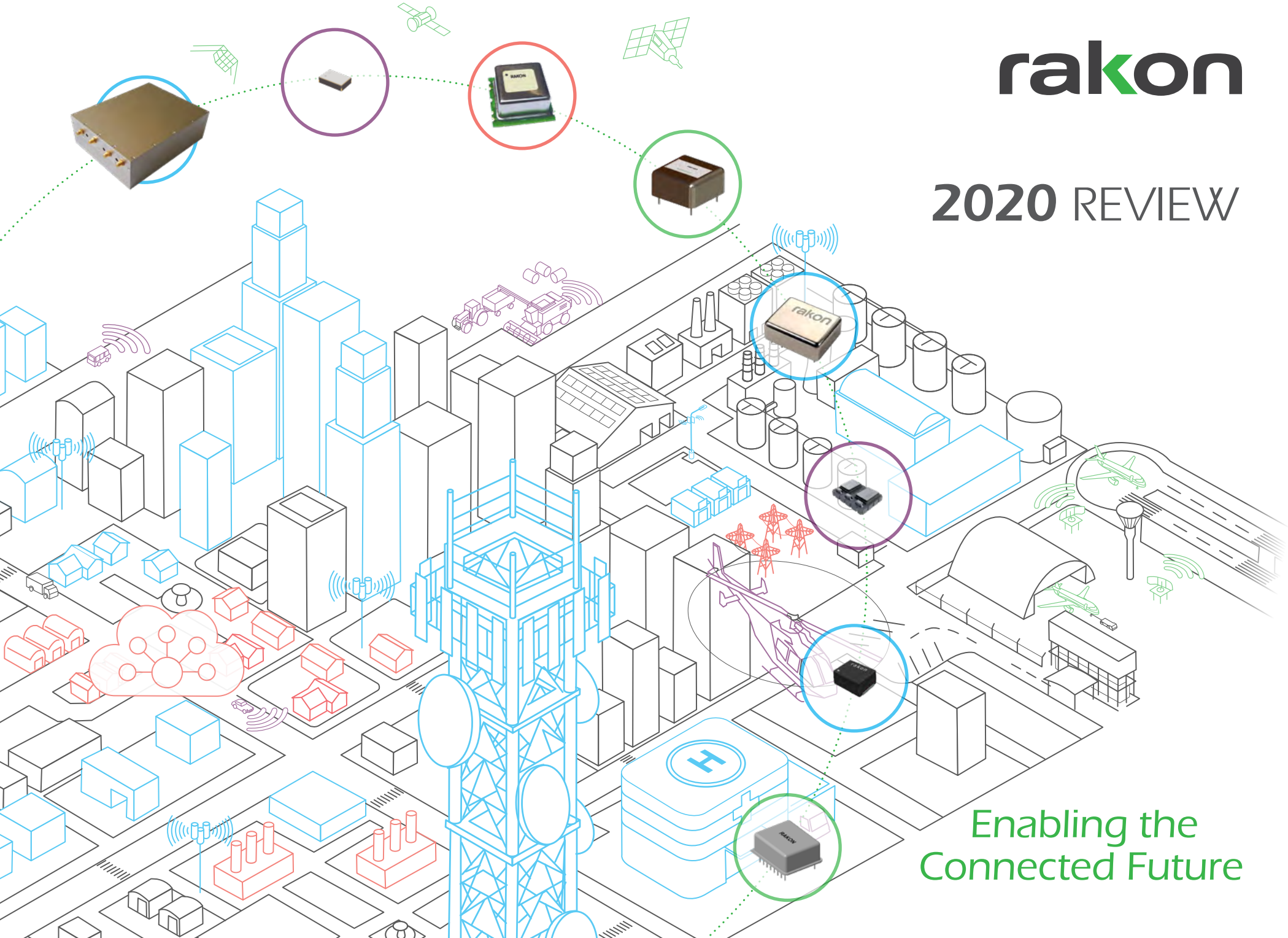


rakon

2020 REVIEW

Enabling the Connected Future

Performance Snapshot Financial Year 2020

12 months ended 31 March 2020.

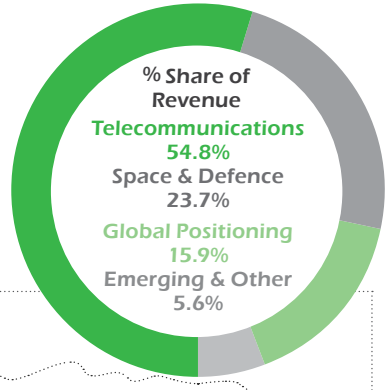
REVENUE ▲ 4.4% **$119.0m**

UNDERLYING EBITDA[1] ▲ 11.4% **$14.8m**

NET PROFIT AFTER TAX ▲ 18.3% **$4.0m**

OPERATING CASH FLOW FY2020 **$9.4m** FY2019 **-$1.8m**

All amounts in this document are in NZ$ unless otherwise specified.



At a Glance

53 years of operation

Global platform over **4 continents**

950+ people, more than **40** nationalities represented

Core markets – **telecommunications,** space & defence, global positioning

Strategic supplier to some of the **largest** telecommunications equipment companies

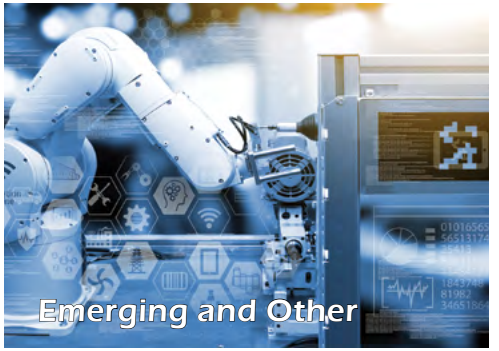
3 manufacturing, **6** Research and Development (R&D) centres, **16** customer support locations

Selling into **60+ countries** in FY2020

In **worldwide** government and **commercial** programmes where high performance is critical

Since Rakon's inception, approximately **1 billion products** manufactured for applications **everywhere**

[1] Refer to the footnote on page 19 for the definition of Underlying EBITDA as a measure of non-GAAP financial information, referred to in this document.



Connectivity, Anytime, Anywhere

Rakon designs and manufactures world leading frequency control and timing solutions. Its products help set the frequencies 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. Precise timing is required for demanding applications within Rakon's three core markets of telecommunications, global positioning and space & defence.

