Advanced Timing for Our Connected World

All communication and location systems rely on precise clocks. Earth-wide, Rakon makes advanced timing products. Its products provide extremely accurate clocking signals, which are then used to generate precise electrical, radio or optical signals in networks and systems around the globe. Rakon products enable the accurate and efficient transfer of data, time and frequency, at ever increasing speeds. Whether it be within wired, wireless and fibre telecommunications networks, navigation devices, or satellites in space – Rakon’s products enable connectivity.

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Performance Snapshot Financial Year 2016

- Revenue CZK 112.7m
- Underlying EBITDA NZ$9.0m
- NZ$1.7m
- NZ$7.3m

Continued focus on Research & Development (R&D).

New investment opening up opportunities within the Internet of Things (IoT).

Rakon People & Global Locations

North America

Europe

Asia

New Zealand

1. Rakon limited responsibility for any errors arising from theft, damage or other acts.

The Directors present Underlying EBITDA as a useful non-GAAP measure to investors, in order to understand the underlying operating performance of the Group and each operating segment, before the adjustment of specific non-cash charges and before cash impacts relating to the capital structure and tax position. Underlying EBITDA is considered by the Directors to be the closest measure of how each operating segment within the Group is performing. Management uses the non-GAAP measure of Underlying EBITDA internally, to assess the underlying operating performance of the Group and each operating segment. The use of Underlying EBITDA for FY2015 and FY2016 has been extracted from audited financial statements. This document should be read in conjunction with the Rakon Limited Annual Report 2016. A detailed reconciliation of Underlying EBITDA to Net (Loss)/Profit for the year is contained at Note B1 c) of the financial statements.
Chairman’s Report

Dear Shareholders,

Welcome to this, the 11th Annual Report of your company, Rakon Limited.

The result for the financial year under review is a net loss after tax of NZ$13.7 million – a big disappointment to Rakon’s Board and management team. Significant restructuring over the past two years has brought much improved margins from New Zealand (NZ) manufacturing and controls, but unfortunately the large global telecommunications companies chose to invest in spectrum for their new 5G networks rather than build their own infrastructure. This decision had a significant impact on Rakon’s revenue in the telecommunications market segment.

In FY2016, Rakon Limited achieved a revenue of NZ$113.9 million, up from NZ$83.4 million in the previous year. This rise is due to a solid increase in the gross margin of products made in New Zealand resulting from reduced overheads, on a consolidated NZ/UK basis, closer controls and some currency gains.

Underlying EBITDA NZ$000

<table>
<thead>
<tr>
<th></th>
<th>FY2016</th>
<th>FY2015</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>11,399</td>
<td>7,907</td>
<td>3,492</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1,873</td>
<td>3,046</td>
<td>(1,173)</td>
</tr>
<tr>
<td>NZ + UK</td>
<td>13,272</td>
<td>10,953</td>
<td>2,319</td>
</tr>
</tbody>
</table>

The importance of more control resting with New Zealand will not be lost on the Board’s notice and it has been part of the strategy for the past two years to strengthen that position during the next 12 months. Moving forward, Rakon France will have the same margin structure as the Rakon Barter five percent of revenue in the telecommunications market segment.

Most of the products supplying this market come from Rakon France with manufacturing occurring at our joint venture, Centum Rakon India (CRI). Rakon France has not escaped the Board’s notice and it has been part of the strategy for the past two years to strengthen that position during the next 12 months. Moving forward, Rakon France will have the same margin structure as the Rakon Barter Five percent of revenue in the telecommunications market segment.

4. Despite making an after tax loss of NZ$1.7 million for the 2016 fiscal year, the group made a positive comprehensive income of NZ$3.3 million compared to NZ$2.4 million in the previous year. The year’s results from valuation differences in Rakon’s foreign subsidiaries from changing currencies and had the impact of increasing Rakon’s total equity from NZ$284.4 million at 31 March 2015 to NZ$283.4 million at 31 March 2016.

5. Growing business opportunities within both the global positioning and space & defence market segments have been a lot of positive developments at Rakon over the past year worthy of mention.

6. The Thinxtra Investment: Rakon’s investment in Thinxtra is a decision to be part of the coming tsunami of Machine-to-Machine (M2M) connections and the so-called Internet of Things (IoT). The overall opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. Gartner, Inc. predicts the opportunity of this sea change is estimated by McKinsey Global Institute to be a market worth between US$3.9 trillion to US$11.1 trillion by 2025. 

