EMC TEST INSTRUMENTS AND COMPONENTS










- Antennas
- RF Power Meter
- RF Relay Switching Unit
- TEM-Cells
- Striplines
- COMB Generators
- CDN´S, Coupling Clamp
- LISN´S

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please ask for our separate catalogues.

Ultra-Broadband Antennas
Type BTA

- 30MHz to 3GHz
- Individual calibration report
- Small dimensions
- Precise manufacturing by means of laser-technology
- Max-load 1000W

Ultra-Broadband Antennas
Type BTA

The BTA antennas were developed in cooperation with the antenna specialists of TESTCOM, Prague. By combining their experience gained in decades of antenna construction with our know how in the planning and construction of anechoic chambers, and being acquainted with the interaction between antennas and anechoic chambers, it was possible to develop a group of antennas which exclude the weak points of conventional broadband antennas in almost every respect.

BTA-H Antenna

The BTA-H is perhaps the smallest broadband antenna presently available on the market. With only 70 cm in length, and a weight of 3.0 kg, this antenna is optimally suited for the operation on the antenna mast. An advantage in small anechoic chambers is that the small dimensions of the antenna leave room for an increased testing distance and a larger distance to the absorbers or the conducting surface, resp. Thus, the coupling effects between absorbers and antenna are reduced, which has a positive influence on the field homogeneity and the max. reachable field strength, especially in the field generation. The BTA-H is equally suitable for emission measurements and susceptibility tests, and is therefore the ideal universal antenna for OATS and anechoic chambers.

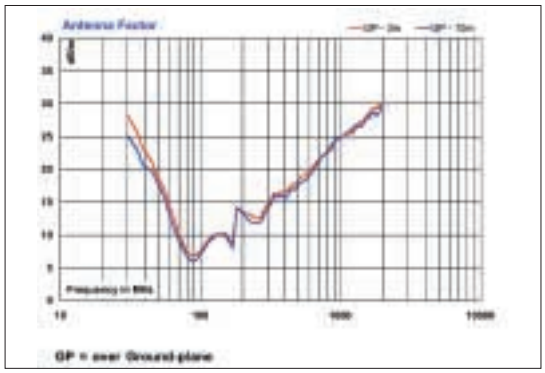
BTA-M Antenna

The most important aspect of the BTA-M is the extension of the frequency range to higher frequencies so that even for measurements from 30 MHz to 3000 MHz the time-consuming changing of antennas is no longer necessary. In this case, the antenna has to be somewhat larger, but with 106 cm in length it is still much smaller than comparable antennas. In practice, the BTA-M offers considerable advantages both for emission measurements and susceptibility tests. The matching of the broadband dipoles to the log-periodic structure has been optimized for the whole frequency range.

Ultra-Broadband Antennas

Type BTA-H

Antenna factor



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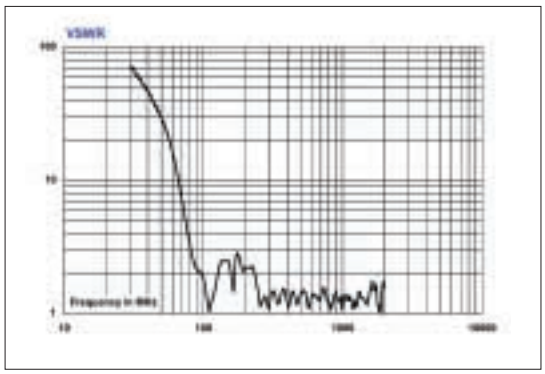

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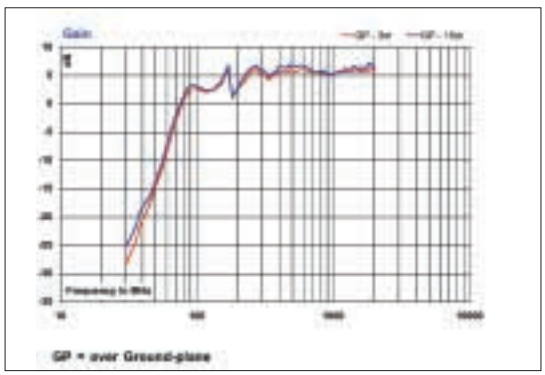

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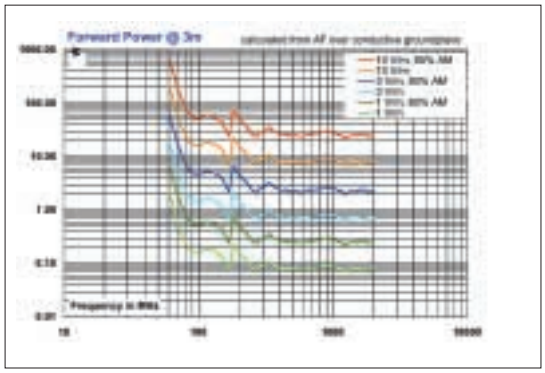
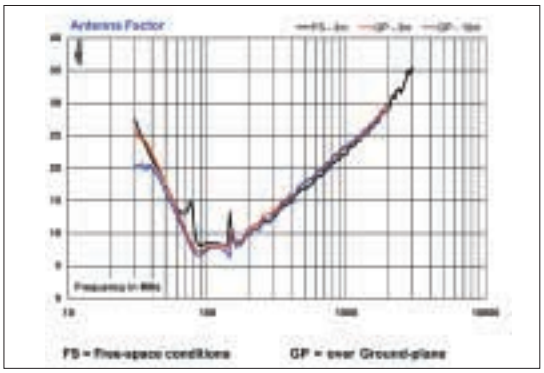


