Continuous Growth with Sustainable Superior Profits

Anritsu Corporation
August, 2019

TSE code : 6754
https://www.anritsu.com
Cautionary Statement

All information contained in this release which pertains to the current plans, estimates, strategies and beliefs of Anritsu Corporation (hereafter "Anritsu") that is not historical fact shall be considered forward-looking statements of future business results or other forward-looking projections pertinent to the business of Anritsu. Implicit in reliance on these and all future projections is the unavoidable risk, caused by the existence of uncertainties about future events, that any and all suggested projections may not, come to pass. Forward-looking statements include but are not limited to those using words such as "believe", "expect", "plans", "strategy", "prospects", "forecast", "estimate", "project", "anticipate", "may" or "might" and words of similar meaning in connection with a discussion of future operations or financial performance.

Actual business results are the outcome of a number of unknown variables and may substantially differ from the figures projected herein. Factors which may affect the actual business results include but are not limited to the economic situation in the geographic areas in which Anritsu conducts business, including but not limited to, Japan, Americas, Asia, and Europe, changes in actual demand for Anritsu products and services, increases or decreases in the competitive nature of markets in which Anritsu sells products or buys supplies, changing aptitudes at providing services, and exchange rates.

You also should not place reliance on any obligation of Anritsu to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Anritsu disclaims any such obligation.
Agenda

Ⅰ. Mid term Business Plan GLP2020 and Business Strategy
   1. Basic Policy of Management Strategy
   2. Outline of our business segments
   3. Basic Policy of medium and long term business strategy
   4. Set out for Beyond2020

Ⅱ. T&M business segment
   1. T&M : Profit structure improvement targets
   2. T&M : Mobile market trends and Business opportunity
   3. Industrial Test Solutions
   4. Network Reshaping Test Solutions

Ⅲ. PQA Business segment

Ⅳ-1. Financial Strategy
Ⅳ-2. Shareholder Return Policy
Ⅳ-3. Corporate Philosophy and Sustainability Policy
Ⅳ-4. Corporate Governance System

Ⅴ. Financial Results for the 1st quarter of the Fiscal Year ending March 31, 2020
I. Mid term Business Plan GLP2020 and Business Strategy
I -1. Basic Policy of Management Strategy

☑ Prosecute the policy “Continuous profitable growth”
☑ Make our best to accomplish 2020VISION/ GLP2020

* GLP2020 Plan = FY2018~FY2020

To be a global market leader
- Creating the value that only Anritsu can deliver
- Building a world-class, robust income structure

To create new business through emerging business
- Driving innovation in new business areas
I -2. Outline of our business segments

### T&M
Evolution and advances of networked society
- Mobile: 5G, LTE
- Network Infrastructure: Wired, Wireless NW
- Electronics: Electronics parts, Wireless Equipment

### PQA
Food Safety and security
- X-ray inspection systems
- Metal Detector
- Checkweighers

### Others
- IP network equipment
- Opt. devices

(Revenue by business segment)
99.7 Billion Yen consolidated revenue in FY2018

<table>
<thead>
<tr>
<th>Segment</th>
<th>Revenue</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;M</td>
<td>68%</td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Network Infrastructure</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>PQA</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

(Sales of T&M business by region in FY2018)

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>19%</td>
</tr>
<tr>
<td>Asia &amp; Pacific</td>
<td>33%</td>
</tr>
<tr>
<td>Americas</td>
<td>32%</td>
</tr>
<tr>
<td>EMEA</td>
<td>16%</td>
</tr>
</tbody>
</table>

T&M: Test & Measurement  PQA: Products Quality Assurance
I -2-1. Outline of our business segments <T&M>

<table>
<thead>
<tr>
<th></th>
<th>R&amp;D</th>
<th>Manufacturing</th>
<th>Installation/Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireline Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wireless Communication</td>
<td>Network Infrastructure (26%)</td>
<td>Mobile (53%)</td>
<td></td>
</tr>
<tr>
<td>General Purpose</td>
<td>Electronics (21%)*</td>
<td></td>
<td>*Electronics components etc.</td>
</tr>
</tbody>
</table>
## I - 3. Basic Policy of medium and long term business strategy

**Capture growth drivers without fail, and realize “continuous profitable growth”**

<table>
<thead>
<tr>
<th></th>
<th>Market average annual growth rate (estimated by Anritsu)</th>
<th>Vision/growth driver</th>
<th>Medium &amp; long-term guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>T&amp;M</strong> 3-5% <strong>Become a leading company supporting 5G/IoT society</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) 5G, LTE-Advanced</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) IoT/Automotive, Connectivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) IP Data traffic/Cloud Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PQA</strong> 3-5% <strong>Become a world-class partner in quality assurance solution</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expansion from contaminant inspection into the quality assurance market</td>
<td></td>
</tr>
<tr>
<td><strong>Consolidated</strong></td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>—</td>
<td>—</td>
<td>≥15%</td>
</tr>
</tbody>
</table>
### GLP2020