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5G is making a myriad of applications possible
"With dominant share allocations from key Tier One customers secured, our products are being designed into all the main network providers' 5G equipment."
Brent Robinson, CEO / Managing Director

Tribute to Our Founder

A commitment to excellence that started a journey of frequency control innovation spanning more than 50 years

Inside Rakon's previous facility in Mt Eden, Auckland which opened in 1971.

Warren John Robinson
7 January 1935 – 10 September 2019

Sadly our founder Warren Robinson passed away during the year, at the age of 84. We pay tribute to an electronics innovator, a business leader and a great New Zealander.

From a young age, Warren had a curious mind. His fascination with electronics led him to build a radio at the age of 15 and he became one of the youngest in New Zealand to receive an amateur radio license. This hobby led him to spend time as a technical trainee at the New Zealand Broadcasting Service.

Warren then went to work for Electronic Navigation as a technician in marine electronics. He built his first radio telephone as the firm made Skipper marine radio telephones for small ships and 'pleasure craft.'

While at Electronic Navigation, Warren met Henri Klok who had experience in the marine electronics business. Warren went on to form a company in partnership with Henri. They designed a new radio telephone, giving it the trade name 'Marlin', and registered it under their company, Marlin Electronics Limited. Warren and Henri ran Marlin Electronics from 1955 until 1965 before deciding to sell out to Autocrat Radio. While at Marlin Electronics, Warren had experienced the frustration of crystals taking up to three or four months to be delivered. The large gap in the market for locally made crystals was too big to ignore, so he decided to make his own at his garage in Howick, Auckland.

Rakon was founded in 1967. As the business grew, premises were set up initially in Newmarket, Auckland and in 1971 the company moved to Mt Eden and had a team of 30–40 staff. Warren then temporarily moved to Singapore with his family and established a manufacturing plant there in 1972. Over the years the business evolved, to become the global company that it is today. Warren continued as Chair and a director of the company until 2006 when it went public and listed on the New Zealand stock exchange (NZX). Warren then became a director of the public company and continued in that role until stepping down from the Board in 2017. He continued to maintain a keen interest in the success of the company.

In his later years, Warren continued to push the envelope developing an olive grove and vineyard on his estate on Waiheke Island, where he produced his own olive oil and wine. His fascination with technology never wavered. He continued with his lifelong interest in amateur radio. His choice of vehicle in retirement . . . an electric car.

Those of us at Rakon privileged to know Warren recall fondly a great man, who always made it a priority to engage with our people.

Warren, your accomplishments will forever be embedded within our history and your curiosity and passion for electronics will continue to live on in the curious minds you have enabled.

Chair's and CEO's Report

Welcome to the 2020 Annual Review of your company Rakon Limited ('Rakon' or the 'Group').

Continued growth in the telecommunications segment and positive operating cash flow of $9.4m were highlights for the Financial Year ended 31 March 2020 (FY2020). Rakon reported a net profit after tax of $4.0m compared with $3.4m in FY2019.

Underlying EBITDA[2] was $14.8m compared with $13.3m in FY2019. FY2020 included a positive impact of $3.1m from the adoption of IFRS 16 Leases. Excluding this, Underlying EBITDA is $11.7m. This reflects a much stronger than expected finish to the year, predominantly from the growing telecommunications segment.

Revenue of $119.0m was $5.0m higher, or up 4%, for the period, with telecommunications increasing by $11.6m. This was offset by declines of $3.4m in space & defence (phasing of long-term customer contracts) and $1.6m in global positioning (a decline of low-margin, high-volume business). It was pleasing to see the growth in revenue starting to come through in the last quarter from higher share of business awarded to Rakon from its Tier One telecommunications customers.

Gross profit was $52.0m, in line with the prior year. Although improved product mix provided better underlying gross profit, additional inventory obsolescence meant the overall gross profit was flat. Operating expenses for the year were $48.1m, up $0.7m compared to the prior year.

Net debt[3] was $7.9m, up $0.2m on the prior year. This included a final payment of $2.1m for the acquisition of the remaining 51% interest in Rakon India. Rakon's shareholders' equity stands at $91.9m, funding 61% of total assets.

Operational Overview

COVID-19

While COVID-19 had a negative short-term impact on the Group, with our manufacturing operations in New Zealand and India severely restricted for periods of time, the medium-term to long-term effects are not expected to be significantly negative. COVID-19 has increased the reliance on remote communications, reliable telecommunications infrastructure and higher network capacities, reinforcing the importance of Rakon in the global telecommunications supply chain.

Rakon had a strong finish to the year with revenue and order bookings despite our global team being affected by the pandemic, with many required to work from home.

New products & XMEMS™ [4]

It was pleasing to see a number of new products and variants of existing products introduced to the market during the year, and an increase in orders for Rakon's 5G offering.

Customers are demonstrating a strong preference for Rakon's quartz-based products over silicon-based competition, with higher shares awarded to Rakon from major Tier One telecommunications customers.

Rakon released XMEMS™ during the year, its key quartz-based technology for future products. XMEMS™ is our advanced resonator technology made with our NanoQuartz™ photolithography microfabrication process on quartz wafers, which is delivering unprecedented resonator and oscillator performance.

XMEMS™ coupled with Rakon's innovative proprietary semiconductor Application Specific Integrated Circuits (ASICs) enables the creation of new products not possible using conventional mechanical processing methods which are smaller, higher performing and more cost-effective.

Market update

Telecommunications

As mentioned, telecommunications grew strongly, with revenue up 15% in USD terms this year compared with FY2019. The 5G segment contributed 43% of this growth and new 5G products showed 150% year-on-year growth, mostly out of the New Zealand plant. These products are going into early deployments of 5G in South Korea, China and the US. Of particular note were the higher revenues from the data centres market as data centre operators invested to meet the growing worldwide data demand.

Outlook

The outlook for the telecommunications segment continues to be positive with all three mobile operators in China deploying 5G networks, and the continuing demand for stable, reliable and greater capacity communications networks accentuated by COVID-19. Balancing this is the intensifying geopolitical uncertainty, which is creating volatility in customer forecasts.

Space and Defence

Rakon's space revenue dropped 13% in USD terms, due predominantly to the phasing of long-term multi-year projects. The prior year also included a significant initial order for products going into the first Low Earth Orbit (LEO) satellite network in China.