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While Rakon continues to pursue revenue opportunities to expand and diversify our business, just under half of our revenue is still derived from our telecommunications market segment.

Consequently, the decision by major network operators around the world to delay capital expenditure on base stations and other infrastructure during the past year and instead invest in 5G spectrum and in mergers and acquisitions significantly affected our total earnings, and led to our recording what was a disappointing result.

The impact was particularly hard on our joint venture in India and our business unit in France. We have begun restructuring activity in the middle of storms to collect data include meteorology (guiding drones into the middle of storms to collect data for global positioning, which allows Rakon to generate increased activity in the space and defence sectors, which we are confident of maintaining.

As we near our 50 year anniversary, Rakon has consistently been at the forefront of technological change; our involvement with Thinxtra, and through partnership with China’s BDTIC Navigatio System, has allowed us to delay our entry into the internet of things network of choice across both countries.

As noted on page 6, the 14.2 percent reduction in revenue compared to the previous financial year is attributable to the performance of our telecommunications segment, which recorded a 25 percent drop in revenue from FY2015 to NZ$53.4 million. Lower than expected investment in infrastructure by major network operators around the world was also reflected in reduced sales volumes, which we have maintained the significant reductions achieved in FY2015.

Revenues from our New Zealand segment increased 22 percent to NZ$76.7 million, in line with the trend of production and sales from our former UK manufacturing facility to New Zealand Underlying EBITDA of NZ$20 million (down from NZ$15.4 million in FY2015) was achieved in January this year. Reduced sales in the telecommunications segment are reflected in decreased Underlying EBITDA in our Indian joint venture, Centum Rakon India, (NZ$2.5 million, down from NZ$5.5 million) and our business in France (NZ$4.5 million loss, down from NZ$0.5 million). This also resulted in a greater proportion of sales volume being made up of higher value products, which is reflected in our improved gross profit (up 15 percent from FY2015 to NZ$47.9 million) and positive operating cashflow of NZ$10.9 million, (an increase of NZ$10.0 million).

Operating expenses of NZ$47.8 million were up 3 percent on the prior year due to currency translation, meaning we have realised the significant reductions achieved in FY2015. Net debt was reduced by 6 percent to NZ$12.6 million (including an initial $1 million issued in January 2016) and positive operating cashflow of NZ$10.9 million, (an increase of NZ$10.0 million).

Brent Robinson
CEO Managing Director

Financial Summary
For the year to 31 March 2016, Rakon recorded a net loss after tax of NZ$1.7 million, on revenue of NZ$112.7 million. As noted on page 6, the 14.2 percent reduction in revenue compared to the previous financial year is attributable to the performance of our telecommunications segment, which recorded a 25 percent drop in revenue from FY2015 to NZ$53.4 million. Lower than expected investment in infrastructure by major network operators around the world was also reflected in reduced sales volumes, which we have maintained the significant reductions achieved in FY2015.

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A Focus on Innovation
Enabling Next Generation Technologies

Innovating Since 1967
Rakon has a proud history of delivering industry firsts, including: miniature GNSS Temperature Compensated Crystal Oscillator (TCXO), stratum STXCO, high-precision TCXO and lowest noise Oven Controlled Surface Acoustic Wave Oscillator (OCSO) and Digital Pulse Compression Sub-system (DPCSX) – the world’s largest oven-based oscillators.

Winner of Prestigious Industry Awards
Rakon designs its own complete integrated circuits (ASICs) and develops its own production test equipment. This is a unique capability in the Frequency Control Products (FCP) domain – enabling next generation technologies.

Almost Fifty Years of Innovation 1967–2016
Since the 1960s Rakon has continually developed product solutions, helping to enable the next wave of technology.

High Performance and Competitive Pricing
Rakon has five R&D centres worldwide. Rakon’s experience and in-depth knowledge of system requirements enables the development of innovative solutions, tailored to suit its customers’ ecosystems. Manufacturing operations in India and China deliver competitiveness.

Since the 1960s Rakon has continually developed product solutions, helping to enable the next wave of technology.
Strategies and Achievements FY2016

OBJECTIVE
Grow market share in core markets and emerging markets.

