

- > SLEEP DIAGNOSTICS & TREATMENT
- > NEURO DIAGNOSTICS
- > BRAIN RESEARCH
- > ULTRASONIC BLOOD FLOW MONITORING
- > MEDICAL INNOVATIONS

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profusion  
**nexus 360™**  
Laboratory Management System



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**Compumedics Limited**  
ABN 95 006 854 897

**Annual General Meeting**  
Thursday, 25th October 2018  
at 10.30am  
To be held at: Compumedics Limited  
30-40 Flockhart Street Abbotsford  
Victoria 3067

# Who is Compumedics?

Compumedics is a leading global, innovative developer and manufacturer of medical devices for:

 <p>Diagnosing sleep disorders</p>	 <p>Monitoring neurological disorders including long-term epilepsy monitoring (LTEM)</p>	 <p>Highly sophisticated brain research</p>	 <p>Ultrasonic monitoring of blood flow through the brain (Transcranial Doppler [TCD])</p>
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Compumedics is a technological leader in its chosen markets:

<b>#1</b> Australian sleep & neuro diagnostics device supplier	<b>#1</b> Japan sleep diagnostics device supplier	<b>#1</b> China sleep diagnostics device supplier to premier facilities & <b>#1 TCD</b> device supplier	<b>#3</b> USA sleep diagnostics device supplier and emerging <b>#3</b> supplier for neurological monitoring devices
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Since 1987 Compumedics has grown into a company:

- with 120 employees across four locations, Melbourne, Australia (Home Office), Charlotte, NC, USA, Hamburg and Singen, Germany.
- which listed on the ASX on Dec 21, 2000.
- that has generated almost \$580m in revenues since listing of which over \$470m have been export revenues

All \$ = A\$ unless otherwise specified

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# FINANCIAL SUMMARY

ALL FIGURES IN A\$M UNLESS OTHERWISE STATED	TREND	2018	2017
Revenue for continuing operations	↑	37.0	34.4
Earnings before interest, income tax, depreciation and amortisation (EBITDA)	↑	4.2	2.8
Earnings before interest and income tax (EBIT)	↑	3.7	1.4
Net operating profit after tax (NPAT)	↑	2.8	1.3
Research and development costs as a percentage of operating revenue	↓	14	17
Total assets	↑	34.7	29.2
Shareholders funds	↑	23.2	20.1
Net tangible assets per share (cents)	↑	10.8	9.5
Weighted average number of shares (million)	—	177	177
Earnings per share (basic) (cents)	↑	1.6	0.7
Earnings per share based on earnings before interest, tax, depreciation and amortisation (cents)	↑	2.4	1.6

- The FY18 net profit after tax (NPAT) was up to AUD2.8M compared to AUD1.3M for the FY17. Earnings before interest, tax, depreciation and amortisation (EBITDA) was AUD4.2M compared to AUD2.8M for the FY17. These results reflected an ongoing focus on performance, and both quality and efficiency improvements across all operational areas.
- Revenues shipped and invoiced increased 8% to AUD37.0M over the previous financial year, whilst sales orders taken, were up by 16% to a record AUD40.0M, compared to AUD34.4M for the previous financial year.

# CHAIRMAN'S ADDRESS



*Dear Compumedics investors,  
colleagues and business partners,*

On behalf of the Board, management and the Compumedics team, I present to you the following highlights in the results contained within the Compumedics 2018 Annual Report. As a result of the growth in revenues, FY18 net profit after tax (NPAT) was up 113% to \$2.8m compared to \$1.3m for FY17. Earnings before interest, tax, depreciation and amortisation (EBITDA) were up 55% to \$4.2m compared to \$2.8m for FY17. These results also reflect an ongoing focus on performance, along with both quality and efficiency improvements across all operational areas of the business.

Revenues shipped and invoiced increased 8% to \$37.0m for FY18, compared to \$34.4m for FY17, whilst sales orders taken, were up 16% to a record \$40.0m for FY18, compared to \$34.4m for FY17. Once again the China market was a solid performer for the business, growing by 28% over the prior year. This re-affirms Compumedics' commitment to ongoing business growth in China, particularly in sleep and neuro-diagnostics, brain research and DWL's Transcranial Doppler (TCD) products. In China, Compumedics has over 2,000 systems installed at more than 333 universities and 600 hospitals, including seven of the top ten hospitals.

Cash on hand was steady to \$3.9m at 30 June 2018 compared to \$4.1m at 30 June 2017, whilst debt levels increased to \$1.8m at 30

June 2018, compared to \$0.7m at 30 June 2017, largely reflecting costs associated with the first MEG, now being installed.

Additionally, and further underscoring the core business profitability, over \$1.7m was invested in next-generation growth platforms (medical innovations) including the new magnetoencephalography (MEG) neuroimaging business, eHealth (professional) sleep cloud-services (Nexus 360), and Somfit® consumer-health platform, positioning Compumedics for significant upcoming realisation opportunities.

A number of key milestones and positive outcomes were achieved during the 30 June 2018 (FY18) financial year. Of particular note was the installation of the first MEG sale to Barrow Neurological Institute (BNI) in Phoenix, Arizona. The installation of this first system is progressing well and should be complete in the first half of FY19.