#### Revenue and Op. profit Plan (1/2)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>FY2018 (Initial Plan)</th>
<th>FY2018 (Act)</th>
<th>FY2019</th>
<th>FY2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>92.0 B Yen</td>
<td>99.7 B Yen</td>
<td>102.0B Yen</td>
<td>105.0 B Yen</td>
</tr>
<tr>
<td>OP. profit</td>
<td>6.6 B Yen</td>
<td>11.2 B Yen</td>
<td>10.0 B Yen</td>
<td>14.5 B Yen</td>
</tr>
<tr>
<td>Op. margin</td>
<td>7%</td>
<td>11%</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td>Profit</td>
<td>5.0 B Yen</td>
<td>9.0 B Yen</td>
<td>7.5 B Yen</td>
<td>11.0 B Yen</td>
</tr>
<tr>
<td>ROE</td>
<td>7%</td>
<td>11%</td>
<td>8%</td>
<td>12%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60.0 B Yen</td>
<td>3.5 B Yen</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>68.2 B Yen</td>
<td>9.4 B Yen</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>69.0 B Yen</td>
<td>8.0 B Yen</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>70.0 B Yen</td>
<td>10.0 B Yen</td>
<td>14%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PQA</th>
<th>Revenue</th>
<th>Op. profit</th>
<th>Op. margin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23.5 B Yen</td>
<td>2.0 B Yen</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>23.1 B Yen</td>
<td>1.6 B Yen</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>24.5 B Yen</td>
<td>2.0 B Yen</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>26.0 B Yen</td>
<td>3.0 B Yen</td>
<td>12%</td>
</tr>
</tbody>
</table>

(Note) Exchange rate for GLP2020: 1USD=105Yen, 1Euro=125Yen
I - 3-2. GLP2020 : Revenue and Op. profit Plan (2/2)

GLP20XX: Name of business plan

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Act</td>
<td>Act</td>
<td>Act</td>
<td>Act</td>
<td>Act</td>
<td>Act</td>
<td>Act</td>
<td>Plan</td>
<td>Act</td>
<td>Plan</td>
<td>Plan</td>
</tr>
<tr>
<td>consolidated</td>
<td>9%</td>
<td>15%</td>
<td>17%</td>
<td>14%</td>
<td>11%</td>
<td>6%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>T&amp;M</td>
<td>9%</td>
<td>20%</td>
<td>21%</td>
<td>17%</td>
<td>12%</td>
<td>7%</td>
<td>4%</td>
<td>3%</td>
<td>6%</td>
<td>14%</td>
</tr>
<tr>
<td>PQA</td>
<td>5%</td>
<td>4%</td>
<td>6%</td>
<td>7%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>9%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>GLP plan</td>
<td>GLP2012</td>
<td>GLP2014</td>
<td>GLP2017</td>
<td>GLP2020</td>
<td>GLP2023</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I - 3 - 3. GLP2020 Progress Status in T&M Business

FY2019 Initiatives

Capture growth opportunities by focusing on boosting competitiveness in 5G business
- Enhance global development framework and customer support system
- Promote conformance test system business
I - 3 - 4. GLP2020 Progress Status in PQA Business

FY2018 Actual
23.1 B Yen
Op. Margin: 7%

FY2019 Plan
24.5 B Yen
Op. Margin: 8%

GLP2020
26.0 B Yen
Op. Margin: 12%

FY202X
30.0 B Yen
Op. Margin: ≥12%

FY2019 Initiatives
- Strengthen sales bases in Americas and Europe
- Promote shift to platform solutions
I - 4. Set out for Beyond2020

- **Sustainable growth** in 2020 and beyond
- Become a highly profitable company. Operating margin of **18%**.
- A company that regularly earns over **100.0 billion yen**.

Resolve social issues by realizing Beyond 2020
Ⅱ. T&M business segment
Cost structure improvement measures

- Introduction of high value added solutions (professional services, software)
- Thorough enforcement of development ROI & ROIC management (*1)
- SG&A expenses: Organizational structure and optimal allocation of human resources in response to changes in customer trends

*1: KPI target index for R&D investments is an R&D ROI (gross profit / R&D investment value) of 4.0 times or higher.
II -2. T&M : Mobile market trends and Business opportunity

Market size

Mobile Market

Manufacturing of 3G smartphone
Development of LTE

Wireline Market

IP Data traffic/Cloud Services

Now

New market

• IoT/ Automotive

5G Development

• Utilization of 5G in the new field

• Accelerated investment in 5G(NSA-NR) development
• Investment in 5G(SA-NR) development : China

5G Manufacturing

• 5G(Sub6GHz) manufacturing market

LTE-Advanced Pro

• Investment towards Gigabit LTE development

LTE-Advanced

• High speed and increasing capacity of the data center

Business opportunity

• Investment in small cell

## II -2-1. Roadmap of 5G

<table>
<thead>
<tr>
<th>CY2018</th>
<th>CY2019</th>
<th>CY2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="5G" /> 3GPP Rel.15 NSA/SA specifications (Phase1 Ultrahigh speed)</td>
<td>★ WRC-19</td>
<td>★ Rel.16 (Phase2 Extended use cases such as ultra-low latency, multiple simultaneous connections)</td>
</tr>
<tr>
<td>Rel.15 Commercial chip development</td>
<td></td>
<td>Rel.16 Chip development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rel.16 Device development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rel.16 Chip development</td>
</tr>
</tbody>
</table>

**Pilot device development**

- Expand commercial device development

- Launch of 5G services by major business operators in various countries

- NSA + Millimeter wave (C) *Introduce Sub6 in the future
- NSA + Sub6(C) *Introduce Millimeter wave in the future
- SA & NSA + Sub6 (P)
- SA or NSA+ Sub6 (C)
- NSA + Sub6 (C)
- NSA + Sub6 (C)
- NSA + Sub6 (P)
- NSA + Sub6 &Millimeter wave (P)
- NSA + Sub6 (C)
- NSA + Sub6 (C)
- NSA + Sub6 &Millimeter wave (P)
- NSA + Sub6 (C)

