Press release

3 February 2014

19 AND 20 MARCH 2014

CNIT PARIS LA DEFENSE

THE PROFESSIONAL MEETING FOR THE RADIOFREQUENCIES, MICROWAVES, WIRELESS AND OPTICAL FIBRE COMMUNITY

Microwave & RF 2014: The full of novelties!

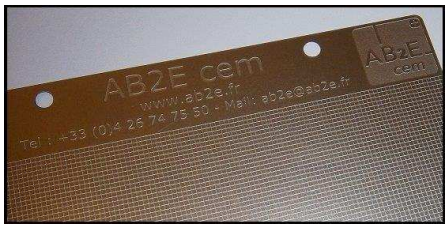
In next March at the CNIT, the 3rd edition of Microwave & RF will be full of novelties!

During two days, the professionals of the Microwave, RF, Wireless and Optical fibre community can discover therefore a range of the latest innovations and new products presented by exhibitors, suppliers, manufacturers, distributors and partners.

Here is the first new information (*on January 29*):

AB2E CEM

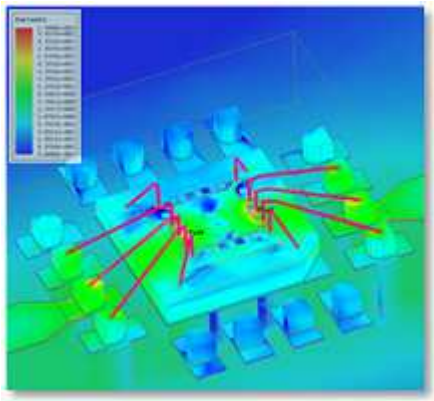
Sheet for EASY SHIELD for Can/Box EMI



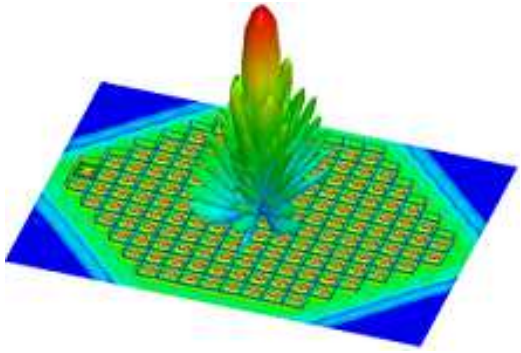
AB2E CEM developed this new product of last generation to come support customers in RFI/RF/HF/WIFI/WIRELESS… This can is manufacturing directly by customer and at the customer size. This sheet is always in stock and can be delivered in 1 or 2 days. During your EMI tests, you can manufacture yourself the shielding with the form as you want…
Advantage: Have a custom design shield

ANSYS

ANSYS 15.0 offers additional capabilities in the electromagnetic suite that drive high-speed wireless communication design including:



- A new single ANSYS installation for all electronic products including HFSS, SIwave and Designer.
- All HFSS user can now use both full 3D MCAD or 3D layout based interface. Design Simulation set up as well as external design import (DXF, GDS, ODB++, etc..) is simplified. The new interface integrates HFSS FEM classic solver as well as a 3D planar MoM solver.
- Specialized meshing technology for silicon substrates, redistribution layers, packages and printed circuit boards that creates 3-D meshes up to 30 times faster than previous releases.
- Significant improvement in HPC (high performance computing) to solve on multiple cores on a single or multiple workstations.



- Finite Element-Boundary Integral technology (FEBI) improvement to reduce simulation time or to handle larger model such as a large antenna platform.
- Cable Modeler – Cable harness solutions for the Automotive, Aerospace, and Oil and Gas industries within HFSS, Q3D Extractor, Maxwell, Mechanical, and Fluent. This provides solutions ranging from EMC to multi-disciplinary physics issues caused by immense pressures.
- The new 3D Component Library feature allows creation of 3D components complete with geometry, materials, boundaries, excitation and parameters. A user can easily share and reuse components. A Waveguide and antennas library is already included.