The Company improved profitably as a result of growth across key global markets in its core businesses, including those in China, Europe, and the US, albeit the US had a growth rate less than expected. The DWL ultrasound business performed well. The partial booking of the first MEG sale to BNI contributed to overall revenue growth for FY18. Further, the Company continued advancing and commercially activating strategic growth platforms that will yield ongoing positive performance for FY19, and beyond.

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## KEY PERFORMANCE ACHIEVEMENTS FY18

**FIRST MEG SALE**  
NOW BEING INSTALLED  
ADDITIONAL OPPORTUNITIES  
BEING PURSUED

**SOMFIT™**  
CONSUMER SLEEP DEVICE  
COMMERCIALISATION  
ACTIVITIES ADVANCE

**NEXUS™ 360**  
16 SITES, 123 BEDS,  
15,000 STUDIES

RECORD ORDERS

**\$40M**

Up 16% from \$34.4M in FY17

NET PROFIT AFTER TAX

**113%**

\$2.8M in FY18 vs \$1.3M in FY17

EBITDA

**55%**

\$4.2M in FY18 vs \$2.7M in FY17

REVENUE

**\$37.0M**

UP FROM \$34.4M IN FY17

CORE BUSINESS\*  
EBITDA

**\$5.6M**

\$5.6M in FY18 vs \$3.9M in FY17

CORE BUSINESS\*  
NET PROFIT AFTER TAX

**\$4.5M**

\$4.5M in FY18 vs \$3.8M in FY17

\*Excludes Medical Innovation Strategic Investments

## OPERATIONS

### ***Strong Underlying Financial and Operational Performance.***

Compumedics continues to generate profits from its blue-chip-client-based core business, whilst maintaining strong investment in R&D (14% of revenue). The continued profits have been achieved in the face of extraordinary ongoing investment, resources and commercial activation of next-generation growth platforms. These growth platforms are all demonstrating strong commercial activation potential and lucrative break-out business opportunities.

### ***Ongoing Performance and Profitability Improvements.***

Compumedics remains focused on operational programs designed to drive improved efficiencies, capable of enhancing sales margins and product quality. These programs cover the streamlining of logistics, along with the outsourcing of non-key functions such as larger scale production. Additional programs cover the strengthening of recurring revenue streams including enhanced online shopping cart capabilities, designed to help drive sales volumes.

## PRODUCT DEVELOPMENT PIPELINE

Product research and development, across both core product groups as well as breakout business divisions, was maintained across all the Company's divisions with a range of product updates, new product releases, and refreshed product pipelines. This underpins strong ongoing growth across the Compumedics® sleep, neuro-diagnostic, Neuroscan® research, DWL® (ultrasonic Doppler blood flow) and consumable businesses.

### ***Compumedics Grael® Range of Patient Diagnostic Amplifiers***

The new extended Grael® amplifier range continues to help drive diagnostic monitoring systems growth. This expanded range of products has provided effective business and market development opportunities, as it relates to matching market requirements of different regions to specific models across the expanded Grael® product platform. Compumedics is well positioned to continue driving earnings growth and penetrate new markets. For example, the Grael® platform has been

instrumental in the recent commercial developments in the Japanese market, culminating in the recent announcement of Fukuda Denshi Co. as Compumedics' new Japanese Trade partner. Compumedics and its Neuroscan division have also continued to drive new capabilities with continued technological advancements, including the introduction of the multi- Grael® feature, which precisely time-synchronises multiple Grael® units to create banks of virtual amplifiers, enabling greatly increased channel capacity. This function has been particularly attractive to research. Additionally, this new functionality has helped to commercially activate emergent markets such as cognitive marketing. New applications can acquire and analyse cognitive responses, together with other physiological responses, from multiple subjects using 16 or more synchronized Grael® amplifiers (512 or more channels of brain signals). These solutions continue to drive new opportunities including those addressing consumer marketing organization, teaching, and clinical requirements. Additionally, a new Grael® DC model has been developed to meet growing research and clinical requirements to monitor low frequency and slow-moving base-line physiological signal measures.



ONsight™ A.V.S. System



Grael® 4K HD trolley EEG configuration

### ***Compumedics ONsight™ Remote EEG/Sleep and Synchronised Video System***

The new Compumedics ONsight™ EEG/Sleep system enables a new generation of in-home, high- performance sleep and neuro-diagnostic monitoring, coupled with synchronised video-monitoring. This product addresses a market sector mainly reserved, in previous times, for more advanced clinical diagnostic monitoring environments. These new advancements help to free-up precious and scarce hospital resources. The unique integration with Nexus 360 allows for complete real-time monitoring of the video and data to provide in laboratory-level data-acquisition quality and sophistication, whilst enabling a convenient in-home patient experience. Initial customer feedback has been positive, providing promising product demand, moving forward.

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Multi-Dop® T Digital

### **DWL Ezi-Dop™ and Multi-Dop® T Digital**

DWL is launching the unique, new EZ-Dop™, the smallest fully-functional and complete transcranial Doppler (TCD) system in the world. This system combines state of the art components and technologies with the newest digital Doppler-Technology, enabling enhanced signal quality. These new technology advancements support applications in new and emergent markets, such as the next generation of emboli detection systems, as well as Compumedics/DWL's next generation of servo-controlled robotic ultrasound systems.

