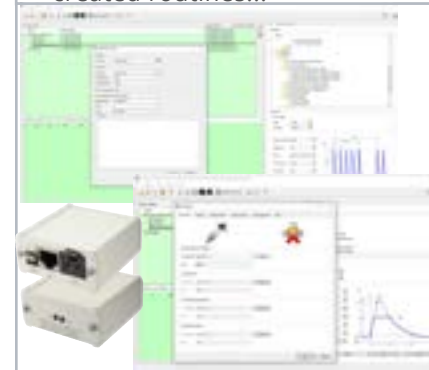
Model	Current	Voltage	Output impedance	Slew Rate	Size weight
CAR-AWG 1200	40 Amp (100A short)	+75V, -75V	0-200 mΩ	70 V/μs	4U / 15 kg
CAR-AWG 3000	100 Amp (200A Short)	+70V, -30V	0-200 mΩ	70 V/μs	20U / 70 kg
CAR-AWG 6000	200 AMP (400A Short)	+70V, -30V	0-200 mΩ	70 V/μs	34U / 120 kg

Optional Accessories: HILO CAR-Remote Software (required)

CAR-REMOTE

Software

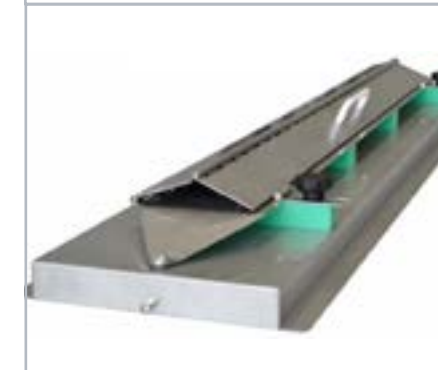
Meet ISO 17025 quality and reporting requirements. Pre-programmed standards, user created routines...



CDN 2012

Capacitive Coupling Clamp

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



CAR ICC

Inductive Coupling Clamp

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



CAR-PS

DC Power Source Amplifier

Power supply to expand the CAR-SYS 14 for the tests according to ISO 7637 and ISO 16750-2. Lower cost 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

Optional Accessories: HILO CAR-Remote Software (required)

CAR CAL KIT

Automotive Loads

For use in verification and calibration of ISO pulses for CAR-pulse and load dump.



BCI 400F

EFT Calibration Kit

EFT/Burst pulse verification and calibration kit. 200:1 & 400:1, 50Ω & 1000Ω loads



MISC.

Accessories

- Warning Lights
- Safety Switch
- Foot Trigger
- Equipment Rack





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 µs, 8/20 µs	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, CDNs

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, CDNs

CWG-CE5 5 kV

Surge 1.2/50 µs

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, CDNs

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 µs, 8/20 µs	7 kV / 3.5 A		IMP8
IEC 61000-4-5	Surge 10/700 µs	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, CDNs

CWG-CE7 7 kV

Surge 1.2/50 µs

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, CDNs

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, CDNs

TS-CE7 7 kV

Telecom 10/700 µs

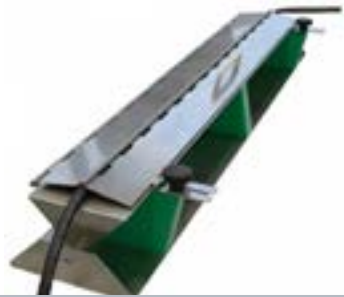
Stand-alone Telecom simulator. Including Telecom network, CDN and easy to use interface.



Standard	Accessories
IEC 61000-4-5	

Optional Accessories: HILO Remote Software, SCK 105 inBox, IMP 8, CDNs

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.



16 AMP 3 PHASE

Model	Description
CDN 5416	3*400V, 16A, 5kV B, S
CDN 5416 B	3*400V, 16A, 5kV B
CDN 7416	3*400V, 16A, 7kV B, S, R

Option for 690V and ANSI coupling



32 AMP 3 PHASE

Model	Description
CDN 5432	3*400V, 32A, 5kV B, S
CDN 7432	3*400V, 32A, 7kV B, S, R

Option for 690V and ANSI coupling



63 AMP 3 PHASE

Model	Description
CDN 5463	3*400V, 63A, 5kV B, S
CDN 7463	3*400V, 63A, 7kV B, S, R

Option for 690V and ANSI coupling



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.



125 AMP 3 PHASE

Model	Description
CDN 54125	3*400V, 125A, 5kV B, S
CDN 74125	3*400V, 125A, 7kV B, S, R

Option for 690V and ANSI coupling



200 AMP 3 PHASE

Model	Description
CDN 54200	3*400V, 200A, 5kV B, S
CDN 74200	3*400V, 200A, 7kV B, S, R

Option for 690V and ANSI coupling



CDN 2802

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



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



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 504/8 SYM

Manual CDN for symmetrical lines
5 kV Surge, 5 kV Telecom (fig10)
CDN 504sys: 4 line up to 80V/1A
CDN 508sys: 8 line up to 240V/10A



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

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

DAMPED OSCILLATORY 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

COMBINATION WAVE



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*400V, 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*400V, 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*400V, 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*400V, 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

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 measured 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

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

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: 2 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



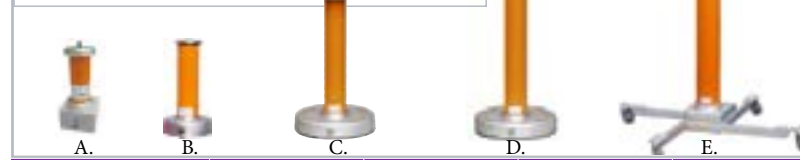
IPG 250 PULSE CAL
Impulse generator for calibration purposes. Step response measurement. rise time <3ns



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



SESD 216 16kV

Electrostatic Discharge Simulator

- 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
- Robust proven housing
- Programmable automatic test runs, optional intuitive software
- Predefined test levels acc. to the standard
- Contact control for contact discharge
- 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 30 kV

Electrostatic Discharge Simulator

- 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
- Robust proven housing
- Programmable automatic test runs, optional intuitive software
- Predefined test levels acc. to the standard
- Contact control for contact discharge
- 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



SESD 2910 30kV

ESD on Electro-Explosive Devices

- EN 13763-13 Determination of resistance of electric detonators
- Meets many standards for MIL (ordnance) and Automotive (airbag)
- 30kV, 150 pF - 5000 pF, 0.5 Ω - 5000 Ω



SESD 3000 A 30kV

Electrostatic Discharge Simulator

- IEC 61000-4-2 (150 pF / 330 Ω standard)
- MIL-STD-461G, DO-160, Automotive,...
- Separate Capacitor/resistor modules, high flexibility
- 30 kV AIR / 30 kV CONTACT discharge
- "A" version includes automatic polarity switch option
- Lightweight ergonomic design, weight distribution
- Robust proven housing
- Programmable automatic test runs, optional software
- Predefined test levels acc. to the standard
- Contact control for contact discharge
- 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, table top control unit, carrying/storage case

ACCESSORIES



ESD TEST TABLE

Kit includes table, HCP, earth cable 2x 470kΩ, 0,05mm insulator, bleeder wire, and alternative low impedance earth cable



SESD 271

Vertical Coupling plane w/ stand and earth cable 2x 470 kΩ,



SESD 272

Earth cable w/ 2x 470 kΩ resistors



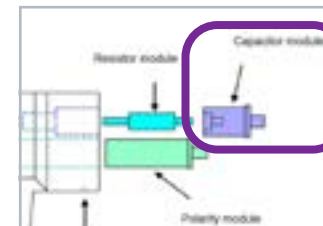
SESD 8800-4

ESD Verification Target 2Ω (4GHz) to verify ESD wave form



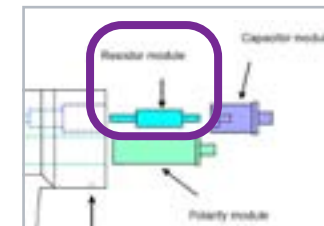
SESD 302X

ESD test tips



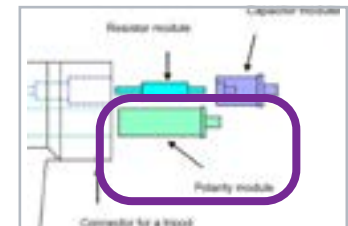
SESD 30 CXXX

Capacitor modules up to 1000 pF



SESD 30 RXXX

Resistor Modules 0Ω, 50Ω to 5 kΩ



SESD 30 P200

Automatic switch for polarity. Standard in SESD 3000 A version.



SESD S100

ESD Test Software + fiber-optic serial interface



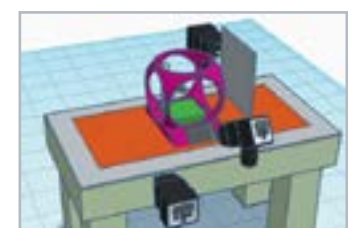
SESD 30 MOD-1

Special human body model (HBM) 100 pF/1500Ω Rise time >5ns



SESD 30 T 1000

Support arm and balancer for production testing or long test times.



