Continuous Growth with Sustainable Superior Profits

Hirokazu Hamada
Representative Director, President,
Group CEO,
Anritsu Corporation

May, 2019
Cautionary Statement

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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. MWC2019 Report

VI. Financial Results for the Fiscal Year ended March 31, 2019
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
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>T&amp;M</th>
<th>68%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile</td>
<td>53%</td>
</tr>
<tr>
<td>Network Infrastructure</td>
<td>26%</td>
</tr>
<tr>
<td>Electronics</td>
<td>21%</td>
</tr>
<tr>
<td>PQA</td>
<td>23%</td>
</tr>
<tr>
<td>Others</td>
<td>9%</td>
</tr>
</tbody>
</table>

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

| Japan | 19% |
| Asia & Pacific | 33% |
| Americas | 32% |
| EMEA | 16% |

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></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Purpose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Network Infrastructure (26%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Mobile (53%)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Electronics (21%)</strong></td>
<td><em>Electronics components etc.</em></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><strong>T&amp;M</strong></td>
<td>3-5%</td>
<td><strong>Become a leading company supporting 5G/IoT society</strong>&lt;br&gt;(1) 5G, LTE-Advanced&lt;br&gt;(2) IoT/Automotive, Connectivity&lt;br&gt;(3) IP Data traffic/Cloud Services</td>
<td>Sales growth rate: ≥7%&lt;br&gt;Operating margin: ≥20%</td>
</tr>
<tr>
<td><strong>PQA</strong></td>
<td>3-5%</td>
<td><strong>Become a world-class partner in quality assurance solution</strong>&lt;br&gt;Expansion from contaminant inspection into the quality assurance market</td>
<td>Sales growth rate: ≥7%&lt;br&gt;Operating margin: ≥12%</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>—</td>
</tr>
</tbody>
</table>

Consolidated: ≥18%<br>ROE: ≥15%
## I - 3-1. GLP2020: Revenue and Op. profit Plan (1/2)

### GLP2020

<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>102.0 B 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>

### T&M

<table>
<thead>
<tr>
<th></th>
<th>FY2018 (Initial Plan)</th>
<th>FY2018 (Act)</th>
<th>FY2019</th>
<th>FY2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>60.0 B Yen</td>
<td>68.2 B Yen</td>
<td>69.0 B Yen</td>
<td>70.0 B Yen</td>
</tr>
<tr>
<td>Op. profit</td>
<td>3.5 B Yen</td>
<td>9.4 B Yen</td>
<td>8.0 B Yen</td>
<td>10.0 B Yen</td>
</tr>
<tr>
<td>Op. margin</td>
<td>6 %</td>
<td>14%</td>
<td>12%</td>
<td>14%</td>
</tr>
</tbody>
</table>

### PQA

<table>
<thead>
<tr>
<th></th>
<th>FY2018 (Initial Plan)</th>
<th>FY2018 (Act)</th>
<th>FY2019</th>
<th>FY2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>23.5 B Yen</td>
<td>23.1 B Yen</td>
<td>24.5 B Yen</td>
<td>26.0 B Yen</td>
</tr>
<tr>
<td>Op. profit</td>
<td>2.0 B Yen</td>
<td>1.6 B Yen</td>
<td>2.0 B Yen</td>
<td>3.0 B Yen</td>
</tr>
<tr>
<td>Op. margin</td>
<td>9 %</td>
<td>7%</td>
<td>8%</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)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Op. margin</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>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>
<td>10%</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>
<td>12%</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>
<td>8%</td>
</tr>
</tbody>
</table>

GLP20XX: Name of business plan

Target:
- GLP2020: FY202X
  - Revenue: >12%
  - Op. profit: 18%

GLP plan:
- GLP2012
- GLP2014
- GLP2017
- GLP2020
- GLP2023
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
### II -1. T&M : Profit structure improvement targets

<table>
<thead>
<tr>
<th></th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19 (Plan)</th>
<th>GLP2020</th>
<th>Operating Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Op. profit</td>
<td>21%</td>
<td>17%</td>
<td>12%</td>
<td>7%</td>
<td>4%</td>
<td>3%</td>
<td>14%</td>
<td>12%</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>SG&amp;A</td>
<td>30%</td>
<td>32%</td>
<td>35%</td>
<td>38%</td>
<td>39%</td>
<td>42%</td>
<td>33%</td>
<td>34%</td>
<td>34%</td>
<td>30%</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>13%</td>
<td>13%</td>
<td>14%</td>
<td>13%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>COGS</td>
<td>38%</td>
<td>38%</td>
<td>40%</td>
<td>41%</td>
<td>44%</td>
<td>42%</td>
<td>40%</td>
<td>40%</td>
<td>39%</td>
<td>38%</td>
</tr>
</tbody>
</table>