Type BTA-M

Antenna factor



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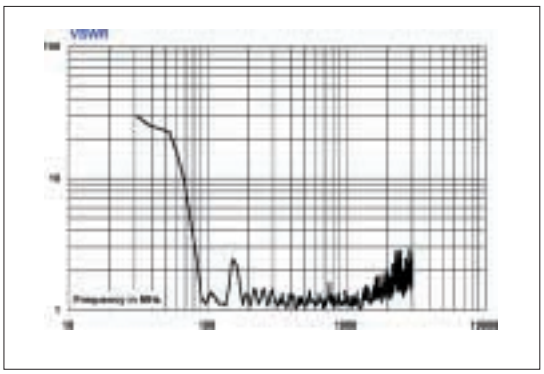
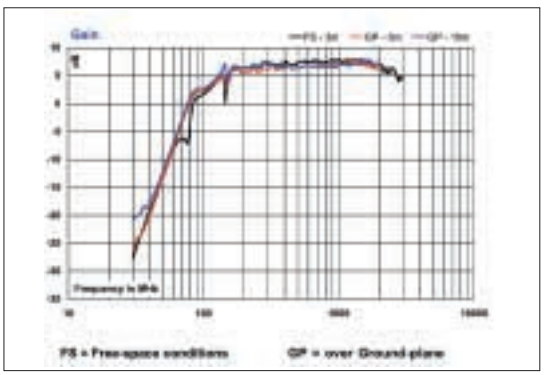
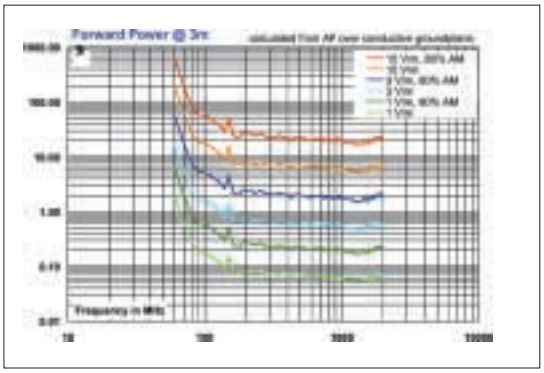


Gain

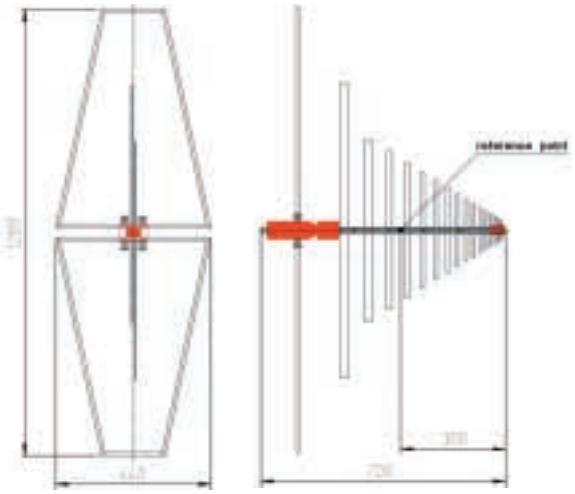


Forward power at 3.0 m measuring distance

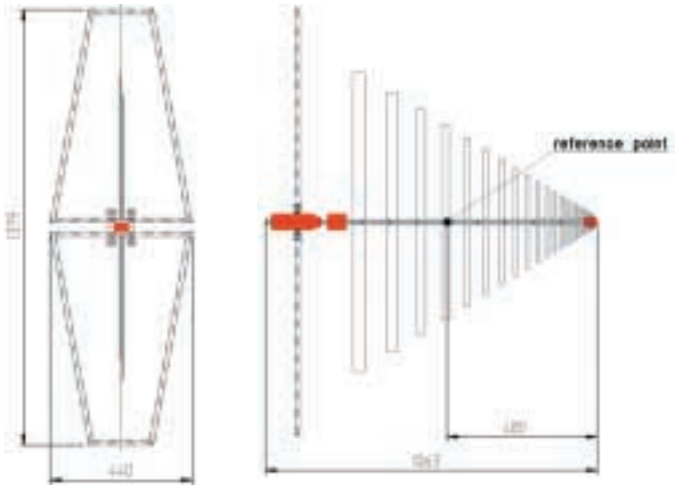


Ultra-Broadband Antennas

BTA-H



BTA-M



Technical data	BTA-H	BTA-M
Frequency range	30 MHz - 2000 MHz	30 MHz - 3000 MHz
Dimensions (LxWxH) in mm	700 x 1.289 x 440	1.063 x 1.379 x 440
Weight	3 kg	4,4 kg
Max. input power	1000 W	1000 W
Impedance	50 Ohm	50 Ohm
Connection	typ N female	typ N female

Multi-Channel RF-Power-Meter
PMS 1084

PMS 1084 is in the standard version a 2-channel RF Power-Meter for the frequency-range from 100kHz up to 4GHz or from 10kHz to 500 MHz (PMS 1084 B). The measuring range reaches from –60dBm to +20dBm. It is possible to upgrade the PMS 1084 up to max. 4 measuring channels at any time.
The measured values can be displayed via a software which is included in the delivery or via the control software of an automated test system. For the integration of the PMS 1084 into a remote-controlled test system it is equipped with serial and USB interface. Hence the PMS 1084 is very good suitable for the automated measurement of forward and reverse power in immunity test systems acc. to EN/IEC 61000-4-3/6 and MIL-STD 461E. It is available for the installation into 19" Racks or as stand-alone unit.