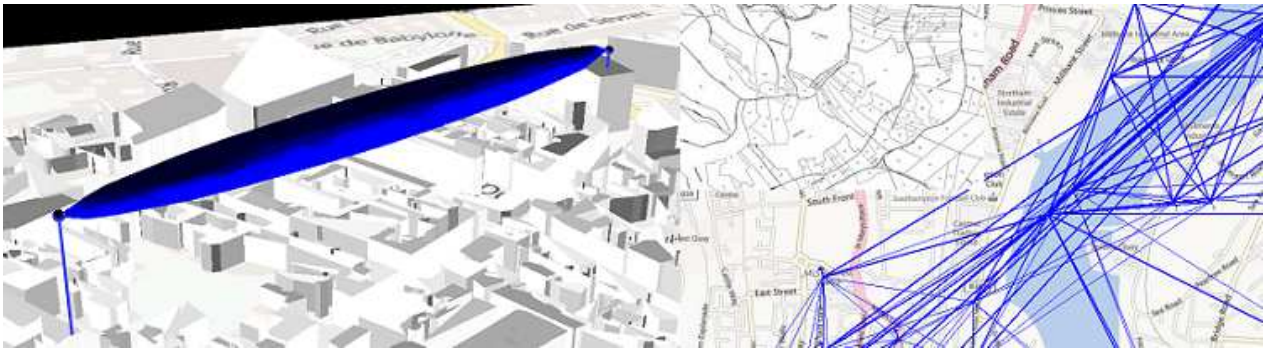
ATDI - Advanced Topographic Development & Images *(1rst participation to the show)*

ATDI designs, develops and commercializes software and services covering the main areas in the design, planning and use of radio networks operating in a range of frequencies from 10 kHz to 450 GHz. ATDI has also developed consultancy services to satisfy all technical needs and constraints and put its know-how and expertise at the service of its customers by offering customized solutions. Amongst others, applications include:

- Simulating the propagation of radio electric signals
- Planning microwave communication networks
- Managing frequency spectrum
- Analyzing radio interference
- Digital cartography
- Command and control systems for radio spectrum
- Consultancy for and development of specific software

ATDI operations, which apply to civilian as well as military sectors, are mainly intended for:

- stationary telecommunications operators involved in the deployment of point to multipoint networks (ATDI is the world market leader in the Wireless Local Loop sector)
- regulation administrations
- radio and television channels
- public organizations such as fire-fighting and police services
- companies and organizations involved in the design of point-to-point microwave radio systems
- mobile phone operators involved in the installation of the future mobile phone networks on the UMTS standard
- manufacturers and users of radar and satellite systems



AXON'CABLE

AXON'CABLE OFFER A COMPLETE RANGE OF MICROWAVE COAXIAL CABLES UP TO 50 GHZ

AXOWAVE, AXOLAB and AXOSPEC, the three families of microwave assemblies are used at frequencies from 0 to 40 GHz at temperatures between – 55°C to + 125° C or – 40°C to + 80°C depending on the outer jacket. In addition to its expertise in extrusion techniques, axon' has developed its own expanded materials, PTFE CELLOFLON® in both extruded or wrapped versions. It allows for optimization of the electrical characteristics of coaxial cables for microwave transmission.

axon's also offer hybrid harnesses for increasingly complex applications. These harnesses integrate various configurations of wires and terminations such as coaxial cables up to 50 GHz, shielded pairs, fibre optics and many more.

axon' U series microwave assemblies have been specially designed to have the high bending strength required for dynamic applications (such as radar, surveillance or navigation systems). The 2.5 U version (2.5 mm diameter) for example is able to maintain its electrical properties after 1 million bends (3.0 dB/m at 18 GHz).

Axon' will exhibit its latest innovative products at Microwave & RF: Micro-D combo connectors and lightweight coaxial cables.

The Axon' group is specialised in designing and manufacturing conductors, wires, electronic cables, connectors and interconnect solutions for high-tech markets. The company employs 1770 staff world-wide in 10 subsidiaries in Europe, America and Asia. Its consolidated turnover amounts to 115 million Euros in 2013. 70% of the sales are achieved in export.

