Fact Sheet

About Rakon
Enabling Global Connectivity

Rakon is a global high technology company and a world leader in its field. It designs and manufactures advanced frequency control and timing solutions.

All communication and location systems require a precise electronic ‘heart beat’ or frequency reference. Rakon’s advanced clocking solutions provide extremely accurate electric signals, which are then used to generate precise electrical, radio or optical signals in systems and extreme environments everywhere.

Rakon products help set the frequency that all communications transmit and receive on. They also hold time and provide a stable timing reference for electronic equipment around the world. This enables synchronised time globally, and the efficient and reliable transfer of data at ever-increasing precision and speed.

Whether it be within wired, wireless and fibre telecommunications networks, navigation devices or satellites in space – Rakon products enable connectivity.

Rakon sells into more than 80 countries. Rakon has six manufacturing plants, including two joint venture plants, and has six research and development centres. Customer support personnel are located in fifteen offices worldwide.

Proud of its New Zealand heritage Rakon was founded in Auckland in 1967. It is a public company listed on the New Zealand stock exchange, NZSX, ticker code RAK.

Group Financial Results

<table>
<thead>
<tr>
<th>NZD Millions</th>
<th>FY2019</th>
<th>FY2018</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>114.0</td>
<td>101.1</td>
<td>94.7</td>
</tr>
<tr>
<td>Underlying EBITDA1</td>
<td>13.3</td>
<td>12.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Depreciation and amortisation</td>
<td>5.8</td>
<td>4.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Net profit/(loss) after tax</td>
<td>3.4</td>
<td>10.0</td>
<td>(13.6)</td>
</tr>
<tr>
<td>Earnings per share (cents)</td>
<td>1.5</td>
<td>4.4</td>
<td>(6.9)</td>
</tr>
<tr>
<td>Operating cash flow</td>
<td>(1.8)</td>
<td>7.9</td>
<td>9.5</td>
</tr>
<tr>
<td>Capital expenditure</td>
<td>7.1</td>
<td>4.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Net cash/(debt)</td>
<td>(7.7)</td>
<td>7.4</td>
<td>(4.5)</td>
</tr>
<tr>
<td>Net cash/(debt) to equity</td>
<td>(8.5%)</td>
<td>8.5%</td>
<td>(6.0%)</td>
</tr>
<tr>
<td>ROE</td>
<td>3.7%</td>
<td>11.5%</td>
<td>(18.2%)</td>
</tr>
</tbody>
</table>

1 New space refers to a globally emerging private spaceflight industry. This includes aerospace companies and ventures working independently of governments and traditional major contractors to develop faster, better and cheaper access to space and space technologies. It includes Low Earth Orbit satellites such as Cubesats.  
2 Definition of Underlying EBITDA: Rakon has used ‘Underlying EBITDA’ as a measure of non-GAAP financial information in this 2019 Review document. Underlying EBITDA is defined as ‘Earnings before interest, tax, depreciation, amortisation, impairment, employee share schemes, non-controlling interests, adjustments for associates and joint venture’s share of interest, tax and depreciation, loss on disposal of assets and other cash and non-cash items (Underlying EBITDA)’.

Underlying EBITDA is a non-GAAP measure that has not been presented in accordance with GAAP. 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 cash and non-cash items 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.

Underlying EBITDA as non-GAAP financial information has been extracted from the financial statements for the year. Except for Underlying EBITDA, other information provided to the chief operating decision maker is measured in a manner consistent with GAAP. The Directors provide a reconciliation of Underlying EBITDA to net profit for the year, refer note B1 c) of the Rakon Limited Annual Report 2019.

Strategic Focus

Rakon is focused on generating shareholder and stakeholder value. Its core focus is on delivering higher value, technologically advanced products. With a customer portfolio of global leaders in their respective markets, Rakon’s strengths lie in its disruptive technologies coupled with comprehensive application knowledge. Focus is on enabling next generation technologies, operational excellence and retaining or securing ‘preferred supplier’ status with leading Tier One companies in the telecommunication, global positioning and space & defence markets.