Although overall revenue was lower, it was pleasing to see our European space business

[2] Refer to the footnote on page 19 for the definition of Underlying EBITDA as a measure of non-GAAP financial information, referred to in this document.

[3] Net debt within this document excludes IFRS 16 lease liabilities.

[4] Acronyms and definitions are explained in the Glossary on page 19.

Chair's and CEO's Report

increasing, with some of Rakon's traditional geostationary satellite business returning during the year.

The defence segment lost some of the gains from the last two years, with USD revenue down 15%. While the US market held firm, the negative impact came out of Europe.

Outlook
Current bookings indicate some revenue growth in both space and defence, including Rakon India having won new contracts for supplying the local Indian market and good forward orders for Space OCXOs[5] used in a US satellite application. In the meantime progress continues to be made in the New Space[6] LEO market, but it will take time for this revenue to grow.

Global Positioning
Global positioning revenue declined 25% in USD terms, predominantly due to one customer where high-volume, low-margin business declined. The industrial high precision Global Navigation Satellite System (GNSS) segment (including agricultural and mining equipment) was flat, with gains made in the first half offset by a lower second half, the latter being affected by the US/China trade issues. It was pleasing to see the emergency locator beacon market segment growing 7%.

Outlook
Rakon's market share is increasing in the high precision sub-segment for low *g*-sensitivity products and this trend is expected to continue.

In the high-volume sub-segment, competitive pressures from global positioning module makers in Asia are expected to increase price pressure; however with our partnership with low-cost manufacturer Taiwan-based Siward Crystal Technology Co. Limited ('Siward') Rakon is expected to remain competitive.

[5] Product acronyms and definitions are explained in the Glossary on page 19.

[6] 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.

[7] Icons represent Rakon's areas of strategic focus. Refer to graphic on page 9.

Corporate Governance

The Board was deeply saddened by the passing of Rakon's founder and former Chair and director Warren Robinson in September. We would like to acknowledge Warren's outstanding contribution to New Zealand's technology sector and his 50+ year dedication and commitment to our company. Warren was a remarkable New Zealander and formed strong connections with our people. He will be sorely missed.

FY2020 was a year of consolidation of the new team of directors completed in late 2018 and strengthening of governance practices, and there was a particular focus on key organisational and operational matters that would drive company performance. Looking forward, following a review of company strategy, the Board is seeking improved results through gross profit growth and continued focus on the development of best-in-class technology for existing and new customers.

The Board has appreciated the efforts of the whole Rakon team in responding to the COVID-19 pandemic, both as it emerged in the latter months of FY2020 and as the lockdowns and restrictions were imposed across the world affecting our operations, our supply chains, our customers and the day-to-day lives of our people. Amidst the immense uncertainty caused by the pandemic, Rakon employees rallied to support the business and to meet the requirements of our customers. They did so while working at Rakon's manufacturing sites, where permitted, under strict health and safety protocols or, where practical, working from home; and having agreed to take a pay reduction. As part of the supply chain for essential communications and civil defence services, it was important to stay connected with our suppliers and understand delivery logistics to meet our customers' requirements to the extent possible.

We also appreciated the efforts of our fellow directors who took a 50% reduction in their fees and met more frequently to support management through the crisis.

Closing Comments and Outlook
At this point in time we seem to be through the worst of COVID-19's impact and we were fortunate that there were no permanent effects for our staff personally. With our global manufacturing operations largely back to normal, Rakon is well positioned for the rest of FY2021.

We expect the coming period to show continuing growth in telecommunications, tempered by potential uncertainties from geopolitical tensions within the telecommunications market.

Rakon's XMEMS™ technology will continue to be developed and commercialised, and will be more important to Rakon's longer-term future as it becomes a key point of difference with regard to competitors.

Bruce Irvine
Chair

Brent Robinson
CEO / Managing Director

Margo Thomas
General Manager, Global People & Capability, Auckland, NZ

I continue to be inspired by the depth of global talent we have across Rakon. Our people 'drive hard' to ensure we continue to lead from the front in our fields of expertise to maintain our professional excellence.

Financial Year 2020 Performance Summary

- Revenue of $119.0m vs. $114.0m in FY2019.
- Underlying EBITDA of $14.8m vs. $13.3m in FY2019.
- Net profit after tax of $4.0m vs. $3.4m in FY2019.
- Net debt was $7.9m vs. $7.7m in FY2019.

The Surface Mount Technology area at Rakon's Auckland facility prior to the COVID-19 health emergency. While manufacturing operations in New Zealand and India were severely restricted for a period of time, the medium-term to long-term effects are not expected to be significantly negative.

Board of Directors

Read full biographies at:
www.rakon.com/corporate/investor/ir-gov/ir-bod

Bruce Irvine
Chair and Independent Director

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 and House of Travel Holdings Limited and a number of other private companies.

Brent Robinson
Executive Director

Brent has 41 years at Rakon, which includes establishing global operations and markets and 34 years as CEO / Managing Director.

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.

Lorraine Witten
Independent Director

Lorraine is a professional director with extensive experience in technology and Information Communications Technology (ICT) sectors. She is a Chartered Fellow of the New Zealand Institute of Directors and a member of Chartered Accountants Australia and New Zealand (CAANZ).

Lorraine is Chair of the Corrections Department Audit & Risk Committee and a director of TIL Logistics Group Limited and Horizon Energy Group. She is also Chair of Simply Security Limited, a company she founded in 2007, and Chair of vWork Limited.

Yin Tang Tseng
Non-Executive Director

Yin Tang (Tony) is the current Chair of Siward Crystal Technology Co. Limited, a substantial shareholder (16.6%) in Rakon.

Tony has more than 30 years of experience in the frequency control product industry, having founded Siward in 1988 and grown the company to become one of the leaders in the industry globally, with revenue of US$100+ million. Tony is a director of Securitag Assembly Group Limited.

Keith Oliver
Independent Director

Keith is a professional director and a business advisor with Alto Capital, where he is also a director. He is a past director of a range of NZ technology companies operating in international markets in Asia, Europe and the Americas, several of which he has been a founder and investor in.

Keith is currently the Executive Chair of Blackhawk Tracking Systems Limited and a director of Wellington Drive Technologies Limited.