The EZ-Dop will not only optimize functionality and usability, but also bring high-end Doppler technology into a small, portable design format. This will further secure our competitive market position of DWL Doppler systems, with this new platform of advanced, compact and high-performance design.

The EZ-Dop will also achieve wider deployment such as anaesthesia, neurosurgery, ICU and brain-death diagnostic monitoring applications.

Another focus in 2019 will be our active technology partner leadership role in the "Network of European Reference Centers in Neurosonology (ERN Sono)". This network is designed as a reference network, which works in close cooperation with the European Society of Neurosonology and Cerebral Hemodynamics (ESNCH). There is a definite need for a well-structured clinical network to seek further technical progress. This initiative offers a profound education and training program, to investigate and evaluate the usefulness of ultrasound in new fields. This program will implement clinical trials and programs to help further foster the application of sonography in daily practice. Part of this program is Transcranial Doppler (TCD) monitoring, including emboli detection, vasomotor reactivity, PFO, other new or emergent TCD applications.

DWL is a major supplier for the TCD system deployed at the core of these highly prestigious ERN Sono scientific studies. The scientific activities will include publications as well as teaching activities.

### **Neuroscan MEG Neuroimaging**

Delivery of the first Compumedics/Neuroscan Orion LifeSpan™ MEG system to USA-based Barrow Neurological Institute (BNI) at St. Joseph's Hospital and Medical Center, located in Phoenix, Arizona, is scheduled for the final quarter of the 2018 calendar year.

BNI, the world's largest neurological disease treatment and research institution, is the home of the Muhammad Ali Parkinson Center and is consistently ranked as one of the best neurosurgical training centers in the world. The institute was founded in 1962 and has since grown into one of the premier destinations in the world for neurology and neurosurgery. More operative neurosurgical procedures are undertaken at BNI than at any other United States institution. Compumedics has overcome earlier MEG system barriers with the Compumedics/Neuroscan Orion LifeSpan™'s increased precision, coupled with the fully-integrated "gold standard" CURRY® MEG brain analysis software. MEG is a neuro-functional imaging technique for mapping brain activity by recording magnetic fields produced by electrical currents occurring naturally in the brain, using very sensitive new generation DROS axial gradiometers or magnetometers.

In order to provide a more comprehensive MEG offering for both clinical and research applications, two new MEG designs, accommodating both sitting and laying (supine) positions are also being developed. We expect to be able to vigorously compete for all new MEG tenders as well as upgrades worldwide, with full regulatory approval scheduled for 2019.

Additionally, the appointment of Mr. Gordon Haid as Global Neuro-Imaging Business Director, is a major milestone for the ongoing Orion LifeSpan™ MEG commercial activation program (ASX 19Apr18). Gordon Haid is a well-established and respected MEG business expert with an extraordinary track record, including sales of around 30 MEG systems world-wide.

### **Neuroscan CURRY® and STIM™**

CURRY® 8, Neuroscan's latest brain analysis platform suite, continues to drive both organic growth as well as growth across new, lucrative break-out market sectors, such as the new Orion MEG brain scanning division. This year, major development efforts have taken place to fully integrate CURRY® as the host software for the Orion LifeSpan™ MEG system. CURRY®, Neuroscan's brain analytics platform, will not only provide the existing tools for data processing and source analysis, but will also control all aspects of data acquisition and MEG hardware control. Combined with simultaneously recorded EEG, CURRY® brain analysis software suite will have the ability to record at least 512 channels of MEG and EEG data simultaneously along with fully synchronized video. The development of our own spike and seizure CURRY® module continues, with early testing of the algorithms already in progress. Update of STIM2 for compatibility with Windows 10 has also been completed.

**NEXT GENERATION GROWTH  
PLATFORM COMMERCIALISATION**

The Company remains focused on a number of substantial opportunities based on key next-generation growth platforms, applicable to imminent or ongoing commercial activation.

These new generation growth platforms include online health initiatives, comprising of professional and consumer-based Nexus 360 eHealth services, Somfit® consumer health platform, ongoing sales and developments within the new Orion LifeSpan™ MEG brain scanner division, patented sleep-treatment, new-horizon driver-vigilance monitoring systems and the newly patented CMP/DWL servo-controlled robotic ultrasound systems.

*Compumedics/Neuroscan Fast-Emerging Orion Lifespan™  
MEG Brain Scanner Division*



CURRY® acquisition and analytics software platform advantage



Orion LifeSpan™ MEG system

- Magnetoencephalography (MEG) is the most sensitive and precise functional brain imaging technique currently available. It measures and localizes signals using helmet-shaped arrays of sensors in real-time at a millisecond rate with millimetre accuracy. It is completely non-invasive, safe and silent. It has applications in both neuroscience and clinical diagnostics.
- Compumedics transitioned from providing their market leading CURRY® MEG brain analytics solutions to providing their full turnkey Orion LifeSpan™ MEG systems of today, by signing a world-wide exclusive technology licence agreement in 2016 with the Korea Research Institute of Standards and Science (KRISS), a government-funded research institute with a history of magnetic field measurement instrumentation dating back to the early 1990's. The group has built numerous advanced systems capable of detecting the tiny magnetic signals from the human brain and heart. This expertise, combined with the established amplifier and software capability of Compumedics, has resulted in the world's most advanced MEG device, known as the Orion LifeSpan™. At the core of the new Orion LifeSpan™ MEG is the latest generation of MEG brain sensors, comprising of the patented DROS systems—Dual Relaxation Oscillator Squid (Super Conductive Quantum Interference Device).
- The unique Orion LifeSpan™ MEG system comprises of a patent-pending, rotating dual-helmet Dewar for adult and pediatric patients (adult/adult, pediatric/pediatric options are available).