Technical Data:	PMS 1084	PMS 1084 B
Number of channels	2 (standard); up to 4 (option)	2 (standard); up to 4 (option)
Frequency range	100 kHz – 4000 MHz	10 kHz – 500 MHz
Measuring range	-60 dBm - +20 dBm	-50 dBm - +27 dBm
Accuracy	± 1 dB (0,5 dB typical)	± 1 dB (0,5 dB typical)
Resolution	0,1 dB	0,1 dB
Averaging times	1 – 100 ms (Software)	1 – 100 ms (Software)
Max. input level	+27 dBm (= 500 mW)	+27 dBm (= 500 mW)
VSWR	1,15	1,25
RF-Impedance	50 Ohm	50 Ohm
Interface (PC)	RS-232 (9-pol Sub D, female)	
	USB with USB/Serial-Converter	
Input	N-type female connector	
Dimensions (L x W x H)	482,6 x 172 x 44,3 mm	
	(19 x 6,77 x 1,74 inches)	
	19 inch / 1 U	
Weight approx.	2500 g	
Power supply	115/230 V	
Accessories included	Power cord, application software, user	
	manual, LabView driver	

RF Relay-Switching-Unit DC....12,4GHz
RSU

- Assembly alternatively with 1-4 pcs. coax-relays
- Selection between relays with 1 input/2 outputs or 1 input/3 outputs
- Manual or remote controlled operation
- RS-232 and GPIB-interface
- Easy integration into PC-controlled test systems
- Applicable for all fields of RF- and EMC measurements

Description:
The RSU Relay Switching Unit is applicable for all fields of RF- and EMC measurements, to switch manual or remote-controlled from one input to 2 or 3 outputs. Typical applications in measuring systems are change-over switching between different amplifiers, antennas or power-meters. This does also prevent circuit faults due to wrong cabling. By means of a selector switch on the front panel of the RSU it is possible for the instrument to work in manual mode or remote-control mode via the RS-232 or GPIB interface. The input/output connectors of the relays are located on the rear panel of the RSU, this also allows for easy cabling in cases when or where the RSU is mounted into a 19"-rack. A 19"-unit can be equipped with a maximum of 4 relays with 2 or 3 outputs. The quantity of relays with 2 or respectively 3 outputs is variable. The RSU includes Windows software for easy remote-controlled applications. (However for extensive systems it is recommended to integrate the RSU Windows software into the central computer control software.) The easy to follow commands for RS-232 and GPIB interfaces are listed in the user manual.

Definition of the relay assembly:

RSU X2 X3

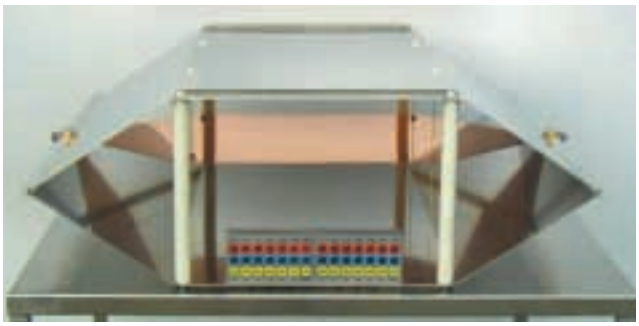
Quantity of relays with 2 outputs

Quantity of relays with 3 outputs

RSU 2223 = 2 relays with 2 outputs and 2 relays with 3 outputs

Technical data				
Frequency-range	DC bis 12,4GHz			
	DC...1GHz	1GHz...5GHz	5GHz...10GHz	10GHz...12,4GHz
VSWR	≤1,04	≤1,14	≤1,3	≤1,5
Isolation	≥90dB	≥80dB	≥70dB	≥70dB
Insertion loss	≤0,05dB	≤0,1dB	≤0,2dB	≤0,3dB
Max. power input	≤1,00kW	≤0,44kW	≤0,31kW	≤0,28kW
Impedance	50 Ohm			
RF-connectors/Relays	N-female			
Switching time	≤60ms			
Number of operations	Max. 10/Minute			
Operating temperature	+10 ºC ... +40 ºC			
Max. humidity	< 90%			
Cabinet	19“ subrack or desktop case			
Dimensions	450mm x 450mm x 150mm (Width x Depth x Height)			
Weight	7,6 kg			

Open TEM Cells



INTRODUCTION

These open TEM cells (tri-plate cells) are well suited for immunity testing of small objects according to European (CE) and automotive standards (SAE J1113-25) or for biological experiments. The advantage of these TEM cells is that they are open and it is very easy to control the functions of the equipment under test. The applications are for instance the immunity testing of watches, pagers, telephones or PCB's. In comparison with other closed TEM cells, the price is low. The field decreases rapidly outside the open TEM cells (approx. 33 dB at 1 meter) and it is therefore possible to use an open TEM cell in ordinary facilities. Another very interesting application is the calibration of field probes because the field inside the TEM cell is known with high precision. TEM cells are the most precise structures for field calibrations.

Cell type	TEM220	TEM500	TEM1000 *	TEM3000 *
Frequency range	DC - 220 MHz	DC - 500 MHz	DC - 1 GHz	DC - 3 GHz
Height under plate	33.3 cm	14.7 cm	7.4 cm	2.5 cm
Max. input power	1.5 kW	1 kW	750 W	400 W
Maximum field	800 V/m	1.5 kV/m	2.6 kV/m	5.6 kV/m
Field with a 25 W amplifier	105 V/m	215 V/m 4	70 V/m	1400 V/m
Dimensions (Lx W x H)	180 x 160 x 73 cm	97 x 81 x 32cm	54 x 45 x 16.8 cm	40 x 18 x 6 cm
Weight	55 kg	12 kg	3.5 kg	3 kg
Field precision	± 5 %			
Connector	type N 50 Ω			
Cell impedance	50 Ω			
Wave impedance	377 Ω			
VSWR	< 1.2 (<1,5 for the TEM3000)			

* can be equipped with a test set-up for IC or PCB according to SAE J1752-3.
Option: signal and power supply filters. Other models are available on request.