Keith Watson
Independent Director

Keith is a professional director with substantial experience in the technology and engineering sectors. He is a Chartered Member of the Institute of Directors in New Zealand. Keith has governance, management and leadership experience in companies across the Asia Pacific region, the Americas, Central Europe, the UK, Australia and New Zealand.

Keith is currently the Chair of the New Zealand Institute of Economic Research (NZIER) and a director of Acumen Republic Limited, Taska Prosthetics Limited and Complete 3D.

Business and Strategic Focus

rakon

INPUTS

- 950+ global team Global platform
- Strong ecosystem partnerships & customer relationships
- Investment in R&D
- Our 53-year trusted brand
- Deep application expertise

OUTPUTS

- Enabling applications that change the way we live our lives
- Enabling our customers to advance technology
- Improved service and efficiencies for our customers
- Increased shareholder value
- Growth of our people

Karl Ward
Principal Design Engineer, Harlow, UK

Rakon is uniquely positioned in the frequency control product industry with its own in-house ASIC design team. Our experienced team produces advanced designs for Rakon products, strengthening and extending performance ranges, allowing us to meet future market demands.

Global Executive Team

Biographies are available at:
www.rakon.com/corporate/investor/ir-gov/ir-mgmt

Brent Robinson
CEO / Managing Director &
Chief Technology Officer

Brent was appointed Managing Director and Chief Executive Officer in 1986. Under Brent's leadership, Rakon has grown into a global company and recognised leader in the frequency control product industry with revenue of $119.0m in FY2020.

In his capacity as Chief Technology Officer, Brent oversees the business's technology and innovation. He has 41 years' experience at Rakon in the design and manufacture of crystals and oscillators, which has included leading the development of Rakon's core business.

Darren Robinson
Chief Marketing Officer

Darren has led sales and marketing since 1990, having earlier held various roles with the company in New Zealand and overseas. He has been instrumental in the company's expansion into new markets, its commercialisation of new applications and its development of business relationships with many Fortune 500 companies.

Through Darren's in-depth understanding of the markets Rakon competes in, he also plays an integral part in steering its R&D efforts. He guides product development teams to meet new requirements in emerging applications and solve problems for customers.

Dr. Sinan Altug
Chief Operating Officer

Sinan joined Rakon in 2002 and commenced as COO in January 2020. In this newly created position he leads, aligns and drives the company's global operations to best meet customer demand and create profitable growth.

Other senior positions held by Sinan include Managing Director of Rakon's European businesses and Global Business Development Director. Sinan held various management positions in the frequency control product industry before joining Rakon, including Director of European Operations for Champion Technologies. He has a PhD in Electrical Engineering and an MBA.

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).

Margo Thomas
General Manager,
Global People and Capability

Margo joined Rakon in January 2016. In her current role she is responsible for all global Human Resources (HR) strategy, policies and processes including organisational alignment, talent acquisition, leadership development, change management, employment relations and health and safety.

Prior to this, she held the position of General Manager of People and Capability New Zealand. Margo has 20 years' experience working in HR including senior HR positions in a range of industries with Crowe Horwath, Spark, Westpac and New Zealand Post.

Scott Stemper
Global Quality Manager

Scott joined Rakon in January 2015. He leads the development and improvement of quality processes and systems to enhance Rakon's drive to be the leading provider of world-class frequency control products.

Scott's background includes ten years as Global Quality Manager with Raltron Electronics Corporation and 20 years with CTS Frequency Controls in oscillator product engineering and quality management roles. He has also held senior quality management positions with L3 Technologies and D&S Consultants Incorporated.

Dr. Roy Cann
Head of Global Engineering

Roy joined Rakon in May 2018 as Head of Global Engineering. He is responsible for driving new product developments and leveraging the benefits of a collaborative global R&D team.

Prior to joining Rakon, Roy held the position of Electronic Controls Design Manager at Fisher and Paykel Technologies, where he was responsible for the design and supply chain management of high volume microprocessor-based motor controllers across New Zealand and China.

Prior to this, Roy was an Engineering Director at Trimble for five years. He has held a number of other senior roles with multi-site responsibilities, including positions with Avery Weightronix (UK), Rolls-Royce Aerospace (UK), Meissner Power Systems (South Africa), and Connetics (NZ). Roy holds a PhD in Electrical Engineering.

Maureen Shaddick
Company Secretary

Maureen joined Rakon in November 2018. She provides legal, company secretarial and regulatory advice and support. She has more than 25 years' experience as a commercial lawyer and governance adviser in private practice, corporates and not-for-profit organisations in New Zealand, London and Dubai.

Maureen was the General Counsel and Company Secretary of Genesis Energy from 2003 to 2016. She is the Chair of Cancer Research Trust New Zealand and has been a Trustee since 2003. She has also held a number of other not-for-profit governance roles.

Borja Thomas (Thomas)
Head of Global Product
Management

Thomas joined Rakon in April 2015. In his current role he is responsible for generating and growing profit for the business through its existing and future product offering.

His previous senior positions at Rakon include Head of Product Management New Zealand and Senior Product Line Manager.

Prior to joining Rakon, Thomas was a Product Line Manager for Nexans (formerly Alcatel) in France and led the launch of two new product lines addressing the smart grid and electric vehicle markets.

Thomas has also spent time in Europe in product consultancy roles in France and began his career as an R&D Engineer in the UK.

Arun Parasnis
Managing Director,
Rakon India

Arun joined Rakon in October 2018 and is responsible for overseeing all business functions at Rakon India.

Arun has had 30 years of experience in the electronics industry, overseeing functions including engineering, operations, business development and profit and loss management.

His experience across the electronics industry includes electronic components, consumer electronics and Electronics Manufacturing Services (EMS). Prior to joining Rakon, Arun was the Vice President of Cyient Limited. He has also held senior positions at Radiall India Private Limited, Jabil Circuit India Private Limited and Vishay Components India Private Limited (formerly the Philips Electronics Passive Components division).