CONDUCTED IMMUNITY



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 with industries best value.

- 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	Frequency	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
CDG 7000-EXT	4 kHz - 1.2 GHz	External		IEC, ISO, MIL, DO
w/VBA400-110	10 kHz - 400 MHz	110 Watts	109dBuA (300mA)	Full levels of ISO, MIL
w/VBA400-260	10 kHz - 400 MHz	260 Watts	300mA +6dB	Full levels of DO 160

ACCESSORIES

<p>CDN EMCL-20/35 EM Clamp for cable diameters 20mm and 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, 10 kHz - 400 MHz</p>																																				
<p>CDG A CMP-XX Calibration Jig for each BCI or monitor probe</p>	<p>CDG CMP-45 / 46 Current Monitoring Probe 10kHz - 400MHz</p>	<p>ATTENUATORS And Terminators</p>	<p>CDNS Many CDNs to match your application</p>																																				
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CDG A CMP-45	CDG A CMP-45																																						
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MAGNETIC IMMUNITY



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 1030 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>CNs EN 55103-2 Coupling Networks</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										
Figure B.2	Calibration network										
Figure B.4	Current transducer										
<p>MGA CT-50A/C CS101 Coupling transformer + differential amplifier for AC decoupling, 50 Amp, 0.5Ω Precision Resistor ISS 19 Coupling device for tests acc. DO-160, Section 19 (19.3.1, 19.3.2, 19.3.3)</p>	<p>HCS 50-28 TAP Helmholtz coil shown with loop sensor RLS 133</p> <table border="1"> <thead> <tr> <th>Model</th> <th>Used for</th> </tr> </thead> <tbody> <tr> <td>HCS 50-28 TAP</td> <td>50 x 28 cm</td> </tr> <tr> <td>HCS 125-75 TAP</td> <td>125 x 75 cm</td> </tr> </tbody> </table>	Model	Used for	HCS 50-28 TAP	50 x 28 cm	HCS 125-75 TAP	125 x 75 cm	<p>HCST 50-28 TAP Tri-axial Helmholtz coil for automated 3 axis testing</p>			
Model	Used for										
HCS 50-28 TAP	50 x 28 cm										
HCS 125-75 TAP	125 x 75 cm										

LF IMMUNITY TESTING

STAND ALONE GENERATORS



PGA 1240 DC-300kHz

Conducted Immunity Turnkey

The power generator PGA 1240 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 1330 is needed 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	Power	Output Current	Output Voltage
PGA 1240-5A	DC - 1 MHz	260 Watts	5 Arms / ± 7.5 Apeak	50 Vrms / ± 75 Vpeak
PGA 1240-16A	DC - 1 MHz	820 Watts	16 Arms / ± 24 Apeak	50 Vrms / ± 75 Vpeak

ACCESSORIES



PGA-1330

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



CN 1240-32/125

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 4

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

Model	Description
CN 19 4	Voltage testing 16A / 240V
CN 19	Current testing 10A / 30 V



CNs FOR IEC 61000-4-16

Coupling Network

Offering coupling networks for all AC and DC requirements of your EUT.
DC: M2, M3 (CN 1240 above)
AC: M2, M3, M4, M5 (CN 1240 above)
AF2, AF4, AF8, RJ45, T2, T4, T8
Isolation Transformer for AC: IT-06, IT-16, IT-20

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/varia.

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.



IEC 61000-4-11/34

Up to 200 amps

3 phase dips interrupts and variations in a compact transportable design. See last page



SITE VALIDATION



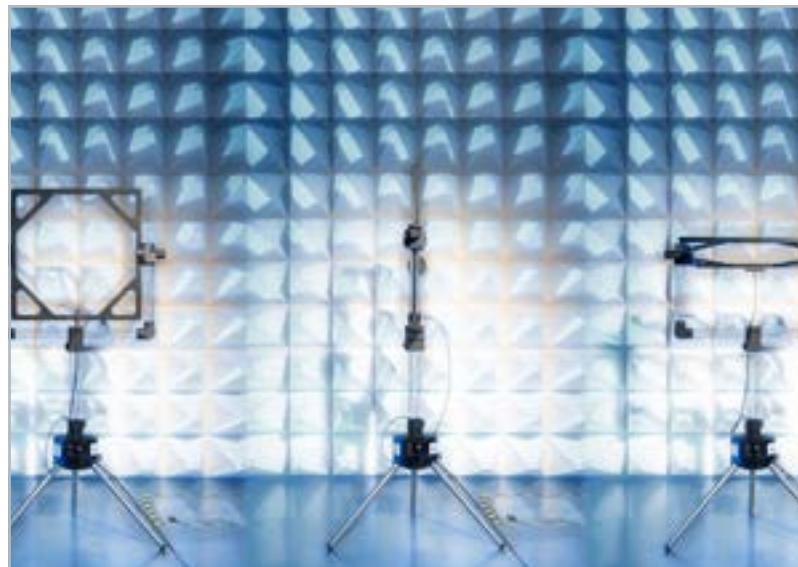
POD SET 1 - 18 GHZ

Site VSWR Dipoles

The Precision Omni-directional Dipoles POD 16 and POD 618 are fully compliant to CISPR 16-1-4 for site validation above 1 GHz. The POD 16 and POD 618 are precision broadband dipole antennas with conically shaped radiation elements covered by an RF-transparent radome. This rugged construction enables excellent dipole-like radiation pattern up to 18 GHz.

- **POD 16:** 1 GHz - 6 GHz, 3dB bw >65°
- **POD 618:** 6 GHz - 18 GHz, 3dB bw >60°
- Accredited calibration
- Automatic and manual positioner
- Automation software

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. With the broad frequency range from 9 kHz to 30 MHz it is suitable for Normalized Site Attenuation (NSA) measurements and Shielding Effectiveness (SE) measurements.

- Active transmit (PLA-T)
- Active receive antenna (PLA-R)
- Integrated tripod with laser alignment
- Plenty of transmit power (PLA-TC)
- Very low noise floor
- Battery powered
- Accredited calibration
- CalStan 11 Software, Fully automated system works with you current receiver
- Order Set MS5

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

Highly accurate reference for antenna calibrations, site validations and EMC conformance tests according to ANSI C63.4, ANSI C63.5, CISPR 16-1, CISPR/A/244/FDIS

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



PCD 3100

Precision Conical Dipole

Site validation measurements according to CISPR 16-1-4 in fully anechoic rooms or General field strength measurement

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



PCD 8250

Precision Conical Dipole

Site validation measurements according to CISPR 16-1-4 in fully anechoic rooms or General field strength measurement

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

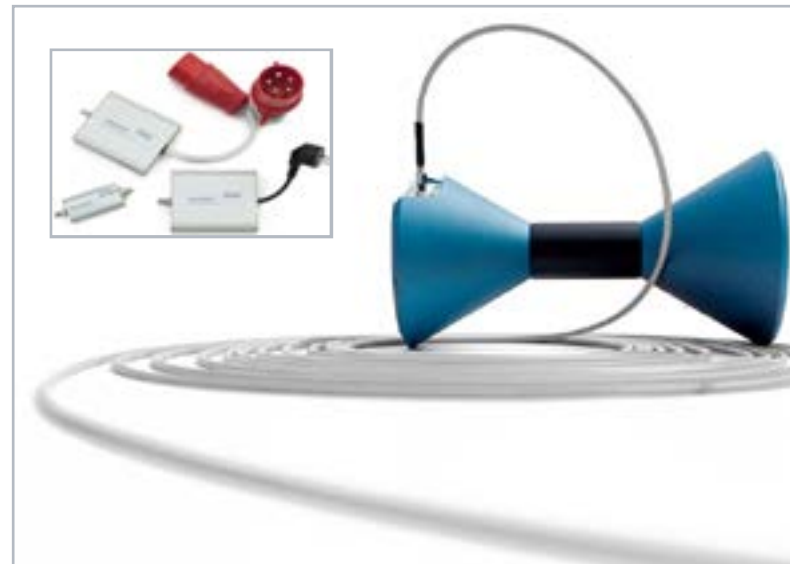


REFRAD X

Comb Generator

The RefRad X Comb Generator can be used to perform conducted measurements. When the antenna element is attached, the device turns into the convenient, easy to use RefRad X Field Source for radiated system checks with no cables required.

- 10 kHz - 3 GHz (+LISN adapters)
- Accredited calibration
- Fiber link Option
- Synchronization with Generator & Receiver
- REF-Out of Recv. is connected to RefRad X
- Up to 30dB more dynamic range
- LISN couplers option: RO16 (pictured)
- Offered with or without conical antenna
- 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

CALSTAN 11

Software

CalStan 11 is a software tool for automation of radio frequency (RF) calibrations and measurements. Measurements are performed by controlling devices via GPIB interface; measured values are read and evaluated. The purpose of the software is to perform calibrations and validations of equipment, such as antennas, cables, test sites and test setups.