CCI EUROLAM *(1rst participation to the show)*

Arlon's MultiClad HF® is a new halogen-free low-loss system that represents the next generation in low-loss multilayerable thermoset laminate and prepreg systems for microwave and high-frequency printed circuit boards.
Key Product Features include:

- Halogen-Free to Address Environmental Standards
- Low loss for HF and Microwave Applications
- Lead-Free Solder Temperatures / Thermally Robust
- High Tg (190°C) and Low Z-Direction Expansion for PTH Reliability
- Low TCEr for Phase Stability over Temperature
- Low Moisture Absorption
- Good Thermal Conductivity (0.55 W/m-K)
- Competitive Dk (3.7 at 10 GHz) and Df (0.004)
- Stable Loss Values through Thermal Oxidative Ageing
- UL-94 V0 Flammability

MultiClad HF® is designed for High-Speed Backplanes and Server boards, Power Amplifiers, Satellite receivers, LNB converters, as well as Semiconductor burn-in-boards and other high speed, high reliability applications.

COBHAM MICROWAVE

Low loss (1dB) cavity filter, C band (4.5-4.9 GHz) for defense application. The out of band rejection is better than 60dB up to 36GHz. The size is lower than 80 x 32 x 22 mm. The input power is 20 W at an altitude of 14 000 meters.

Two times 10 cell waveguide duplexer for WBDL application, Tx/Rx SMA conectorized; wave guide flange at the antenna. The rejection between channels are greater than 130dB for an overall size of 80 x 80 x 16 mm.

Thanks to its heritage in ceramic filters and to all the internal means for power test, corona test and multipactor test, Cobham has designed and qualified a small size duplexer (100 x 55 x 20 mm) for space application. The out of band rejection is better than 60dB up to 12.5GHz. This duplexer is multipactor free up to 235 W.

Cobham proposes a compact and configurable RF/Microwave Switch Matrix in three standard frequency ranges: DC-18GHz, DC-26.5GHz and DC-40GHz.
Up to 40 switching channels could be addressed in a standard 19 inches rack unit of 3U high. The RF/Microwave Switch Matrix can be operated via 10/100Mbs Ethernet network and is shipped with easy-to-operate graphical user interface software for control from a PC.

Cobham introduces L-band SMD limiter with very high power handling capability. This item meets 300W, 1 ms, 10% DC in a small QFN package (8.5 x 5.5 x 3 mm). Insertion loss are as low as 0.8 dB max, Recovery Time at 5 µs @ 100W and Flat leakage at 12 dBm typical.

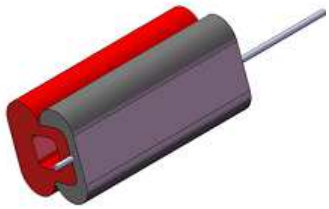
Cobham introduces a new generation of connectorized Power Dividers for Space application. This new version proposes a significant size and weight reduction, 30% versus former design while electrical performances are improved. X, Ku and K frequencies range are covered with configuration from 1:2 up to 1:8.

Cobham' connectorized Directional Couplers product range integrates the last technical evolutions with 30% size and weight saving benefit while electrical performances are improved. These modules cover L band, C Band, S Band and X band while K band is under development.

COMPELMA *(1rst participation to the show)*

COMPELMA presents its new series of EE gaskets

COMPELMA presents its new series of EE gaskets, combining both IP sealing and electrical continuity. These gaskets, in co- extruded silicone, may optionally be wire encapsulated to remove any elongation during the handling, and to facilitate its placement in a groove by preforming them.