**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

Manufacturing of 3G smartphone
Development of LTE

Mobile Market

Wireline Market

5G Development

- 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

IP Data traffic/Cloud Services
- High speed and increasing capacity of the data center
- Investment in small cell

Business opportunity

Market size

- New market
  - IoT/Automotive
  - Utilization of 5G in the new field

Now

# II -2-1. Roadmap of 5G

<table>
<thead>
<tr>
<th>CY2018</th>
<th>CY2019</th>
<th>CY2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>3GPP Rel.15 NSA specifications (Phase1 Ultrahigh speed)</td>
<td>★ WRC-19 ★ Rel.16 (Phase2 Extended use cases such as ultra-low latency, super large number of connections)</td>
<td></td>
</tr>
<tr>
<td>Rel.15 Commercial chip development</td>
<td>Rel.16 Chip development</td>
<td>Rel.16 Device development</td>
</tr>
<tr>
<td>Pilot device development</td>
<td>Expand commercial device development</td>
<td>Expand 5G services</td>
</tr>
<tr>
<td>Launch of 5G services by major business operators in various countries</td>
<td>NSA + Millimeter wave (C)</td>
<td>NSA + Millimeter wave (C)</td>
</tr>
<tr>
<td></td>
<td>NSA + Sub6(C)</td>
<td>NSA + Sub6(C)</td>
</tr>
<tr>
<td></td>
<td>*Introduce Sub6 in the future</td>
<td>*Introduce Millimeter wave in the future</td>
</tr>
<tr>
<td></td>
<td>SA &amp; NSA + Sub6 (P)</td>
<td>SA or NSA+ Sub6 (C)</td>
</tr>
</tbody>
</table>

**5G related events**

- MWC19
- MWC Shanghai
- Tokyo Olympics
- Paralympic
- Rugby World Cup
- 5G frequency assignment

* Created by Anritsu referring to publicly available information

[Legend]
P. Trial, Pre service, Pre commercial
C. Commercial

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2-2. Current status and outlook for major 5G vendors and operators

<table>
<thead>
<tr>
<th>Chipset</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualcomm (America)</td>
<td>MediaTek (Taiwan)</td>
<td>Samsung (Korea)</td>
<td>Intel (America)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung (Korea)</td>
<td>LG (Korea)</td>
<td>Motorola (America)</td>
<td>Huawei (China)</td>
<td>Sharp (Japan)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operators</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verizon (America)</td>
<td>CMCC (China)</td>
<td>AT&amp;T (America)</td>
<td>Docomo, KDDI, SoftBank (Japan)</td>
<td>KT, SKT, LGU+ (Korea)</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)
- MT8000A Radio Communication Test Station

Acceptance Test at Carriers & Test Houses
- Carrier Acceptance Test (CAT)
- ME7834NR 5G NR Mobile Device Test Platform

Mass Production Test at UE Vendors & EMS
- RF Calibration & Inspection
- MT8870A Universal Wireless Test Set

(See Page36)
### 2-4. 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>Conformance test</td>
<td>Comm. Carrier acceptance test</td>
<td>Application development</td>
</tr>
<tr>
<td></td>
<td>Chipset development</td>
<td>Interoperability test</td>
<td>UE operation test</td>
<td>UE vendor</td>
</tr>
<tr>
<td>Main customers</td>
<td>Chipset vendor</td>
<td>Chipset vendor, UE vendor</td>
<td>Communication Carrier</td>
<td>UE vendor</td>
</tr>
<tr>
<td>May theme</td>
<td>UE vendor</td>
<td></td>
<td></td>
<td>Applications developer</td>
</tr>
<tr>
<td></td>
<td>• FDD / TDD-LTE, LTE-Advanced, LTE-Advanced PRO</td>
<td>• CA (Carrier aggregation), VoLTE (Voice over LTE)</td>
<td></td>
<td>• Improve data throughput</td>
</tr>
<tr>
<td></td>
<td>• MIMO (Multi Input Multi Output)</td>
<td>• Chipset unification of 3G/LTE and SRW (Short Range Wireless)</td>
<td></td>
<td>• Battery consumption etc.</td>
</tr>
<tr>
<td>Test solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Competitors</td>
<td>Anritsu: No.1 position</td>
<td>Rohde &amp; Schwarz, Keysight(Agilent, Anite), Spirent</td>
<td>Rohde &amp; Schwarz, Keysight</td>
<td></td>
</tr>
</tbody>
</table>
II -2-5. Evolution of mobile communication
Supporting evolution of mobile communication system