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	MiC	Power
dAV-Cr-HD-μ	micro size	0x	Yes	Battery/AC
dAV-Cr-HD-mini	Medium size	10x	Yes	Battery/AC
dAV-Cr-HD	Full featured	20x	Yes	Battery/AC

Optionals: -HiRF further hardened for higher fields then 200V/m, 30x zoom for HD, Pan/tilt, ED-43 hand held external display, mounting..



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

No end to the possible solutions. Put many video sources on a monitor and/or record them real time. See all at once, DUT, test software, scope, ...

Model	Description
-dAV Quad 4k	Combines 4 HD channels into a 4k output
-dAV HDrec	HD recorder of one or multiple channels



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
ccs	Software control w/ pan-tilt-zoom (USB)
-ethernet remote	Software control w/ pan-tilt-zoom over network



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 chips 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

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

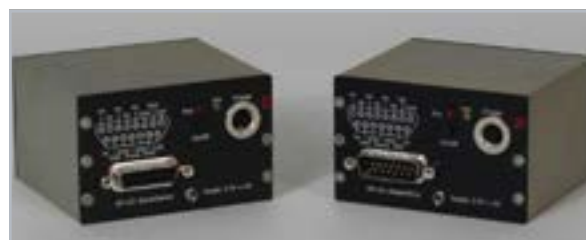
The optoSENT system was developed for the transmission of asynchronous SENT signals (Single Edge Nibble Transfer) and exists in two different versions. Options: -o2 = second channel, -2-d bidirectional



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 Transceiver battery powered
- 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	High Speed	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-10D/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

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
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

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-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



optoUSB2.0 / opto1394

High Speed Data

USB 2.0 / 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
opto1394	FireWire IEEE 1394, 400 Mbits/s, IEEE 1394 connect

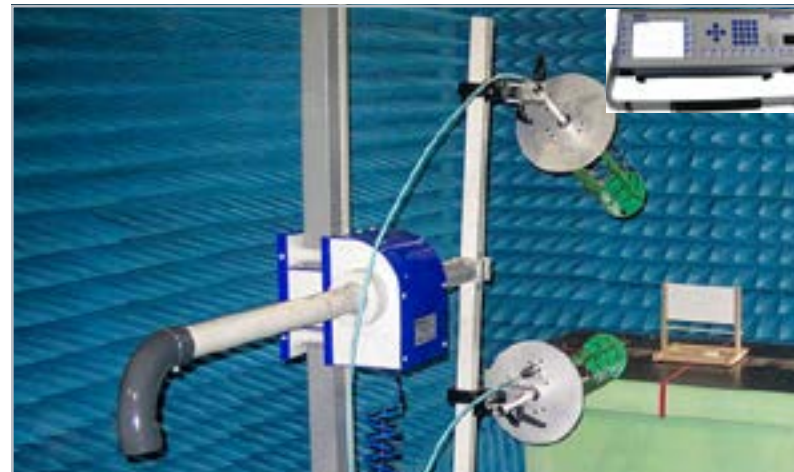


POSTIONERS

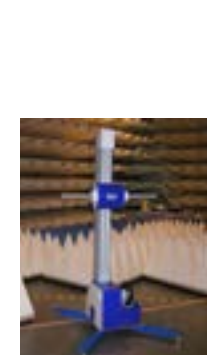
EMC/EMI POSITIONING SYSTEMS

Wide selection of high quality reliable solutions

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



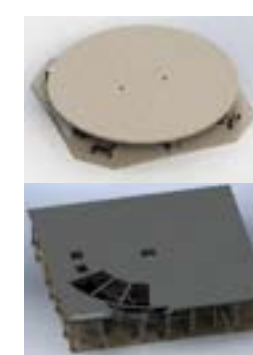
Manual Mast



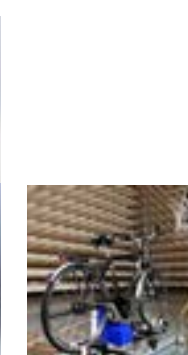
High Load Antenna Mast



E-Field Postioner



Turntables Above GP or Below GP



Dynamiters from Bikes to Buses



Petle control Custom Solutions

GTEM CELLS







Model	GTEM 250 F	GTEM 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,	550 mm,	800 mm	1100 mm
Vertical Orientation	Optional	Optional	Optional	Optional
Max EUT Size	20 x 20 x 15 cm	41 x 41 x 30 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	18 x 18 x 18 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
General Specs					
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

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

GTEM OPTIONS

	<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
MANIPULATOR	
EUT rotation through X Y Z Automatic or Manual	

TEM CELLS / STRIPLINES



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 radiated emission from a product with a 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	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
TEM 6000*	DC-6 GHz	1.25 cm	17 x 12 x 7 cm	500 W CW	

*Designed and meets requirements of: IEC 62132-8 : 2012, IEC 61967-2 : 2005, IEC 61967-8 : 2011, and SAE 1752-3
Optionals: Signal and power filtering, SAE setup for IC/PCB, wheeled Trolley for TEM 200, 50Ω loads



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 220	DC-220 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 strip line 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.



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

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

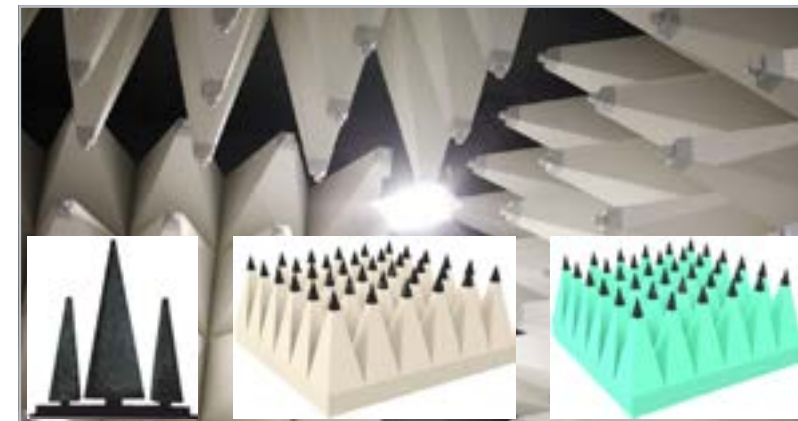


REVERB CHAMBER

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). The use of tuner/stirrers (Z paddle) to change and move the standing waves around. In order to make a more homogeneous field over the tuner rotation. 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, ...



