

Test and Measurement



Hirokazu Hamada

Director,
Executive Vice President
Measurement Business Group President

“ Technology is entering a new age. We have launched a new strategy for generating fresh business growth as a leading provider of 5G and IoT technologies. ”

Identifying and Meeting 5G/IoT Needs

■ Review of Fiscal 2016

Fiscal 2016 marked a transition period between the LTE and 5G eras of high-speed wireless communications. The mobile phone market fell into a deep lull, and our revenue and profit remained down year on year into the third quarter.

However, the important role of LTE-Advanced technology in transitioning to the 5G era and the Internet of Things (IoT) was reconfirmed in the fourth quarter. This put a brake on the mobile market contraction, and our sales turned upward year on year in the final quarter of the fiscal year. The Measurement Business Group ultimately recorded sales of ¥59,333 million, down 12.4% year on year, and operating profit of ¥2,130 million, down 54.7% year on year.

■ Measurement Business Group Vision

Anritsu is at the forefront in the commercialization of 5G technology. Our vision is to become a leading company in 5G/IoT technology, and we aim to achieve a 20% operating profit margin

on our high-value-added products in this burgeoning field.

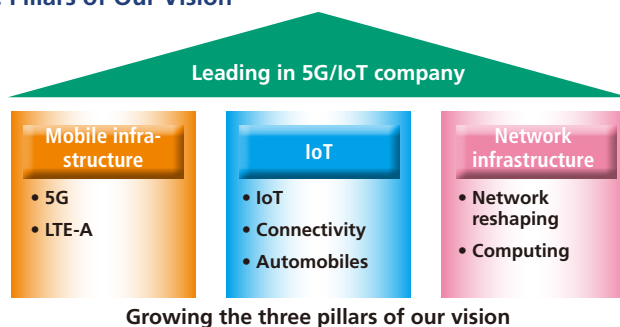
To achieve our vision, the Measurement Business Group is seeking to fulfill this vision by establishing positions in three areas to drive our business growth.

Our first objective is to establish a strong market share in the 5G market. The arrival of 5G does not mean LTE transmissions will be completely phased out; rather, the two will coexist with 5G enabling a data transmission speed of more than 10 Gbps, 100 times the data capacity, and ultra-low latency. We will be able to continue leveraging the strength we have cultivated in LTE and maintain our high market share. This also means that not all infrastructure facilities will be replaced, while in 2020 the market is expected to remain about 70% the size of its peak. Simply put, relying on 5G alone will not be enough to achieve our 2020 VISION. That's where the second and third drivers will be important.

The second driver will be expansion of the network infrastructure business. Network traffic volume is growing with the proliferation of cloud-based services, and this is prompting network reshaping. This market is expected to continue growing with advances in network technologies to increase transmission speed and raise quality along with a growing market for data centers. Anritsu commands a high market share in these areas supported by our highly specialized product lines, particularly our handheld test sets, bit error rate testers, and optical spectrum analyzers. We plan to generate sustainable growth as this market expands.

We aim to establish a third growth driver in the emerging markets for IoT and new automotive applications. The 5G era will free Anritsu from reliance on smartphones and expand the range of communication services, and we plan to introduce innovative solutions, including solutions to test IoT devices with built-in WLAN and V2X connectivity for self-driving vehicles. We will use innovative technologies like these to open up new markets that we will cultivate into a new earnings pillar for the Company.