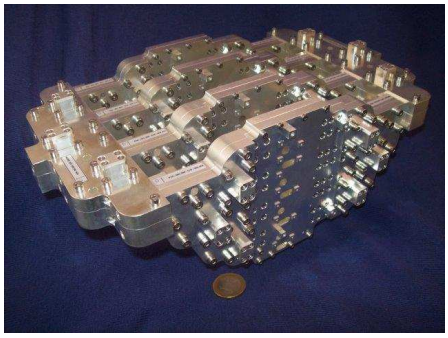
A large number of sections are already available. They allow you to achieve the IP 67 sealing level. Other sections may also be made upon request, adapted to your existing groove design.

All of these gaskets is available in reels or cut and vulcanized to a specific length.

Electrical continuity is ensured by a deposit of particles such as Ni / C, Ni / Al, Glass / Ag, Cu / Ag and others.... with a partial overlap of the silicone core, reducing material costs and implementation in a range of 15-30 %.
Contact on: info@compelma.com

DETI *(1rst participation to the show)*

Deti offers a multioctave broadband range of combiners from 10 KHZ to 6 GHz and for high power from 150 W to 12 KW. To widen this range Deti offer power combining solutions for satellite Ka band. Its latest design (cf. picture) is a 16 ways compact combiner which have high compactness and great performances for high speed military satellite telecommunications.



Among its latest news, Deti point out a range of Up & Down converters for point-to-point or point-to-multipoint transmission. Those compact and rugged receivers-transmitters suit the needs of wireless broadband communications for offshore or shipping connections or for white area coverage.
It especially fits in with the use for Ku and Q band links. It is also compatible with a wide variety of modems (it bears modulations till 16 QAM for several frequency band).

Deti is as well developing a new range of fast pin diodes switches from 2 to 8 ways. The technology used allows a very wide band use (0.5-18 GHz) with low loss and high isolation. The control input, with or without TTL driver, allows a fast switching despite low power consumption and reduced dimensions. Those switches are available in different versions: « enable », absorptive, reflective, supply in +5V/-5V or +5V/-15V, EMC shielding…

Finally, Deti still makes its technical and technological know-how serve solving problems related to obsolete parts for on–board electronic systems: microwave modules, components and antennas for radars systems and electronic warfare.

EMC PARTNER France *(1rst participation to the show)*

WORLD CLASS AT A TOUCH

IMU3000 Immunity Tester with 8kV pulses and colour graphics

A constantly evolving market needs new ideas and new technologies. A graphical user interface with intuitive touch panel that every mobile device user will recognise makes IMU3000 the most popular addition in every EMC laboratory. Extend test capability with on-site upgrades, reduce service costs and increase system availability. Users can exchange pre-calibrated modules on site to make the most of IMU3000s innovative time and money saving features.
Have the tester YOU want. Choose from any combination of; ESD, EFT, CWG, RINGWAVE, 10/700us, AC/DC DIPS, INTERRUPTS and VARIATIONS, COMMON MODE and both AC and IMPULSE MAGNETIC FIELDS.
Covering all international standards, IMU3000 combines Surge voltages up to 8kV with EFT up to 6kV to make IMU3000 the automatic choice for manufacturers and test labs.
Packed with new features IMU3000 is setup simpler and faster.
A wide range of accessories extend IMU3000 application beyond the ordinary.
Ethernet interface enables control, communication and custom report generation.
Touch the future!

EM TEST France *(1rst participation to the show)*

Leader in **ElectroMagnetic Compatibility** (EMC) for fifteen years, we study all projects and answer all questions and needs.

EM TEST offers a wide range of testing devices in the field of immunity to conducted disturbances, designed with new technological advances and always at the forefront of the latest European and international standards. Our generators

are accompanied by comprehensive and powerful software to make the most effective and user-friendly tests, and all the necessary accessories.

For example, AC / DC sources **NetWave** now have a Power Recovery option that allows them to reinject power into the supply network. These sources are intended to simulate a large number of disturbances (over 17 000 preprogrammed tests) on a single or three-phase power supply.

EM TEST FRANCE exclusively represents **PMM**'s products, developed for the measurement of conducted and radiated emissions. Equipped with advanced technologies, the receiver family provides comprehensive measurement and very friendly operating possibilities, prequalification or full- compliant CISPR-16-1, from 10 Hz to 18 GHz. All measurement accessories are also available.