Key Achievements FY2020

Strong finish to the year with revenue and order bookings

Preference for **Rakon's quartz-based products** over silicon-based competition

18 new products[8] introduced including launch of **Mercury+™**, the **world's smallest OCXO**[9]

Ramping up for **5G – Mercury+™**, **Neptune™** and **Mercury™**[10] products

6 core R&D **advanced technology** developments under way including release of **XMEMS™**, Rakon's key quartz-based technology for future requirements

New products being developed for emerging **5G millimetre wave (mmWave)** requirements

Increased share of major **Tier One** telecommunications **customers' business**

Rakon is designed into the transportation and radioheads for 5G

34 million products **shipped**

Launched global Sales & Operations Planning (S&OP) review process, **significantly improving** worldwide customer satisfaction and employee engagement

All business units recertified to **global quality standards**

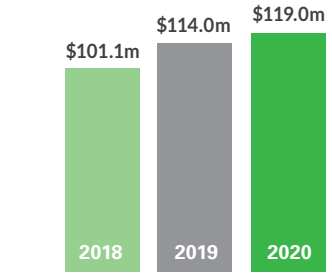
Carole Gagnard
Product Assurance Manager, Space & Defence Business Unit, Pont-Sainte-Marie, France

At Rakon product quality is paramount. Our quality team is involved from the initial purchase order right through to the final shipment of products to our space & defence customers. We are involved in project review, components selection, operator qualification, product inspection (including before sealing with customer participation) and final quality control.

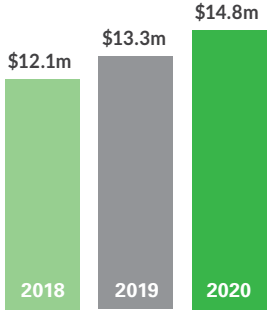
[8] New products introduced by Rakon to the market are defined as products which have begun sampling.
[9 & 10] Visit www.rakon.com/products for more information on Neptune™ (Ultra Stable TCXO), Mercury™ and Mercury+™ (IC OCXO) products, or scan the QR code on page 17. For the Mercury+™ release visit www.rakon.com/corporate/about/news

Financial Summary

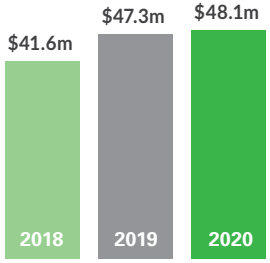
THREE-YEAR PERFORMANCE SNAPSHOT (NZ$)



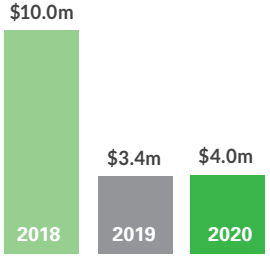
REVENUE



UNDERLYING EBITDA[11]



OPERATING EXPENSES



NET PROFIT AFTER TAX

Keerti Prakash
Procurement Manager, Supply Chain, Auckland, NZ

Strong supplier partnerships are foundational to a business's overall success. They provide partners with a more complete understanding of our business needs, leading to improved services and reduced costs. The team has been involved in open and ongoing dialogue with our strategic partners, which has helped build strong business-to-business engagement. As we have seen, solid partnerships take dedicated effort, but they deliver more mutual value.

Summary of Revenue and Profit For the year ended 31 March 2020	**2020 $000s**	**2019 $000s**
Revenue	118,980	113,985
Underlying EBITDA	**14,787**	**13,270**
Depreciation and amortisation	(8,823)	(5,802)
Interest	(1,055)	(534)
Adjustment for associates and joint venture share of interest, tax and depreciation	(1,447)	(1,120)
Other non-cash items	(178)	(340)
Income tax expense	696	(2,110)
Net profit after tax	**3,980**	**3,364**

Summary of Statement of Cash Flows For the year ended 31 March 2020	**2020 $000s**	**2019 $000s**
Net cash flow		
– Operating activities	9,401	(1,768)
– Investing activities	(6,631)	(12,674)
– Financing activities	(3,078)	(24)
Net (decrease) / increase in cash and cash equivalents	**(308)**	**(14,466)**
Foreign currency translation adjustment	(672)	144
Cash and cash equivalents at the beginning of the period	(6,782)	7,540
Cash and cash equivalents at the end of the period	**(7,762)**	**(6,782)**

This financial summary provides partially summarised financial information only, regarding the financial performance of Rakon Limited for the year ended 31 March 2020. Please refer to the Rakon Limited Annual Report 2020 for the full financial statements and accompanying notes.

[11] Refer to the footnote on page 19 for explanation of Underlying EBITDA.

Balance Sheet As at 31 March 2020	2020 $000s	2019 $000s
Assets		
Current assets		
Cash and cash equivalents	5,086	4,719
Trade and other receivables	42,379	38,220
Financial asset at fair value through profit and loss	2	19
Derivative financial instruments	27	307
Inventories	37,624	39,310
Current income tax asset	889	561
Total current assets	**86,007**	**83,136**
Non-current assets		
Trade and other receivables	2,702	2,267
Derivative financial instruments	–	258
Financial asset at fair value through other comprehensive income	2,918	4,549
Property, plant and equipment	18,924	19,394
Intangible assets	9,003	9,149
Investment in associates	11,714	10,399
Deferred tax asset	9,246	7,352
Right-of-use assets	9,730	–
Total non-current assets	**64,237**	**53,368**
Total assets	**150,244**	**136,504**

Balance Sheet As at 31 March 2020	2020 $000s	2019 $000s
Liabilities		
Current liabilities		
Bank overdraft	12,848	11,501
Borrowings	145	474
Trade and other payables	22,252	26,398
Derivative financial instruments	5,040	945
Lease liabilities	2,741	–
Provisions	714	471
Deferred consideration on acquisition	–	1,885
Deferred income – government wage subsidy	2,000	–
Total current liabilities	**45,740**	**41,674**
Non-current liabilities		
Derivative financial instruments	2,840	343
Borrowings	–	412
Provisions	2,918	2,990
Deferred tax liabilities	186	1,069
Lease liabilities	6,704	–
Total non-current liabilities	**12,648**	**4,814**
Total liabilities	**58,388**	**46,488**
Net assets	**91,856**	**90,016**
Equity		
Share capital	181,024	181,024
Other reserves	(23,293)	(21,153)
Retained earnings	(65,875)	(69,855)
Total equity	**91,856**	**90,016**
Total equity and liabilities	**150,244**	**136,504**

Technology Leadership Focus

Roy Cann
Head of Global Engineering

Michael McIlroy
Advanced Technology Manager
Global Engineering

Philip Davies
General Manager UK

A key focus and strategy for Rakon is technology leadership. Three senior members involved in executing this strategy explain how Rakon maintains its leadership, and discuss current technology developments and what the future of technology holds.