**5G related events**

- **隐著 : 详明**
- **MWC19**
- **Rugby World Cup**

*Created by Anritsu referring to publicly available information*

[Legend]

- P. Trial, Pre service, Pre commercial
- C. Commercial

![5G Testing Anritsu](image.png)
### 2-2. Current status and outlook for major 5G vendors and operators

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chipset</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3GPP Release 15</td>
<td>Qualcomm (America)</td>
<td>MediaTek (Taiwan)</td>
<td>Samsung (Korea)</td>
<td>Intel (America)</td>
</tr>
<tr>
<td>Next Chipset</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Device</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3GPP Release 16</td>
<td>Samsung (Korea)</td>
<td>LG (Korea)</td>
<td>Motorola (America)</td>
<td>Huawei (China)</td>
</tr>
<tr>
<td>Next Device</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verizon (America)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT&amp;T (America)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KT, SKT, LGU+ (Korea)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMCC (China)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Docomo, KDDI, SoftBank (Japan)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We expect full-scale commercial service to begin in 2020 or later.

*Created by Anritsu, with reference to materials from “Public Meeting for Exchanging Opinions on Radio Policy (58th Meeting),” issued by the Ministry of Internal Affairs and Communications (September 21, 2018), as well as other publicly available information.*
Ⅱ-2-3. 5G terminal development/manufacturing process and test solutions

- **Verification of Core Technologies at Chipset Vendors**
  - Protocol
  - Baseband Chipset / RF Front End

- **Evaluation of Functions & Performance at UE Vendors**
  - Evaluation of Functions & Performance

- **Conformance Test at UE Vendors & Test Houses**
  - Conformance Test (CT)

- **Acceptance Test at Carriers & Test Houses**
  - Carrier Acceptance Test (CAT)

- **Mass Production Test at UE Vendors & EMS**
  - RF Calibration & Inspection

- **Evaluation of Functions & Performance**

- **MT8000A Radio Communication Test Station**

- **ME7873NR/ME7834NR 5G NR Conformance Test and Carrier Acceptance Test System**

- **MT8870A Universal Wireless Test Set**
II -2-4. 5G Test Solutions Conformance Test

ME7873NR
5G New Radio RF Conformance Test System
Wireless Performance Conformance Test

ME7834NR
5G NR Mobile Device Test Platform
Communication Protocol Conformance Test

Test case
An organization that mainly runs device conformance tests in Europe and Asia

An organization that runs device conformance tests in Americas
Carrier Acceptance Test (CAT) for each telecommunications carrier
DOCOMO
AT&T
Verizon
CMCC etc.

Scenario

Communications Protocol

Wireless Performance
## 2-5. Mobile R&D business and solutions (The case of LTE)

<table>
<thead>
<tr>
<th>Uses</th>
<th>Platform/Core Development</th>
<th>Conformance test</th>
<th>Operator Acceptance test</th>
<th>Smartphone Commercial test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comm. standard development</td>
<td>RF</td>
<td>Protocol</td>
<td>Application development</td>
</tr>
<tr>
<td></td>
<td>Chipset development</td>
<td></td>
<td></td>
<td>UE operation test</td>
</tr>
<tr>
<td></td>
<td>Conformance test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interoperability test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main customers</td>
<td>Chipset vendor</td>
<td></td>
<td></td>
<td>UE vendor</td>
</tr>
<tr>
<td></td>
<td>UE vendor</td>
<td>Chipset vendor, UE vendor, Communication Carrier</td>
<td>Com Carrier, Test house, UE vendor</td>
<td></td>
</tr>
<tr>
<td>Main theme</td>
<td>• FDD / TDD-LTE, LTE-Advanced, LTE-Advanced PRO</td>
<td>• CA (Carrier aggregation), VoLTE (Voice over LTE)</td>
<td>• MIMO (Multi Input Multi Output)</td>
<td>• Chipset unification of 3G/LTE and SRW (Short Range Wireless)</td>
</tr>
<tr>
<td>Test solutions</td>
<td><img src="image.png" alt="Test solutions" /></td>
<td><img src="image.png" alt="Test solutions" /></td>
<td><img src="image.png" alt="Test solutions" /></td>
<td><img src="image.png" alt="Test solutions" /></td>
</tr>
<tr>
<td>Main Competitors</td>
<td>Anritsu : No.1 position</td>
<td>Rohde &amp; Schwarz, Keysight(Agilent, Anite), Spirent</td>
<td></td>
<td>Rohde &amp; Schwarz, Keysight</td>
</tr>
</tbody>
</table>
2.2-6. Evolution of mobile communication

Supporting evolution of mobile communication system

Max. communication speed increased about 10 thousands times over the past 30 years

Evolution every 10 years

1G
2.4kbps

2G
28.8kbps

3G
384kbps
100Mbps

4G
1Gbps
100Mbps

5G
IoT
VR
20Gbps

Max. communication speed (bps)


2008

2018

(From materials of the Ministry of Internal Affairs and Communications)
II -2-7. Contributing to the establishment of 5G network infrastructure

**Features of 5G**:  
- 1/10×Latency  
- 100×Peak Data Rate  
- 100×Capacity

- **Smart Devices**  
  - 5G New RAT  
  - C-RAN  
  - CPRI  
  - LTE  
  - Small Cell