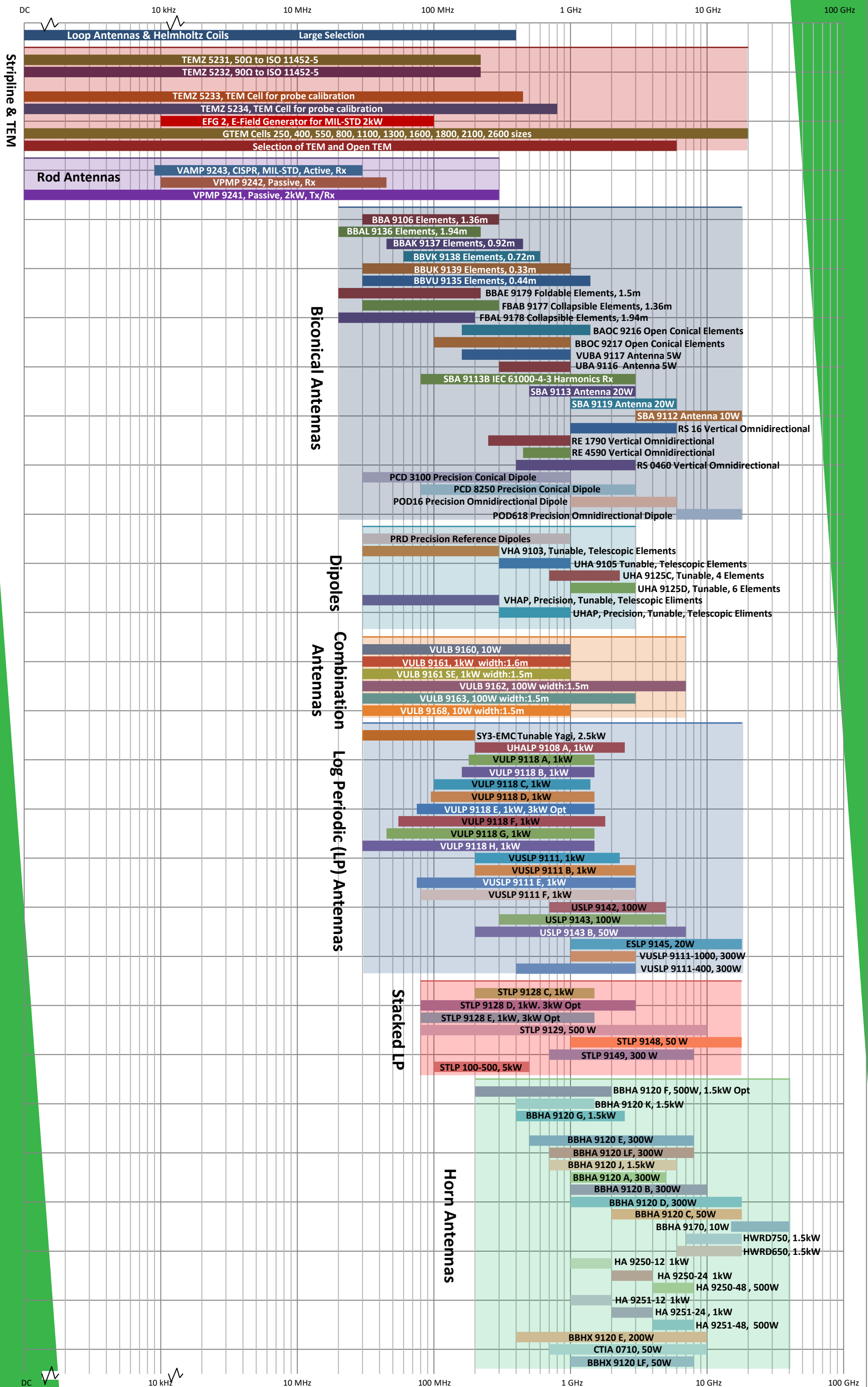
ABSORBER

Hybrid Chamber Absorber

We have the capability to find and build solutions for your chamber upgrade.

- Easy installation
- Thin film, Loaded Polypropylene, or foam
- Sized and configured per standard/s
- Full performance guarantee
- New LED Lighting solutions
- Sizes: 300, 500, 600, 750, ...mm
- Ferrite Tiles

ANTENNA QUICK-FIND



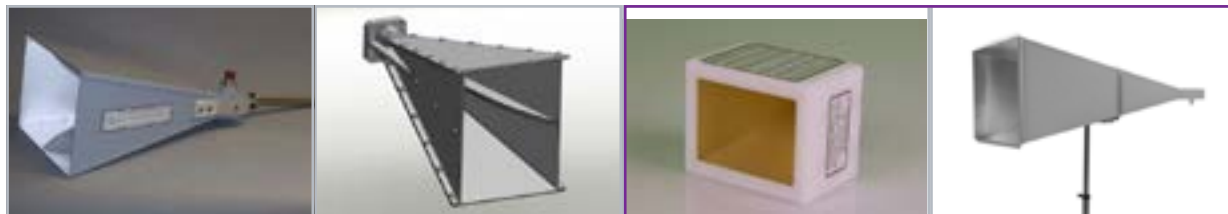
HORN ANTENNAS



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	O32 -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 9170	HA 9250-12 & (HA 9251-12)
General Specs				Standard Gain Horn
Frequency Range	0.7 - 6 GHz	6 (7.5) - 18 GHz	15 - 26.5 GHz	1 - 2 GHz
Usable Range			14 - 40 GHz	0.92 - 2.2 GHz
Antenna Factor	21 - 30 dB/m	31 ... 37 dB/m	38 - 45 dB/m	11 - 17 (12 - 15) dB/m
Antenna Gain	4 - 19 dBi	16 ... 21 dBi	15 - 20 dBi	≈ 20 dBi (max for 1 m)
3dB Beamwidth "E"	60° - 14°	12° - 19°	13° - 21°	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	75 x 86 x 60 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.

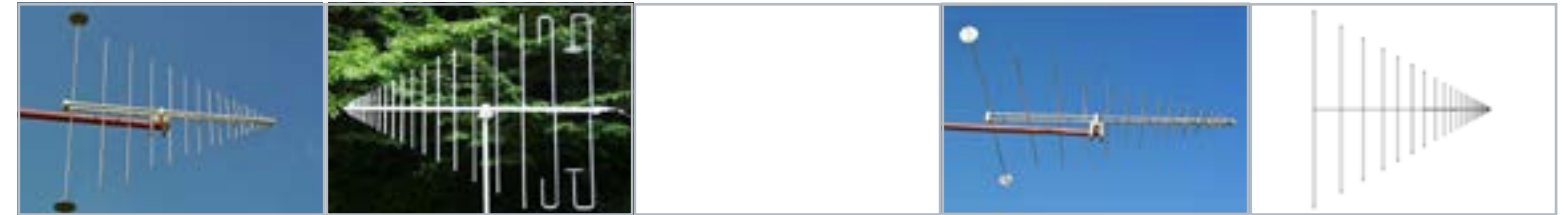


Model	HA 9250-24 & (HA 9251-24)	HA 9250-48 & (HA 9251-48)	BBHX 9120 LF	BBHX 9120 E	CTIA 0710
General Specs	Standard Gain Horn	Standard Gain Horn	Dual polarized	Dual polarized	Dual polarized
Frequency Range	2 - 4 GHz	4 - 8 GHz	1 - 8 GHz	0.7 - 7 GHz	0.7 - 10 GHz
Usable Range	1.9 - 4.6 GHz	3.7 - 9 GHz	0.8 - 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)	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	50 W CW	200 W CW	50 W CW
Connector	Type 7-16 DIN (f)	Type 7-16 DIN (f)	Type N (f)	Type N (f)	SMA (f)
Mount	3/8", M10	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.	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA9202 POM, AA 9203, RA9215	Option for 22mm tube

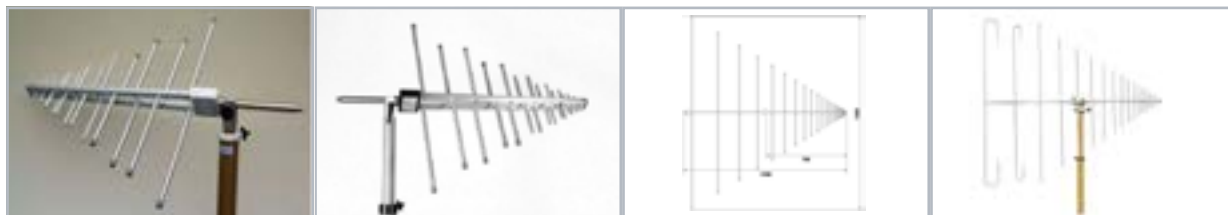
LOG-PERIODIC ANTENNAS



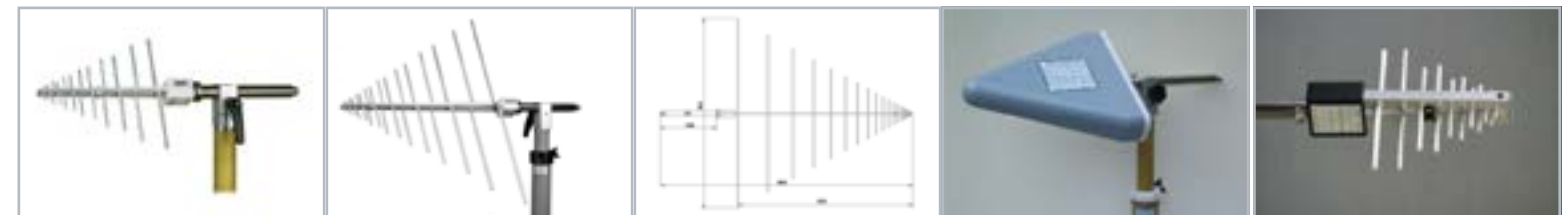
Model	HHALP 9108 A	VULP 9118 A	VULP 9118 B	VULP 9118 C
General Specs				
Frequency Range	250 - 2500 MHz	180 - 1500 MHz	160 - 1500 MHz	100 - 1400 MHz
Usable Range		180 - 2000 MHz	160 - 2000 MHz	100 - 2000 MHz
Antenna Factor	14 - 33 dB/m	10 - 32 dB/m	10 - 32 dB/m	6 - 28 dB/m
Antenna Gain	6.5 dBi + / - 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	

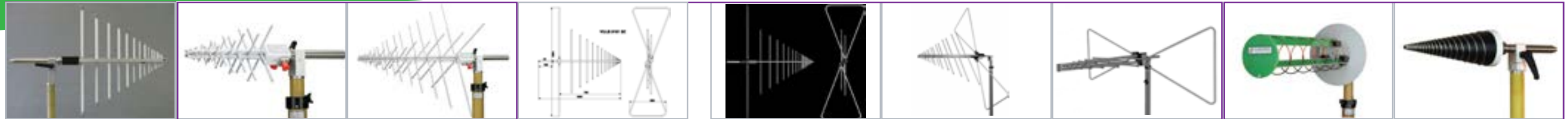


Model	VUSLP 9111	VUSLP 9111 B	VUSLP 9111 E	VUSLP 9111 F
General Specs				Disassembles Easily
Frequency Range	230 - 2300 MHz	200 - 3000 MHz	70 - 3000 MHz	80 MHz ... 3 GHz
Usable Range	200 - 4000 MHz	180 - 4000 MHz	65 - 4000 MHz	75 MHz ... 4 GHz
Antenna Factor	12 ... 32 dB/m	11 ... 33 dB/m	4 ... 35 dB/m	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.



