

Editorial

Dear Readers,

The current good economic situation has stretched production and development capacities in Europe. At the same time, the market requires new and innovative products at constantly shorter intervals.

The IT crisis of 2001 has led to the situation that young well trained engineers are now hard to find. Testing requirements in the area of EMC and other areas become more complex. So companies concentrate increasingly on their main business, and outsource their measurement and operating processes to partner companies. emv has anticipated these extra demands and has taken on extensive technical consulting and service resources. These stand ready to serve you. We are there to help you and to serve as a reliable partner, leaving you to concentrate on the essentials of your business!

Your emv-Team

Content

Far-Field Measurements with advanced Antenna Measurement Equipment	2
Second NSI User Meeting	2
Trade in for AR Field Probes	3
Electromagnetic Field Probes and Calibration	3
Compact AC/DC Power Sources	3
emscreen installs two shielded Laboratories	4
AR Amplifiers with extendable Frequency Range and Power	4
Broadband Power Amplifiers from 4 GHz to 10.6 GHz	4

Extended Semiconductor-Tester Product Range (ESD, TLP, Latch-Up)

In March 2007, Thermo Fisher Scientific took over our then partner Oryx Instruments (in Fremont, California) thus becoming the world leader for component-reliability systems. In this way emv obtained exclusive sales rights for the complete component-reliability product line in Germany, Austria, Switzerland and East Europe.

With their KeyTek product range and the products acquired with Oryx Instruments, Thermo Fisher now offers the broadest and best technically developed product line for component-reliability test systems (ESD, Latch-Up and TLP). These systems are needed for quality control of semiconductors and integrated circuits during development and production. Development, production and support take place at the two locations, Lowell near Boston (KeyTek) and Fremont (formerly Oryx Instruments).

emv GmbH, formerly sales partner of Oryx Instruments, has taken on exclusively the sales and technical service for both product lines. The goal of this merger is to bundle the know-how and years of experience of leading specialists in the very complex area of component-reliability systems. This makes it possible to react faster

with new products to the changing requirements of the users and to offer the optimum solution for each challenge. Thermo Fisher Scientific has worldwide 30,000 employees and is involved in various areas such as analysis instrumentation and laboratory equipping.

Thermo Fisher SCIENTIFIC

ESD User Meeting

The 8th ESD user meeting took place on 21st June 2007 at the Fraunhofer Institute in Munich. Developers from both Thermo sites, Fremont and Lowell, were present, together with ESD Users and emv representatives. The program included important news about test systems and new development by Thermo as well as talks about standards and live demonstrations of the TLP test system Celestron I and of the HBM/MM test system EX11000.

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Bundled System know-how: New Expert Department at emv

In recent years, system business has become increasingly important for emv. As a reaction to this new situation all system activities and the associated know-how have been grouped in a newly created department. Through this structure, we are ideally placed, not only to deliver standard systems, but also to react flexibly to customer requirements and together with each customer to develop the optimal solution.

Already at the sales proposal stage, specialists from the systems department advise the sales people regarding the technical concept. When the order is officially placed a project kick-off takes place and the project is transferred from sales to the systems department. From this moment, Markus Krautbauer and Wolfgang Renner are responsible for the

complete planning and implementation of the system up to the time of final acceptance. Markus Krautbauer as project manager takes on the time schedule and resource planning, creation of the project component list and coordination with suppliers and customers. Wolfgang Renner is responsible for the technical detailed planning and installation of the system at emv and on site.

Both gained valuable experience in recent years within various major projects, such as the new EMC Center at BMW. The system department is supported by the experienced experts of the emv service. All such projects are controlled by one central department. Send us your system requirements!

We shall be happy to develop a technical concept in cooperation with you.



Far-Field Measurements with advanced Antenna Measurement Instrumentation

emv and NSI (Nearfield Systems Inc.) refurbish an obsolescent Far-field antenna measurement system at Ramet in the Czech Republic and thereby integrate state-of-the-art measurement instrumentation and the NSI 2000 software with the existing positioner.