Rakon develops product solutions to enable its customers, some of whom are world-leading companies within their respective markets, to advance their systems to the next level of performance.

Rakon's R&D capability has kept it at the forefront of the frequency control products industry.

"One of the key aspects is that Rakon has developed strong in-house R&D capability in our core foundational technologies. We have our own ASIC design and development team, along with the quartz resonator development team's in-house microfabrication facility where we can develop technologies such as XMEMS™," says Advanced Technology Manager of Global Engineering Michael McIlroy.

The General Manager of Rakon's UK R&D business unit Philip Davies says such a combination is formidable.

"Having the XMEMS™ technology plus an ASIC design team in the same company is extremely rare, if not unique. Putting those two things together gives us incredible benefits in terms of developing new technologies, enhancing product performance and maintaining technology leadership."

Investment in innovation and close collaboration are also important.

"Rakon continues to invest heavily in R&D and innovation. Without this we could not maintain our leadership. It's all about investment in automation, investment in highly skilled engineers – and not only those that look after design, but also the process engineers who play a huge part in implementing the new technologies they are presented with by the R&D teams.

"Our close collaboration with customers, our in-house engineering systems level understanding and our experienced and highly knowledgeable engineering community are also key.

"To tie it all together, we have strategic relationships with customers who are Tier One companies in their respective industries, so we know what's coming; then we invest in technologies and realise their requirements using our crystal and ASIC technology to its best and fullest extent. It's knowing what customers need at the start of that process, and also that systems level knowledge, which sets Rakon apart."

A highly technical understanding of the ecosystems in which Rakon operates is also essential.

"We link in a strong understanding of customer and market needs. We also have a highly technical understanding of our customers' requirements. In combination with that is a drive to invest, be innovative, develop technology and the world-class R&D teams we have, to support those technology drives and developments," says McIlroy.

Head of Global Engineering Roy Cann says entrepreneurial spirit, agility and pushing the boundaries are also key differentiators at Rakon.

"Generally, it is about attacking cutting edge specifications, whether that's in terms of stability or slope or whatever it may be. So we are constantly pushing the envelope around product specification, whether it's performance or size, based on what our customers are looking for in terms of products, to underpin their new systems. We are agile and willing to take risks. We do things which are technically very difficult, where we are not guaranteed to succeed. We take on the difficult specifications."

Future proofing and foresight have also been crucial says Davies.

"Management at the senior level is very technically savvy, which is critically important – and we have a technology focused culture where everybody is pulling in the same direction. That and the foresight of management and the Board in making the right strategic decisions have ensured we maintain our technology leadership."

In the past financial year alone the company invested $13.9m in R&D, with technology developments under way at its R&D facilities in NZ, the UK, France and India.

In India product developments have included a space-grade TCXO, crystal filter and distribution amplifier for space applications and a narrow bandwidth miniature VCO for a defence application.

In France the team diversified its product portfolio with the release of its high performance VCSO range of products. Developments have also included a complete Frequency Generation Unit for a space application and customer sampling of an OCXO for the New Space market.

In the UK exciting progress was made with a proprietary post-compensation TCXO and a next generation high stability OCXO. Davies says the post compensation technology has already been released to some select customers.

"It is a very clever technology, allied to some highly sophisticated algorithms. Basically, it doubles the product's performance, enabling even tighter frequency tolerances."

In New Zealand, the release of XMEMS™ has been a key technology development in FY2020, says McIlroy.

"XMEMS™ is a key foundational technology and we will be using it to develop the core resonator portion of our oscillator products further.

"XMEMS™ is leveraging the high performance possible with a quartz-based resonator. It is leveraging the fantastic history and legacy of quartz-based products but linking in new geometries, structures and microfabrication techniques. This further enables the best characteristics of the quartz to be used and drawn out into that final resonator performance. It is taking our oscillator products to a new level in terms of size, stability, phase noise, and *g* sensitivity. All of the key parameters are leveraged off the resonator and our XMEMS™ technology."

McIlroy says additionally that part of his role as Advanced Technology Manager (a new role established 12 months ago) has been to further enable Rakon to leverage and benefit from the synergies of the global team's technical competencies.

"A key role of mine is to work to pull teams together, find those synergy points and cross-fertilise as needed.

"Sometimes technology at one level which has been developed for a particular market then becomes important in another market, and we are able to leverage our initial developments in one market over to another. So for example . . . if you take the New Space requirements, where lower power, smaller form factor OCXOs are required, we can leverage some of the technology that we've developed in the telecommunications miniature OCXO market and feed that into the requirements for New Space."

Davies said the UK team are working on developing a next generation 'Super TCXO' in the near future.

"Using all the knowledge we have gained over the past two to three years in our core ASIC technology developments, we are now about to start developing the next TCXO chip. We believe it will be a world-beater, offering extremely tight frequency stability performance."

So what lies further ahead for Rakon and what does the future of technology look like?

"We will continue to focus on achieving and exceeding the upper limits of performance specifications and being first to market while keeping design costs down. I see us having a very good connection into all of the markets that we operate in. It's really just continuing to push the boundaries," says Cann.

Markets will continue to evolve and Cann and McIlroy believe Rakon is positioned well at the high performance end of those markets.