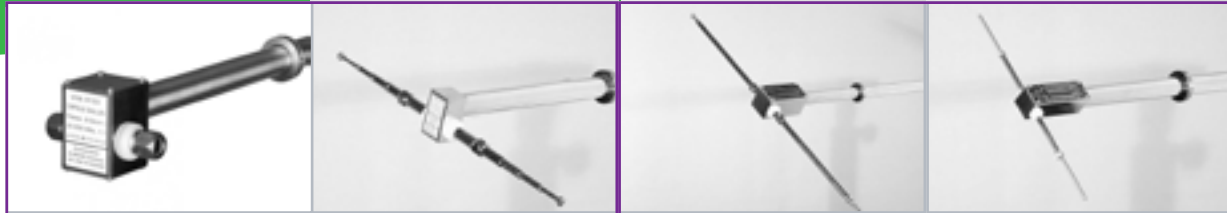
Model	VUSLP 9111-400	XSLP 9142	XSLP 9143	VULB 9161 SE	VULB 9162	VULB 9163	VULB 9168	HLX 0810-LHCP	CLSA 0110 - RHCP
General Specs	Log-Periodic	Dual Polarized	Dual Polarized	TRILOG	TRILOG	TRILOG	TRILOG	Helical antenna	Spiral Antenna
Frequency Range	400 MHz - 3 GHz	30 MHz - 3 GHz	45 - 1500 MHz	30 MHz - 1000 MHz	30 MHz - 7 GHz	30 MHz - 3 GHz	30 MHz - 1 GHz	750 - 1050 MHz	1 - 10 GHz
Usable Range	340 MHz - 4 GHz	25 MHz - 4 GHz	50 - 1500 MHz	30 MHz - 2000 MHz	25 MHz - 8 GHz	25 MHz - 4 GHz	25 MHz - 2 GHz	600 MHz...1.1 GHz	0.8 - 11 GHz
Antenna Factor	15 ... 34 dB/m	7 - 35 dB/m	7 - 35 dB/m	6 - 35 dB/m	7 - 43 dB/m	7 - 35 dB/m	8 - 30 dB/m	typ. 17-20 dB/m	typ. 25 ... 55 dB/m
Antenna Gain	typ. 7 dBi +/- 1 dB	-14 - 7dBi	-14 - 7dBi	-11 - 7dBi	Typ. 6.4+/- 1.2 dBi	-14 - 7dBi	-13 - 7dBi	typ. 6 - 12 dBi	typ. -4...+6 dBi
3dB Beamwidth "E"	65° - 50°	90° - 50°	90° - 50°	90° - 50°	90° - 45°	90° - 50°	90° - 50°	56°-33°	60° - 125°
Power	300 W CW (1 GHz)	100 W CW	10 W CW	10 W CW	100 W CW	100 W 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)	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	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	1.49 x 1.09 x 0.56 m	1.50 x 1.29 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, RA9215	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	AA 9202, AA9202 POM, AA 9203, RA9215

STACKED LPDA ANTENNAS



Model	STLP 9128 C	STLP 9128 D	STLP 9128 D SP	STLP 9128 E	STLP 9128 E SP	STLP 9129	STLP 9148	STLP 9149	STLP 100-500
General Specs	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic	Stacked Log-Periodic	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	80 - 1500MHz	70 MHz - 10 GHz	1 - 18 GHz	0.7 - 9 GHz	100 - 500 MHz
Usable Range	150 - 4000 MHz	65 - 4000 MHz	65 - 4000 MHz	65 - 3000 MHz	65 - 3000 MHz		0.7 - 20 GHz	0.6 - 10.5 GHz	75 - 550 MHz
Antenna Factor	8 ... 24 dB/m	2 ... 30 dB/m	2 ... 32 dB/m	0 ... 22 dB/m	2 ... 25 dB/m	2 - 44 dB/m	20 - 49 dB/m	18 - 41 dB/m	-1 - 14 dB/m
Antenna Gain	9 ... 10 +/- 1dBi	9 +/- 2 dBi	9 +/- 3 dBi	9 +0.8 / -1.5 dBi	9 +0.8 / -1.5 dBi	8.6 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°	75° - 60°	75° - 60°	75° - 60°	75° - 60°	77° - 34°	58 °+/--15°	46 ° +/--10°	53°
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)	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)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)(7-16DIN Opt.)	Type N (f)	Type N (f)	Type 13/30 female
Mount	22 mm Tube	22 mm Tube	22 mm Tube	Center mount 3/8", M12	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)	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	1.34 x 1.53 x 0.11 m	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 9209	AA 9209	AA 9209	AA 9209	AA 9202, AA9202 POM, AA 9203, RA9215	AA 9202, AA 9203, AA9215	

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		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

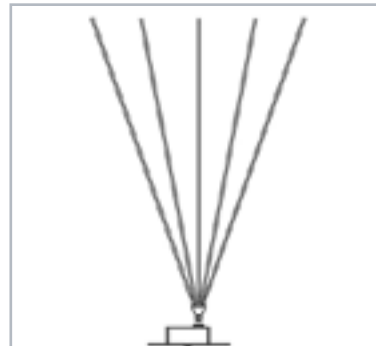
Vertical Passive Rod Antenna

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

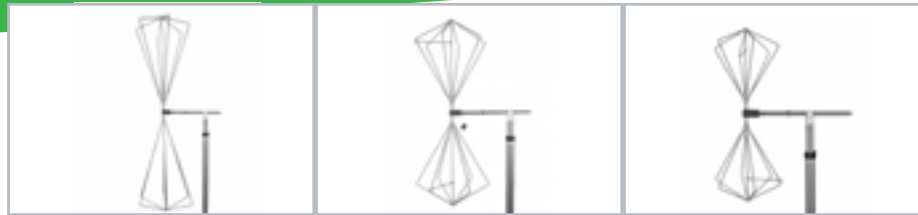
The vertical passive monopole consists of a flat aluminum base plate and a milled aluminum housing which has two N-connectors at the sides and an element clamping fixture on top. The element clamping fixture with a nominal diameter of 10 mm accepts the vertical rod of 0.5 m length, which is included 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, FBAB 9178, or the telescopic elements of the VHA 9103



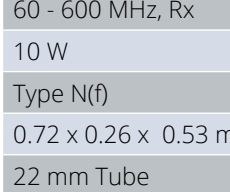
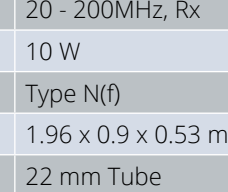
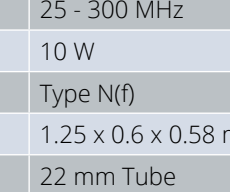
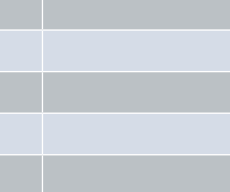
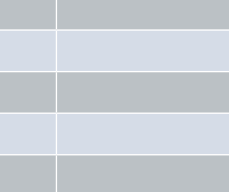
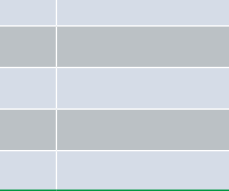
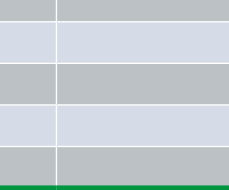
BICONICAL ANTENNAS

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)
		Mount	22 mm Tube	22 mm Tube	22 mm Tube
	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)
		Mount	22 mm Tube	22 mm Tube	22 mm Tube
	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)
		Mount	22 mm Tube	22 mm Tube	22 mm Tube
	VHBC 9133	Frequency Range	20 - 200MHz, Tx	30-300 MHz, Tx	
		Power	1 kW	1 kW	
		Connector	Type N (f)	Type N (f)	
		Mount	22 mm Tube	22 mm Tube	
	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)	
		Mount	22 mm Tube	22 mm Tube	
	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)	
		Mount	22 mm Tube	22 mm Tube	



