

# Renaissance Electronics has New Exciting Developments!



## AS9100 Certification

The aircraft and aerospace industries are quickly embracing AS9100 as a means of improving quality and on-time delivery within their supply chain. Public demand for safety and reliability drives the need for product quality to approach near perfection. The only way to work towards perfection is to work through continuous improvement. Quality management systems in conjunction with third party audits are integral to continuous improvement.

Certification to the AS9100 standard provides:

- Qualification to be considered as an aerospace supplier
- Public recognition
- Internal validation
- Independent feedback to foster continual improvement

Most of the major aircraft manufacturers, such as Boeing, Airbus, BAE Systems, British Aerospace and Lockheed are requiring their suppliers to be certified to AS9100.

Renaissance is currently certified to ISO 9001:2000 and now in the process of obtaining AS9100 certification by teaming with MEP and GBS for completion by June 2009.

WiMAX Xohm update; Service was launched in Baltimore on September 29, 2008

A lot has happened in two years, Xohm's official date of conception is considered to be August 8, 2006, when Sprint announced it would use WiMAX to populate its long-dormant 2.5 GHz frequencies. But Xohm's origins can be traced back to 2002, when Nextel's network was built on iDEN, a proprietary technology from Motorola with no 3G evolution path.

While Nextel was exploring technology alternatives, a few major events occurred. Nextel acquired WorldCom's vast 2.5 GHz holdings and then Sprint bought Nextel, creating a vast pool of 2.5 GHz licenses.

Not only have WiMAX deployments accelerated worldwide, an infrastructure market has emerged involving every single major global vendor except Ericsson. Perhaps most telling is the sudden focus on long-term evolution (LTE) from operators worldwide: The 3GPP accelerated its standardization timeline, vendors have shortened development timelines, and operator after operator has declared future rollout plans for the new technology. You could make the argument that LTE wouldn't be where it is today if it weren't for the threat of WiMAX.

## November/December 2008 News

AS9100 Certification

WiMax Xohm Update

18A7NF-1 MEMS

Integrating Products

HHPA Series of High Power Amplifiers



Join our Mailing List

Many of the world's major wireless service providers address their own plans for next-generation networks. Most of them committed to LTE. To compound matters, those service providers weren't just the GSM/UMTS operators for which LTE is tailored. GSM's old technology-wars nemesis CDMA has turned ally: Alltel and Verizon Wireless were welcomed into the LTE fold after a decade of following CDMA's standards path. The whole of the wireless industry seems suddenly arrayed against WiMAX.

That resistance from the wireless community has led WiMAX to look toward non-traditional wireless operators: local exchange carriers, cable operators, wireless ISPs and new entrants, many of which already own spectrum but haven't selected a technology. For example, Comcast owns 700 MHz and Advanced Wireless Services licenses, and it has talked up the potential of WiMAX. The WiMAX community, however, is clearly looking for another marquee operator to join Sprint/Clearwire as WiMAX's ambassador. The biggest hopes are pinned on BT. The British wireline giant plans to bid in the U.K.'s 2.6 GHz auction later this year and has all but confirmed it would use any winnings to launch a new WiMAX network.

The technology wars have begun, pitting WiMAX against LTE the way CDMA was pitted against GSM in the '90s.

The potential for a huge WiMAX community is there. Licenses covering half the world's population have been issued that are optimal for WiMAX. Those license-holders just need to be convinced to deploy it.

<http://www.rec-usa.com/catalog/ferrites/3G5NWM.pdf>

---

## 18A7NF-1 MEMS Based 8X8 Switch Matrix

Renaissance Electronics is proud to introduce the first to market 8 x 8 MEMS Switch Matrix. This state of the art product has 80 SPDT embedded MEMS Switches with a life expectancy of greater than 100 Billion cycles.

Renaissance MEMS uses a conventional silicon micromachining approach to produce a very high force cantilever switch structure, along with a wafer bonded hermetic package to insure hermeticity. Although the stiffness of this cantilever structure results in even higher operating voltages (90 V), switching times are reduced to 10 microsecond. Electrical connection is provided by wire bonding from the top surface of the chip to either a chip carrier or directly to the printed circuit board.

Application and Industries:

MEMS switch prices are currently competitive with alternative switch technologies, and average sale prices will continue to decrease as volume manufacturing increases, making MEMS Switches a viable option for some of the most price-sensitive consumer applications. Today, most commercial applications take advantage of one or more of the unique features of these devices: small size, low (repeatable) loss, high linearity and broad bandwidth. Leading applications include high speed digital channel switching in Automated Test Equipment, antenna switching in wireless communications and filter bank

switching in instrumentation, military and aerospace applications.

Finally, it should be noted that a number of MEMS switch development activities are still underway at leading companies and research institutions worldwide.

Only two MEMS suppliers have demonstrated the ability to deliver MEMS Switches in production volume.