- **Mobile Networks**  
  - 5G New RAT  
  - C-RAN  
  - CPRI  
  - LTE-A  
  - NB-IoT

- **Fixed Networks**  
  - SDH/WDM  
  - OTN  
  - Ethernet  
  - SDN/NFV  
  - 100G/400G

- **Cloud**  
  - Data Center  
  - Internet  
  - PCI-E  
  - AOC  
  - 40G/100G

- **Support for Mobile Network by Widespread products ranging from RF to optical**

- **Support for high-speed 100G/400G communications**

- **Continued world leader in bit error rate test**

- **R&D and Manufacturing Solution for IoT Device/Module**

- **IoT Device / Module Measurement**
- **Spectrum Analyzer Signal analyzer**
- **New HH SPA**
- **BTS Master**
- **OTDR**

- **Continued world leader in bit error rate test**

- **Support for Mobile Network by Widespread products ranging from RF to optical**

- **IoT Device / Module Measurement**
- **Spectrum Analyzer Signal analyzer**
- **New HH SPA**
- **BTS Master**
- **OTDR**
II -2-8. 5G will become the infrastructure of social innovation

From now on it is necessary to establish "business strategy", includes making business partners

(Ministry of Internal Affairs and Communication)
Millimeter waves are used in cities where small cells can be arranged in mesh networks.
II -2-10. 5G and LTE coexist and interwork

5G = LTE Enhancements + Next-Generation Wireless Technologies

5G Network

Data Signal

Small Cell

Control Signal

LTE Network

Data Signal

Macro Cell

Roadmap of LTE

2015

2016

~2020

Year

New RAT: New Radio Access Technology

LTE Compatible

frequency

40GHz

30GHz

28GHz

20GHz

10GHz

Sub-

6GHz

6GHz

3GHz

1GHz

400MHz

New RAT (higher performance, wide-area)

LTE-Advanced

Rel 12 & 13

LTE Enhancement

Rel 14 & 15
II-2-11. 5G Band Allocations in the World

**SubGHz**
- 600/700 MHz

**Sub6GHz**
- 3.1〜4.2 GHz
- 4.4〜4.99 GHz

**Millimeter Wave**
- 26/28 GHz
- 38/42 GHz

*Created based on public disclosure information.*
We have begun shipments of the Radio Communication Test Station MT8000A for development of chipsets, devices, etc. for the 5G market.
II -2-13. Role of MT8000A

Real-world environment

5G base station

Mobile network

5G smartphone

5G base station

Test environment

MT8000A

Emulates a base station to connect to smartphone and conduct performance testing

Enables a variety of simulations, including handling of errors which cannot be checked with a base station connection, and handover from one base station to another

5G smartphone under performance testing
II -2-14. High-frequency (millimeter wave) measurement technology

For low-frequency

Accurate measurements are possible with a cable connection.

MT8000A

For high-frequency (millimeter wave)

Accurate measurements are possible with Over The Air (OTA) using chamber.
Introducing 5G utilizing the LTE core network.

NSA-NR Network Configuration

NSA-NR Test Environment

ME7834NR Test System

MD8430A

MT8000A

ME7834NR Test System

MD8430A

MT8000A

LTE Base Station Simulation

5GNR Base Station Simulation

Ⅱ -2-15. Test solution for 5G NSA-NR terminal development
Signal analyzer that realizes millimeter-wave measurement solutions required for R&D and manufacture of 5G base stations and terminals at unprecedented low prices

- **Frequency range**: 9 kHz~32 GHz/44.5 GHz
- **Analysis bandwidth**: 255 MHz (standard), 510 MHz (option), 1GHz (option)

### Conventional Signal Analyzer for LTE
- **Frequency**: mainly 6GHz or less
- **Analysis bandwidth**: 20MHz to several hundred MHz

### Signal Analyzer for 5G
- **Covers frequency**: up to 44.5GHz
- **Coverage of analysis bandwidth**: up to 1GHz
- **Low price enables installation for commercial development and manufacture**
II -2-17. 5G Test Solutions  Base-Station Installation and Maintenance

5G NR Base-Station Field Performance Measurements and Coverage Mapping

Field Master Pro MS2090A
- Frequency Range: 9 kHz to 9/14/20/26.5/32/43.5/54 GHz
- Supports RF measurements of GSM, LTE, and 5G base stations, as well as 5G demods.
- TX spurious up to 54 GHz

Usage: 5G NR Base Station Measurement
3GPP TS 38.104 V15 gNB Base Station Performance Evaluation
- Frequency error
- Occupied bandwidth
- Time offset
- Adjacent channel leakage ratio
- Cell/Sector ID
- Tx spurious up to 12.75 GHz
- Modulation quality
- EIRP
- Unwanted emissions
- Synchronization Signal Block (SSB)
- FR1 & FR2
- Up to 64 beams supported

Usage: 5G Coverage Mapping
Plot indoor and outdoor coverage maps from 5G NR gNB. Displayed measurements include channel power, EIRP, and RSRP.
II -2-18. Acquisition of Azimuth Systems, Inc.