Closed TEM Cells

INTRODUCTION

The closed TEM cells TEMF200 and TEMF500 are specially designed for the immunity tests on automotive devices according to ISO 11452-3 and to SAE J1113-24. The TEMF1000 and TEMF3000 allow immunity tests on small devices and require a low power amplifier. Therefore the test installation is much more cheaper compared with an absorber room with antennas. The TEM (Transverse Electro-Magnetic) mode is the only mode produced in the cell below the cut-off frequency. The electric field is vertical and the magnetic field horizontal. The wave impedance is 377 Ω. The field conditions inside the cell are similar to far field conditions. An optional filter box can be placed behind the cell for power and signal lines connections. For the automotive tests, the recommended minimum power of the amplifier is 100 W (TEMF200) and 50 W (TEMF500). It is also possible to use the cell for the radiation measurement, under certain conditions.

Cell Type	TEMF200	TEMF500	TEMF1000 *	TEMF3000 *
Frequency range	DC - 200 MHz	DC - 500 MHz	DC - 1 GHz	DC - 3 GHz
Height under the plate	30 cm	10 cm	7.4 cm	2.5 cm
Size (l x w x h)	130 x 70 x 62 cm	60 x 30 x 22 cm	45 x 22 x 16 cm	15 x 8 x 6 cm
Max. input power	1.6 kW long term	1 kW long term	750 W long term	400 W long term
Field with a 25 W amplifier	118 V/m	350 V/m	475 V/m	1.4 kV/m
Impedance	50 Ω ± 5 Ω	50 Ω ± 5 Ω	50 Ω ± 7 Ω	50 Ω ± 7 Ω
VSWR	< 1.1	< 1.1	< 1.2	< 1.2
Return loss	> 25 dB	> 25 dB	> 20 dB	> 20 dB
Connector type	N 50 Ω	N 50 Ω	N 50 Ω	N or SMA 50 Ω
Weight	approx. 29 kg	approx. 20 kg	approx. 15 kg	approx. 8 kg

* can be equipped with a test set-up for IC or PCB according to SAE J1752-3.
Option: signal and power supply filters. Other models are available on request.

50Ω Stripline for Immunity Tests acc. to ISO 11452-5
SR 50/1000

INTRODUCTION

This stripline is designed for immunity tests on automotive devices according to ISO 11452-5. The stripline is fixed on a table and is easy to move. The table can be sloped vertically in order to reduce the width. It is also possible to divide very easily the stripline in 2 parts for the storage or during the transport. It is the only stripline on the market able to carry out test up to 1 GHz with excellent return loss. The standard impedance is 50 Ohm.

Specifications	
Frequency range	0 to 1 GHz
Max. input power	1 kW continous
Wave impedance	377 Ω
Impedance	50 Ω +/- < 5 Ω
VSWR	better than 1.25
Return loss	better than 20 dB
Connector type	N 50 Ω
Field homogeneity approx.	2 x 0.37 x 0.05 m (L x W x H)
Height of the plate	15 cm over ground plane
Height of the table	90 cm
Size	(L x W x H) 430 x 150 x 105 cm (service position)
	2 * 215 x 85 x 165 cm (storage)
Weight approx.	140 kg
The following options are available:	- 90 Ω version - filter box.

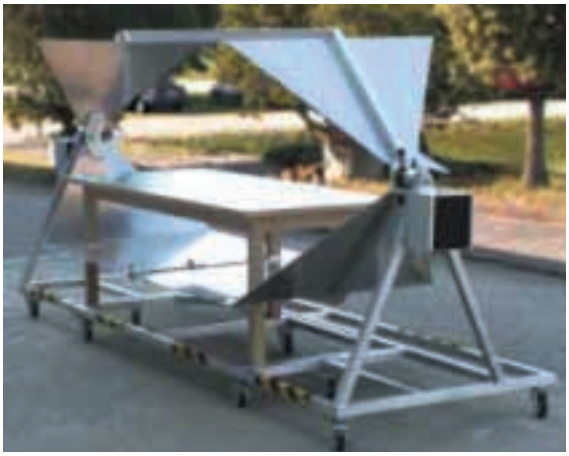
90Ω Stripline for Immunity Tests acc. to ISO 11452-5
SR 90/1000

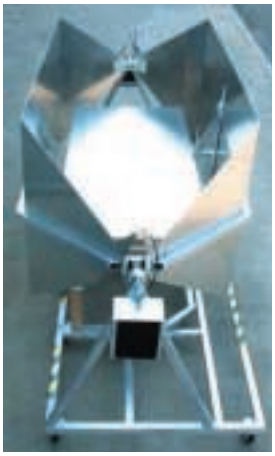
INTRODUCTION

This stripline is designed for immunity tests on automotive devices according to ISO 11452-5 with an impedance of 90 Ohm. The stripline is easy to move and it is possible to pivot the table in order to reduce the width of the equipment. It is the only stripline on the market able to carry out test up to 1 GHz with an excellent return loss. An impedance adapter 50 - 90 Ohm is available as an option.