Positioner with AUT

The Starting Situation

Near-field and Far-field antenna measurement systems are employed for the characterization of antennas. Antenna and radar manufacturers demand high standards for the quality and precision of the measurement technology. Older antenna measurement systems are often unable to give the required measurement precision or to deliver detailed measurement protocols. Despite great own maintenance efforts, this was becoming the case at the Czech radar equipment and antenna producer Ramet C.H.M. A 35 year old Far-field measurement system from Scientific Atlanta could not satisfy modern demands. Manual generation of measurement protocols, a high breakdown risk and unobtainable spare parts were some of the reasons for the decision to completely replace the measurement instrumentation and control of the system.



Measurement tower at Ramet in the Czech Republic

The Task

The customer wanted to fully modernize the antenna measurement system with new RF measurement instrumentation while economizing by continuing to use the existing mechanical equipment. The existing RF measurement equipment should be completely replaced. The measurement equipment

had to be installed 25 meters above the ground in two measurement towers. The measurement distance between the towers was 1024 meters. The existing AUT positioner with 5 ton load capacity needed a complete overhaul, including replacement of the motor for each of the 3 rotation axes, new cabling, and replacement of the existing connections.

The Solution

After inspection of the old measurement installation and detailed analysis emv and NSI proposed a con-

cept retaining the original positioner. emv with NSI was the only vendor able to satisfy the strict technical requirements with a really attractive and economical solution. This was made possible by including the customer in the overhauling of the positioner. The skills of the customer made it possible for various jobs to be taken over by Ramet, for instance replacement of the existing connections after precise definition of the interfaces.

The delivery comprised a complete RF subsystem up to 20 GHz with the corresponding NSI software, a network analyzer (PNA from Agilent), a signal generator and a control unit from the French manufacturer ACC. The system provided simultaneous control of all three axes, remote and manual control of the positioner, measurement result capture with arbitrary frequency and multiple frequency scanning. With the NSI 2000 software the positioner can be controlled via the control unit from a control computer. The software provides extensive facilities for analyzing, recording and reporting the measurement data. This automation, together with multi-beam and multi-frequency measurement dramatically reduces the time needed for measurements.

The Result

The detailed concept was worked out in conjunction with NSI and the customer. Existing components such as the AUT positioner were integrated with the new measurement equipment and control unit by the manufacturers. emv coordinated the whole project. Installation, start-up and testing were successfully completed in ten days. With the new measurement system Ramet now belongs to the leading service providers for far-field antenna measurements in Europe. For emv this was the first installation of an antenna measurement system in East Europe

„Essential for the success of the project was the extremely professional cooperation in a multinational team including Czechs, Germans, US-Americans and French, overcoming all language barriers“ says Zuzana Wood, project manager for emv GmbH. In 2007 emv became the exclusive sales partner of NSI for many East European countries. ■

2nd User Meeting for Antenna Measurements

The 2nd NSI User Meeting took place on 8th and 9th May 2007 in the premises of the Fraunhofer Institute in Erlangen with energetic support by the institute. The object of the event was to maintain a user forum for antenna measurement instrumentation and techniques. Among those present were representatives from emv and NSI and 16 users from all over Germany. The agenda included new developments in measurement instrumentation and in the software from NSI as well as several talks by the

users on their experiences. The active participation of the users led to good ideas for optimizing antenna measurement instrumentation. Additionally, there was plenty of opportunity to exchange know-how with other users and to extend personal networks. Due to the positive feedback („Very helpful“, „The meeting was very well organized“, „Thanks also for the organization by FHG“), and as requested by participants the next User Meeting will be held at the end of 2008. ■



Trade-In Program for AR Field Probes – up to 30 % Discount

Through a trade-in program, for a limited time, users have the chance to modernize their field-strength measurement systems to the newest state of the art at reduced prices.