- Company Name: Azimuth Systems, Inc.
- Headquarters: Boston, USA
- Business model: Development and sales of channel emulators, etc.
- Main customers: Operators, chipset vendors, network equipment vendors, UE vendors, etc. in the Americas, EMEA, Asia, and Japan

Real-world environment

Base station - Signal - Base station simulator

(1) Reflection from obstacles

Communication device

Fading (Fluctuating signal strength)

In the lab (e.g., communication device testing)

Base station simulator - Channel Emulator - Communication device (device under test)

Fading (Fluctuating signal strength)

Communication device

Movement

Sep, 2016
II -2-19. Food chain and players in mobile telecom market

Operators
- AT&T
- Verizon
- T-Mobile
- Orange
- BT
- Deutsche Telekom
- China Mobile
- China Unicom
- China Telecom
- NTT DoCoMo
- KDDI
- Softbank + Sprint
- SK Telecom
- KT
- LG Uplus
- etc.

Chipset vendors
- Qualcomm, Intel, Samsung, MediaTek, Hisilicon, Spreadtrum, Broadcom, Marvell, Realtek, Altair, Sequans etc.

Test houses
- SGS, 7 layers, Cetecom, TMC, Canvas M, TechMahindra etc.

Smartphone & Tablet vendors
- America: Apple, Amazon, Google, Microsoft + Nokia
- Asia: Huawei, OPPO, VIVO, Xiaomi, enovo, TCL, ZTE, Coolpad, Samsung, LG, HTC, Micromax
- Japan: Sony, Fujitsu etc.

Wireless modules /component vendors
- Foxconn, Asus, BYD, Quanta, HEG etc.

EMS
- Own factories

Application providers
- Ericsson, ZTE, Huawei, NOKIA, Samsung, Fujitsu, NEC etc.

Base stations
- Ericsson, ZTE, Huawei, NOKIA, Samsung, Fujitsu, NEC etc.

For R&D

For production
### Roadmap of LTE service

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LTE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LTE-Advanced</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LTE-Advanced Pro</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Service implementation trends of operators**

- **2CA**
- **3CA**
- **4CA**
- **5CA**
- **6CA**

**CA (Carrier Aggregation)**

**DL4 4xMIMO**

**LAA**

*Gigabit LTE*

- **1.2Gbps**
- **1Gbps**

**LAA**—Licensed-Assisted Access (using unlicensed band)

**Now**

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>LTE</td>
</tr>
<tr>
<td>2015</td>
<td>LTE-Advanced</td>
</tr>
<tr>
<td>2016</td>
<td>LTE-Advanced Pro</td>
</tr>
<tr>
<td>2017</td>
<td>Gigabit LTE</td>
</tr>
<tr>
<td>2018</td>
<td>Gigabit LTE</td>
</tr>
<tr>
<td>2019</td>
<td>Gigabit LTE</td>
</tr>
</tbody>
</table>
Expand Earnings Opportunities by Supporting the Creation of New Markets and Various Industrial Fields through the Utilization of 5G

**Units**

- Smart meter
- Home security
- Industrial Equipment

**LPWA**

**LTE Advanced Pro, 5G**

- VR, AR

**LTE Advanced**

**5G**

- Advancement of automated driving
- Remote control operation

**Multiple concurrent connections**

Connect all the terminals and sensors around us to the internet

**Ultra high speed**

Download a movie of 2 hours in 3 seconds

**Ultra low latency**

Operate a remote robot in real time precisely

**High Speed, Low Latency**
II-3-1. Manufacturing solutions for Smart phone

A

Current features

1. Huawei, Vivo, Oppo
   The rise of China vendors and intensifying competition ( inflatable)
2. The growth of the manufacturing market in India

Solutions for 2G / 3G / LTE & Connectivity

MT8870A
Universal
Wireless Test Set

Smartphone Shipment Market Share in China by Vendor *

25%
20%
15%
10%
5%
0%
2013 (1-6) (7-12)
2014 (1-6) (7-12)
2015 (1-6) (7-12)
2016 (1-6) (7-12)
2017 (1-6) (7-12)
2018 (1-6)

*Source: Gartner "Market Share: PCs, Ultramobiles and Mobile Phones, All Countries, 2Q18 Update" 24 Aug. 2018
Smartphone = Basic Phone, Premium Phone, Utility Phone
OS=Excluding WindowsRT and Proprietary
Graph created by Anritsu based on Gartner research

Main Competitors
Rohde & Schwarz, Keysight

All statements in this report attributable to Gartner represent Anritsu’s interpretation of data, research opinion or viewpoints published as part of a syndicated subscription service by Gartner, Inc., and have not been reviewed by Gartner. Each Gartner publication speaks as of its original publication date (and not as of the date of this presentation). The opinions expressed in Gartner publications are not representations of fact, and are subject to change without notice.
Ⅱ -3-2. R&D solutions for Smart Devices for IoT

Wireless systems for achieving IoT

Communication distance

- >km
- 100m
- 10m
- 1m

LPWA

Cellular IoT

NB-IoT

Cat.M

Cat.1

3G,LTE,5G

Wi-SUN

Zigbee

Z-Wave

Wi-Fi

Bluetooth

NFC

Data Transmission rate

0.01
1
10
100 Mbps

R&D Solutions for Cellular IoT

MT8821C
Radio Communication Analyzer

Chipset
SiP (System in Package)

MD8430A
Signalling Tester

Main Competitors
Rohde & Schwarz, Keysight
2. Manufacturing solutions for Smart Devices for IoT

- The growth of Connectivity & Module markets for IoT

For WLAN / Bluetooth

MT8862C Wireless Connectivity Test Set

MT8870A Universal Wireless Test Set

*Source: World Economic Forum

**SiP (System in Package)

Main Competitors
Teradyne, National Instruments, Rohde & Schwarz, Keysight
II -3-4. Adoption of new technologies in the automotive market and Anritsu’s initiatives