		BBVK 9138	FBAL 9178	FBAB 9177	BBFA 9146	BBAE 9179
		Higher Freq	Collapsible	Collapsible	Collapsible w/ extension Variable opening	Foldable, optimized for 1-meter testing
	BBVK 9138	Frequency Range	60 - 600 MHz, Rx	20 - 200MHz, Rx	25 - 300 MHz	
		Power	10 W	10 W	10 W	
		Connector	Type N(f)	Type N(f)	Type N(f)	
		Size (W, D, L _H)	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	
		Mounting	22 mm Tube	22 mm Tube	22 mm Tube	
	FBAL 9178	Frequency Range	60 - 600 MHz, Rx	20 - 200MHz, Rx	30-300 MHz, Rx	
		Power	10 W	10 W	10 W	
		Connector	Type N (f)	Type N (f)	Type N (f)	
		Size (W, D, L _H)	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	
		Mount	22 mm Tube	22 mm Tube	22 mm Tube	
	FBAB 9177	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)	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	
		Mount	22 mm Tube	22 mm Tube	22 mm Tube	
	BBFA 9146	Frequency Range		20 - 200MHz, Tx (Rx)	30-300 MHz, Tx (Rx)	
		Power		100 W	100 W	
		Connector		Type N (f)	Type N (f)	
		Size (W, D, L _H)		1.96 x 0.9 x 0.58	1.25 x 0.6 x 0.58 m	
		Mount		22 mm Tube	22 mm Tube	
	BBAE 9179	Frequency Range		20 - 200MHz, Tx	30-300 MHz, Tx	20 - 220 MHz
		Power		1 kW	1 kW	1 kW
		Connector		Type N (f)	Type N (f)	Type N (f)
		Size (W, D, L _H)		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
		Mount		22 mm Tube	22 mm Tube	22 mm Tube
	BBAE 9179	Frequency Range		20 - 200MHz, Tx	30-300 MHz, Tx	20 - 220 MHz
		Power		2.5 kW	2.5 kW	2.5 kW
		Connector		Type N (f) opt7-16 DIN (f)	Type N (f) opt7-16 DIN (f)	Type N (f) opt7-16 DIN (f)
		Size (W, D, L _H)		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 0.7 m
		Mount		22 mm Tube	22 mm Tube	22 mm Tube
	BBAE 9179	Frequency Range		20 - 200MHz, Tx	30-200 MHz, Tx	30-200 MHz, Tx
		Power		4 kW	4 kW	4 kW
		Connector		7-16 DIN (f)	7-16 DIN (f)	7-16 DIN (f)
		Size (W, D, L _H)		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 0.7 m
		Mount		22 mm Tube	22 mm Tube	22 mm Tube

BICONICAL CONT.



BC01 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.

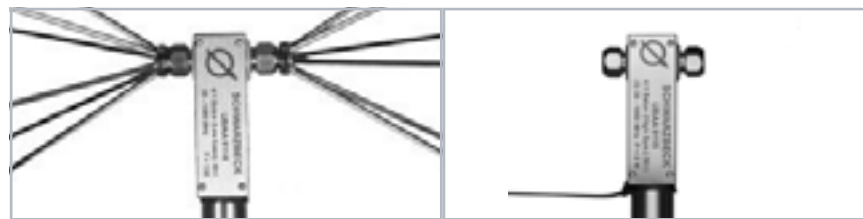
The BC01 9180 5W comes with 5 turns and is standard, also available 4W = 4 turns and 3W = 3 turns. The *Holder Long* is required with BBAE 9179 elements



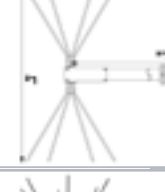



HOLDER LONG

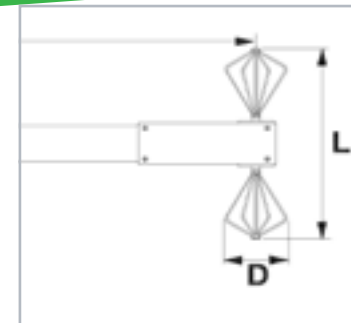
Booster Coils Bracket

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

BROADBAND BICONICAL



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

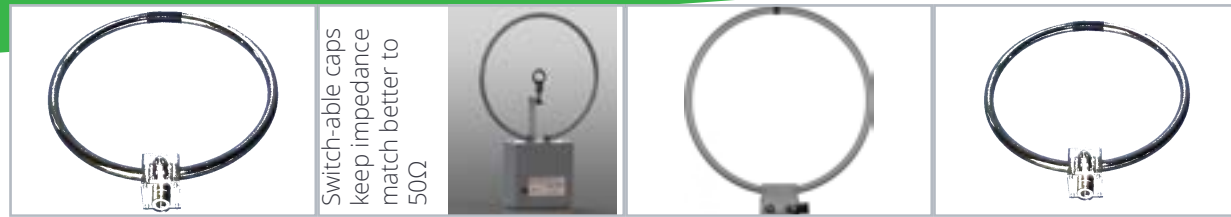


RS 0460
Vertically Polarized Symmetrical Biconical Antenna
 • 0.4 - 6 GHz, 100 watts, Type N(f)
 • Omni-directional H-plane pattern
 • 185 x 185 x 370 mm



EFG-2
E-Field Generator
 • 10 kHz - 100 MHz, 2 kwatts, Type N(f) or 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	FESP 5139
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	0 - 26 MHz
Number of Turns	10	28	1	3
Diameter of Loop	180 mm	250 mm	100 mm	100 mm
Input Conversion=1A/m			10:1	1 A current = 20 A/m
Max Input Short Time		110 mA	135 mA (1.35V monitor)	12 A (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)	Type N(f)
Mount	3/8" Thread	3/8" Thread	3/8" Thread	Handheld
Size W x L x H	230 x 190 x 80 mm	260 x 305 x 80 mm	160 x 112 x 62 mm	110 x 110 x 210 mm
Accessories				



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	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 5202-81	HHS 5204-12	HHS 5204-36	HHS 5206-8	HHS 5206-16
General Specs	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils	Circular Helmholtz Coils
Frequency Range	DC - 300 kHz	DC - 500 kHz	DC - 150 kHz	DC - 800 kHz	DC - 500 kHz
Number of Turns	81	12	36	8	16
Diameter of Loop	232 mm	400 mm	400 mm	600 mm	600 mm
Input Conversion	1 A input = 500 A/m	1 A input = 42.93 A/m	1 A input = 128.8 A/m	1 A input = 19.23 A/m	1 A input = 138.17 A/m
Max Input	5 A continuous	30 A continuous	10 A continuous	34 A continuous	33 A continuous
Max Input Short Time	6 A (5 min.)	60 A (5 min.)	20 A (5 min.)	55 A (5 min.)	55 A (5 min.)
Max Field Center	3000 A/m (5 min.) 116mm	2500 A/m (5 min.) 200mm	2500 A/m (5 min.) 200mm	1060 A/m (5 min.)	2100 A/m (5 min.)
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	4 mm (f), 7 mm screw
Size W x L x H	0.20 x 0.25 x 0.39 m	0.38 x 0.58 x 0.42 m	0.38 x 0.58 x 0.42 m	0.64 x 0.79 x 0.42 m	0.64 x 0.79 x 0.42 m
Max DUT Size	11.3 x 11.3 x 11.3 cm	21.5 x 21.5 x 21.5 cm	21.5 x 21.5 x 21.5 cm	32.5 x 32.5 x 32.5 cm	32.5 x 32.5 x 32.5 cm



Model	HHS 5206-132	HHS 5210-10	HHS 5210-100	HHS 5210-100 2.5
General Specs	Circular Helmholtz Coils	Helmholtz Coils	Helmholtz Coils	Helmholtz Coils
Frequency Range	DC - 30 kHz	DC - 150 kHz	DC - 10 kHz	DC - 10 kHz
Number of Turns	132	10	100	100
Diameter of Loop	600 mm	1 m	1 m	1 m
Input Conversion	314.2 A/m	15 A/m (Coil Dist. 0.4 m)	145 A/m (CoilDist.0.4m)	145 A/m (CoilDist.0.4m)
Max Input	10 A continuous	10 A continuous	9 A continuous	15 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	4713 A/m (5 min.)	300 A/m (5 min.)	2183 A/m (5 min.)	2900 A/m (5 min.)
Connector	4 mm (f), 7 mm screw	4 mm (f)	4 mm (f)	4 mm (f)
Size W x L x H	0.64 x 0.79 x 0.42 m	1.0 x 1.0 x 0.63 m	1.0 x 1.0 x 0.63 m	1.0 x 1.0 x 0.63 m
Max DUT Size	32.5 x 32.5 x 32.5 cm	260 x 305 x 80 mm	260 x 305 x 80 mm	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



MAG TEST SYSTEM 5 HZ TO 1 MHZ

Radiated Immunity System

System to test the immunity against magnetic fields acc. MIL-461 E, ISO 11452-8, EN 61000-4-8, SAE J551-17 etc. The system components will be individually configured for your requirements. Software included!