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

Max. communication speed

1G to 10G

Year


Evolution every 10 years

From materials of the Ministry of Internal Affairs and Communications

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Contributing to the establishment of 5G network infrastructure

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

**Smart Devices**
- R&D and Manufacturing Solution for IoT Device/Module
- IoT Device / Module Measurement
- Spectrum Analyzer
- Signal analyzer
- BTS Master

**Mobile Networks**
- Support for Mobile Network by Widespread products ranging from RF to optical
- 5G New RAT
- C-RAN
- CPRI
- LTE Small Cell
- LTE-A
- NB-IoT

**Fixed Networks**
- Support for high-speed 100G/400G communications
- 100G/400G
- SDH/WDM
- OTN
- Ethernet
- SDN/NFV

**Cloud**
- Continued world leader in bit error rate test
- 40G/100G
- Data Center
- Internet
- PCI-E
- AOC

R&D and Manufacturing Solution for IoT Device/Module
Support for high-speed 100G/400G communications
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
BTS Master
OTDR
New HH SPA
40G/100G Analyzer
BERTWave Series
eoSight Big Data Analytics
Signal Quality Analyzer
II -2-7. 5G will become the infrastructure of social innovation

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

<table>
<thead>
<tr>
<th>Profitability</th>
<th>Current Business area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Smartphone/Tablet</td>
</tr>
<tr>
<td>High</td>
<td>Auto-motive</td>
</tr>
<tr>
<td></td>
<td>Industrial machinery</td>
</tr>
<tr>
<td></td>
<td>Home Security</td>
</tr>
<tr>
<td></td>
<td>Smart meter</td>
</tr>
<tr>
<td></td>
<td>Other IoT</td>
</tr>
</tbody>
</table>

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

5G = LTE Enhancements + Next-Generation Wireless Technologies

**5G Network**
- 5G Next-Generation Technologies
- Frequency:
  - 40GHz
  - 30GHz
  - 28GHz
  - 20GHz
  - 10GHz
  - 6GHz
  - 3GHz
  - 1GHz
  - 400MHz

**LTE Network**
- LTE Network Control
- Data Signal
- Small Cell
- Macro Cell

**Roadmap of LTE**
- 2015: LTE-Advanced Rel 12 & 13
- 2016: LTE Enhancement Rel 14 & 15
- ~2020: LTE-Advanced Rel 12 & 13
- 2015: LTE-Advanced Rel 12 & 13
- 2016: LTE Enhancement Rel 14 & 15
- ~2020: LTE-Advanced Rel 12 & 13

New RAT: New Radio Access Technology
II -2-10. 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.
Ⅱ -2-11. Solutions for 5G chipset/device development

We have begun shipments of the Radio Communication Test Station MT8000A for development of chipsets, devices, etc. for the 5G market.
II-2-12. Role of MT8000A

Real-world environment

5G base station

Mobile network

5G base station

5G smartphone

Test environment

5G smartphone under performance testing

MT8000A

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

Emulates 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
For low-frequency

Accurate measurements are possible with a cable connection.

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**

- **LTE Base Station (LTE Anchor)**
- **5GNR Base Station**
- **NSA-NR Device**
- **5G NR Small Cell**

**NSA-NR Test Environment**

- **LTE Base Station Simulation**
- **ME7834NR Test System**
- **MD8430A**
- **MT8000A**
- **NSA-NR Device**
II -2-15. Anritsu’s Solution for 5G base stations and terminals

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 is mainly 6GHz or less
- Analysis bandwidth is 20MHz to several hundred MHz

**Signal Analyzer for 5G**

- Covers frequency up to 44.5GHz
- Coverage of analysis bandwidth is up to 1GHz
- Low price enables installation for commercial development and manufacture
II-2-16. 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
- Reflection from obstacles
- Fading (Fluctuating signal strength)
- Movement

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

- Base station simulator
- Channel Emulator
- Fading (Fluctuating signal strength)
- Communication device (device under test)
II -2-17. Food chain and players in mobile telecom market

For R&D

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.