The Three Pillars of Our Vision



Test and Measurement

Anritsu 5G network solutions

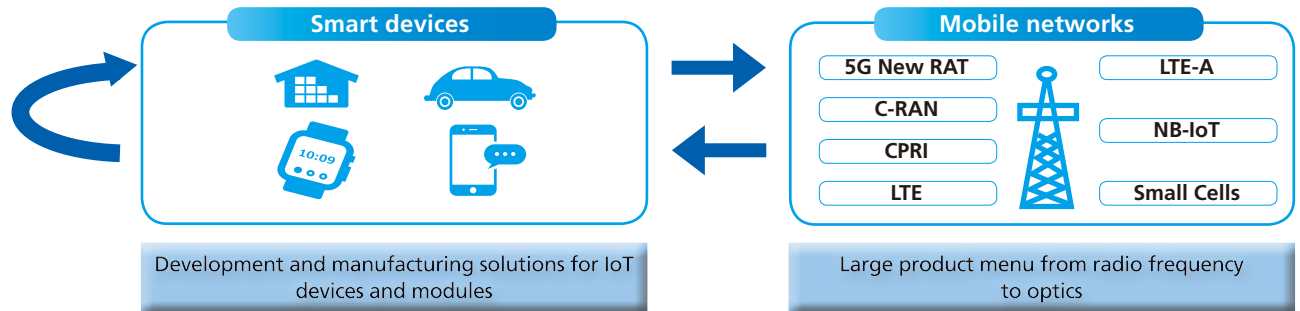
5G Features **1/10×Latency**

The three pillars
of our vision

Mobile Solutions Business

IoT Testing Solutions Business

Network Infrastructure Business



■ Organizational Reform

We have reconfigured the segment into three divisions of mobile, IoT, and network infrastructure to optimize our business effectiveness in the 5G/IoT market. We believe this will give us the best foundation to grow using 5G, IoT, and network reshaping as our three growth drivers while enabling us to also increase earnings in the existing LTE Advanced, smartphone manufacturing, and other business areas.

■ Fortifying Profitability

We will create new processes to cut costs and will systematically reduce parts and other costs from the development stage. Particular emphasis will be placed on cutting costs in commercialization processes to further fortify our profit structure.

Improving the efficiency of our development processes will include shifting to a low-cost development location for the LTE business, which will become a legacy technology. In this way, we will position the LTE business as a cash cow for the Company, from which we will circulate profits to develop 5G technology.

We anticipate demand for 5G R&D measuring instruments to start gaining momentum and investment in LTE-Advanced-related investment to begin ramping up again in the fourth quarter of fiscal 2017. We believe both the IoT and automobile markets present promising growth prospects for our products. We aim to harness our growth drivers and steadily progress toward fulfilling our 2020 VISION.

Mobile Solutions Business



Tsutomu Tokuke

Mobile Solutions Division
General Manager

“ Companies in a wide variety of industries are preparing to rapidly increase investment in 5G/IoT. We will seize the opportunity and generate substantial business growth.”

■ Timely Solutions for Customer Needs

The Mobile Solutions Division supplies developers worldwide with test solutions that are indispensable to the development cycles of communications chipsets, communications modules, and communications devices like smartphones. Our products include measuring instruments needed to assess communications protocol and wireless performance, conformance test systems to verify compliance with communication standards, and carrier acceptance tests.

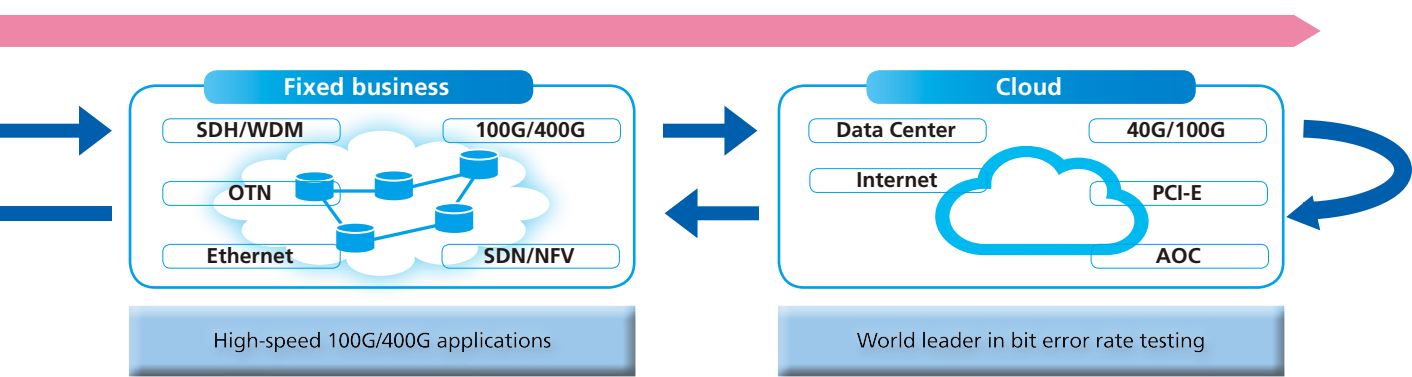
Our Company's strength is our ability to provide essential test solutions to resolve verification issues for the latest mobile communications technologies, in a timely manner that meets industry needs. We have cultivated technical abilities in all areas of communications over decades and have fully established global structures for sales and technical support.