Power Amplifier: Schwarzbeck LFPA 9733	Monitoring Loop for FESP: Schwarzbeck FESP 5134-40
Radiating Loop: Schwarzbeck FESP 5132	Monitoring Loop for HHS: Schwarzbeck FESP 5133-7/41
Helmholtz Coil: Schwarzbeck HHS 5206-16	Shunt: Schwarzbeck SHUNT 9751
Helmholtz Coil: Schwarzbeck HHS 5204-12	Current Probe: Schwarzbeck CP 9610
Helmholtz Coil: Schwarzbeck HHS 5202-9	Function Generator: Keysight 33511B
Compensation Network: Schwarzbeck NFCN 9734	RMS-Voltmeter: Keysight 34465A



LFPA 9733 5 HZ TO 1 MHZ

Power Amplifier

Typical applications are magnetic immunity testing according to automotive standards and MIL-461E or F.

- Gain: 26 dB ±3 dB
- Max output: 60 V_{peak} @ 40 A_{peak} @ 5Hz-500 kHz
40 V_{peak} @ 20 A_{peak} @ > 500 kHz



SHUNT 9571 DC - 250 KHZ

Low Inductive Precision High Power Shunt

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

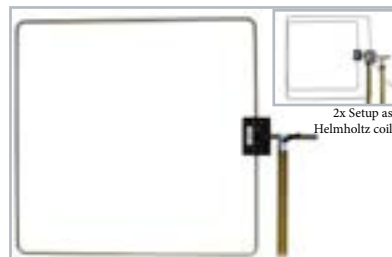


CP 9610 DC - 1 MHZ

Galvanically Isolated Current Sensor

Can withstand a maximum voltage of 210 VPK / VDC. The internal resistance of the conductive path is less than 3 mΩ, 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



FESP 5210-1 DC - 10 MHZ

1-m Square Induction Coil

The square induction coil FESP 5210-1 is used to generate magnetic fields for immunity testing according to IEC 61000-4-8, IEC 61000-4-9 and IEC 61000-4-10.

- 1 turn, 2x FESP 5210-1 can be combined to function as Helmholtz coil
- 90A/m with 100 A continuous [200 A (1 min)]
- 22mm Tube for mounting suggest AA 9202 adapter

SW CURRENT MEASUREMENT

Model	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

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-HF RX Loop	VLF-VHF RX Loop
Frequency	1 - 300 MHz	70 kHz - 120 MHz	50 k - 30 MHz	9 k - 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	

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 shot 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



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 shot 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				



VW TL 82166 2009-05 7.3 SET

Matched Normal Mode Helical Antennas 26 MHz - 2.7 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 mini version with 420 NJ elements is used.

- 20 watts CW / 50 watts shot time
- BNC for NMHA, Type N(f) for SBA 9113
- 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	

AUTOMOTIVE CONT.

HLC / FAN / EGG / PCD

Compact Dipole/Monopole for Automotive Immunity

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.

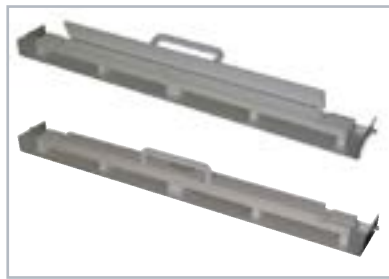


RS 9244 150 KHZ - 1 GHZ

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

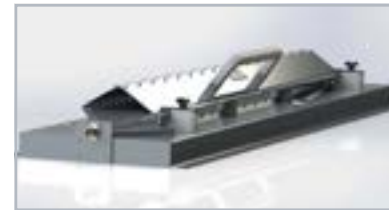
Antenna Impedance converter acc. CISPR 25 9 kHz - 30 (120) MHz.
Option ACS 110: Charger ACS 110



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.

OTHER AVAILABLE AUTOMOTIVE PRODUCTS

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VAMP 9243

Emissions Testing

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VAMP 9241

ALSE Validation

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BBHA 9120 K

FORD/GM Radar Pulse

Page 68-69

LISNs

ISO/CISPR

Mag System

ISO/MIL/...



SY 9223-7637-4 9 KHZ - 50 MHZ

Balanced-to-Unbalanced Transformer/Balun

Intended for transient immunity measurements of pulsed sinusoidal signals ("line-to-line") according to ISO-7637-4. To be used with LISNs



CMDM 8700 9 KHZ - 30 MHZ

Common Mode / Differential Mode Switch

The measurement mode switch CMDM 8700 expands the measurement possibilities of two V-LISN to T- and Delta-LISNs for the profound analysis of interference emissions. To be used with LISNs



PILOT ISN 150 KHZ - 30 MHZ

IEC 61851-21-1 Electric Vehicle Conductive Charging System

Pilot ISN is an impedance stabilization network which can be used to measure disturbance voltages of PLC (power line communication) of Electric vehicle conductive charging systems. The ISN provides decoupling from the equipment under test (EuT) and the communication device or load (AE).

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 above. 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 above. 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 allows 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 calibration
	CA CDNE M3 Part A Shorting adapter required 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



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



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



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



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



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

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

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

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

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

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. 2 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

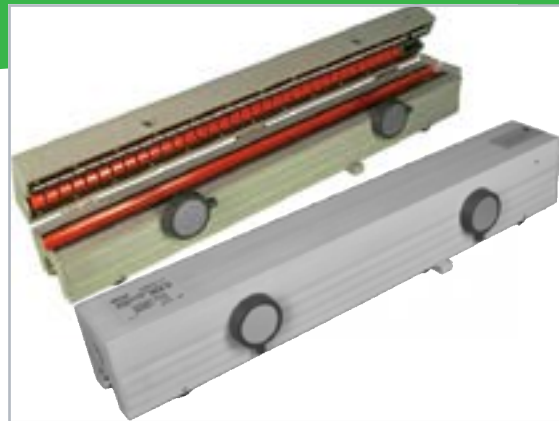
Shorting adapter required for use with SR 100-6W B. Each CDN comes with 2 shorting adapters specific to the CDN, the SR 30/4 is a spacer for 30mm separation.



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 B 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.

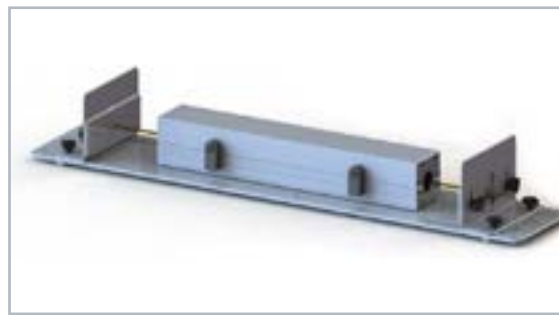


CDAM 1614 10 - 1000 MHz

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 Allows 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 to 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.



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	<100 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

LISN LINE IMPEDANCE STABILIZATION NETWORKS

Model	Tests	Impedance	Current	Voltage	Paths	Conn.	Cal Adpt.	Options
Automotive								
 NNHV 8123	CISPR 25, 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, 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 25, BMW GS 95025-1, BCI	5µH 50 Ω	250 A 500 A Max	700V AC, 300V 400Hz 1000V DC	1	Type N(f)	KA 8126 F HYB	HVSE 8600
 NNHV 8123-800	CISPR 25, 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
 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	250 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
DO 160								
 NNBM 8126 A 890	DO160, MIL-STD	(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
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	CAP 10-100 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	CAP 10-100 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	CAP 10-100 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	
 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
 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
 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
 NSLK 8163	CISPR 16-1-2	50 µH + 5 Ω 50 Ω	4 x 63 A CEKON	250V AC, 400V 3P, 400V DC, artificial hand	4	BNC(f)	KA 8163	RC
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
 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	
 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
 NNLK 8129-2HV	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
 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
NNLK 8140	CISPR 16-1-2	50 µH 50 Ω	800 A AC/DC 1000 A Max	650V AC, 150V 400Hz, 1000V DC	1	BNC(f)	KA 8130	TC

ECSS 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
General Specs				
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

SPECIAL LISN



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	2
Connector	BNC(f)	BNC(f)	Type N(f)	BNC(f)
Options			Adapters to wing-terminals/schuko/GB	ECSS-E-ST-20-07 Rev1

HVSE 8600 / 8601

Shielded Enclosure for Automotive LISN

The HVSE 8600 Shielded Enclosure (Shielding Box) was designed to increase the shielding effectiveness of automotive LISN significantly, which is necessary for measurements of electric or hybrid vehicles.

CISPR 25 Ed. 4 or e.g. in the manufacturer specific standard BMW GS 95025-1.

HVSE 8600: NNHV 8123, NNHV 8123-200, NNHV 8123-400
HVSE 8601: NNHV 8123-800



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

10µF Capacitors

To be compliant to the standards DEF STAN 59, DO 160 or MIL 461F (Method CS 101-4, CS106-3) a 10 µF capacitor like the CAP 10 has to be connected to the mains connectors of the LISN.