For production

Wireless modules/component vendors

EMS
Foxconn, Asus, BYD, Quanta, HEG etc.

Own factories

Application providers

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

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.

MVNO
Ⅱ-2-18. Roadmap of LTE service

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<tbody>
<tr>
<td>LTE</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>LTE-Advanced</td>
<td></td>
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<td></td>
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<tr>
<td>LTE-Advanced Pro</td>
<td>1.2Gbps</td>
<td></td>
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</tr>
</tbody>
</table>

Service implementation trends of operators

- 2CA 3CA
- 4CA 5CA 6CA
- CA (Carrier Aggregation)
- DL4 x4MIMO
- LAA*

* LAA---Licensed-Assisted Access (using unlicensed band)
II -3. Industrial Test Solutions
Expand Earnings Opportunities by Supporting the Creation of New Markets and Various Industrial Fields through the Utilization of 5G

- Smart meter
- home security
- Industrial Equipment

- 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

- Advancement of automated driving
- Remote control operation

Units
- LTE Advanced
- LPWA
- LTE Advanced Pro, 5G
- 5G

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

**Current features**

1. Huawei, Vivo, Oppo
   The rise of China vendors and intensifying competition
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**

*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.
The diagram illustrates different types of wireless systems for achieving IoT, categorized by their communication distance and data transmission rate.

**Wireless systems for achieving IoT**

- **LPWA**
  - SIGFOX
  - LoRaWAN

- **Cellular IoT**
  - NB-IoT
  - Cat.M
  - Cat.1

- **3G, LTE, 5G**

- **Wi-Fi**

- **Wireless systems for 1m**
  - NFC
  - Zigbee
  - Z-Wave

- **Wireless systems for >km**
  - Bluetooth

**R&D Solutions for Cellular IoT**

- **MT8821C**
  - Radio Communication Analyzer

- **MD8430A**
  - Signalling Tester

- **Chipset**

- **SiP**
  - (System in Package)

**Main Competitors**

- Rohde & Schwarz
- Keysight
II-3-3. Manufacturing solutions for Smart Devices for IoT

The Number of IoT Devices

- The growth of Connectivity & Module markets for IoT

For WLAN / Bluetooth

MT8862C Wireless Connectivity Test Set

MT8870A Universal Wireless Test Set

Main Competitors: Teradyne, National Instruments, Rohde & Schwarz, Keysight

*Source: World Economic Forum

**SiP (System in Package)
Ⅱ-3-4. Adoption of new technologies in the automotive market and Anritsu’s initiatives

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</thead>
<tbody>
<tr>
<td><strong>Advancement of automated driving</strong></td>
<td></td>
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<tr>
<td>Level 1</td>
<td></td>
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<tr>
<td>Level 2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
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</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**
- Semi-conductors for communication
II - 4. Network Reshaping Test Solutions

Further evolution towards 5G/IoT

Main Competitors
- Viavi (formerly known as JDSU)

RRH: Remote Radio Head
BBU: Base Band Unit

Current LTE Network + 5G Network

Reshaping the Future of Network Test Solution

Integration
- Wireless
- Optical
- Transport (CPRI)
- Wireless

Optimization

[ 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

Equipment (Router, Switch) vendors in Data Center
Optical module vendors
Optical device vendors

DCI High speed communication
10G/40GbitE→100G/200/400GbitE

Cisco Global Index 2015-2020
27% CAGR 2015-2020

Data Center (Zettabytes per Year)
Ⅲ. PQA Business segment
Ⅲ-1. PQA business segments (Products Quality Assurance)

General examples of food production process

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

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

Major customers
- Mondelez, Nestle, Kraft Heinz, Nippon Ham Group, Glico Group, Nissui Group, etc.
Ⅲ-2-1. The growing PQA business < PQA >

### Market Major initiatives

<table>
<thead>
<tr>
<th>Market</th>
<th>GLP 2012</th>
<th>GLP 2014</th>
<th>GLP 2017</th>
<th>GLP 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America, EMEA, Asia</td>
<td>Develop market with X-ray inspection systems as a key solution</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Japan</td>
<td>Improve market share through quality assurance solutions with high added value in response to cutting-edge needs</td>
<td></td>
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</tr>
</tbody>
</table>