As a result, we have created strong relations from the initial development planning stage with the telecom operators and chipset and smartphone vendors that are at the cutting edge of technology development. We are also participating in standardization activities related to standard conformance tests for mobile communications technology, contributing to raising the quality of communications services.

■ 5G/IoT Society Brings Business Opportunity

The new 5G transmission technology will not only have faster connection speeds and larger transmission capacity; it will also be the telecommunications infrastructure for IoT networks connecting a huge host of objects and services. This will require more-sophisticated equipment, such as technology using broadband signals and to provide the low-latency performance needed to realize high real-time connectivity. We expect full-fledged product development for the commercialization of 5G products based on specification

100×Peak Data Rate 100×Capacity



standards to start gaining momentum in 2018.

As this unfolds, we will be deepening our customer relations and strengthening our collaborative development to create the test solutions to optimize our customers' needs. We expect the proliferation of 5G to lead to an increase in use cases in our everyday lives and for IoT to also make its way into a wide range of industries.

Anritsu thus has a golden opportunity to expand its business domain, and it plans to use its strength in the communi-

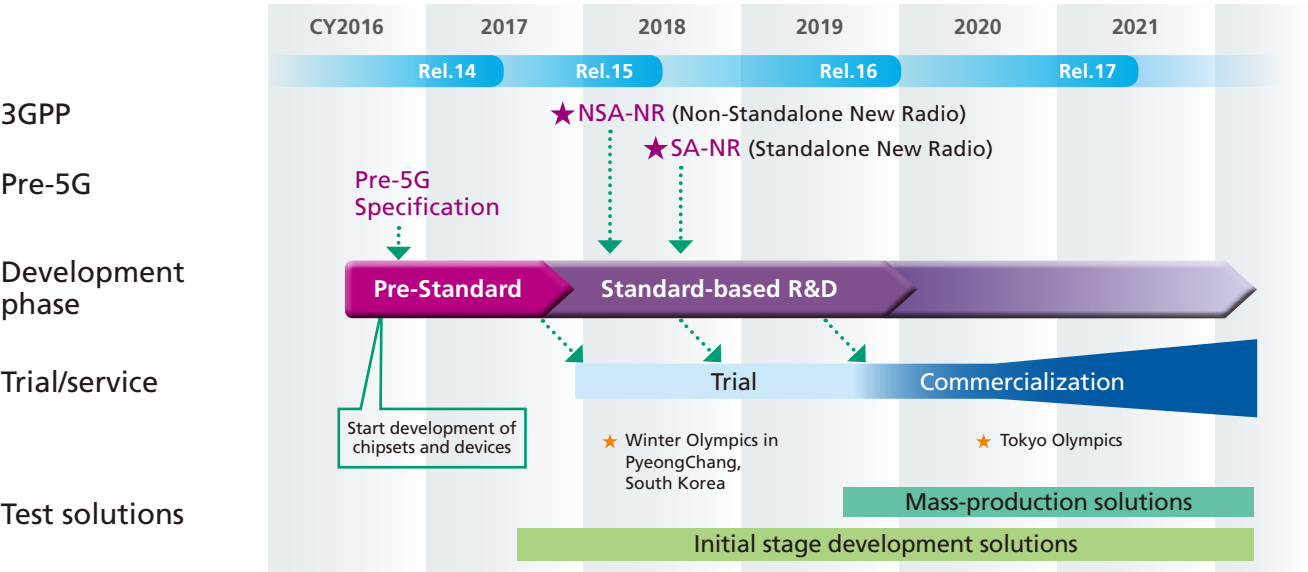
cations technologies on which IoT relies to cultivate strong collaborative relationships with new customers and business partners to provide a full spectrum of verification solutions in a wide range of application fields.