It is significantly more sensitive than the existing market-leader's technology. It also features a unique vacuum liquid-helium recycling coolant system. This allows the system to be operated continuously without reliance upon coolant recycling downtime, whilst preserving virtually 100% of this increasingly expensive natural resource. Just two years after the agreement with KRISS, the first Orion LifeSpan™ MEG system is being readied for installation at the prestigious Barrow Neurological Institute in Phoenix, Arizona, USA, where it will be used to diagnose epilepsy and other disorders in both children and adults. The team at BNI will also have an active research program to expand the indications of MEG to other brain disorders. FDA, CE Mark and other regulatory approvals are in process.

- The market for the Orion LifeSpan™ MEG technology, along with related products, is expected to grow rapidly as the advantages over incumbent technology are demonstrated.

Furthermore, the overall MEG market is expected to increase as new applications, both for basic research and as this clinical practise gains greater acceptance.

- Compumedics is putting in place close working relationships between the company and individuals using the Orion LifeSpan™ MEG. This includes validation studies supporting new applications for MEG; cognitive function and dysfunction research; protocol development, especially those that will directly lead to clinical biomarkers; validation and verification studies; improved/expanded funding for MEG, including research grants and especially clinical reimbursements (both public and private); etc. The company has a strong interest in expanding the role of MEG in detecting and diagnosing epilepsy, autism, dementia, Parkinson's and other brain/nervous system disorders.

*Compumedics WEB-based sleep diagnostic platforms*

These eHealth developments present significant efficiency gains for Compumedics' existent and new customers, along with a highly scalable and effective business model for Compumedics and clients, alike. Customers appreciate the industry-leading quality and sophistication of Compumedics' internet "plug and play" amplifiers coupled with the unique Compumedics single vendor solutions. The Nexus 360 enables a fully-integrated sleep cloud-services platform, incorporating the first of its kind "end-to-end" clinical enterprise solution for unsurpassed simplicity and efficiency, providing an effective user clinical-work-flow and user-experience.

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## GROWTH OUTLOOK

Compumedics remains focused on a number of new initiatives designed to underpin both current and future organic and breakout growth, including:

### ***New product platform roll-out to continue in FY19***

- The Company expects to release a new range of ambulatory products for both its sleep and neurological diagnostic and monitoring businesses, mid FY19 through to mid FY20.
- Additionally, a new range of Home Sleep Testing (HST) devices are expected to be released.

### ***Compumedics/Neuroscan expansion into much larger MEG brain analysis imaging market***

- The Company continues to successfully pursue further opportunities in this field during FY19 and is actively working known opportunities.

### ***Growth in international markets with active sales expansion plans for China, Japan, Germany and USA***

- The Company will continue to expand its USA sales team, to grow market share in both sleep and neurological diagnostic and monitoring markets.
- The Company will continue to build on its long-term relationships in China to grow the Company's businesses, along with the establishment of joint ventures and partnerships to help transform sleep and brain healthcare within this important and growing region.
- This year Compumedics signed a multi-million-dollar distribution Agreement for the Japanese market, with Fukuda Denshi Co., one of Japan's most respected and well established neuro-diagnostic and monitoring organisations.
- This financial year's winning of the German Bethel Epilepsy Centre Contract, further complementing Compumedics expanding base of German sleep and neuro-diagnostic reference centres, paves the way for the ongoing recruitment and strengthening of Compumedics German clinical sales and marketing force.

### ***eHealth business expansion with continued commercial activation of its cloud-based sleep diagnostics platform, Nexus 360, for both professional and consumer applications***

- Compumedics now has 16 sites and over 123 beds in the US generating a minimum of \$285k per annum. It expects to grow this to \$1m over the course of FY19.
- Compumedics also continues to pursue Somfit® opportunities consumer applications.
- Final negotiations for the previously announced Health 100 opportunity are well underway and the market will be appropriately updated, accordingly.

### ***DWL business expansion opportunities following the granting of a servo-controlled robotic ultrasound patent, along with its new generation of EZ-Dop technology, along with colour ultrasonic and TCD advancements***

- Compumedics/DWL patent, enabling a servo-controlled robotic ultrasound system. This development is being designed

to incorporate traumatic brain injury (TBI) diagnostic capabilities for deployment across a range of remote applications including sports-fields, battle-fields, ambulance vehicles and other emergency or routine deployment opportunities.

- The Company continues to develop its technologies around the 3D Transcranial Colour Doppler (3D TCCD)/Duplex imaging, whilst refining the best way to fully exploit this commercial opportunity.

## SUMMARY AND FINANCIAL OUTLOOK

Compumedics is well positioned, following sound performance and progressive developments in FY18, to continue to drive forward with its commercial activation programs, coupled with enhanced productivity initiatives across all areas of the business. Importantly, the Company has achieved strong financial and operational outcomes in FY2018, whilst establishing a strong basis for growth in 2019 and the years ahead.