### Main Competitors

Mettler-Toledo, Ishida, Marel

### Chart

- **Revenue (Bn. Yen)**
  - FY10: 12.3
  - FY11: 14.2
  - FY12: 14.4
  - FY13: 16.9
  - FY14: 16.2
  - FY15: 18.9
  - FY16: 19.6
  - FY17: 22.5
  - FY18: 23.1
  - FY19: 24.5
  - FY20: 26.0
  - FY20x: Target 30.0

- **Op. margin (%)**
  - FY10: 0
  - FY11: 0
  - FY12: 10
  - FY13: 20
  - FY14: 30
  - FY15: 10
  - FY16: 20
  - FY17: 30
  - FY18: 10
  - FY19: 20
  - FY20: 30
  - FY20x: 30

- **Overseas revenue**
  - FY10: 0
  - FY11: 0
  - FY12: 10
  - FY13: 20
  - FY14: 30
  - FY15: 10
  - FY16: 20
  - FY17: 30
  - FY18: 10
  - FY19: 20
  - FY20: 30
  - FY20x: 30

- **Domestic Revenue**
  - FY10: 0
  - FY11: 0
  - FY12: 10
  - FY13: 20
  - FY14: 30
  - FY15: 10
  - FY16: 20
  - FY17: 30
  - FY18: 10
  - FY19: 20
  - FY20: 30
  - FY20x: 30

**GLP20XX:** Name of Mid-term business plan
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%, 2020: 30%

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

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

- **Japan**
  - Automation and labor saving for production lines in response to a manpower shortage
  - 2017: 15%, 2020: 20%


- **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:** ≥ 60%
- **D/E ratio:** ≤ 30%

### Timeline

- **2011.3**
  - Ratio of net assets to total assets: 60%
- **2012.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
- **2013.3**
  - Ratio of net assets to total assets: 60%
- **2014.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
- **2015.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
- **2016.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
- **2017.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
- **2018.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
- **2019.3**
  - Ratio of net assets to total assets: 60%
  - D/E ratio: 30%
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%

- ACE (B Yen): Operating income after tax - Capital Cost (WACC,5%)
- ROE (%): Return on Equity

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<tbody>
<tr>
<td>1.9</td>
<td>5.2</td>
<td>9.5</td>
<td>4.8</td>
<td>2.5</td>
<td>4.9</td>
<td>3.5</td>
<td>3.7</td>
<td>4.0</td>
<td>8.0</td>
<td>5.0</td>
<td>15</td>
</tr>
<tr>
<td>7.9</td>
<td>19.5</td>
<td>25.0</td>
<td>13.3</td>
<td>10.2</td>
<td>10.9</td>
<td>8.0</td>
<td>8.0</td>
<td>12</td>
<td>15</td>
<td></td>
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</table>

(Revised)
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.
### 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>FY2019 (Forecast)</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>FY2018 (Plan)</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>

*Graph showing payout ratio (%) for the years 2014/3 to 2020/3 (Plan) and (Forecast).*

- **FY2019 (Forecast):**
  - Dividend per share: 22 yen
  - Profit: 7.5 B yen
  - Payout ratio: 40.3%
  - DOE: 3.2%
  - ROE: 8%

- **FY2018 (Plan):**
  - Dividend per share: 22 yen
  - Profit: 9.0 B yen
  - Payout ratio: 33.7%
  - DOE: 3.7%
  - ROE: 10.9%
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

Social axis

SDGs

Business axis

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

Social Issues We Address through Our Business Activities

- **Put into place a safe and secure infrastructure which leads to the building of a sustainable society and encourages innovation**
- **Test and Measure business**
- **Product Quality Assurance business**
- **Informatio and Communications**
- **Devices**

Major Issues in ESG

**Maintaining Harmony with the Global Socio-Economy**
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.
Respect for human rights and diversity / Human resource development / Occupational health and safety / SCM that give due regard to human rights

**Promoting Global Environmental Protection**
Contributing to the creation of a society with sustainable consumption and sustainable corporate production practices.
Reduction in CO2 emissions volume/energy usage volume and water usage volume / developing and manufacturing of high-quality and environmentally friendly products / Supply chain management that lowers environmental burden

**The Creation of Shared Value through the Promotion of Communication**
Contributing to the creation of shared value with collaboration among all stakeholders.
Providing information to and communicating with stakeholders / Establishing compliance as a part of our mind –set / Promoting risk Management
IV-4. Corporate Governance System

For improving competitiveness and continuously enhancing corporate value

[Diagram of corporate governance system with roles and committees]
V. MWC 2019 Report
V -1. Overview of MWC19

MWC 2019, the largest mobile event in the world held in Barcelona, Spain, from February 25 to 28.