EM TEST FRANCE is also specialized in the measurement of electromagnetic fields in the area of health and the environment. We offer innovative and user friendly fieldmeters, suitable for professionals and public users. The latest innovation is a low frequency field analyzer, the **NHT 3D**, which has amazing performance. (Record, analysis, instantaneous display, integrated GPS Logger, etc.)

■ HAEFELY - EURO SYSTEM *(1rst participation to the show)*

AXOS 8: New HAEFELY HIPOTRONICS Immunity Test System simulates Surge Combination Wave, Telecom Surge, EFT/Burst, Ring Wave and AC/DC Voltage Dips in one single box

HAEFELY HIPOTRONICS, a leading developer and provider of EMC instrumentation and systems for conducted immunity testing, announces the launch of the new AXOS8 Compact Immunity Test System. The new AXOS8 Immunity Test System follows the success story of the AXOS5 family but comes up with a higher voltage of 7 kV and more waveforms on board as well.

Unlike the AXOS 5 Immunity Test System, which features the simulation of Surge Combination Wave, EFT/Burst, AC/DC Dips and Interrupts only, the AXOS 8 is designed to perform tests for simulating Surge Combination Wave, Telecom Surge, EFT/Burst, Ring Wave up to 7 kV and AC/DC Voltage Dips as well.

Full compliance testing according to IEC 61000-4-4 (EFT/Burst), IEC/EN 61000-4-5 (Surge Combination Wave & Telecom Wave), IEC/EN 61000-4-9 (Surge Magnetic Field), IEC/EN 61000-4-12 (Ring Wave) and IEC/EN 61000-4-11 and -29 (AC/DC Dips and Interrupts) can be easily simulated with only one single box. An innovative and user-friendly touch screen interface, industry-leading design and quality, comprehensive safety features and compatibility with all existing manual HAEFELY HIPOTRONICS CDN's are rounding up this master piece of engineering.

ONYX ESD Simulator: Designed to perform according to customer expectations, the ONYX has proven that it is simply not just another ESD simulator on the market, but a brand new generation of simulators that combine cutting edge technology, true ergonomic design, and an intelligent operation concept. Since its release in early 2010, the ONYX has gained significant market share and is considered by many EMC testing professionals in all corners of the world as an essential testing tool for almost every type of ESD test. Available in 16kV or 30kV versions, the ONYX is a modular battery or mains operated ESD simulator. As everything is integrated in the unit itself, there is no need for an external base unit or additional cables, offering flexibility in movement and ensuring users remain focused on the work area. True ergonomic design offers maximum comfort while never seen before features such as a smart key (used for polarity switching, resetting counter and increasing/decreasing voltage to a desired level), ensures you are working fast and effectively without having to go in and out the touch screen menu.

Test & Measurement World's annual Best in Test awards, launched in 1991, honor important and innovative new products and services in the electronics test and measurement industry, as well as outstanding industry professionals. The Best in Test program is now in its 21st year and continues the proud tradition of recognizing excellence in the test, measurement, and inspection community.

■ INFRACTIVE *(1rst participation to the show)*

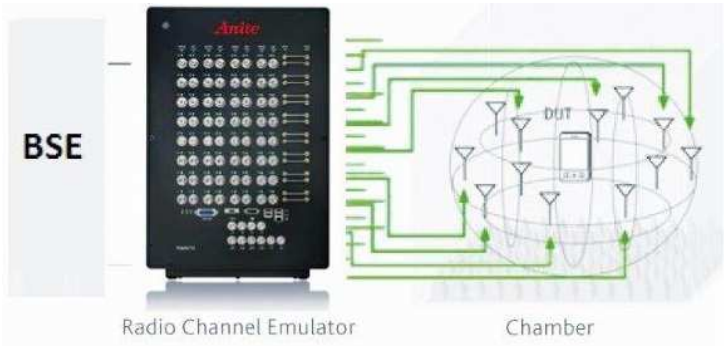
Infractive is a french specialized distributor of components, test and measurement equipment, and transmission sub-systems for telecom infrastructure. In the Microwave & RF field we provide solutions for research laboratories, industry, equipment manufacturers and mobile network operators. Our product offering includes:

- **Components**
  - Low phase noise programmable frequency dividers,
  - Broadband amplifiers modules, high power and high gain amplifiers for microwave test beds,
  - Ultra-wide band amplifiers DC 30/45/65 GHz GaAs MMIC switches and attenuators,
  - Analog transmission systems Radio on Fiber (RoF) next generation,

- Asics (SERDES, variable delay line, transimpedance amplifier, signal generator, phase detector, interface converter),
- RF connectors and cables.

• **Test and measurement equipment**
- Propagation radio channel emulators,
- Solutions for quality Improving of the wireless network : PIM Analyzers , GPS antenna alignment tools.

• **Indoor and outdoor transmission sub-systems**
- Bi- sector antennas array for increasing the quality of your wireless access network,
- Solutions for coverage enhancement : repeaters, DAS, TMA, multi -carriers amplifiers MCPA, Cell extenders,
- Site sharing solutions to reduce operating costs: tunable filters, combiners, duplexers, muxplexers.



MICRO SYSTEMS ENGINEERING

Micro Systems Engineering in Berg, Germany specializes in customized solutions for advanced microelectronics. After continuous growth over the past 30 years, the company is now among Europe's technological leaders in the field of LTCC, other ceramic substrates and advanced assembly technologies.

LTCC Technology:
LTCC standing for Low Temperature Co-fired Ceramics is a multilayer ceramic technology. The low sintering temperature – around 900°C – allows the usage of noble high conductivity metals as silver and gold. The technology supports the embedding of resistors and capacitors, contributing to further miniaturization.

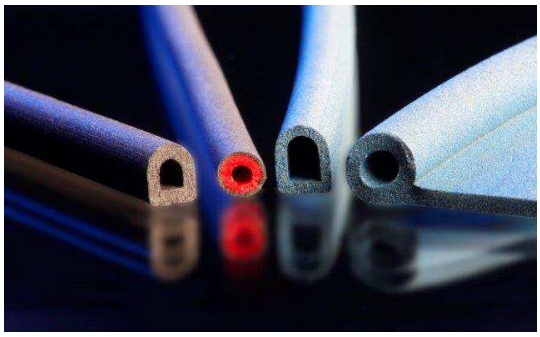
Further features and applications
- Multilayer technology up to more than 20 layers
- Fine line patterning (<50 µm in selected area)
- High frequency performance up to 90GHz by use of low loss ceramic
- Adjusted thermal expansion factor to Si and GaAs
- Short wire bonds due to capability of precise cavity generation
- Thermal vias for heat dissipation
- Soldering of heat sinks, frames and nail head pins

In addition to the extensive know-how in the field of ceramic multilayer, MSE is also a leader in advanced assembly technology. MSE's development and production capabilities for assembly and packaging cover the full portfolio from the chip to the finished module. MSE has a broad range of experience with commonly used processes like wire bond, die attach and flip chip, CSP and standard SMT processes using solder or adhesives as well as very special, partially proprietary packaging technologies. MSE also offers transfer molded BGA packages for midsized quantities.
MSE covers the full range from design support over substrate manufacturing to advanced assembly and packaging out of one hand at the highest quality level. Offering solutions for high frequency packages, sensors packages, multi-chip modules and reliability substrates and modules in avionic, space, radar, automotive, and sensor applications. MSE is an MST company. www.mst.com/msegmbh

NOLATO SILIKONTEKNIK AB *(1rst participation to the show)*

Successful EMI shielding solutions from Nolato!

Nolato Silikonteknik is a world leading developer and supplier of material and know-how for EMI shielding solutions made of electrically conductive silicone.