As it relates to the financial outlook, ongoing growth and profitability are expected. FY19 revenues in the range of \$40m to \$42m, with a corresponding EBITDA of about \$5.5m to \$6.5m, and NPAT of about \$4.0m to \$5.0m, is expected to be realised. Earnings forecasts include ongoing investments in the next-generation growth platforms, via medical innovations, as noted in this report. Moreover, this guidance includes continued high levels of R&D investment (estimated at 12% of revenues) but at this stage excludes growth-platform revenues or profit contribution to the FY19 results.

This guidance is based on the general economic environment in Australia and the Company's other key offshore markets including the US, China, France and Germany remaining broadly as they are at the timing of the release of these results.

Market expansion initiatives including the continued strengthening of the China business, coupled with the new Fukuda Denshi Co. long-term Japanese partnership, have contributed to further strengthening of the core business.

Additionally, the continued commercial activation of next-generation growth platforms, including Nexus 360 and Somfit® eHealth developments, together with ongoing Orion LifeSpan™ MEG advances, position the Company well for upcoming breakthrough business opportunities.

Compumedics continue to sharpen its focus on fundamental financial performance, whilst maintaining commercial activation momentum with its MEG and Somfit® breakout businesses, to provide a strong overall growth outlook.

We would like to thank you all for your continued support and we look forward to on-going advancements over the year ahead.

Yours sincerely,



**Dr. David Burton, Ph.D.**

*Executive Chairman and Chief Executive Officer  
Compumedics Limited*

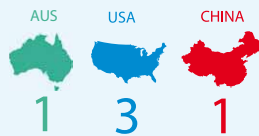
# GLOBAL MARKETS

## Global Neurodiagnostics market

### Description of the market:

Global Neurodiagnostics is the study of electrical activity in the brain, spinal cord, nerves and muscles for the diagnosis and monitoring of neurological based diseases. Tests may be performed in hospital outpatient departments, neurophysiology labs, operating theatres, intensive care units and private practice.

### Current Market position:



### Competitive Advantages:

- 1 Complete range from clinical to research technologies
- 2 Uncompromised system design
- 3 Highest industry quality standards
- 4 Best in class brain analytics

### Current Market Share:

less than 1%

### Key drivers:

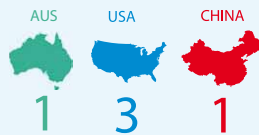
The key drivers for achieving growth in this market are to have technologically superior products that differentiate Compumedics from the existing competition. With the current products being complemented by a completely new long-term monitoring device in 2010, this will be achieved.

## Global Sleep Diagnostics market

### Description of the market:

The global Sleep Diagnostics industry is comprised of diagnostic and therapeutic technologies and medicines. Compumedics' core business lies in the design and manufacture of technologies for the diagnosis of sleep disorders – a market estimated to be worth AUD\$250 million worldwide and growing.

### Current Market position:



### Competitive Advantages:

- 1 Innovative strength
- 2 Active involvement in sleep science globally
- 3 Market placement and momentum
- 4 Best in class sleep analytics

### Current Market Share:

6%

### Key drivers:

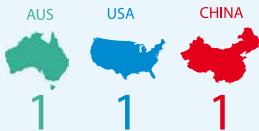
To logically continue to expand our US and European sales and support infrastructure and to evolve the business to provide complete sleep medical solutions.

## Global Brain Research market

### Description of the market:

Global Brain Research is the study of the brain's functionality, using Quantitative EEG (QEEG) methods to supplement traditional EEG findings. With the advent of high speed digital information processing and statistical analysis, QEEGs extract and quantify brain electrical activity to address aspects of EEGs that cannot be appreciated visually.

### Current Market position:



### Competitive Advantages:

- 1 Superior patented technology
- 2 Uncompromised system design
- 3 Unmatched innovation
- 4 Best in class brain analytics

### Current Market Share:

30%

### Key drivers:

The key driver for growth in brain research will be to maintain Neuroscan's preeminent technological lead and to back this by expanding the sales and support infrastructure to harness this expanding market opportunity. Expansion into markets including animal (nonhuman) EEG and pharmaceutical product development will be actively pursued worldwide.

## Global Doppler Ultrasound market

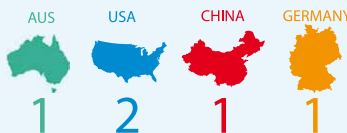
### Description of the market:

The Doppler Sonography technique utilises sound frequencies to measure the blood flow conditions in vessels and evaluate haemodynamics by using high-quality diagnostic and monitoring systems.

DWL Doppler systems are used in a wide range of specialist branches of medicine including neurology, neurosurgery, cardio- and vascular surgery, anaesthesia, intensive treatment, internal medicine, angiology and radiology.

The products are purchased by private practices and clinics, hospitals (both public and private), and by major universities, national research institutes and corporate research laboratories around the world.