Specifications	
Frequency range	**0 to 1 GHz**
Max. input power	**>200 W continous**
Wave impedance	**377 Ω**
Impedance	**90 Ω +/- < 6 Ω**
VSWR	**< 1.7**
Return loss	**>12 dB up to 1 GHz**
Connector type	**N 75 Ohm**
Height of the plate	**15 cm over ground plane**
Height of the table	**80 cm**
Size	**(L x W x H) 350 x 90 x 95 cm**
Weight	**approx. 100 kg**
The following options are available:	- impedance adapter 50 - 90 Ohm - filter box - other height under plate.

Parallel Plate Line





INTRODUCTION

This parallel plate line is specially designed for the immunity test on small and medium size devices. It can also be used for specific tests according to the MIL-Standards. The main advantage of this line is that the equipment under test can be successively easily tested in both polarisations without to be dismounted. The line is electrically symmetrical and the impedance is adapted through transformers on both sides. The line is very easy to pivot and to move. The dielectric table can be removed. An included metallic plate can be placed on the table depending on the requirements of the different standards. The parallel plate line can also be used for immunity tests on automotive devices according to the European directive 95/54/EC and on broadcast receivers and associated equipment according to EN 55020.

Specifications	
Frequency range	(± 1 dB) 10 kHz to 30 MHz
Field homogeneity	± 0.4 dB
Maximum input power	500 W continuous
Maximum field	380 V/m (@ 500 W)
Line impedance	200 Ω
Input impedance	50 Ω
Wave impedance	377 Ω
VSWR	better than 1 : 1.9
Connector type	N 50 Ω
Distance between plates	80 or 100 cm
Total dimensions	(L x W x H) 358 x 105 x 153 cm
Total weight	150 kg

The specifications and dimensions are given above as an example.
Other models are available on request.

TEMpact GHz TEM-Cell

Compact testing system for EMC radiation testing

The cell is delivered either as „simple unit“, or as a complete computer-controlled test assembly with all necessary testing equipment.

The TEMpact GHz TEM Cell was developed especially to permit EMC radiation testing of smaller EUT (equipment under test) in a shorter time and at a lower price. In addition to the comparatively low purchase price of the cell itself, the cost incurred by the necessary measuring equipment, too, will be reduced. Another advantage is the little space required for the cell itself as well as the space-saving disposition of all the measuring and testing equipment on the undercarriage of the cell. TEMpact can be used both for immunity tests conforming to the standard IEC/EN 61000-4-3 as well as for pre-compliance emission measurements in the frequency range from DC to 2 GHz. Due to this, an immediate and reliable survey regarding the compliance with EMC regulations can be obtained already in the development phase of electronic equipment.

Technical construction

TEMpact is a „real" TEM cell with a closed outer conductor and an inner conductor (septum) corresponding to the well tested principle after „Crawford". To avoid cavity effects, which arise in the standard Crawford cells from approx. 200 MHz onwards, the TEMpact is partially equipped with ferrite absorbers so that the cell can be used without any problems for the frequency range from DC to 2 GHz. TEM conditions (transversal electro-magnetic field) are given if both an electric and a magnetic field are generated, which are perpendicular in their propagation. This case is also called „far field condition".This requirement can be fulfilled with the TEMpact due to the configuration closed outer conductor / inner conductor, as can be seen from Fig. 1.

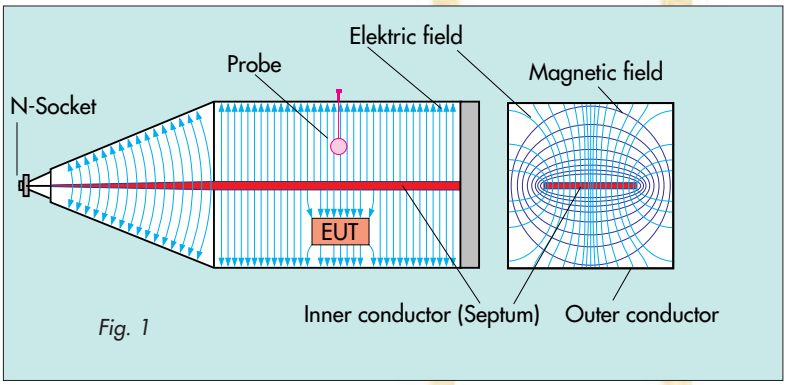


Fig. 1

The electric field is propagating from the inner conductor in direction to the outer conductor. Resulting from the current flow: feeding point - inner conductor - terminating resistor, a magnetic field is generated around the inner conductor. It has to be pointed out that this requirement is fulfilled not by all constructions offered on the market.

Functional principle

The TEMpact GHz TEM Cell provides defined TEM field conditions from 0 Hz up to the GHz range, avoiding at the same time the stimulation of undesired higher modes. The configuration of the cell assures a useful area of a constant cross-section; the TEM field generated in the test volume is therefore not depending on a certain location. The pyramid-shaped extension which allows to direct the signal injections to the useful area, has a minimum opening angle, so that an almost ideal plane wave front is generated in the useful area, which permits to simulate the real field conditions. The characteristic wave impedance of the TEMpact GHz TEM Cell is optimized in view of a desired value of $Z_0 = 50\Omega$ $\pm 1\Omega$ so that reflections of the line structure are negligible.

The termination of the cell is realized by means of a so-called hybrid termination whose essential detail consists in a plane terminating resistor. The plane resistance of this termination element is designed in a way to assure an adapted termination of the line wave resistance for each cell geometry in the lower frequency range. Possible radiation or reflection effects of this plane termination at higher frequencies are avoided by installing ferrite absorbers at the septum (inner conductor) as well as in the auxiliary space at the end of the cell. In addition, this auxiliary space assures the decoupling between outside area of the cell and useful area.