The competitive dynamic of the mobile communications market is on the verge of transformation, and we will have to be right on top of the changes or else our business opportunities will be lost. The worldwide proliferation of 4G technology led to an increase in the number of bandwidths used, and market

players utilized the diverse range of technological options as a way to differentiate their products.

The advent of IoT has likewise led to proposals for several different communications systems. The 5G mobile phone system also enables various options, such as using multiple bandwidths and developing flexible connectivity networks. We will be following closely to see which new technologies become mainstream and will adjust our solution portfolio to the markets to ensure to capitalize on the business opportunities for Anritsu.

5G Road Map



Test and Measurement

IoT Test Solutions Business



Shinya Ajiro

IoT Test Solutions Division
General Manager

“In the IoT business, we will seek to establish new business lines with our existing customers and to make contact with new companies. We will offer even higher-value-added solutions to contribute to creating a “safe, secure, and prosperous society.””

■ Creating a Safe, Secure, and Prosperous Society

The IoT Test Solutions Division provides the test solutions needed for IoT services to operate smoothly and efficiently.

Specifically, we provide telecom carriers, communications device makers, module makers, and other device manufacturers with the solutions for evaluating the functions and performances of wireless devices using such technologies as LTE, WLAN, and Bluetooth used to connect “things” to the Internet. We also provide solutions for mass-production trials of these technologies and solutions for evaluating the coverage area of base station signals.

An IoT society provides connectivity between virtually every “thing,” and this inherently means that the IoT society must constantly evolve to create new value. In the IoT society, wireless communications will connect automobiles, home appliances, and industrial machinery. New services will be offered, leading to new issues and market needs. Anritsu will bring its abundant experience and apply its cultivated and highly sophisticated technologies to

solve those issues and contribute to the realization of a safe, secure, and prosperous society through IoT.

■ Solutions for the Automotive Market

One of the use cases of IoT is for communications functions in automobiles. Telematic services connecting automobiles and the Internet are already becoming common, and various services are being provided. The in-vehicle emergency call system eCall being made mandatory in Europe in April 2018 is one example.

Anritsu determined that technologies for the automotive market would be another growth field. We developed and are providing telematics assessment solutions and eCall assessment solutions that cater our specialized wireless communications technologies to automobile manufacturers and makers of onboard automotive equipment, who are giving it high evaluations.

We expect fields where we have inherent strengths to continue expanding, including the expanding radar functions for the proliferating and evolving automated driver assist systems (ADAS), which promise to increase driving safety and reduce accidents, and the introduction of vehicle-to-vehicle, vehicle-to-everything (V2X) communication.

■ Achieving the 2020 VISION

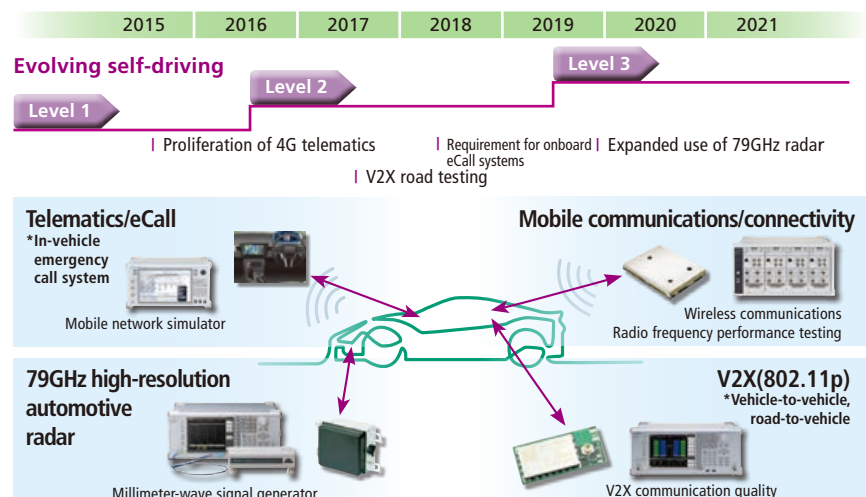
The automotive market is expanding beyond just automakers with new companies introducing automobiles and Over The Top (OTT) players aggressively entering the market and seeking commercializing self-driving vehicles. Wireless communications systems enabling connectivity and coordination with external systems are critical to making self-driving vehicles a reality.