### Current Market position:



### Competitive Advantages:

- 1 Full Digital Doppler Technology
- 2 Bilateral Doppler
- 3 Multi-Range Doppler Technology
- 4 Physiological Tests
- 5 Emboli Differentiation & Multi-Frequency probes
- 6 Highest Doppler sensitivity
- 7 Best signal to noise ratio
- 8 Reference gates
- 9 High and low temperature endurance systems
- 10 Space endurance systems

### Current Market Share:

less than 35%

### Key drivers:

- Digital Doppler Technology
- New application areas for the use of TCD
- Expanding market opportunities by new Health Care Regulations for the use of TCD
- Expanding Sales and Support Infrastructure

# CORE BUSINESS - GROWTH DRIVERS

Compumedics will continue to grow its core sleep, neuro, brain research and blood flow monitoring businesses by:



Compumedics / Neuroscan LTEM innovative brain analysis software and high performance amplifiers are unrivalled world class technology. With the release of new innovative electrode array designs, a larger growth is anticipated in direct sales, with a resulting increase in the sales of high-density EEG systems.



We have >20,000 systems installed worldwide. Strong reputation and brand name. Customers like buying from Compumedics.



Earnings initiatives to continue to flow through in FY19 – FY21. Lower cost base enables addition of mid-tier plus further manufacturing and operational efficiency gains.



Opportunity to significantly grow the USA business based on the sales and marketing management and operational changes now implemented.



Expansion into untapped German market.



Push into the Chinese neurology market.



Ideally positioned to accelerate organic growth and value realisation.

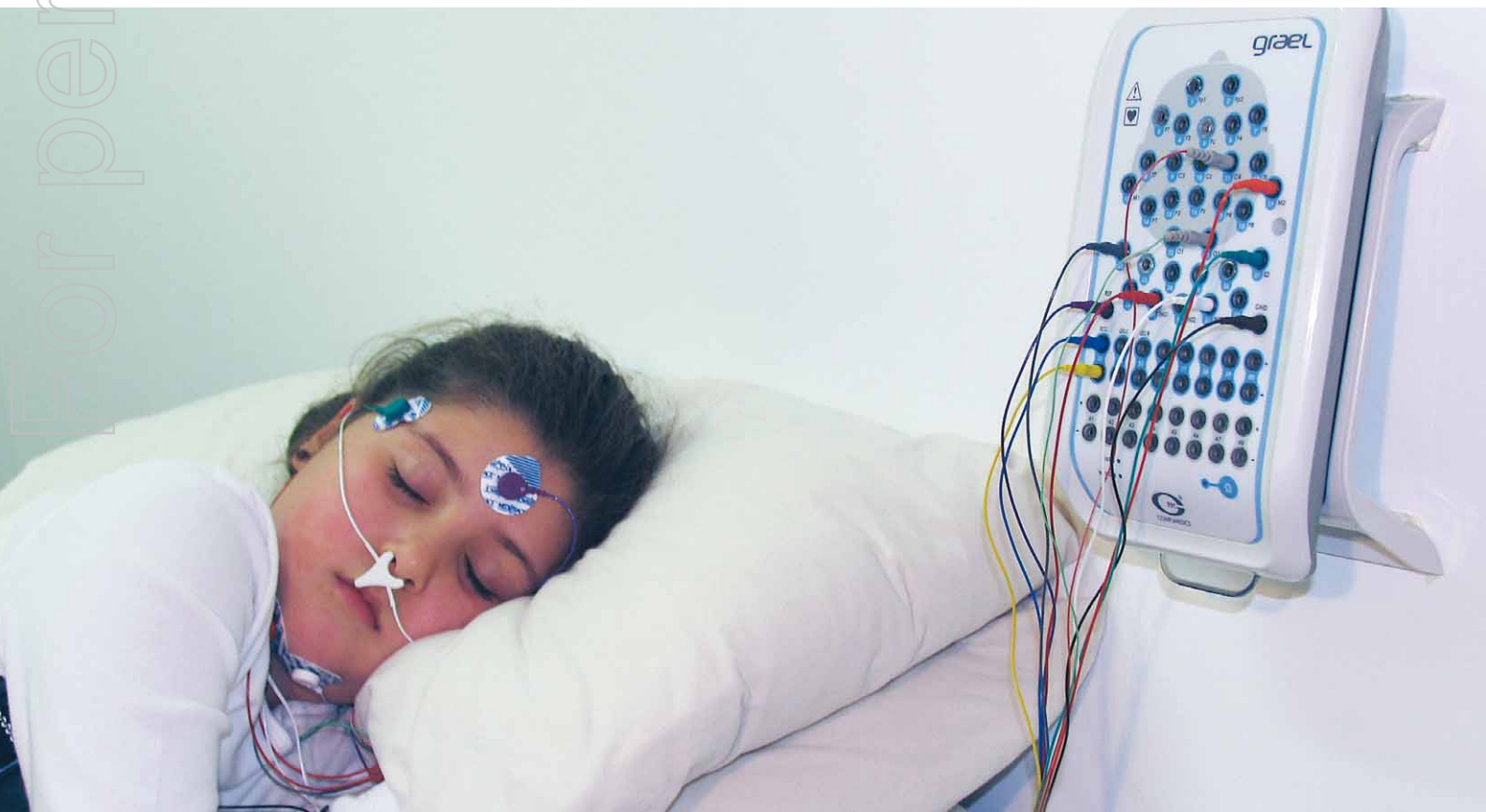
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# CORE BUSINESS

Premium Focus now expanding to whole market.