The spotlight was on 5G smartphones and foldables.

Many device vendors exhibited 5G smartphones.

- **Samsung Galaxy S10 5G**
- **LG V50 5G**
- **Sony Xperia**
- **Huawei Mate 20**
- **Xiaomi Xiaomi 9**
- **ZTE Axon 10 5G**
- **TCL Alcatel 7 5G**
- **TCL Black Berry**

Foldable smartphones were the center of attention.

- **Huawei Mate X 5G**
- **Samsung Galaxy Fold**
- **TCL Dragon Hinge**
V-2. xR a Standout Among 5G Use Cases

The name “xR” is catching on as an umbrella term for AR, VR, MR and SR. New expressions and uses are growing.

Industrial IoT proposals that take advantage of low latency 5G are increasing.
V -3. Anritsu Booth

Anritsu display covered our full lineup from 5G development to conformance tests, manufacturing and maintenance.

- First showcase of CATR chamber
- Performance test for commercial devices
- RF Conformance test
- Protocol conformance test

**MS2090A**
Field Master Pro
9kHz – 54GHz
First showcase of handheld spectrum analyzer for 5G

**CATR**: Compact Antenna Test Range
V -4. All Eyes on 5G Live Demonstration Example Using MT8000

**Anritsu Booth**

Connectivity tests were conducted with Qualcomm, Sony, MediaTek and Inseego devices.

**Media Tek Booth**

Sub6GHz throughput demonstration
Achieved stable over 4 Gbps
VI. Financial Results for the Fiscal Year ended March 31, 2019
VI- 1. Consolidated performance - Financial results -

Achieved first-year targets of GLP2020

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<tr>
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</thead>
<tbody>
<tr>
<td>Order Intake</td>
<td>88.5</td>
<td>100.8</td>
<td>12.3</td>
<td>14%</td>
</tr>
<tr>
<td>Revenue</td>
<td>86.0</td>
<td>99.7</td>
<td>13.7</td>
<td>16%</td>
</tr>
<tr>
<td>Operating profit (loss)</td>
<td>4.9</td>
<td>11.2</td>
<td>6.3</td>
<td>129%</td>
</tr>
<tr>
<td>Profit (loss) before tax</td>
<td>4.6</td>
<td>11.4</td>
<td>6.8</td>
<td>147%</td>
</tr>
<tr>
<td>Profit (loss)</td>
<td>2.9</td>
<td>9.0</td>
<td>6.1</td>
<td>210%</td>
</tr>
<tr>
<td>Comprehensive income</td>
<td>3.9</td>
<td>9.4</td>
<td>5.5</td>
<td>143%</td>
</tr>
</tbody>
</table>

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

T&M: 25% growth by capturing wave of investment in initial development for 5G

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<tr>
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<tbody>
<tr>
<td><strong>T&amp;M</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>54.4</td>
<td>68.2</td>
<td>13.8</td>
<td>25%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>2.1</td>
<td>9.4</td>
<td>7.3</td>
<td>338%</td>
</tr>
<tr>
<td><em>Adjusted operating profit (loss)</em></td>
<td>2.5</td>
<td>9.4</td>
<td>6.9</td>
<td>274%</td>
</tr>
<tr>
<td><strong>PQA</strong></td>
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</tr>
<tr>
<td>Revenue</td>
<td>22.5</td>
<td>23.1</td>
<td>0.6</td>
<td>2%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>2.0</td>
<td>1.6</td>
<td>(0.4)</td>
<td>-18%</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Revenue</td>
<td>9.0</td>
<td>8.4</td>
<td>(0.6)</td>
<td>-6%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>1.5</td>
<td>1.1</td>
<td>(0.4)</td>
<td>-21%</td>
</tr>
<tr>
<td><strong>Adjustment</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>(0.7)</td>
<td>(0.9)</td>
<td>(0.2)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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</tr>
<tr>
<td>Revenue</td>
<td>86.0</td>
<td>99.7</td>
<td>13.7</td>
<td>16%</td>
</tr>
<tr>
<td>Op. profit (loss)</td>
<td>4.9</td>
<td>11.2</td>
<td>6.3</td>
<td>129%</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.