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advancement of automated driving</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Spread of 4G telematics
- Mandatory deployment of eCall
- Active verification testing of V2X
- Increasing use of 79GHz radar

**Telematics/eCall**
- Emergency calling system for vehicles
- Mobile network simulator
- Millimeter wave signal transmitter tester
- 79GHz high resolution automotive radar

**Mobile communication/connectivity**
- Wireless communication RF performance test
- V2X communication quality assessment
- V2X (802.11p) vehicle-to-vehicle/road-to-vehicle communications
II-3-5. Food chain and players in Automotive market

Safety, Emergency, Comfort, Infotainment, Diagnostic

Car Vendors
- Autonomous car
- ADAS (Advanced Driver Assistance System)
- Telematics (Telecommunication + Informatics)
- ITS C-ITS (Intelligent Transport Systems)

Dashboard Vendors
- Transceiver module (Cellular + V2X + Connectivity + Antenna + etc.)
- Rader module
- Antenna
- Satellite receiver
- Tuner

Module Vendors
- Cellular module, Connectivity module, V2X module, Rader, Antenna, Connector, Cable, etc.

Chipset Vendors
- Semiconductors for communication
II -4. Network Reshaping Test Solutions

Further evolution towards 5G/IoT

Main Competitors
Viavi (formerly known as JDSU)

Current LTE Network + 5G Network

Reshaping the Future of Network Test Solution

Wireless
Integration
Optical
Transport (CPRI)
Optimization

RRH: Remote Radio Head
BBU: Base Band Unit

Macro Cell
Mobile Backhaul
Small Cell
Mobile Fronthaul

MT8220T BTS Master
MT1000/1100 Network Master
MT8220T BTS Master

[ Cloud Solution ]
Ⅱ-4-1. Test Solutions for support of Cloud Service expanding
Data traffic extending explosively

Global Data Center Traffic Growth
Source: Cisco Global Index 2015-2020

- Expansion of Data Center
- Higher-speed
- Larger-capacity
- Conversion to fiber optics

Main Competitors
Keysight

R&D
Equipment (Router, Switch) vendors in Data Center

Optical module vendors

Optical device vendors

Manufacturing, I&M

DCI
High speed communication
10G/40GbitE → 100G/200/400GbitE
Ⅲ. PQA Business segment
Ⅲ-1. PQA business segments (Products Quality Assurance)

- General examples of food production process

  - Snacks
  - Sausage
  - Meat

- Materials
  - Contamination
  - Variation in the amount of contents
  - Breaks and chips
  - Defective packaging (sealing)
  - Printing error/Print blur

- Overall quality management and control system

  - Automatic Combination Weighter
  - Metal Detector
  - Check Weighter
  - X-Ray Inspection System

- Major customers
  - Mondelez, Nestle, Kraft Heinz, Nippon Ham Group, Glico Group, Nissui Group, etc.

- X-Ray Inspection System
  - Glass, plastic
  - Rubber packing
  - Stone fragment
  - Bone, shell
### Ⅲ-2-1. The growing PQA business < PQA >

- **Market Major initiatives**
  - **North America, EMEA, Asia**
    - Develop market with X-ray inspection systems as a key solution
  - **Japan**
    - Improve market share through quality assurance solutions with high added value in response to cutting-edge needs

- **Main Competitors**
  - Mettler-Toledo, Ishida, Marel

### Revenue (Bn. Yen)

<table>
<thead>
<tr>
<th></th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
<th>FY20x</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLP 2012</td>
<td>12.3</td>
<td>14.2</td>
<td>14.4</td>
<td>16.9</td>
<td>16.2</td>
<td>18.9</td>
<td>19.6</td>
<td>22.5</td>
<td>23.1</td>
<td>24.5</td>
<td>26.0</td>
<td>30.0</td>
</tr>
<tr>
<td>GLP 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLP 2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLP 2020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Op. margin (%)</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18 FY19 FY20 FY20x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ⅲ-2-2. PQA Business: Current Status of the PQA Market and Outlook

**Global market size of 200 billion yen (estimated by Anritsu in 2017)**
Average growth rate of 4% expected by 2020

- **EMEA**
  - More stringent quality assurance for the retail industry
  - 2017: 40% EMEA, 30% Americas, 15% Japan, 15% Asia
  - 2020: 40% EMEA, 30% Americas, 15% Japan, 15% Asia

- **Americas**
  - Penetration of the X-ray inspection market
  - 2017: 40% EMEA, 30% Americas, 15% Japan, 15% Asia
  - 2020: 40% EMEA, 30% Americas, 15% Japan, 15% Asia

- **Asia**
  - Expansion of demand for processed food
  - Rising personnel expenses
  - 2017: 15% Asia
  - 2020: 15% Asia

- **Japan**
  - Automation and labor saving for production lines in response to a manpower shortage
  - 2017: 15% Japan
  - 2020: 15% Japan

**Global market size of 200 billion yen (estimated by Anritsu in 2017)**
Average growth rate of 4% expected by 2020
### IV-1. Financial Strategy

**Target**

- Ratio of net assets to total assets: $\geq 60\%$
- D/E ratio: $\leq 30\%$

![Graph showing financial ratios over years](image)
IV-1-1. GLP2020 : Financial strategy

**Basic policy**

Improve corporate value KPI (ACE & ROE) through growth investment (including M&As) with a return of more than 7% of equity cost and capital efficiency improvements

*ACE (Anritsu Capital-cost Evaluation): Operating income after tax-Capital Cost (WACC, 5%)*

Goal: ROE ≥ 15%

![Graph showing the trend of ACE (B Yen) and ROE (%) from FY2010 to FY202X (Revised)].