In addition, advances and widespread use of IoT, self-driving vehicles, and other technologies will have huge implications for privacy and safety, giving rise to new issues that cannot be addressed solely by evaluating the communications devices. System evaluations in an end-to-end environment* have become increasingly important. Cyber security, an area that has received much attention in recent years, is a prime example. End-to-end testing needs are sure to grow as the responsibility not of the equipment makers but of the telecom operators and service platform vendors that provide the services.

Anritsu will expand its business by working closely with its customers to quickly identify and act on new market needs, propose new customer value, and, through this, contribute to the development of society and progress toward realizing its 2020 VISION.

* Realizing network environments connecting “things” in a laboratory

New Technologies in the Automotive Market and Anritsu's Initiatives



Network Infrastructure Business



Shunichi Sugita

Service Infrastructure Solutions Division
General Manager

“The huge increase in data traffic on telecommunications lines is making network reshaping of the communications infrastructure necessary. We see this as another business opportunity for Anritsu.”

■ Support Solutions for 5G/IoT

The Service Infrastructure Solutions Division provides optical and digital measurement solutions for the growing network infrastructure market needed to realize the 5G/IoT society. Data traffic is increasing exponentially as mobile services and IoT expand with the rapid proliferation of cloud computing. This is leading to the reconstruction of the network infrastructure, called network reshaping, and innovation in various areas, including using small cell base stations to densify networks, using optical interface, constructing and expanding data centers, and enabling faster and higher quality transmission of data.

We are focusing on capturing market share in the network reshaping market and will provide solutions to support 5G/IoT networks.

■ Harnessing Network Reshaping and the Changes in the Data Center Market

We are supporting smooth network reshaping by installing mobile infrastructure equipment and equipment in data centers, providing handheld measuring solutions to set up optimal network layouts, and providing development and manufacturing solutions for equipment to be used in data centers. Mobile technologies and the network infrastructure to support them advance in unison, and balanced growth in both sectors will lead to the development of a variety of services. We will use our leading technologies to provide solutions for network infrastructure construction and quality assurance to contribute to a safe, secure, and prosperous society.

Wider use of cloud services is also increasing the volume of data transmitted through data centers. This has also led to higher transmission speeds between servers and network equipment advancing to 100Gbps ethernet and 400Gbps ethernet while internal serial bus interface, such as PCI-E, is likewise moving to higher speed. Computing interface is also moving to higher speed connectors, such as the USB3.1 standard, which is already being used in high-end consumer equipment. Anritsu will use its specialization in ultra-high-

speed digital data transfer technology and its strength of in-house development and manufacture of the high-speed devices essential to measuring processes to also provide solutions to the high-speed serial bus interface test market.

We will harness the network reshaping and changes in the data center market to contribute to realizing faster and higher quality data connections from the network infrastructure, which has become a foundation of modern society, to private computers.

■ Collaboration with Our U.S. Business

Measurement solutions for network reshaping require a combination of mobile technology and optical fiber technology. Anritsu has accumulated a diverse range of wireless and wire communications technologies since its founding in 1895. Our Service Infrastructure Solutions Division specializes in optical communications technology, wired communications technology, and ultra-high-speed digital data transfer technology. We are also working closely with our U.S. business division specializing in wireless technologies, particularly microwave technologies, combining these technologies to provide new solutions for 5G/IoT networks.