The end products are produced by our own EMC Production Centers, or licensed EMC production partners in a number of different countries over the world and used in high-tech industries such as telecom, automotive, medical and security.

Trishield®, Nolato Silikonteknik's unique dispensing technology, has been widely used for over a decade by the leading players in the telecom industry. The latest invented FIP technology Trishield soft®, as the next generation of Trishield®, gives even more benefits and potential for end users in combination with the plastic cover and conductive painting.

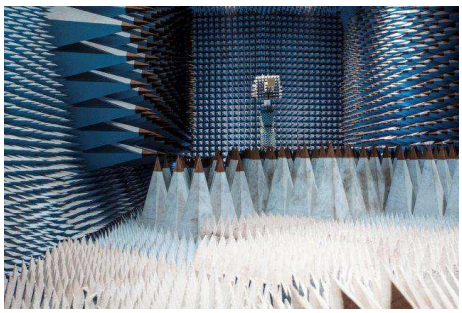
Compashield® is our brand name for all the moulded and extruded EMI shielding gaskets in shapes of cans, frames, tubes, sheets and components. This technique involves moulding or extruding conductive silicon rubber into a precise size and shape, it creates a sealed, secured EMI shielding solution, while ensuring that the entire construction is stable and easier to handle.

Our goal at Nolato Silikonteknik is to help our customers in the process to find optimal solutions. To be able to support our customers there are high skilled project managers and field application engineers(FAE) ready for supporting and following the customers from the early conceptual phases.

OUEST VALORISATION

Ouest Valorisation – Office of Technology Transfer (OTT) was created in the "Future Investments" project call. It is the relevant office between public research and companies.
Its aim: to propose to companies attractive innovation means from the public research.

Ouest Valorisation's team simplifies the access of the companies to research laboratories in order to develop good collaborative projects or to get access to high professional skills and high level scientifical equipment. Ouest Valorisation's team detects invention and scientific discoveries and protects them. It chooses projects with good potential and Ouest Valorisation handles the financing of the technical and economical maturation. The team proposes those projects to companies. Ouest Valorisation acting in the whole process of transfer, participates in the creation of start-up to promote research results from research team or to prepare new markets.



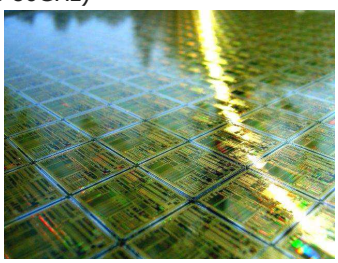
During Microwave & RF trade show, you are very welcome on our booth. Ouest Valorisation will introduce innovative technologies especially for network, telecom and broadcast sectors (antennas, OFDM based process, …). We will also focus on services offered by academic technology platforms (HPC for EM simulations, virtual reality platform, clean rooms, …).

Ouest Valorisation organizes a conference on Thursday (March, 20th) through various testimonies of researchers and companies on their experiences of partnership and technology transfer.

PRESTO ENGINEERING *(1rst participation to the show)*

Presto Engineering was created in 2006 (San Jose, CA) and extended to Europe with 2 hubs (Caen and Grenoble, France) by 2009. A fourth hub was created in 2012 in Israel (Migdal Ha'Emek) .
Presto Engineering provides engineering services and global industrialization solutions for the microelectronics industry.

We rely on three areas of strong skills to successfully carry out these projects:
1 - Test engineering and Production Testing (RF & Millimetric wave capability up to 86GHz)
2 - Reliability qualification (HTOL, TMCL, HAST, ESD, Latch- Up,...)
3 - Failure analysis (FIB, SEM, X -ray, PEM, LVx)

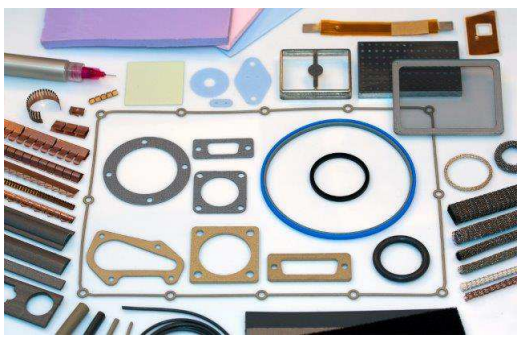


Partnerships with major assembly OSAT also allows to offer a consistent variety of packaging solutions.