Using laser technology the Star Probes save you the annoying use and loading of batteries. So your measurements run more efficiently. The FL7006 for E-field measurements up to 6 GHz equips you for the extended frequency range up to 6 GHz as specified in EN 61000-4-3, issue 2006-12. The program applies for purchases of Star Probe FL7006 and for all probes of the FP7xxx series from AR.

AR Laser Probes now come standard with an A2LA accredited, NIST Traceable Calibration at no extra charge

Unusual about this trade-in action is that a field probe from any manufacturer can be traded in for a new laser powered AR field probe, regardless whether it is still in working order. The program finishes on 20.12.2007. For further information please contact info@emvgmbh.de



Star Probe up to 6 GHz (FL7006)

Electromagnetic Field Probes, E-Field Calibration and Calibration of E-Field Probes

Generation of a defined electromagnetic field is a complex business. Dare!! has published a comprehensive white paper on this subject.

Most EMC laboratories pay considerable attention to the quality of their absorber cabins. But they mostly neglect the importance of calibration and use of their E-Field probes. The recently published white paper from Dare!! gives user oriented explanations of some central the-

mes in this area and clarifies common misunderstandings.

Among other things, the document considers the influence of anisotropy on EMC measurements, the linearity of E-field probes, and the relevant conditions for calibration of field probes. The white paper can be downloaded from www.emvgmbh.de/emv_news



E-Field Probe RadiSense from Dare!!

Compact AC/DC sources with integrated power analyser for laboratory use

The Compact i/iX Series from California Instruments provides a programmable AC/DC source, an arbitrary waveform generator and a power analyser in one compact enclosure. The new series of laboratory power sources covers a variety of functions in one device, so reducing the need for separate boxes.

The laboratory power sources are available with 750 VA, 1500 VA and 2250 VA nominal power. The output voltage can be set from 0 to 150 Volts or from 0 to 300 Volts. The output frequency can be DC or can be set from 16 to 1000 Hz. To get extra power, two sources can be used in parallel. The Compact i/iX Series provides an integrated measurement system with a power analyser, a programmable arbitrary waveform generator, selectable output impedance, transient list programming, and a transient generator. User-generated waveforms and transients can

be stored and simply repeated in later tests. The supplies can be operated either directly using keys on the front panel, or from an external PC using control software. USB, RS-232, IEEE-488 and LAN data interfaces are available.

Test procedures for EMC-testing according to EN 61000-3-2 / EN 61000-4-11 and for Avionics testing according to ABD100, DO-160, MIL-STD. 704 or B787 are available as firmware options. The power supplies are used typically in development laboratories and function test facilities, for simulation of mains, for maintenance and service work as well as power sources for absorber cabins.

emv GmbH in Taufkirchen, Germany, is the sales and service partner of California Instruments in Germany, Austria, Czech Republic, Slovakia und Poland.



AC Power Source Compact i/iX

emscreen installs two Shielded Laboratory Rooms in Greifswald University

The emv-subsiary *emscreen* has installed two shielded laboratories in the physics institute of the Ernst-Moritz-Arndt university in Greifswald, with a shielding effectiveness > 60 dB, typically 75 dB, in the frequency range 30 MHz to 3 GHz, according to IEEE standard 299.

Each room covers 30 m² and has a large front window. This project was the first ever with shielded windows that can be opened when necessary, while still achieving such a high level of shielding effectiveness.

The doors close automatically and are equipped with smoke protection sealing, electronic locks and card readers. Many features were installed and integrated



in the shielding, for instance air conditioning, a supply pipe for special gasses, fume extraction, water supply, heating and a conducting linoleum floor. Just using shielded components does not ensure the required RF shielding for the whole room.

With complicated interiors, only careful matching and integration of all system components can guarantee such effective shielding. ■

More Flexibility: AR Amplifiers are extensible in Frequency Range and Power

Changing standards and development of the technology constantly present EMC test labs with new demands on their measurement equipment. An important cost factor is that the amplifiers then need to be replaced by new models that satisfy the new standards.