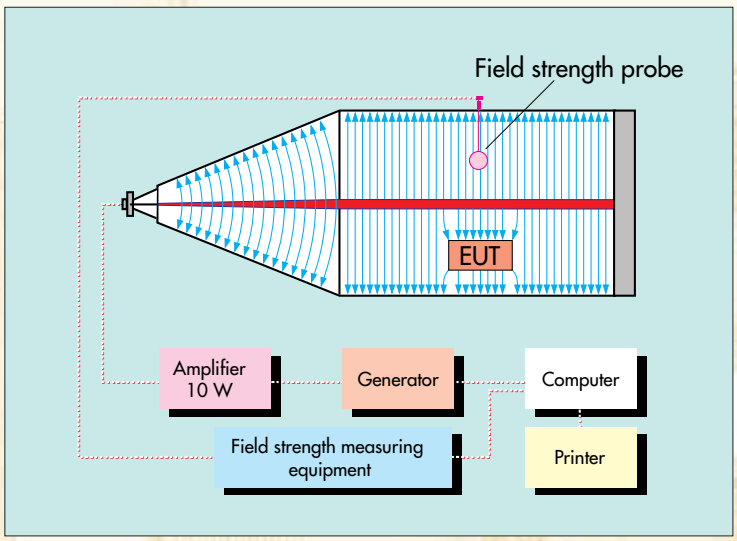
This hybrid termination directly provides an effective damping of the higher modes, which are stimulated in classic TEM cells, and which have a limiting effect to the band width. In addition, the installation of ferrite absorbers in the useful area permits to avoid almost entirely the resonances of higher wave forms. These advantages are confirmed in practice by the respective measuring results. The maximum field strength deviation of -0dB to +6dB, requested by IEC/EN 61000-4-3, is easily reached in the specified test volume; this allows to perform immunity tests which are fully conforming to standards.

Immunity tests in accordance with IEC/EN 61000-4-3

According to IEC/EN 61000-4-3 the alternative use of TEM cells - instead of anechoic chambers - is allowed for immunity testing in the frequency range from 80 MHz to 2000 MHz, provided that a sufficient homogenous field (maximum field strength deviation - 0dB to +6dB), in relation to the size of the EUT, is assured. Another criterion is the suitability of the cell for the whole relevant frequency range (up to 2 GHz). The TEMpact fulfills both of these requirements.

If desired, we deliver the TEMpact GHz TEM Cells including all the necessary measuring and testing equipment, completely installed and ready for operation. As far as equipment is already existing, it may be integrated in the system.

The following components are required for immunity testing (see also block diagram, Fig. 2):



- signal generator with amplitude modulation
- power amplifier
- field strength measuring equipment with probe
- software for control and documentation
- PC for system control (IEEE bus)
- optionally automized monitoring of the EUT by means of fibre-optic system or by multimeter.

The control software assures a constant field strength in the test volume over the whole frequency range. To permit this, it is necessary to establish a relation between generator output voltage and the desired field strength. For this purpose, a reference run is performed with „empty" TEMpact, during which the output voltage of the signal generator required for the respective field strength will be determined and stored for each frequency. The values thus determined are available as reference file for all future testings. Due to the symmetrical construction of the cell, the field strength may be recorded permanently during testing (with the reference file) by means of the probe installed in the upper half of the cell, without influencing the field in the test volume unacceptably. This permits on the one hand, to verify if field strength is really available during automatic testing, and, on the other hand, to perform tests manually.
Fig. 3 shows which amplifier output voltage is necessary for a field strength of 10V/m, depending on the respective frequency.

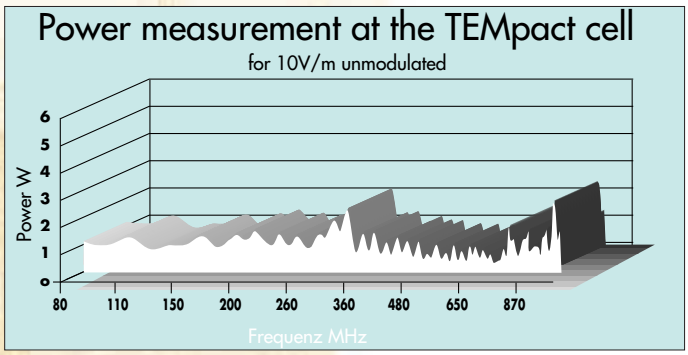


Fig. 3

Emission measurements

In the international standardization, TEM cells or strip lines are not officially permitted as alternative measuring method for emission measurements. Consequently, they cannot replace the final acceptance measurement conforming to standards on an open area test site or in an anechoic chamber.
The high quality of the TEMpact, however, permits already during the development phase to perform emission measurements which are very reliable and absolutely reproducible, so that the effort caused by the use of a test assembly conforming to the standards (effort of time and hiring charges) can be reduced to a minimum. Comparison measurements with open area test sites conforming to standards have proved that an EUT can be „prepared" optimally with TEMpact for the acceptance measurement.

One reason for this is the defined cable layout which is realized by means of a plexiglass holding device beneath the septum. An undefined cable layout (as can often be seen in other cells) would lead to a considerable limitation of the reproducibility as well as of the correctness of the measuring results.
Due to the very elaborate damping of cavity effects by means of ferrite absorbers, the TEMpact will not require the so-called „correlation software" which is frequently offered in order to correct resonances of the cell by calculation.