- ACE (B Yen) and ROE (%) trends are displayed from FY2010 to FY202X (Revised).
- The goal is to achieve ROE ≥ 15%.
IV-2. Shareholder Return Policy

**Dividend Policy**

Distribute profits in accordance with its consolidated performance (Net profit) and by taking into account the total return

1. Take the basic approach of raising dividends on equity (DOE) in accordance with the increase in consolidated profits for the fiscal year

2. Aim at a consolidated dividend payout ratio of 30 percent or more

3. Flexibly provide shareholder returns taking into account the total return ratio
### IV- 2-1. Dividend forecast

#### Annual dividend

<table>
<thead>
<tr>
<th></th>
<th>Dividend per share</th>
<th>Profit</th>
<th>Payout ratio</th>
<th>DOE</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FY2019 (Forecast)</strong></td>
<td>22 yen</td>
<td>7.5 B yen</td>
<td>40.3%</td>
<td>3.2%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>FY2018</strong></td>
<td>22 yen</td>
<td>9.0 B yen</td>
<td>33.7%</td>
<td>3.7%</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

**Note:** The graph shows the dividend payout ratio (%) from FY2014/3 to FY2020/3 (Forecast). The payout ratio has varied from 30.8% to 87.7%, with a forecast of 40.3% for FY2020/3.
IV-3. Corporate Philosophy and Sustainability Policy

Company Philosophy
Contribute to the development of a safe, secure, and prosperous global society by offering Original & High Level products and services with sincerity, harmony, and enthusiasm.

Company Vision
Achieve continuous growth with sustainable superior profits through innovation, using all knowledge of all parties and contribute to the sustainability of society.

Sustainability Policy
1. We will contribute to building a safe, secure, and comfortable society through our business activities, based on our long-term vision.
2. We will maintain harmony with the global socio-economy and society through ethical company activities.
3. We will contribute to the preservation of the global environment by promoting environmental management for the coexistence of people and nature.
4. We will build strong partnerships by promoting communication with all stakeholders.
IV-3-1. Set sustainability management as our axis

Brand axis

Anritsu way

envision : ensure

SDGs

Social axis

Business axis

Sustainability Management
(Creating Shared Value)
### IV-3-2. Sustainability Goals (SDGs)

#### Challenges to meet the needs of society (ESG)

<table>
<thead>
<tr>
<th><strong>Anritsu Group</strong></th>
<th><strong>T&amp;M</strong></th>
<th><strong>PQA business</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributing to the promotion of innovations and an industrial structure that builds a sustainable society, and creation of safe and secure infrastructure.</td>
<td>Contributing to building a sustainable society through the maintenance of a robust network linking all things related to safety and security.</td>
<td>Contributing to realizing a sustainable society and in which everyone can live with a sense of safety and security and in which food loss is minimized by enhancing Products Quality Assurance for food and pharmaceuticals.</td>
</tr>
</tbody>
</table>

### Social Issues We Address through Our Business Activities

<table>
<thead>
<tr>
<th><strong>Maintaining Harmony with the Global Socio-Economy</strong></th>
<th><strong>Expanding and Strengthening Governance</strong></th>
<th><strong>Promoting Global Environmental Protection</strong></th>
<th><strong>The Creation of Shared Value through the Promotion of Communication</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Together with diverse Human resources, we seek to contribute to the creation of workplaces where each individual can achieve personal growth and experience job satisfaction.</td>
<td>Ensuring ethical corporate activities through risk management and fair, quick, and effective decision making.</td>
<td>Contributing to the creation of a society with sustainable consumption and sustainable corporate production practices.</td>
<td>Contributing to the creation of shared value with collaboration among all stakeholders.</td>
</tr>
</tbody>
</table>
IV-4. Corporate Governance System

For improving competitiveness and continuously enhancing corporate value
V. Financial Results for the 1st quarter of the Fiscal Year ending March 31, 2020
## V-1. Consolidated performance - Financial results -

### Year-on-year growth in revenue and profit

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Intake</td>
<td>22.6</td>
<td>27.2</td>
<td>4.6</td>
<td>20%</td>
</tr>
<tr>
<td>Revenue</td>
<td>21.0</td>
<td>23.2</td>
<td>2.2</td>
<td>11%</td>
</tr>
<tr>
<td>Operating profit (loss)</td>
<td>1.6</td>
<td>2.7</td>
<td>1.1</td>
<td>65%</td>
</tr>
<tr>
<td>Profit (loss) before tax</td>
<td>1.8</td>
<td>2.5</td>
<td>0.7</td>
<td>44%</td>
</tr>
<tr>
<td>Profit (loss)</td>
<td>1.7</td>
<td>1.8</td>
<td>0.1</td>
<td>5%</td>
</tr>
<tr>
<td>Comprehensive income</td>
<td>2.1</td>
<td>0.8</td>
<td>(1.3)</td>
<td>-61%</td>
</tr>
</tbody>
</table>

Unit: Billion Yen

Note: Numbers are rounded off to the first decimal place in each column.
## V-2. Consolidated performance - Results by business segment -