Achievements FY2016

Telecommunication

- Maintained Two Tree customers through technology development.
- Strengthened relationships with key Original Design Manufacturers (ODMs) as the Business to Business (B2B) model transfers from Original Equipment Manufacturers (OEMs).
- Design wins through technology development.
- Micro-resonators technology transitions to small formats.
- High speed optical network requirements – demand for smaller networks, resulting in new business for Rakon.

Space and Defence

- Transferred new ASIC technology into satellite space applications at qualification.
- Increased average revenue per account with higher defence customers through targeted sales initiatives and strategic customer collaboration.

Other Markets

- Investment in emerging IoT market through Rakon's expertise in Telecommunications, enabling future business opportunities for Rakon.

Achievements FY2016

Technology Developments

- Next generation ultra stable oscillator (USO) project commenced.
- Standardised Rakon's global quality systems to ensure seamless class quality.
- Focused efforts to enhance and standardise key areas of design quality, production qualification and control of discrete (OCXO) products.
- Transferred new ASIC technology into miniature OCXO product platforms.

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New Products

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## Financial Summary

### Summary of Revenue and Profit/(Loss)

For the year ended 31 March 2016

<table>
<thead>
<tr>
<th></th>
<th>2016 $000s</th>
<th>2015 $000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>112,737</td>
<td>131,417</td>
</tr>
<tr>
<td>Underlying EBITDA¹</td>
<td>9,008</td>
<td>15,369</td>
</tr>
<tr>
<td>Depreciation and amortisation</td>
<td>(6,620)</td>
<td>(7,938)</td>
</tr>
<tr>
<td>Interest (1,125)</td>
<td>(2,118)</td>
<td>(3,600)</td>
</tr>
<tr>
<td>Other non cash item (2)</td>
<td>(1,015)</td>
<td></td>
</tr>
<tr>
<td>Income tax (expense)/credit</td>
<td>(874)</td>
<td>1,646</td>
</tr>
<tr>
<td><strong>Net (loss)/profit after tax</strong></td>
<td><strong>(1,731)</strong></td>
<td><strong>3,190</strong></td>
</tr>
</tbody>
</table>

### Summary of Statement of Cash Flow

For the year ended 31 March 2016

<table>
<thead>
<tr>
<th></th>
<th>2016 $000s</th>
<th>2015 $000s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net cash flow</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Operating activities</td>
<td>7,285</td>
<td>(3,573)</td>
</tr>
<tr>
<td>– Investing activities</td>
<td>(6,594)</td>
<td>(3,601)</td>
</tr>
<tr>
<td>– Financing activities</td>
<td>–</td>
<td>711</td>
</tr>
<tr>
<td><strong>Net increase/(decrease) in cash and cash equivalents</strong></td>
<td><strong>291</strong></td>
<td><strong>(6,463)</strong></td>
</tr>
</tbody>
</table>

Effect of exchange rate changes on cash and cash equivalents 578 433
Cash and cash equivalents at the beginning of the period (1,230) 4,800
Cash and cash equivalents at the end of the period (561) (1,230)

### Balance Sheet

As at 31 March 2016

<table>
<thead>
<tr>
<th></th>
<th>2016 $000s</th>
<th>2015 $000s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>3,370</td>
<td>4,858</td>
</tr>
<tr>
<td>Trade and other receivables</td>
<td>28,812</td>
<td>34,430</td>
</tr>
<tr>
<td>Derivatives – held for trading</td>
<td>227</td>
<td>12</td>
</tr>
<tr>
<td>Derivatives – cash flow hedges</td>
<td>459</td>
<td>281</td>
</tr>
<tr>
<td>Inventories</td>
<td>29,830</td>
<td>28,716</td>
</tr>
<tr>
<td>Income tax expense</td>
<td>1,165</td>
<td>1,260</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td><strong>62,910</strong></td>
<td><strong>68,364</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2016 $000s</th>
<th>2015 $000s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Derivatives – cash flow hedges</td>
<td>1,466</td>
<td>634</td>
</tr>
<tr>
<td>Trade and other receivables</td>
<td>1,165</td>
<td>1,260</td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>17,234</td>
<td>16,912</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>14,850</td>
<td>14,547</td>
</tr>
<tr>
<td>Investment in associates</td>
<td>10,315</td>
<td>8,697</td>
</tr>
<tr>
<td><strong>Total non-current assets</strong></td>
<td><strong>58,366</strong></td>
<td><strong>56,490</strong></td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>121,276</strong></td>
<td><strong>124,854</strong></td>
</tr>
</tbody>
</table>