In emission measurements, the TEMpact is used as receiving equipment and - just as in the tests with antennas - connected via RF cable with N connectors to any measurement receiver conforming to CISPR 16, or to a spectrum analyser. Testing may then be started immediately. The test setup can be seen from the block diagram, Fig. 4.

If a measurement receiver does not exist, we can also deliver a completely computer-controlled test site for emission measurements.
In case of an all-inclusive delivery of TEMpact, immunity test site and emission measuring site, the complete control software will be installed on one common computer, so that the desired test can be called by simple mouseclick.

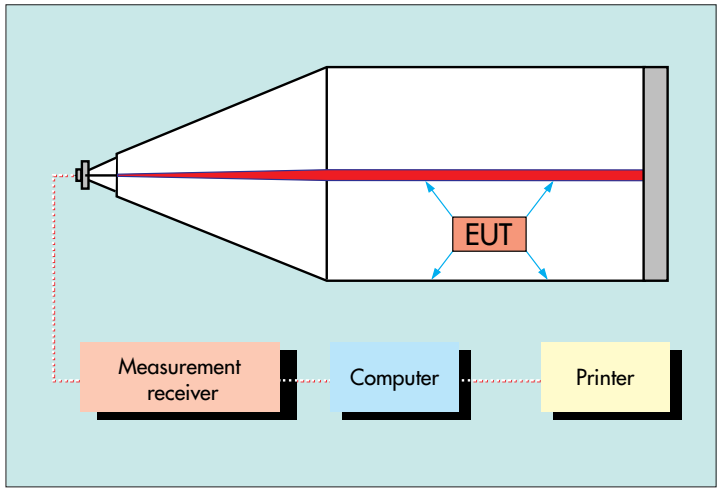
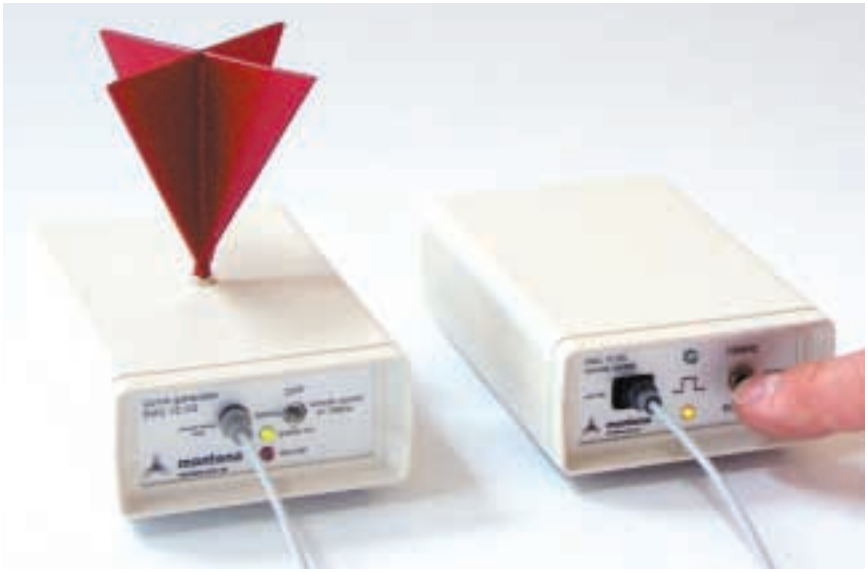


Fig. 4

Technical Data	
External dimensions	**(L x D x H) 3.020mm x 1.080mm x 1.900mm**
Test volume	**(L x D x H) 750mm x 450mm x 300mm**
Return loss:	
Typical value for f ≤ 1GHz	**< -20dB**
Return loss:	
Maximum value for f ≤ 1GHz	**< -18dB**
Maximum field strength deviation in the test volume, with constant input power for f ≤ 1GHz	**-4dB to +6dB**
Maximum field strength deviation in the test volume, with regulated input power conforming to IEC/EN 61000-4-3 for f < 2GHz	**-0dB to +6dB**
Required amplifier output power for field strengths of 10V/m at 80 % AM	**10 Watt**

Harmonic Comb Generator - E-Field



INTRODUCTION

This harmonic comb generator is designed for the periodical control of the radiated field measurement site. With this equipment it is possible to control the reproducibility of the whole measurement system from the antenna to the spectrum analyser including the cabling, preamplifiers, receiver, quasi-peak detector, etc. The equipment is also designed to measure the shielding effectiveness of little boxes and cubicles. The repetition frequency can be changed with a remote control (optic fibre) in order to increase the dynamic in level and frequency.

Specifications	
Repetition frequency	10 MHz or 50 MHz
Frequency range	10 MHz - 5 GHz
Frequency stability (10-75ºC)	Given by the quartz: +/- 100 ppm
Level stability (10-50ºC)	0,25dB
Level stability (7-13Vdc)	0,02dB
Radiated field polarisation	mainly vertical
RF Level (50 MHz repetition)	up to 87 dB••••V/m @ 10 m
	at least 55 dB••••V/m @ 10 m
Battery life (generator)	15 hours @ 10 MHz / 8 hours @ 50 MHz
Battery type	6LR61 9 V
Optic fibre type	Plastic fibre HFBR
Size (with battery)	114 x 72 x 38 mm (without antenna)
	114 x 72 x 130 mm (with antenna)
Weight (with battery)	180 g

Harmonic Comb Generator - H-Field

INTRODUCTION

This harmonic comb generator is designed to measure the shielding effectiveness of little boxes. Due to the very small size of the generator and of the antenna (in option: very small antennas), it is possible to place it directly in the box and to measure the radiation outside. The comparison between the measurement with and without the box gives directly the shielding effectiveness of the box. The equipment contains a pulse generator with a repetition frequency control, an antenna, an optic fiber and a remote control. The equipment has a rugged and small metal case and is supplied with rechargeable batteries.