Note3: Way to allot headquarter administrative expenses to each business segment changed from the year ended March 31, 2019 and figures of operating profit for the year ended March 31, 2018 are restated.

*Adjusted operating profit for T&M is the amount after deducting 0.3 billion yen in restructuring expenses in the U.S.

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

4Q(Jan-Mar.) Operating margin: Consolidated 12%, T&M 15%, PQA 9%

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

Note2: “Adjustment” is included in segment “Others” within the Op. profit(loss).
VI-4. Overview of operations by business segment

<table>
<thead>
<tr>
<th>Segment</th>
<th>FY2018 (April 2018 to March 2019)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T&amp;M</strong> : Steady progress of 5G commercialization schedule</td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td><strong>LTE</strong></td>
</tr>
<tr>
<td>Mobile</td>
<td><strong>5G</strong></td>
</tr>
<tr>
<td>Network Infrastructure</td>
<td>Capital investment within US market was strong</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td>Launch of 5G service in South Korea, preparations for 5G commercialization testing in China</td>
</tr>
<tr>
<td><strong>Americas</strong></td>
<td>Launch of 5G service by major operators</td>
</tr>
<tr>
<td><strong>PQA</strong> :</td>
<td>Continued strong investment by food market for quality assurance, automation, and labor saving both in Japan and overseas</td>
</tr>
</tbody>
</table>

**T&M**: Test & Measurement  
**PQA**: Products Quality Assurance
VI-5. Transition of Order intake

- T&M: 13% growth year on year
- PQA: 8% growth year on year

Note: Numbers are rounded off to the first decimal place in each column.
VI-6. Transition of Revenue by region

Increased revenue from investment in initial development for 5G centered on North America, Asia and Japan

Note: Numbers are rounded off to the first decimal place in each column.
VI-7. Cash Flow (1/2)

Unit: Billion Yen

<table>
<thead>
<tr>
<th>Year</th>
<th>Operating CF</th>
<th>Investing CF</th>
<th>Free CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2011</td>
<td>(2.2)</td>
<td>16.1</td>
<td>14.0</td>
</tr>
<tr>
<td>FY2012</td>
<td>(5.0)</td>
<td>11.8</td>
<td>6.7</td>
</tr>
<tr>
<td>FY2013</td>
<td>(5.3)</td>
<td>13.8</td>
<td>8.5</td>
</tr>
<tr>
<td>FY2014</td>
<td>(6.0)</td>
<td>7.6</td>
<td>1.5</td>
</tr>
<tr>
<td>FY2015</td>
<td>(9.0)</td>
<td>10.2</td>
<td>1.2</td>
</tr>
<tr>
<td>FY2016</td>
<td>(3.7)</td>
<td>9.2</td>
<td>5.6</td>
</tr>
<tr>
<td>FY2017</td>
<td>(3.9)</td>
<td>7.9</td>
<td>4.0</td>
</tr>
<tr>
<td>FY2018</td>
<td>(0.6)</td>
<td>12.2</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Note: Numbers are rounded off to the first decimal place in each column.
VI-7. Cash Flow (2/2)

Operating cash flow margin ratio was 12.3%

**FY2018**
- Operating CF : 12.2 Bn. Yen
- Investing CF : (0.6) Bn. Yen
- Financing CF : (2.1) Bn. Yen

**Free Cash Flow**
- Op. CF + Inv. CF : 11.6 Bn. Yen

**Cash at the end of period**
- 45.1 Bn. Yen

**Interest-bearing debt.**
- 16.2 Bn. Yen

*Note: Numbers are rounded off to the first decimal place in each column.*
### VI-8. Forecast for full year of FY2019 (Consolidated)

**Proactive strategic investments made to strengthen 5G competitiveness**

<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>

**Note 1:** Numbers are rounded off to the first decimal place in each column.

**Note 2:** “Others” and “Adjustments” in this segment information are displayed together as “Others” in the previous forecast (announced on April 26, 2018).

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