As at 31 March 2016

<table>
<thead>
<tr>
<th></th>
<th>2016 $000s</th>
<th>2015 $000s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank overdraft</td>
<td>3,931</td>
<td>6,088</td>
</tr>
<tr>
<td>Borrowings</td>
<td>15</td>
<td>139</td>
</tr>
<tr>
<td>Trade and other payables</td>
<td>17,526</td>
<td>21,759</td>
</tr>
<tr>
<td>Derivatives – held for trading</td>
<td>3</td>
<td>103</td>
</tr>
<tr>
<td>Derivatives – cash flow hedges</td>
<td>813</td>
<td>911</td>
</tr>
<tr>
<td>Derivatives – interest rate swaps</td>
<td>330</td>
<td>112</td>
</tr>
<tr>
<td>Provisions</td>
<td>414</td>
<td>1,071</td>
</tr>
<tr>
<td><strong>Total current liabilities</strong></td>
<td><strong>23,032</strong></td>
<td><strong>30,183</strong></td>
</tr>
</tbody>
</table>

Total non-current liabilities 14,816 15,262

Total liabilities 37,848 45,445

**Net assets** 83,428 79,409

**Equity**

<table>
<thead>
<tr>
<th></th>
<th>2016 $000s</th>
<th>2015 $000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share capital</td>
<td>173,881</td>
<td>173,881</td>
</tr>
<tr>
<td>Other reserves</td>
<td>(20,793)</td>
<td>(26,543)</td>
</tr>
<tr>
<td>Accumulated losses (52,685)</td>
<td>(57,923)</td>
<td></td>
</tr>
<tr>
<td><strong>Total equity</strong></td>
<td><strong>83,428</strong></td>
<td><strong>79,409</strong></td>
</tr>
</tbody>
</table>

¹Refer to the footnote on page 2 for explanation of Underlying EBITDA.
Rakon Everywhere
Precision Frequency Control on the Ground, in the Air and in Space

The Global Navigation Satellite System (GNSS) module relies on precise timing and synchronisation. Global Positioning System (GPS), the European Union’s Galileo, China’s Beidou, and Russia’s GLONASS (GPS) are the four major satellites for GNSS. Rakon’s ultra-stable crystals and oscillators create significant opportunities for Rakon’s global positioning business. Telecommunications infrastructure relies on precise timing and synchronisation.

Rakon’s Core Markets

Telecommunications

The equipment which enables telecommunications to operate. Includes base station, microwave transmission, fibre-optics, small cells and emerging markets.

Global Positioning

Includes all GNSS equipment and positioning systems. Applications include Position Navigation Devices (PNDs), high precision positioning, marine-based, automotive and recreation products.

Space & Defence

Applications where reliability as well as precision and performance are critical. This market also includes satellites and other high reliability applications. OCXOs, TCXOs, OCXOs, VICOs, TXOs and Crystals.

Other

There are many applications including the following: wireless control, test and measurement, smart grids and metering, machine-to-machine (M2M), IoT and other new emerging markets. OCXOs, TXOs, VICOs, VICOs, TXOs, VICOs, TXOs, VICOs.

Rakon Products Can be Found in Many International Programmes

Rakon has a long history of providing high-reliability products, with some customers having an association with Rakon for 30 years or more. Its high-reliability solutions are found in applications which require the most stringent performance criteria. Many government and commercial programmes use Rakon oscillators across the globe, in systems where high performance is required under the most demanding conditions.

Rakon Products Can Be Found in Many International Programmes

Includes: European Space Agency (ESA), International Organisation for Standardization (ISO), Japan Aerospace Exploration Agency (JAXA), Korea Aerospace Research Institute (KARI), and NASA. Rakon components can be found on the ground, in calibration and metrology laboratories, in the air, in airborne radar applications, and in space.

Space Product Range and Heritage

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The Internet of Things (IoT) 
A Significant Opportunity for Rakon

What if your fridge could tell you the yoghurt on the back shelf was past its use-by date? What if your clothes dryer could text you that it was time to change the lint filter?