The acquisition of the remaining 51% of Centum Rakon India Private Limited (‘CRI’) was completed in May 2018 and is in line with the Group’s manufacturing strategy to have a low-cost operating platform suitable for future growth. CRI was renamed Rakon India Private Limited (‘Rakon India’) in November 2018 and the integration of Rakon India into the wider Rakon Group completed end of June 2019.

In FY2019 new executive positions (Global Head of Engineering and Company Secretary) were established and a refreshed Board is in place (new Director and Chair appointed).

In FY2019 Revenue growth came from the telecommunications market with 4.5G and 5G demand, and from growth in the defence market. The roll-out of 5G is expected to support revenue growth, with Rakon products already designed in by many Tier One customers. Focus is on delivery to meet existing demand. In addition, Rakon is focused on the development and release of new products and specifications to meet the ever-increasing requirements for higher speed data and ‘New Space’1 applications.

In FY2018 and FY2019 the company achieved solid progress with strategic objectives focused on manufacturing partnerships and platforms. In FY2018, Rakon completed the transfer of a technology license to its manufacturing partner and cornerstone shareholder Siward Crystal Technology Co. Limited (‘Siward’) is mostly complete. Siward is manufacturing Rakon components primarily used for Global Navigation Satellite System (GNSS) and the location based services market and holds a 16.6% share in the company.

Siward is a well-established and highly successful crystal manufacturer and the strategic partnership gives both companies a broader range of products and alternative channels, into new and existing markets.
## Products and Markets

<table>
<thead>
<tr>
<th>MARKET DEFINITION</th>
<th>Telecommunications</th>
<th>Global Positioning</th>
<th>Space &amp; Defence</th>
<th>Emerging &amp; Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRODUCTS</strong></td>
<td>OCXOs, TCXOs, VCXOs and XOs.</td>
<td>TCXOs, XO and Crystals</td>
<td>Sub-systems, OCSOs, USOs, OCXOs, TCXOs, VCSOs, XOs, VCOs and Crystals.</td>
<td>OCSOs, OCSOs, TCXOs, VCTOs, XO and Crystals.</td>
</tr>
</tbody>
</table>

### PRINCIPAL MANUFACTURING LOCATIONS
- India
- NZ
- France
- NZ
- India
- NZ
- China

### RESEARCH AND DEVELOPMENT
- France
- NZ
- UK
- NZ
- UK
- France
- NZ
- India
- NZ
- UK

### SHARE OF REVENUE FY2019
- Telecommunications: 47%
- Global Positioning: 18%
- Space & Defence: 28%
- Emerging & Other: 7%

### Key Points from FY2019
- Roll-out of 5G continues to provide its biggest opportunity and challenge.
- Rakon is well positioned, with a good share of business awarded by Tier One customers. The challenge is to meet existing demand and continue to bring new products to market that meet the higher specifications demanded by 5G applications.
- Rakon had 25% growth in revenue in this market (On a USS basis). Rakon India delivered a significant portion of the growth, with Rakon increasing its share for mobile base stations. Rakon NZ also had good growth with products designed into beginning of 5G roll-out.
- Rakon expects to maintain and grow market share as 5G is deployed globally. The industry predicts a roll-out of at least 5 years as the technology is released in phases.
- Revenue was down 15% overall. Rakon’s high volume GNSS business was lower due to transfers of production into the Siward factory and the build up of inventory by a key customer in a prior year. Industrial high precision GNSS was down, particularly from the US agricultural and mining equipment sector, due to global trade uncertainty.
- The emergency locator beacon market returned to long-term average levels after the bubble in FY2018 due to frequency and band changes.
- A design win was achieved with an autonomous electric car manufacturer, opening up opportunities. Rakon has a key competitive advantage in this area, giving its ability to design and manufacture exacting high performance products that can manage environmental differences.
- Competition expected in lower end market in Asia. Partnering with Siward enables Rakon to provide a wide offering to meet high volume, low cost production.
- The higher margin space & defence business experienced moderate growth, with higher defence spending in North America and Europe offset by lower spending in Asia.
- Defence revenue (on a US$basis), maintained the higher levels of FY2018 (up by 35% in that period).
- Rakon’s space revenue grew 15% overall (on a USS basis), with the inclusion of Rakon India’s domestic space business. European space business was lower as the market transitions to new Low Earth Orbit (LEO) satellite technology and away from traditional, larger, geosynchronous orbit satellites. A key design win has been achieved in a new project which is part of a new industry called New Space.
- New and emerging markets offer key opportunities and are a hotbed for Rakon’s new products and technology.
- The IoT is a rapidly growing market with opportunities for end point/node/IoT module timing requirements.
- There are many new applications and revenue was up 24% for the emerging & other market, when compared to FY2018. As this high volume, lower margin business grows, Rakon is realising value through its partnership with Siward and through its designs and customer relationships.
- Rakon is leveraging its investment and relationship with Thinxtra for the IoT. As at 31 March 2019 Rakon held a 21.4% shareholding in Thinxtra.
- There are many emerging 5G possibilities such as Virtual and Augmented Reality (VR & AR), Artificial Intelligence (AI) and the many applications that will require ultra-high speed and ultra-low latency.
Business and Strategic Focus