T&M: Steady initial development demand for 5G

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T&amp;M</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>14.4</td>
<td>17.3</td>
<td>2.9</td>
<td>20%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>1.5</td>
<td>2.8</td>
<td>1.3</td>
<td>82%</td>
</tr>
<tr>
<td><strong>PQA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>4.9</td>
<td>4.1</td>
<td>(0.8)</td>
<td>-17%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>0.2</td>
<td>(0.2)</td>
<td>(0.4)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>1.7</td>
<td>1.8</td>
<td>0.1</td>
<td>9%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>0.1</td>
<td>0.3</td>
<td>0.2</td>
<td>176%</td>
</tr>
<tr>
<td><strong>Adjustment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>(0.1)</td>
<td>(0.2)</td>
<td>(0.1)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>21.0</td>
<td>23.2</td>
<td>2.2</td>
<td>11%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>1.6</td>
<td>2.7</td>
<td>1.1</td>
<td>65%</td>
</tr>
</tbody>
</table>

**Note1:** Numbers are rounded off to the first decimal place in each column.

**Note2:** Adjustment includes elimination of inter-segment transactions and non-distributed company-wide expenses of each business segment.

T&M: Test & Measurement  PQA: Products Quality Assurance
V - 3. Consolidated performance - Revenue and Op. profit by quarters -

1Q(Apr.-Jun.) Operating margin: Consolidated 12%, T&M 16%

Note: Numbers are rounded off to the first decimal place in each column.
V -4. Overview of operations by business segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>FY2019 1Q (April to June, 2019)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;M: Test &amp; Measurement</td>
<td>Steady progress of 5G commercialization schedule</td>
</tr>
<tr>
<td>Mobile</td>
<td></td>
</tr>
<tr>
<td>LTE</td>
<td>Continued curbing and reduction of investment in LTE-A</td>
</tr>
<tr>
<td>5G</td>
<td>5G development demand remains steady</td>
</tr>
<tr>
<td>Network Infrastructure</td>
<td>Initial launch of 5G network infrastructure</td>
</tr>
<tr>
<td>Asia</td>
<td>Expansion in 5G-related investments</td>
</tr>
<tr>
<td>Americas</td>
<td>Launch of 5G service by major operators</td>
</tr>
<tr>
<td>PQA: Products Quality Assurance</td>
<td>Investment by major customers has entered a lull between investments in the food market in both Japan and overseas</td>
</tr>
</tbody>
</table>

T&MI: Test & Measurement         
PQA: Products Quality Assurance
V -5. Transition of Order intake

T&M : 35% growth year on year

<table>
<thead>
<tr>
<th>Bn. Yen</th>
<th>FY2017</th>
<th>FY2018</th>
<th>FY2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q</td>
<td>12.4</td>
<td>18.8</td>
<td>19.8</td>
</tr>
<tr>
<td>2Q</td>
<td>14.2</td>
<td>18.0</td>
<td>18.8</td>
</tr>
<tr>
<td>3Q</td>
<td>13.4</td>
<td>17.4</td>
<td>18.0</td>
</tr>
<tr>
<td>4Q</td>
<td>16.6</td>
<td>14.6</td>
<td>18.8</td>
</tr>
<tr>
<td>1Q</td>
<td>21.1</td>
<td>26.0</td>
<td>26.9</td>
</tr>
<tr>
<td>2Q</td>
<td>22.6</td>
<td>25.3</td>
<td>26.9</td>
</tr>
<tr>
<td>3Q</td>
<td>21.5</td>
<td>24.3</td>
<td>27.2</td>
</tr>
<tr>
<td>4Q</td>
<td>22.5</td>
<td>25.7</td>
<td>27.2</td>
</tr>
</tbody>
</table>

Note: Numbers are rounded off to the first decimal place in each column.
Revenue rose year on year in Asia and Japan, backed by the rise in 5G demand.
V -7. Cash Flow

Operating cash flow margin ratio was 20.4%

FY2019 1Q
Operating CF : 4.7 Bn. Yen
Investing CF : (0.7) Bn. Yen
Financing CF : (1.8) Bn. Yen

Free Cash Flow
Op. CF + Inv. CF : 4.0 Bn. Yen

Cash at the end of period
46.7Bn. Yen

Interest-bearing debt.
16.5 Bn. Yen

Note : Numbers are rounded off to the first decimal place in each column.

* Other main items: Advances received, etc.
V-1. Forecast for full year of FY2019 (Consolidated)

No change since April 25th disclosures

<table>
<thead>
<tr>
<th>International Financial Reporting Standards (IFRS)</th>
<th>FY2018</th>
<th>FY2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Forecast</td>
</tr>
<tr>
<td>Revenue</td>
<td>99.7</td>
<td>102.0</td>
</tr>
<tr>
<td>Operating profit (loss)</td>
<td>11.2</td>
<td>10.0</td>
</tr>
<tr>
<td>Profit (loss) before tax</td>
<td>11.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Profit (loss)</td>
<td>9.0</td>
<td>7.5</td>
</tr>
<tr>
<td>T&amp;M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>68.2</td>
<td>69.0</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>9.4</td>
<td>8.0</td>
</tr>
<tr>
<td>PQA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>23.1</td>
<td>24.5</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>1.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>8.4</td>
<td>8.5</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>1.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>(0.9)</td>
<td>(0.9)</td>
</tr>
</tbody>
</table>

Unit: Billion Yen

Note: Numbers are rounded off to the first decimal place in each column.

Reference: Exchange rate:
- FY2018 (Actual): 1USD=111 yen, 1EURO=128 yen
- FY2019 (Forecast): 1USD=105 yen, 1EURO=125 yen