Specifications	
Frequency range	10 kHz - 30 MHz
Frequency stability	given by the quartz
HF level @ 1 MHz rep. freq.	at least 75 dB••••V/m @ 1 m
Repetition frequency	10 kHz or 1 MHz
Battery life (comb generator)	15 hours
Battery type (generator)	12 V 800 mAh lead-acid
Battery type (remote control)	9 V
Optic fiber type	plastic fiber HFBR
Charging duration	5 hours @ 160 mA
Size (with battery)	95 x 70 x 70 mm
Weight (with battery)	0.6 kg

COUPLING DECOUPLING NETWORKS
acc. to IEC/EN 61000-4-6

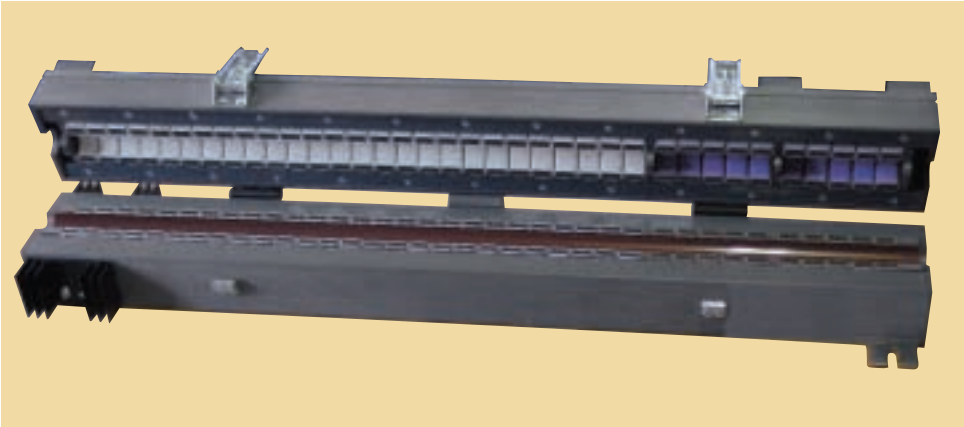
INTRODUCTION

Coupling and decoupling networks (CDN´s) are used for immunity tests to conducted disturbances induced by radio frequency fields according to IEC/EN 61000-4-6. Guidance for selecting the appropriate CDN is given in the following table:

Specifications	
Typ	**Interconnected lines**
M1, M2, M3, M4, M5, M2+M3	Unscreened supply (mains)
AF2, AF4, AF6, AF8	Unscreened nonbalanced lines
S1, S2, S9, S25	Screened lines
T2, T4, T8	Unscreened balanced lines
RJ11, RJ45	Unscreened data lines
RJ11/S, RJ45/S, USB	Screened data lines

Please see also our data-sheet "CIT-10" Compact Immunity Test System acc. to IEC/EN 61000-4-6.

Electromagnetic Coupling Clamp acc. to IEC/EN 61000-4-6



EM-Coupling Clamp	
Frequency range:	**0.15 – 1000MHz**
Max. allowed power:	**0.15 -100MHz: 100W max 15min**
	100 - 230MHz: 100W max 5 min
	230 - 1000MHz: 50W max 3min
The test level of the immunity test with the specified values corresponds to a field strength of 100V/m	
Directivity:	**around 10dB, f>25MHz**
Dimensions:	**(L x W x H) 645 x 100 x 110 [mm]**
Max cable diameter:	**20mm**
Weight:	**7.5kg**
Options:	Calibration set Consisting of: 2 pcs Calibration corners incl.150/ 50ohms-adapter 1 pc Calibration cable

Line Impedance Stabilisation Network
200 to 1000 A

INTRODUCTION

This Line Impedance Stabilisation Network (LISN) is specially designed for the measurement of mains disturbances on high power equipment according to European standards (CE) and to MIL-STD. The continuous current capacity is up to 1000 A. A safety switch is installed on the door of the LISN cabinet and an output connector gives the opportunity to build an external safety circuit. The cabinets are easy to move and the connexions are easy to carry out. This equipment includes as an option: coaxial cables, protection devices and a coaxial relay for remote control.

LISN:			
Type	LISN50-200	LISN50-500	LISN50-1000
Continuous Current	4 x 200 A	500 A	1000 A
Type	V 50 Ω // 50 µH according to CISPR 16 subcl. 11.3 (band B)		
Voltage	230 / 400 V (option: 460 / 800 V)		
Coupling	3 phases + N	1 phase	1 phase
Impedance	50 Ω // 50 µH < ± 20%		
Frequency Range	150 kHz - 30 MHz		
Mains Connector	screws M12		
Signal Connector	N 50 Ω		
Dimensions	380 x 600 x 350 mm		
Weight	35 kg	29 kg	50 kg
Protection circuits:			
Impedance	50 Ω		
Frequency Range	0.01 - 100 MHz		
Attenuation	10 or 20 dB		
Input Level	< 3,7 V / < 12 V		

Other models are available on request (V 50 Ω // 5 µH 100 – 1000 A or high voltage versions)

Frankonia EMV Mess-Systeme GmbH
Daimlerstraße 17
91301 Forchheim
Tel: ++ 49 (0) 91 91 · 73 666 · 0
Fax.: ++ 49 (0) 91 91 · 73 666 · 20

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