



## Universal Global Scientific Industrial Co., Ltd. (USI-Taiwan)

Radio Communication Test Station  
MT8000A

Radio Communication Analyzer  
MT8821C

Universal Wireless Test Set  
MT8870A

## Anritsu Partners with USI-Taiwan to Chart the Future of 5G

Anritsu has been working with USI-Taiwan to accelerate global deployment, deepen system-in-package (SiP) business, expand the applications of miniaturization technology, and continue to consolidate leading positions in wireless communications, wearable, automotive, and medical electronics sectors.

### Development Background

With the challenges of increasing RF complexity and constantly updated specifications brought by 5G development, it is necessary to conduct comprehensive testing of the system from R&D, and design verification to manufacturing.

### Reasons for Selection

From the overall application of the equipment to the professional capabilities and assistance in the development of an automated testing environment, Anritsu help us meet the needs in both R&D and factories.

### Achieved Result

Highly stable equipment for testing and analyzing 5G networks, easy to use interface and parameter settings, helped develop an automated test system for successful introduction into production and significantly reduced development time.



### Company Name:

Universal Global Scientific Industrial Co. Ltd.  
(USI-Taiwan)

### Year of Established:

2010

### No. of Employees:

4,500

### Business & Services:

Universal Global Scientific Industrial Co., Ltd. (USI-Taiwan) is a subsidiary of Universal Scientific Industrial (Shanghai) Co., Ltd. USI-Taiwan has two facilities, the Tsaotuen site and the Nankang site, both located in Nantou County of central Taiwan, with a total of approximately 4,500 employees. The Tsaotuen site provides customers with the design and manufacture of electronic products and modules (ODM/OEM), and meets customers' specific needs in warehousing, manufacturing, transportation, logistics and maintenance. The Nankang site is committed to intelligent automation and process modularization, with a high flexibility and elasticity in handling small quantities of highly complex products.

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### Selected Anritsu Solutions

#### MT8000A Radio Communication Test Station

With a 5G base station emulation function, the all-in-one MT8000A supports RF and protocol tests in both FR1 (up to 7.125 GHz) and FR2 (mmWave) frequency bands

#### MT8821C Radio Communication Analyzer

Supports 2G/3G/4G communication standards compliant with 3GPP/3GPP2 UE RF TRX, enabling tests of RF parameters and PHY throughput

#### MT8870A Universal Wireless Test Set

Built-in signal generator and signal analyzer designed for mass production test of wireless communication modules

### Market Development Background

As 5G applications are demonstrating their high-speed connectivity advantages, there is a strong demand for high-frequency, high-speed and reliable 5G test solutions as a result of robust shipments of chips, devices and systems related to 5G mobile communications. In particular, for system vendors and electronics companies who develop advanced and diverse products in advance for the expanding 5G applications, the challenges posed by 5G, such as increased RF complexity and constantly updated specifications, require comprehensive testing of systems from R&D, and design verification to manufacturing. Therefore, the key to the launch of 5G is the ability of equipment suppliers to provide testing solutions and capabilities to meet the demand.

To meet the needs of its global customers in a wide range of applications, Taiwan's leading electronic design house — **Universal Global Scientific Industrial Co. Ltd. (USI-Taiwan)** provides designing, developing and manufacturing of almost all kinds of electronic products, from narrowband to broadband, home to business, mobile communications and automotive applications — mentions one of the keys to the successful creation and launch of these diverse products is upfront testing and validation.

USI-Taiwan is a subsidiary of Universal Scientific Industrial Co., Ltd. (SSE: 601231), provides product design, miniaturization, material sourcing, manu-

### With 5G Applications Challenge System Vendors' Testing Capabilities, Test Equipment Partners with Stable and Reliable are crucial.

facturing, logistics and maintenance services for domestic and international branded electronic products or modules. USI-Taiwan specializes in the design, development, and manufacturing of communication products, with a focus on JDM and EMS for high-end electronic products such as wireless communication, consumer electronics, automotive electronics, and aerospace electronics. Its plants in Taiwan have all been certified to ISO 27001, IATF 16949 and ISO9001.

To become a leading brand in wireless communications, Internet of Things (IoT) and automotive applications, USI-Taiwan's Tsaotuen plant provides ODM/OEM services for electronic products and modules to meet customers' specific needs in warehousing, manufacturing, transportation, logistics and maintenance; while the Nankang plant is committed to intelligent automation and process modularization, with a high flexibility and elasticity in handling a small number of highly complex products. USI-Taiwan's vision is to be a leader in the electronic design and manufacturing services industry, creating value for their global customers through advanced technology and miniaturized solutions in collaboration with customers and industry partners. In achieving this vision, it is important to have a test equipment partner who can assist in building stable and reliable products.

## Preferred Test and Measurement Equipment Ready for Wireless Technology Evolution & 5G Development with the Same Goal

For the most important LTE and 5G NR FR1 band (up to 7.125 GHz) business, the preferred test equipment partner of USI-Taiwan is Anritsu, a global wireless communication test equipment vendor. According to the market estimate, the growth rate and overall scale of 5G will overtake wired technology in the next two years, and the demand for 5G will also experience a curvilinear growth, significantly surpassing wired devices. Therefore, USI-Taiwan is actively investing in 5G, and this development direction synchronizes with Anritsu's continuous advancement.



The MT8000A with Azimuth ACC-380 and Radio Communication Analyzer MT8821C were selected by USI-Taiwan 5G lab for RF measurement and protocol testing in the Sub-6 GHz NR band.

USI-Taiwan thus has adopted Anritsu's Radio Communication Test Station MT8000A/MT8821C series, Universal Wireless Test Set MT8870A (MT8872A) series, Radio Communication Analyzer MT8821C, Spectrum/Signal Analyzer and Vector Network Analyzers on a large scale.