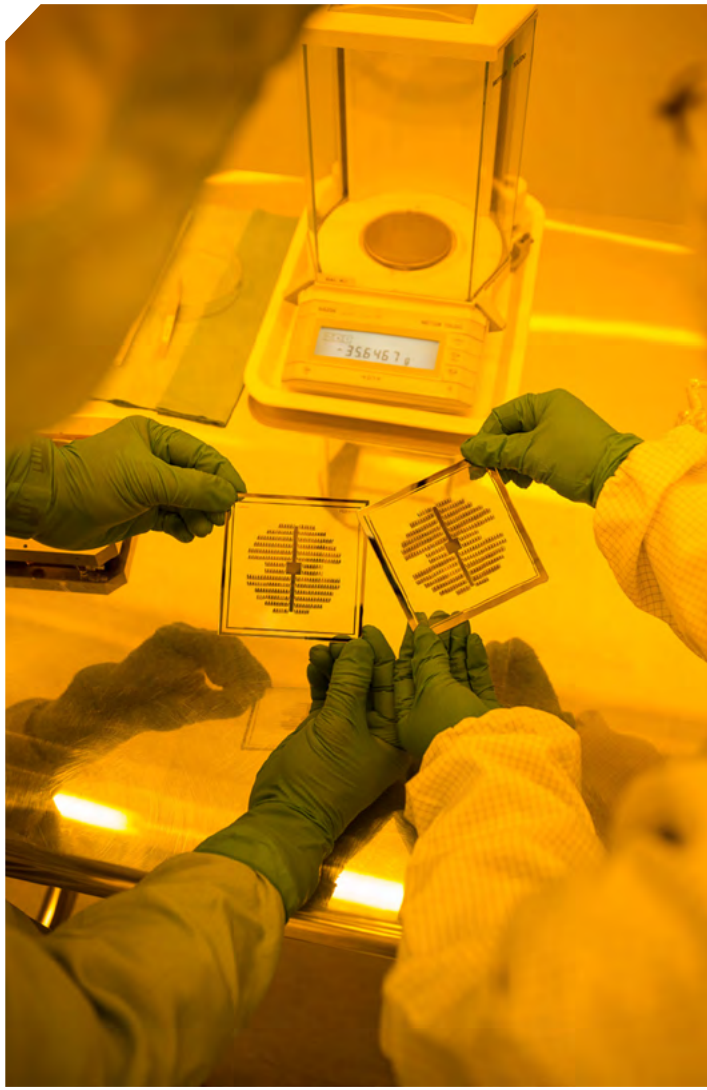
"Rakon will continue to excel in areas that require high accuracy; for example, applications like automotive, car-to-car communications, or where more stringent applications of quality and design processes are required. These areas often have safety and life criticality associated with them – like what we're already doing in the global positioning and rescue beacons space," says Cann.

"Demand for high performance frequency control products is growing, with demand throughout the telecommunications, space & defence and global positioning markets, while also now expanding into areas such as automotive with smart vehicles and those types of applications.

"So our demand and growth will continue to be for higher and specific requirements. This will come about with demand for tighter stabilities, increased robustness, performance at higher temperatures and smaller form factors across all of those markets. We will continue to meet these requirements while maintaining cost effective solutions enabling our customers to advance their own technology," says McIlroy.

Avilash Singh
Engineering Manager, Product R&D, Auckland NZ

At Rakon we keep pushing the boundaries and focusing on innovation to develop leading-edge flexible product platforms. These platforms are then leveraged to deliver world-leading product solutions for our high-tech customers.



Inside Rakon's microfabrication laboratory. Photo masks used in Rakon's NanoQuartz™ photolithography microfabrication process.

Rakon Everywhere

Rakon products enable connectivity and are embedded in electronic systems everywhere.

Telecommunications

The equipment that enables communications networks to operate. Includes small cells, 4G / 5G mobile base stations, microwave, backhaul networks as well as data centres, switches, routers and optical transmission equipment.

OCXOs, TCXOs, VCXOs and XOs

Space & Defence

Applications where reliability, precision and performance are all critical. Includes New Space, avionics, radars and other high reliability applications.

Subsystems, OCSOs, USOs, VCSOs, VCOs, OCXOs, TCXOs, VCXOs, XOs, Crystal Filters and Crystals

Global Positioning

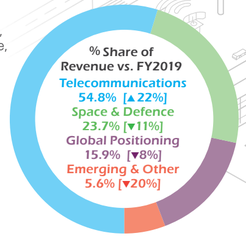
Includes all Global Navigation Satellite System (GNSS) equipment and other positioning systems. Applications include Personal Navigation Devices (PNDs), high precision positioning (surveying, mining, and agriculture), emergency locator beacons, aviation, drones, automotive, asset tracking, and sport and recreation products.

OCXOs, TCXOs, XOs and Crystals

Emerging and Other

Many applications including wireless control, test and measurement, smart grids and metering, Machine-to-Machine (M2M), the Internet of Things (IoT), as well as other emerging markets.

OCSOs, OCXOs, TCXOs, VCXOs, XOs and Crystals



Irene Lee
Customer Service Coordinator, Shenzhen, China

In a very fast moving and fiercely competitive, changing market environment, fast response times are essential to business sustainability and success. When we understand each customer requirement and respond accurately and efficiently, we maximise the potential to gain from every opportunity.

Acronyms
Augmented Reality & Virtual Reality (AR / VR)
Digital Subscriber Line (DSL)
Ultra-Reliable Low-Latency Communication (URLLC)
Very Small Aperture Terminal (VSAT)
Wide Area Network (WAN)

rakon

VSAT
AVIONICS
TELECOM EARTH OBSERVATION & GNSS SATELLITES
PRECISION AGRICULTURE
DEEP SPACE PROBES
LOW EARTH ORBIT SATELLITES
DEEP SPACE EXPLORATION
DEEP SEA CABLE
INTERNET OF THINGS (IoT)
5G DISTRIBUTION UNITS
LAUNCH VEHICLES
EMERGENCY LOCATOR BEACONS
4G MACRO BASE STATIONS
GROUND & SHIPBOARD STATIONS
LOW POWER WAN
ASSET MANAGEMENT
AIR TRAFFIC CONTROL
4G REMOTE RADIO HEADS
INDUSTRIAL AUTOMATION
FINANCIAL NETWORKS
ENTERPRISE NETWORKS
SMART GRIDS
5G SMALL CELLS
DATA CENTRES
AUTONOMOUS VEHICLES
CABLE DSL / FIBRE TO THE HOME
4G SMALL CELLS
URLLC NETWORKS
5G CENTRAL UNITS
AR / VR TELEHEALTH
TRANSPORT & BACKHAUL ROUTERS AND SWITCHES
SURVEILLANCE RADARS
SPORT & RECREATION WEARABLES
MICROWAVE TRANSMISSION SYSTEMS
TIME GRANDMASTER SOLUTIONS
5G REMOTE RADIO HEADS
DRONES & UNMANNED AERIAL VEHICLES

Products displayed for each application are representative only. Rakon has a broad range of timing and frequency control products. For more information on Rakon's comprehensive product offering please visit: **www.rakon.com/products/families**

Enabling the Connected Future

Our opportunities lie in the precise timing that is required for 5G.