ACCESSORIES

Calibration Adapters Wiring accessories

CEKON
SCHUKO

ACTIVE ANTENNA PROBES



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

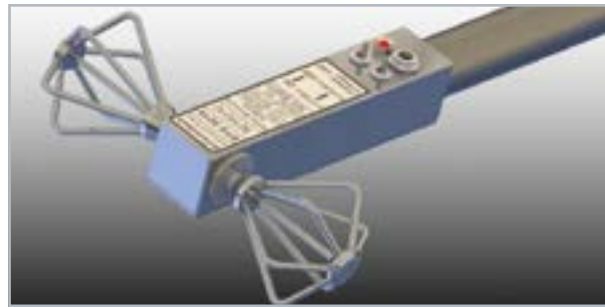


FS-SET 7100 B

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 µV/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	
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



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 ±3 % / 250 mA

COMB GEN., PULSE LIMITER

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)

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



TBPS01-TBWA2/40DB 6 GHz

EMC Near-field Probe Set + 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 40dB preamplifier 10 MHz - 6 GHz



DGA 9552 N-# BIDIRECTIONAL ATTENUATOR 18 GHz

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



DGA 9553 BNC-# BIDIRECTIONAL ATTENUATOR 2 GHz

High Quality Bidirectional attenuator

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



DC BLOCK 500 50 KHZ - 1 GHz

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.

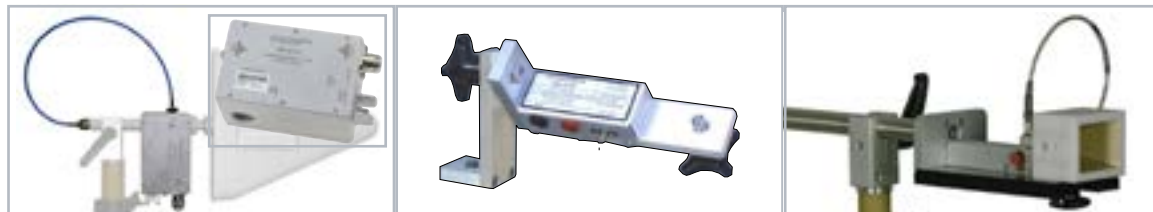
LOW-NOISE PREAMPLIFIER

LOW NOISE PREAMPLIFIERS

Low-Noise Preamplifiers are used to increase signal levels for measurements, this increases the sensitivity of the measurement instrument to read lower levels than can be achieved without their use.



Model	BBV 9743 B	BBV 9744	BBV 9745
General Specs			
Frequency Range	10 MHz - 6 GHz	9 kHz - 6 GHz	9 kHz - 2 GHz
Noise Figure	Typ. <2.7 dB (1.0 GHz)	2.5 dB (1.0 GHz)	2.5 dB (1.0 GHz)
Gain	Typ. +28 dB	+28 dB	+30 dB
Gain Flatness	< +/- 3 dB	< +/- 3 dB	< +/- 3 dB
1dB Compression	> -18 dBm (89 dBμV)	> -20 dBm (87 dBμV)	> -20 dBm (87 dBμV)
VSWR In/Out	< 2 : 1	< 2 : 1	< 2 : 1
Power	+ 10-15 V, 120 mA	+ 10-15 V, 120 mA	+ 10-15 V, 120 mA
Power Supply	PS 120/12	PS 120/12	PS 120/12



Model	BBV 9718 C	BBV 9719	BBV 9721
General Specs			
Frequency Range	1 - 18 GHz (0.5 - 20 GHz)	18 - 26.5 GHz (12 - 28 GHz)	18 - 40 GHz
Noise Figure	2 dB	3.5 dB	5.5 dB
Gain	+ 27dB (typ. 30 dB)	+30dB (typ. 32dB)	+30 dB (typ. 35dB)
Gain Flatness	< +/- 5.5 dB	< +/- 2 dB	< +/- 4 dB
1dB Compression	> -18 dBm (89 dBμV)	> -20 dBm (87 dBμV)	> -20 dBm (87 dBμV)
VSWR In/Out	< 2.5 : 1	< 2 : 1	< 2.6 : 1
Power	Battery 3.7 V, 3.1 Ah Lithium Ion	12 V - 15 V DC, 250-300 mA	+ 15 V / 600 mA DC Supply1 -(8...15)V/-100 mA DC Supply 2 PS 9721
Power Supply	ACS 110 (charger)	PS f. 9719 100V	PS 9721 Battery
Optional Battery		Battery 9719, ALCS 2-24A	PS 9721 Battery
Mounting	Mounts to antenna's 22mm tube, 0.5m coax N-SMA	Antenna mounts to BBV 9719, short Coax SMA connector	Antenna mounts to BBV 9719, short Coax 2.92 connector (shown in picture)

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	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
AA 9209, AA 9205, RA 9215, KG 9201,	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
PDG 9211, PPS 9208	AM 9144 T-09 800 - 1510 mm	AM 9144 M-TILT Stainless Steel, Tilt 20° +140 mm		AM 9144 E-09 +710 mm
Positioner, AA 9213, RS 9214	AM 9144 T-12 1050 - 1950 mm			AM 9144 E-12 +900 mm

ANTENNA ADAPTERS



AA 9202	AA 9202	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	Polarisation swivel fixture	Pneumatic polarisation adapter	Adaptor to EMCO Mast	Light Antenna adaptor
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

COAX CABLES & SUPPORTS



EMC COAX CABLES

Special Selected 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 most 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.

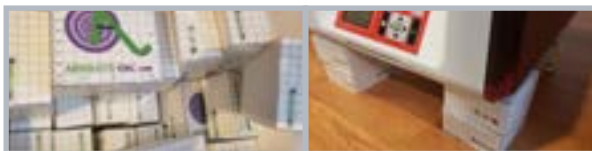
Series	Frequency Range	Power @ 1GHz	Loss @ 1 GHz	Loss @ 18 GHz	Outer Diameter
AB-A	Up to 18 GHz	410 Watts	0.130 dB/ft (0.427 dB/m)	0.640 dB/ft (2.100 dB/m)	0.163 in (0.414 cm)
AB-B	Up to 40 GHz	590 Watts	0.110 dB/ft (0.362 dB/m)	0.511 dB/ft (1.677 dB/m)	0.144 in (0.366 cm)
AB-C	Up to 18 GHz	1800 Watts	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 for having a low permittivity and can be used for additional standards. Top of the table is protected with a vinyl decal with a measurement grid in cm imprinted for easy EUT positioning



EPS SUPPORT BLOCKS

Expanded Polystyrene Permittivity <1.04



WOOD TEST TABLE

All Wood Construction (No Metal Fasteners)

The Wood Test Table is a simple, inexpensive solution for your EMC testing. The table is built to be ship flattened to reduce shipping costs and easily assembled on site quickly. The picture is shown with a ground plane. Option:

- Aluminum or copper ground plane
- Sized for your needs
- Copper ground straps
- Braided copper ground straps

Model	Description
Wood Test Table 1.5x1x1	Table size: 1.5 m x 1 m tabletop 1 m table height
Wood Test table 2x1x0.8	Table size 2 m x 1 m tabletop 0.8 m table height
Wood Test table 2x2x0.8	Table size 2 m x 1 m tabletop 0.8 m table height (2 tables)
Wood Test table 2.5x1x0.8	Table size 2.5 m x 1 m tabletop 0.8 m table height
Wood Test table 2.5x1.5x0.9	Table size 2.5 m x 1.5 m tabletop 0.9 m table height

HIGH-LIGHTED PRODUCTS

PRE-COMPLIANT TEST SYSTEM



EMI/EMC Measurement System

Absolute EMI/EMC is offering an exclusive, complete EMI trouble shooting system at incredible savings. All for less than \$8,000!

- 9kHz - 3.2 GHz (7.5 GHz option)
- Spectrum Analyzer
- EMI package & Tracking Generator
- Near-field probe kit w/pre-amp (6 GHz)
- TEM Cell and Shielded bag
- 1 GHz Biconical antenna (8 GHz LP option)
- CISPR 16 LISN (CISPR 25 option)
- RF Current Probe
- Noise generator for equipment checkout
- Amplifier with modulation for immunity testing
- EMC View Software, loads, adapters, 9x coax

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

VOLTAGE DIPS, DROPS, AND VARIATIONS UP TO 200A



IPC, 200 Amp AC Power Fail Simulator

IPC (Industrial Power Corrupter) generates bad quality power, reliably and repeatedly. Use an IPC to test sensitive systems, making sure your design will work when it is installed. These are the best instruments for complying with SEMI F47, SEMI E6, IEC 61000-4-11, IEC 61000-4-34, and other international standards.

- 100 Vrms to 480 Vrms nominal, 50/60 Hz
- Up to 200 Amps continuous per phase
- Single-phase, three-phase delta, and three-phase wye/star
- Easy setup and use
- Full compliant testing
- Added capability for Inrush current, harmonic measurement

PARTNERS



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