Anritsu's 5G wireless communication test platform solutions provide a stable, reliable, and automated 5G NSA/SA (non-stand alone/stand-alone method) test environment for 5G UE. The MT8000A can simulate a 5G and LTE NSA (non-standalone) connected environment by sup-

porting both the FR1 (up to 7.125 GHz) and FR2 (mmWave) frequency bands in one unit and maximizing the advantages of measurement functions such as customer's test environment and test scenario. Based on the MT8820C technology, the MT8821C enables RF testing of LTE-Advanced Downlink Carrier Aggregation and LTE mobile terminals, supporting technologies from LTE-Advanced to 2G/3G, and is designed for the development of mobile devices such as smartphones, tablets and IoT modules.

Universal Wireless Test Set MT8870A configuration is flexible and scalable for smartphone, IoT device and automotive chipsets production lines. It can support 5G NR FR1 RF testing and other synchronous wireless communication testing, including Wireless LAN, Bluetooth®, GNSS, etc., thus significantly improving the efficiency of wireless communication device production lines. The MT8000A to MT8870A series are all 5G-ready, and are also useful tools for USI-Taiwan in design, development, and manufacture.

USI-Taiwan is committed to fully integrating its understanding of RF component characteristics, design review, and extensive experience in optimized simulation and testing into the design process. Anritsu's test solutions are the best choice for customers who are developing innovative products for the 5G market using the latest technology.

In fact, not only the cooperation between USI-Taiwan and Anritsu aimed at today's 5G development trend but traces back to the 2G/3G era. During the long-term cooperation, USI-Taiwan has been very satisfied with the overall performance of Anritsu's equipment and services, and the company emphasized that "Anritsu's test equipment is one of our top choices in terms of overall application and service interaction."



The Universal Wireless Test Set MT8870A supports RF testing for 5G Sub-6 GHz NR and other synchronous wireless communication tests.

### Achievements & Prospects

### Understanding and valuing customers' needs, opening a new chapter of global cooperation with stable equipment and professional technical capabilities

From product development and manufacturing, USI-Taiwan mentions several advantages of cooperation with Anritsu:

#### Real-Time Support and Quick Response

Due to 3GPP Release 16, Release 17, FR1+FR2 dual connectivity (DC) and IEEE technology generation change and specification update, R&D centers should adopt the latest test platform as far as possible when developing products in order

to support the latest specifications and versions. However, the pre-development of new specifications requires new verifications and tests, which is a great challenge for chip makers, developers, and equipment vendors alike, who must continue to define objects and interface with new specifications during the development process. USI-Taiwan explained this with a real-life case of FR1 development recently, "When the chip maker thought it was ready after the hardware validation, there

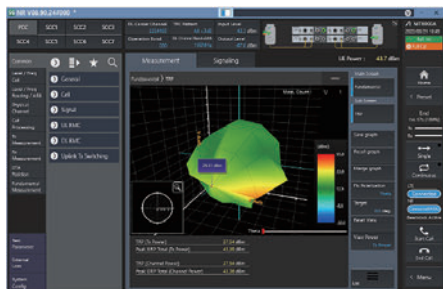
were still hardware emulator problems during the test and validation stage. Fortunately, Anritsu's immediate support saves the day. With a completely new specification, it was particularly important to rely on the equipment vendor's assistance in the early stages of development, especially as there were a lot of cross-validations had to be performed before moving to infrastructure validation."

## Strong Engineering Expertise

Anritsu's sales staff/team understand the needs of our customers and are always ready to assist them. Anritsu's engineering expertise is demonstrated by the fact that problems encountered during testing with Anritsu's equipment are resolved immediately.

## High Equipment Stability

Anritsu's platform is relatively stable compared to other vendors' equipment and solutions. In practical use at the R&D Center, Anritsu's equipment is more stable and easier to interface and parameterize than the many layers of configuration required to test and analyze IP throughput in 5G networks and combine RF measurements with OTA Chamber.



Anritsu assisted the development of the automated testing environment for the EN-DC maximum output power test between the UE bands.

## Assisting in Automated Testing Environment Development

More than any other test equipment supplier, Anritsu's assistance in the development of automated testing environment has completely met the needs of USI-Taiwan on both the R&D and the factory sides. As Anritsu's engineering team assisted in the development of the automated testing environment, it bridged the gap between the platform equipment and the customer's testing needs, making it smoother for engineers to use the equipment.

USI-Taiwan added that automated testing environment and stability are especially important when moving new platforms to production lines for testing. Anritsu's service has been closely aligned with the customer's timeline, "Some designs are less than a month and our engineers are already working with Anritsu's Software Development team on development. By the time when it's time to bring it into production, it's usually already at a certain level of performance, which not only reduces development time significantly, but also allows us to collect logs and fine-tune the accuracy after mass production."

## Looking Ahead: Extending Partnerships

Will customers like USI-Taiwan continue to use Anritsu's equipments in the future? Is Anritsu's equipment part of USI-Taiwan's development roadmap, especially for 5G FR2? The answer is yes. In fact, USI-Taiwan has already purchased Anritsu's equipment for the next phase of 5G FR2 band applications, especially for signaling tests, and will increase its purchase of Anritsu's equipment in the future when the FR2 market really takes off.

USI-Taiwan will continue to work with Anritsu to accelerate its global deployment, deepen its system-in-package (SiP) business and expand the application of miniaturization technology. In the future, it is expected that the partnership will be further extended to global deployment, linking up with the upstream and downstream vendors around USI-Taiwan's ecosystem, and at the same time helping Anritsu to expand its global 5G mobile communications testing.

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# Anritsu

Advancing beyond

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