Also, Caen's hub stands, from Oct.2013, as the only authorized Test Center (ATC) in Europe accredited to deliver HDMI and HDCP certifications.
Presto Engineering is an ISO9001:2008 certified company. Caen hub is also accreditated COFRAC ISO17025:2005. We'll extend those certifications towards ISO-TS16949 in 2014.

STACEM **Stand E22**

Stacem develops rubber-based compounds to meet a wide range of requirements for the Aerospace, Defence and industrial sectors.



Our extensive manufacturing capability includes compression moulding presses/Injection moulding machines/Flash cut machines/Machining lathes, in addition we have partnerships with competitive subcontractors that allow us to propose a wide range of products with a single point of contact, and also emi gaskets and thermal management.

The reactivity of our sales department enables us to be close to our customers in order to find the most suitable solution to their needs.

Within the framework of our Quality process, our Quality Control department checks that the parts we manufacture are in accordance with our customers' requirements.

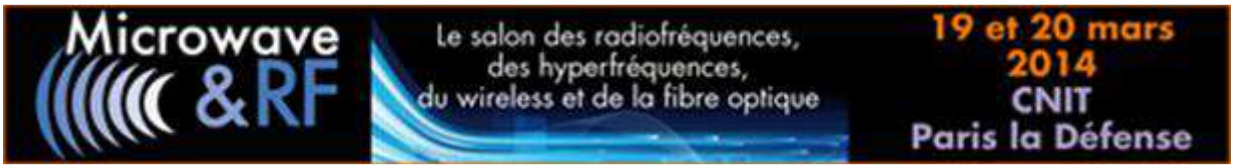
Exhibitors & partners list (Dated January 30)

AA MATECH • AB2E CEM • ABAC INTERNATIONAL • ACC INGÉNIERIE & MAINTENANCE • ACTUTEM • ADVANTEN • AFCEM • AIR & COSMOS • ANSYS • AR FRANCE • ATDI - AXON'CABLE • CCI EUROLAM • COBHAM MICROWAVE • COMPELMA • COTELEC • CRÉATIVE EURECOM • CST AG • DÉTI • DICONEX • E.T.S.A • ELECTRONIQUE MAG • ELECTRONIQUES • ELECTRONIQUE COMPOSANT & INSTRUMENTATION • EM TEST • EMC PARTNER • EURO-SYSTEM • ESSAIS & SIMULATIONS • EVERYTHING RF • FREC'N'SYS • GERAC • HAEFELY TEST AG • HIGH FREQUENCY ELECTRONICS • INFRACTIVE • INOVEOS • INTERFERENCE TECHNOLOGY • KEMTRON • L'EMBARQUÉ • MESURES • MESURES & TESTS • MICROWAVE ENGINEERING EUROPE • MICROWAVE JOURNAL • MIPOT SPA • MSE MICRO SYSTEMS ENGINEERING • NATIONAL INSTRUMENTS • NEXIO GROUP • NOLATO SILIKONTEKNIK AB • OUEST VALORISATION • PHOTONIQUES • PRESTO ENGINEERING • RADIO RESOURCE INTERNATIONAL • SEE-REE • STACEM • TEMEX CERAMICS EXXELIA • TESEQ • WÜRTH ELECTRONIK •

To receive soon:

Your invitation to the show + Press accreditation

Exhibitors list, conferences programme on: www.Microwave-RF.com



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- **Exhibition Contact**: Sylvie COHEN - BIRP - Tél : 33 (0)1 44 39 85 16 - s.cohen@infoexpo.fr

Organisation: BIRP 15, rue de l'Abbé Grégoire - 75006 Paris, France -Tél : 33 (0)1 44 39 85 16