Governance and Leadership

Bruce Irvine – Independent Chair
Chair and Independent Director. Appointed to the Board in 2005. Bruce was Managing Partner of Deloitte Christchurch from 1995 until his retirement in 2007 to focus on his director roles. Bruce is a professional Director with extensive experience across a wide range of industries. He is a Chartered Fellow of the Institute of Directors, as well as an Accredited Fellow of Chartered Accountants Australia and New Zealand (CAANZ). He is currently Chair of Heartland Bank Limited, Market Gardeners Limited and Skope Industries Limited. He is also a Director of Scenic Hotel Group Limited, House of Travel Holdings Limited and Gough Group Holdings Limited. Bruce is involved in a voluntary capacity as a Trustee of Christchurch Symphony Trust.

Board of Directors
Bruce Irvine (Independent Chair), Brent Robinson (Executive Director), Yin Tang Tseng (Non-Executive Director), Keith Oliver (Independent Director), Lorraine Witten (Independent Director) and Keith Watson (Independent Director).

Brent Robinson – Executive Director (Managing Director and CEO)
Brent Robinson was first appointed to the Board in 2005. He has 40 years at Rakon which has includes establishing global operations and markets and 33 years as CEO / Managing Director. In his capacity as Chief Technology Officer, Brent drives the business’ technology and innovation. Under Brent’s leadership Rakon has grown into a global business and a recognised leader in the frequency control product industry. Brent is an Honorary Fellow of the Institution of Professional Engineers New Zealand. He was awarded the New Zealand Hi-Tech Trust Flying Kiwi Award in 2011.

Anand Rambhai – Chief Financial Officer
Anand joined Rakon in January 2012 and was appointed CFO in November 2018. Anand brings strong leadership, commercial skills and in-depth Rakon business knowledge to the company. In his current role he is responsible for Rakon’s finance, information systems and investor relations functions. Anand has gained broad financial and commercial experience in previous roles, including as GM of Finance and General Manager. His previous experience includes tenures at Sony, British Telecom and Deloitte. Anand is a member of Chartered Accountants Australia and New Zealand (CAANZ).

Group Executive
Brent Robinson (Managing Director/CEO); Anand Rambhai (Chief Financial Officer); Darren Robinson (Sales and Marketing Director); Dr. Sinan Altug (Managing Director, Europe); Margo Thomas (General Manager – People & Capability); Scott Stepmper (Global Quality Manager); Roy Cann (Head of Global Engineering); Cliff Hand (Senior Programme Manager, Global Integration) and Maureen Shaddick (Company Secretary).