Everyday examples, but they demonstrate the value a fully realised Internet of Things (IoT) will generate, says Brent Robinson.

“The IoT is about getting good data early, so you can anticipate a problem or an opportunity,” he says.

Agriculture is one sector where the new technology could be a game changer.

“A lot of animals are already ‘connected’, via radio frequency identification technology, making it possible to follow an individual animal along the entire supply chain,” says Brent.

“But imagine a tag that monitored the cow’s temperature – and was linked to a sprinkler system in the dairy shed so a farmer could minimise heat stress in the herd and improve milk yields.”

Beyond improving the way we currently do things, the IoT will create new ways of working. For Rakon, the opportunities lie in the new products and technologies that will be required to bring it to life.

With smartphones and other mobile devices to connect the individual user to their IoT ecosystem and cloud computing to translate the vast amount of data generated into useful information, what else does the IoT need to flourish?

“The network technology currently available is based on traditional telecommunications technology. It works – but it is expensive to connect to and very power hungry,” says Brent.

“The SIGFOX network is a dedicated global network designed with the IoT in mind. It has the lowest deployment and maintenance costs of any system proposed, making it viable for a huge number of applications,” he says.

“Based on current market forecasts, we expect Thinxtra’s total number of network connections to overtake total population in Australia and New Zealand by 2022.”

As a cornerstone shareholder in Thinxtra, the SIGFOX Network Operator (SNO) for Australia and New Zealand, Rakon will be part of a worldwide network of potential customers for its innovative component technology.

“Managing such massive amounts of data from such a wide variety of sources will need new infrastructure. Rakon’s track record as an innovator in semiconductors puts us in an ideal position to be a supplier of choice.”

Rakon will continue to develop and expand an innovative product portfolio to meet the demand for products and services associated with connecting to the IoT.

**Forecast for LPWAN connections, worldwide, 2015 – 2023**

<table>
<thead>
<tr>
<th>Year</th>
<th>Connections (Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>0.5</td>
</tr>
<tr>
<td>2016</td>
<td>1.0</td>
</tr>
<tr>
<td>2017</td>
<td>2.5</td>
</tr>
<tr>
<td>2018</td>
<td>4.0</td>
</tr>
<tr>
<td>2019</td>
<td>6.0</td>
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<tr>
<td>2020</td>
<td>12.0</td>
</tr>
<tr>
<td>2021</td>
<td>24.0</td>
</tr>
<tr>
<td>2022</td>
<td>48.8</td>
</tr>
<tr>
<td>2023</td>
<td>97.6</td>
</tr>
</tbody>
</table>

**Source:**; Rakon Ltd, 2016. [http://goo.gl/cyRIMk]
**Application Specific Integrated Circuit (ASIC)**

ASICs are designed for a specific use. Generally, they can be non-standard integrated circuits that have been designed for a specific use. This makes them more cost-effective for high-volume production.

**Distributed Antenna System (DAS)**

DAS is a system of hubs and antennas, where a wireless signal is distributed to a series of individual sites or locations. The main advantage of DAS is that it is flexible and allows for signal distribution to areas that are not easily served by traditional network infrastructure.

**Radio Frequency (RF)**

Radio Frequency is the range of frequencies used for wireless communication. It is measured in gigahertz (GHz).

**Radio Detecting and Ranging (RADAR)**

RADAR technology uses radio waves to detect and locate objects. It is used in various applications, including meteorology, air traffic control, and military defense.

**Surface Mount Device (SMD)**

An electronic device that can be placed on printed circuit boards, replacing through-hole mount technology.

**Surface Mount Technology (SMT)**

A method of manufacturing printed circuit boards where components are mounted on the surface of the board instead of being soldered into holes.

**Technology**

Technology refers to the systems and processes that are used to make products and services. It includes the use of equipment, tools, and materials in a particular field.

**Ultra Wide Band (UWB)**

Ultra Wide Band is a radio technology that uses extremely short bursts of radio waves to reduce interference and increase data rates.

**Wide Area Network (LPWAN)**

LPWAN is a type of wireless network that is designed for low-power, long-range communications. It is used in a variety of applications, including remote monitoring, meter reading, and home automation.

**Wide Area Network (WAN)**

A Wide Area Network is a computer network that extends across an area, such as a city or country, and can be used to connect multiple locations.
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