Imagine a world where specialist doctors could perform surgeries remotely, with the use of robots and real time data transmitted and received from the other side of the world. Imagine a world of complete autonomy, where connected cars could drive us to our next destination.

These applications may seem a way off for now, but they are becoming possible with 5G, says Rakon CEO Brent Robinson.

"Every 'G' or Generation of new wireless network brings faster speed and functionality to our wireless devices. 5G will not only bring significant improvements to capability and the end-user experience for existing applications like video streaming, data transfer of distributed databases, real time data transfer and downloading; the functionality will also bring to life many applications that are simply not yet possible," he says.

So what does 5G enable that 4G technology cannot?

"5G will be ten times faster and will allow 1000 times more traffic capacity than 4G networks. It will open up room for more users and more traffic. A key factor is the very low latency that 5G is enabling. Latency is the delay you experience from the time data is transmitted and received. It is the buffering or the frozen static image you see on screen of that person you are video calling, or the lag in time while you wait for that movie to download."

For Rakon the opportunities lie in the precise timing that is required for 5G.

"We're providing the precise timing that enables 5G to operate. Low latency is based around synchronised timing, which our OCXOs and TCXOs can provide. Our products are embedded in the equipment that is supplied into the telecommunications networks. It is the low latency of 5G that will enable real time data applications like remote surgeries and autonomous cars to become a reality. With applications like these, the time taken to transmit and receive data is critical."

Technologies are also emerging as the foundation of 5G – one of them being millimetre waves. Users are demanding more data and bandwidth. Currently, this demand is largely fulfilled by frequencies on the radio frequency spectrum at between 1 GHz to 6 GHz, says Brent.

"5G is opening up the spectrum for mobile devices to operate on shorter millimetre waves with frequencies that fall between 30 to 300 GHz, which is opening up the bandwidth.

We are supplying high frequency, low noise VCXOs and timing devices that allow for higher frequencies to be used – up into the 30 to 60 GHz range. To use these very high frequency spectrums they need high frequency quartz crystal products to allow them to access these

Unnikrishnan PM
General Manager of Operations, Bengaluru, India

In today's highly competitive global business environment, only organisations that are agile, flexible and excellent in their operations can survive and grow. Rakon's success comes out of its strengths in leadership, employee engagement and technological expertise. Rakon India's 'creating the future' programme brings out the best from every employee and helps toward achieving operational excellence.

bands. So in addition to our products being able to provide the reference for the timing, we are also able to provide the high frequency, low noise source required for millimetre wave frequency bands."

Rakon's gain in revenue in the telecommunications segment is an indication that the 5G roll-out has begun and Brent says the company is well-positioned with its product offering, for anticipated widespread deployment.

"5G roll-out is happening in China and South Korea right now. There are a few countries where it is widely deployed already and it's rolling out further. With dominant share allocations from key Tier One customers secured, our products are being designed into all the main network providers' 5G equipment."

Brent says that networks around the world are running out of capacity. With the COVID-19 pandemic there has been a radical change in the way the world conducts its business, putting further unprecedented demand on network traffic and accelerating 5G roll-out.

"Really, next year in 2021, I think, is when we will see large 5G roll-out, but with the coronavirus it may change. It seems there have been a lot of commitments to accelerate it given COVID-19. With more demand for data, with people self-isolating and working from home, we believe that trend will continue after the COVID-19 health emergency ends. People will be adopting remote working as a mode, because they will be able to see that they can," he says.

Rakon sees further opportunities ahead – not only for telecommunications, but also in its other core markets of space & defence and global positioning.

"In global positioning we are well positioned for the higher end industrial products like seismic surveying, where there are difficult environmental requirements like low *g*-sensitivity, wide temperature range and very high precision. This is where Rakon basically comes into its own in that end of the market, rather than the consumer end. So we're positioned well, we've got a great product offering and that end of the market is growing for us."

Brent says the company will continue to see a convergence of its technologies across all of its core markets in the future.

"In the New Space market, for example, we are leveraging our heritage in supplying the geostationary market and a blend of telecommunications and GNSS products where there is a lot more volume. Low Earth Orbit (LEO) satellites are being mainly used today for global broadband coverage. We've been developing a hybrid between telecommunications, GNSS and space products to deliver a lower cost, radiation-hard product offering for this application. We are continuing to leverage the combined expertise of our R&D teams to enable new applications as they emerge."

Definition of Underlying EBITDA

Rakon has used 'Underlying EBITDA' as a measure of non-GAAP financial information in this 2020 Review document. Underlying EBITDA is defined as 'Earnings before interest, tax, depreciation, amortisation, impairment, employee share schemes, non-controlling interests, adjustments for associate's 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 4 of the Rakon Limited Annual Report 2020.

Rakon's Key Strengths

Technology leaders in the frequency control and timing industry

- Extensive application expertise
- In-house R&D teams
- Continued innovation

Global footprint

- Manufacturing facilities across 3 continents, 6 R&D centres, 16 support locations

Sustainability

- Strong ecosystem partnerships
- Well-established and strategic customer relationships
- 53-year heritage
- Continuously evolving to meet ever-changing requirements

Why Customers Choose Rakon

Innovation leadership enabling leading-edge technologies

- **Localised customer support**
- **Faster response times**
- **Optimised performance and cost**
- **Continuity of supply**

Trusted and respected brand

Glossary

Crystal Filter
A filter that allows only the desired frequency to pass through to the output.

Crystal Micro-Electro-Mechanical System (XMEMS™)
Rakon's advanced quartz-based resonator technology. It is made with Rakon's NanoQuartz™ microfabrication process, delivering unprecedented resonator and oscillator performance.

Crystal Oscillator (XO)
A quartz crystal combined with 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.

Distribution Amplifier
A device that accepts a single input signal and provides these same signal characteristics to multiple isolated outputs.

Frequency Generation Unit (FGU)
A complete subsystem that provides up to 48 outputs from the same ultra stable reference oscillator.

NanoQuartz™
Rakon's proprietary photolithography microfabrication process on quartz wafers.

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 (OCSO)
An oven controlled oscillator using Surface Acoustic Wave (SAW) technology instead of a quartz crystal.

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

Surface Acoustic Wave resonator (SAW)
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 crystal oscillator 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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