To protect investment in amplifiers, AR has developed a new flexible concept. Many S series amplifiers can now be enhanced regarding power and frequency. So for instance, an amplifier of type 35S4G8 (35 Watt, 4 GHz to 8 GHz) functions as a component of a system that can be extended to higher power by adding further amplifiers to give 60S4G8 (60 Watt), 90S4G8 (90 Watt) or 120S4G8 (120 Watt).

To extend the frequency range e.g. to 6 GHz, (corresponding to EN 61000-4-3, issue 2006-12), AR also

offers the option to enhance an existing amplifier. So an existing AR amplifier S1G3 (0.8 GHz to 3 GHz) can be converted by a technical manipulation to an S1G4 (0.8 to 4.2 GHz) amplifier. Afterwards, the higher frequencies can be covered by an S4G8 (4 GHz to 8 GHz) amplifier or by an S4G11 (4 GHz to 10.6 GHz) amplifier.



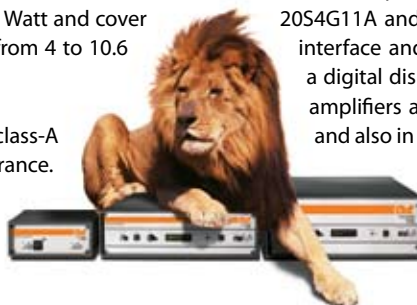
economically to the changing requirements of the standards. ■

Particularly EMC labs performing standard-conformity tests are thus enabled to adapt their measurement instrumentation flexibly and

Broadband Power Amplifiers with 4 GHz to 10.6 GHz in one Frequency Band

As well as the S4G8 series AR has now also added extra power classes to the amplifiers of the S4G11 series. The solid state amplifiers are available with power 1, 5, 10, 20, 40 or 80 Watt and cover the complete frequency range from 4 to 10.6 GHz.

All models in this series are class-A amplifiers with 100 % load tolerance. These amplifiers have excellent linearity. The harmonics do not exceed -20 dBc



at the specified power. The reliable solid state technology of all S series amplifiers gives excellent cost-of-ownership. Each of the models 10S4G11, 20S4G11A and 40S4G11 provides an IEEE 488 interface and an RS 232 interface as well as a digital display and an operator panel. The amplifiers are used in wireless applications and also in EMC tests, since both areas work in constantly higher frequency ranges. ■



Clever thanks to emv!

We will gladly inform you by email about current offers and news about emv GmbH. Please complete our response fax..



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Antenna Measurement Systems

Audio Transmission via Fibre Optic Cable

Data Transmission via Fibre Optic Cable

Turntables

Electronic Loads

ESD-Tester

EMF-Mesurement System FIELD Nose®

EMC-Measuring-Stations / Systems

(please specify)

EMC-Scanner EMSCAN®

EMC-Software RadiMation®

Field Probes (RadiSense®, Star Probe®)

Others:

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DC Power Sources

RF and Microwave Solutions

Calibration (please specify)

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- Absorption Clamps
- DCNs (CISPR 22)
- CDNs (EN61000-4-6)
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- Calibration Equipment
- Coax Voltage Probe

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Fibre Optic Cables

LISNs

Directional Coupler

Tube Coupler

Dynamometers

Services

Current Probes

- Bulk Current Injection Probes
- Current Measurement Probes
- Calibration Fixtures

TEM-Cells/Sstripline

picoTEM

Amplifiers

- DC to 1 GHz
- 0,8 to 3 / 4,2 GHz
- 4 to 8 / 11 GHz
- 1 to 40 GHz
- Military Applications
- Low Noise Preamplifiers
- Narrow Band Amplifiers
- Amplifier Moduls
- Others (please specify)

Frequency:

Power:

AC Power Sources

Voltage:

Frequency:

Power:

Video Moinitoring Systems for immunity testing

We are planning to buy

- within 3 months
- with in 3 to 6 months
- with in 6 to 12 months

Budget

- is available
- is requested
- has not been planned yet

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Services

- Shielding effectiveness measurements according to IEEE 299
- Maintenance

Others:

We are planning to buy

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- with in 3 to 6 months
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