Rakon Share Price

Financial Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 August 2019</td>
<td>Annual Shareholders’ Meeting</td>
</tr>
<tr>
<td>14 November 2019</td>
<td>HY2020 Results</td>
</tr>
<tr>
<td>12 December 2019</td>
<td>HY2020 Interim Report</td>
</tr>
<tr>
<td>May 2020</td>
<td>FY2020 Results</td>
</tr>
<tr>
<td>June 2020</td>
<td>FY2020 Annual Report</td>
</tr>
</tbody>
</table>

Dividend Policy
Rakon maintains a dividend policy such that it will pay a dividend of up to 50% of the after tax profit, if considered fiscally appropriate.
**Glossary**

**Crystal Oscillator (XO)**
An XO is a quartz crystal combined with basic oscillation circuitry to generate a repeating electric signal.

**Crystal Resonator (Xtal)**
At the heart of XOs, VCXOs, TCXOs and OCXOs are quartz crystals, which are designed to resonate with electrical stimulation using the piezoelectric effect.

**Oscillator**
A circuit or device that generates a repetitive electric signal and consists of a resonator and electronic components.

**Oven Controlled Crystal Oscillator (OCXO)**
A crystal oscillator that uses a miniaturised oven to keep its internal temperature constant.

**Oven Controlled SAW Oscillator (OCSEO)**
An oven controlled oscillator using Surface Acoustic Wave (SAW) technology instead of a quartz crystal.

**Sub-system**
A fully programmable system solution used to upgrade an existing radar, improve performance and extend its life.

**Surface Acoustic Wave (SAW) Resonator**
At the heart of SAW oscillators are SAW resonators that use the piezoelectric effect to generate electrically stimulated acoustic waves at a resonant frequency.

**Temperature Compensated Crystal Oscillator (TCXO)**
A quartz crystal with additional circuitry to remove frequency variations due to temperature change.

**Ultra Stable Oscillator (USO)**
An extremely stable oscillator used in high-end space and instrumentation applications.

**Voltage Controlled Crystal Oscillator (VCXO)**
A crystal oscillator with an adjustable output frequency.

**Voltage Controlled Oscillator (VCO)**
A purely electronic oscillator circuit with an adjustable output frequency, without the use of a crystal or SAW resonator.

**Voltage Controlled SAW Oscillator (VCSO)**
A SAW oscillator with an adjustable output frequency.

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**Highlights**

**Innovating Since 1967**
A proud history of delivering industry ‘firsts’ including: miniature GNSS TCXO, stratum 3 TCXO, high g-shock TCXO and lowest g-sensitivity Surface Mount Device (SMD) TCXO, emergency beacon TCXO, Long Term Evolution (LTE) small cell TCXO, Application Specific Integrated Circuit (ASIC) based OCXO and Sub-systems for radars.

**In-House ASIC and Test Equipment Teams – Key Differentiator**
Rakon designs its own oscillator ASICs and develops its own production test equipment. This is a unique capability in the Frequency Control Product (FCP) domain – enabling next generation technologies.

**High Performance and Competitive Pricing**
Six Rakon R&D centres worldwide with a 50+ year history. Rakon’s experience and in-depth knowledge of system requirements, enables the development of innovative solutions, tailored to suit its customers’ ecosystems. Rakon has manufacturing operations in New Zealand, India and France and two JV partner facilities in China. It also has manufacturing partners in Thailand and Taiwan.

**Winner of Prestigious Industry Awards**
Awards include the coveted ‘Queen’s Award for Enterprise – International Trade’, New Zealand’s ‘Hi-Tech Company of the Year’ and ‘Hi-Tech Company of the Decade’, ‘Hi-Tech Exporter of the Year Award’, ‘Supreme Winner’, as well as a number of supplier awards.

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**Company Information**

**Share Listing**
Listed on NZX Main Board (NZSX)
Code: RAK
Share price as at 1 July 2019: NZ$0.265
Shares on issue as at 1 July 2019: 229,055,272
Market capitalisation: NZ$60,700,000
Financial year end: 31 March 2019

**Share Registry**
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**Company Advisers**
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Principal Lawyers: Bell Gully
Bankers: ASB Bank

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