Three key trends will drive new applications for MEMS Switches over the next three to five years: proliferation of a wide variety of new product configurations, substantial improvements in reliability, and significant reductions in switch size and cost.

MEMS switch technology shows that despite lingering concerns about the reliability of this technology, a handful of MEMS switch manufacturers are finally delivering the first of a new family of high performance, high reliability switch products. These products are already finding high volume applications in automatic test equipment, instrumentation and communications. The list of applications is expected to explode as customers take advantage of all the benefits that MEMS Switches have to offer.

[Click here for datasheet and more information on 18A7NF-1.pdf](#)

Contact the Renaissance Sales Switch Product Group for more information at 978-772-7774.

---

## Cost, Size and Performance Benefits from Integrating Products

Renaissance Electronics has long been known for our expertise in components, but a newer development is our RF Sub-system product line. Because each component will be designed and selected to be part of this sub-system we will choose a design which will not only be smaller but also provide better electrical specifications. Also this integration allows for a lower material cost as well as less labor time which will lead to a lower selling price for our customers.

Current Sub-Systems have produced customized units integrating isolators, filters, duplexers, programmable attenuators, LNAs, switches, delay lines, phase shifters, modulators and combiners. In addition the development of custom software to control integrated assemblies has progressed to include fully programmable and computer controlled applications with Windows API dll driver with header and NI source codes to be easily integrated.

Please contact Sales at 978-772-7774 for more information.

---

## HHPA Series of High Power Amplifiers

November, 2008 (Harvard, MA) - Renaissance Electronics Corporation is pleased to unveil HXI's latest models in the HHPA Series of High Power Amplifiers, which cover the frequency range

from 8 to 100 GHz. New models include a 55-65 GHz unit available from stock or at most 30 days. In addition to this model, a wide variety of gain and bandwidth combinations are available for use in radar systems, communication systems and other applications. Variations of the amplifiers listed in the HHPA data sheet and other radically new amplifier designs can also be provided, usually without an NRE charge. Most models offer single bias operation with internal regulation and bias sequencing. MMIC technology is predominantly used for high reliability and repeatability. The highest power units make use of low loss waveguide power combiners.

60 GHz High Power Amplifier, immediate to 30 day delivery:

Model HHPAV-222 Power Amplifier: 55 to 65 GHz, +14 dBm P1dB, 25 dB gain

Variations of the above amplifier (including higher power models) are also available.

We also offer low noise amplifiers, mixers, upconverters, frequency multipliers and isolators for the 60 GHz band with quick delivery - contact factory for details.

Renaissance believes that high quality products, innovative engineering and customer knowledge are key ingredients of success. We continually strive to translate these beliefs into tangible results for our customers and principals.

HXI ( <http://www.hxi.com> ), a wholly owned subsidiary of Renaissance Electronics Corporation, designs and manufactures a variety of Microwave and Millimeter Wave subsystems and components for Avionics, Defense, Industrial and Telecommunication customers.

If you want more information please contact HXI and Product Support at 978-521-7321 or contact Renaissance at 978-772-7774.

---

## Renaissance Electronics has a Solution to your Switch Matrix Problem

Renaissance Electronics Corporation has successfully developed many custom switch matrices for ATE and other applications by integrating active and passive components, such as power dividers/combiners, circulators, LNA's, etc., a custom NxM matrix can be realized with standard reciprocal, non-blocking and full fan out options. With over 200 years of combined engineering design experience, Renaissance Electronics Corporation is your single source for custom-built switch matrices that meet your specific requirements for all power levels and for delivery on-time.

Our expertise in components makes us the ideal switch matrix supplier for integrating and optimizing active and passive devices such as circulators/isolators, filters, dividers/combiners, switches, delay lines, programmable attenuators, phase shifters, modulators, LNA's and more.

We have Switch Matrices, including;

- NxM Matrices
- Reciprocal/Non-Reciprocal
- Blocking/Non-Blocking
- Electromechanical, or MEMS

Each switch matrix includes an integrated driver with standard or customized interface (GOIB, RS 232, RS 485, USB, PXI or Ethernet with the option of Labview based drivers) along with full documentation. At Renaissance, we can configure any switch matrix from DC to 40 GHz for all power levels and deliver it on-time and within budget.

Some examples of the reciprocal, non-reciprocal, blocking and non-blocking switch matrices designed and developed for the commercial and military applications are linked below:

[MEMS Based 8x8 Switch Matrix 18A7NF-1.pdf](#): DC to 2.5 GHz

[DAC/ADC Switch Matrix 18A1NA](#): DC - 500MHz

[Solid State Switch Matrix 18A2BA.pdf](#): 10-1200 MHz

[RF Head-End Switch Matrix 18A7NA.pdf](#): DC to 6.0 GHz

[RF Switch Matrix 18A7NAC](#): DC to 18 GHz

[Base Station Emulator Test System](#) (18 Series Emulator Rack)

Call Renaissance Sales for more information at 978-772-7774 or [click to see our website](#).