	Sleep Diagnostics	Neuro Diagnostics – Clinic	Neuro Diagnostics - Research	Brain Blood Flow Diagnostics
Global market – USD pa	250m	1,300m	20m	15m
Compumedics market share (approximate)	6%	<1%	30%	35%
Compumedics market position	Aust – 1 USA – 3 China - 1	Aust – 1 USA – 3 China - 1	Aust – 1 USA – 1 China – 1	Aust – 1 USA – 2 China – 1 Germany – 1

Compumedics has traditionally sold its products into the premium end of each of the markets it sells into. The company has recently launched, and commenced shipping, a new range of devices that have been specifically designed to be priced competitively for the majority of customers in the markets Compumedics sells into. Compumedics will use its branding and reputation in the premium end of the market to drive market expansion in the whole market, increasing the addressable market available to Compumedics by two to three times.



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# CLIENTS AND CORE PRODUCTS

## Key Clients

Compumedics has over almost 30 years of operations and in that time has worked with and established a client list of key opinion leaders, world wide which include:



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## Core Products

### Sleep Diagnostics



Compumedics GraeL® - 4K HD



Compumedics GraeL® PSG



Compumedics Siesta®



Compumedics Somté® PSG



Compumedics Profusion™  
Sleep Software



Compumedics Profusion™  
NeXus Software

### Neuro Diagnostics (including Brain Research)



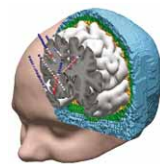
Compumedics Neuvo®  
512 Channel



Compumedics GraeL EEG®  
Neuroimaging Suite - 4K HD



Compumedics  
GraeL LT® - HD EEG



Compumedics CURRY®  
Neuroimaging Suite



ONsight™ A.V.S.  
Ambulatory Video Solutions



Compumedics  
Orion LifeSpan™ MEG

### Ultrasonic Blood Flow Monitoring



Multi-Dop® T digital



Doppler-Box™ X

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# STRATEGIC GROWTH PLATFORMS

The Company is focused on a number of substantial opportunities based on next-generation growth platforms applicable to DWL, Neuroscan brain imaging, and medical innovation projects such as eHealth, sleep treatment, and driver vigilance.

*The MEG opportunity is highlighted here.*

## THE NEW ORION LIFESPAN™ MEG - AN EXCITING INNOVATION FROM COMPUMEDICS

### What is MEG? How Does it Work?

Developed by David Cohen at Massachusetts Institute of Technology in the 1970s, MEG technology can record the magnetic fields associated with electric currents generated by synchronously active populations of neurons in the brain.

MEG is based on the use of highly sensitive detectors called a SQUIDs, or super-conducting quantum interference devices.

These superconducting magnetic field detectors can accurately measure the occurrence of spontaneous brain activity called spikes, which can be signatures of the existence and location of onset for epilepsy activity in the brain such as dementia, autism and epilepsy can be detected.

The development and integration of a zero-loss helium recycling system (used to cool the SQUIDs into the operational superconducting state, reduces system operating costs by as much as \$100,000 USD annually.

### Key Features

- 186/138 adult/pediatric radial gradiometers (> Spatial Density than Elekta)
- Simultaneous hyperscanning of two patients/subjects
- SQUID: Double relaxation oscillation SQUID (DROS)
- Average sensitivity: Better than 3.0 fT<sub>rms</sub>/ Hz (@ 10 Hz)
- Integrated Zero-Loss Closed-Loop Helium Recycling
- Sample Freq 10 kHz Max Option, Resolution: 16/24 bits
- 32/64/128 Channel Integrated EEG
- Active MSR Shielding (medium strength)

- CURRY® fully integrated / STIM2 / Video Integration
  - Real Time Dipole Averaging and Clustering
  - Real Time Event Averaging
  - 3 CURRY® WorkStations: 1 Acquisition, 2 Analysis
  - multiple system configurations are under development including sitting only and combine sitting/supine options to satisfy clinicals and researcher alike.

### Orion LifeSpan™ key advantages

Patented dual helmet rotating adult/pediatric dewar

Integrated zero-loss Helium recycling

Vibration-free continuous operation  
Helium reliquification system integrated into the Orion LifeSpan™ MEG system for reduced running costs

Patented Sensing System



Adult Dewar view

Pediatric Dewar view



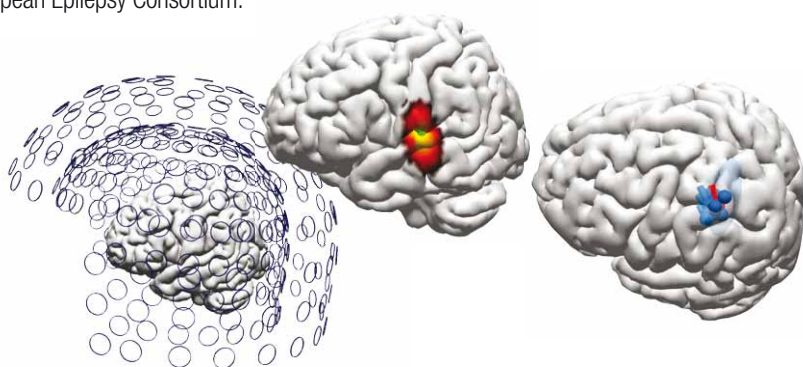
- The CURRY® Neuroimaging platform and MEG have a history stretching back over 25 years. CURRY was first conceived as a product in the early 1990's when Philips Electronics investigated the feasibility of developing its own MEG hardware platform. Ultimately, the hardware platform did not survive, but the software, along with its core engineering architects, Dr. Manfred Fuchs and Dr. Michael Wagner, continued on.
- The benefits associated with CURRY's ability to integrate MEG with EEG and co-register both kinds of high-temporal resolution functional imaging data with the structural neuroimaging data including MRI, CT, DTI, as well as PET, SPECT and fMRI accelerated the adoption of the software by both the research and clinical communities. Early clinical adopters, such as Dr. John Ebersole, supported and championed the benefits of source localization tools such as CURRY, contributing to the development of specific source analysis billing codes for EEG and MEG. For a long time, CURRY has been the de-facto software platform for clinical MEG community, particularly those assessing epilepsy. This has culminated in the adoption of CURRY as the standard analysis platform by the European Epilepsy Consortium.

### Market & Competition

- The MEG market is currently estimated at about 20 systems a year at an average selling price of USD4.0m each = US\$80m/pa
- This is expected to grow about 10% a year, excluding China
- It is estimated that China could double the existing market size to about 70 units a year
- The dominant existing player is Elekta, based out of Sweden, followed by Yokogawa (Japanese market) and CTF MEG (a much smaller player)

### Plan

- H1 FY19 – Deliver first sale to Barrow Neurological Institute in Phoenix, AZ, USA
- H1 FY19 – Secure second sale
- H1 FY20 – Obtain FDA clearance for 1st system in USA



# STRATEGIC GROWTH PLATFORMS

Compumedics' cloud based sleep diagnostic platform includes a professional application, NeXus 360, and a consumer application, Somfit.® NeXus 360 has been sold into ten sites in the USA in FY17 as a critical first step for this new business.

profusion  
**nexus 360™**  
 Laboratory Management System

### ***A Revolution in Laboratory Management***

Introducing Compumedics Profusion neXus 360, the next generation of Profusion neXus. Built on the proven Profusion neXus platform with more than 15 years of customer use and thousands of users, Profusion neXus 360 offers the full functionality of Profusion neXus and more, in a fully web-based interface.

 **ACCESSIBILITY**

- > Anywhere
- > Anytime
- > Any Device (supporting HTML5 browser)

 **SEAMLESS INTEGRATION**

- > Seamless hardware and software with user-configurable reporting
- > Fully managed by Compumedics
- > Scalability
- > HL7 Support
- > Multi-site management

 **HIGH SECURITY**

- > Digitally secure study "sign-off"
- > Two-factor authenticated login
- > HIPAA compatible
- > All web traffic is securely encrypted

 **WORKFLOW EFFICIENCY**

- > Simple management of access privileges
- > Web-based review and reporting
- > Automated updates and backups
- > Dynamic scalability to suit growing labs

### ***Profusion NeXus 360 Features:***

- Simple, browser/internet-based access via HTML5
- Two-factor Authentication Access
- Digitally secure study "sign-off"
- User-defined, group-based access privileges
- Template/Document Integration
- Non-editable audit-log
- Multi-language Support (English, French, Chinese, Spanish)
- Fully managed Cloud Service, simple installation, reliable system backups and easy system updating
- In-lab acquisition and real-time uploading to the web

### ***Platform and Browser Independent***



For personal use only





For personal use only

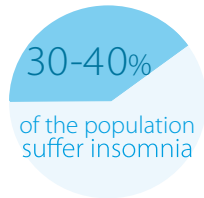
# Somfit<sup>®</sup>

True sleep fitness

## Quality Sleep is Essential

*“Every aspect of who you are as a human, every capability is degraded, impaired, when you lose sleep. What does that mean? Your decision-making, reaction time, situational awareness, memory, communication, and those things go down by 20 to 50 percent.”*

*(Mark Rosekind, member of the National Transportation Safety Board in Sleepless in America – National Geographic Channel Documentary December 2014)*



### What is Sleep Fitness?

Sleep fitness is getting the right type or stages of sleep and the right amount of sleep.

There are five stages of sleep, each characterized by different brain activity.

The most important sleep stages are REM (dream sleep) that enables brain restoration for learning and memory and deep sleep for body recovery.

The body also needs alignment of our internal circadian clock with the sleep/wake cycle - otherwise sleep quantity suffers (ie the “jet lag effect”) and sleep fitness is degraded.

### Are you getting quality sleep (how do you know)?

Movement detection is not clinically accepted as a true measure of sleep-wake.

The American Academy of Sleep Medicine (AASM) recommends that to clinically and scientifically distinguish between various sleep stages to determine sleep quality or fitness - sleep scientists measure brain waves (electroencephalography or EEG), eye movements and muscle tone. This is the Gold Standard for a sleep test.

### The Somfit<sup>®</sup>

For the first time, a fitness tracker with gold standard sleep technology.

At night, the Somfit<sup>®</sup> will track your sleep collecting medical grade data to provide true sleep insights - understand your night's sleep architecture - accurately measure the quality of your sleep through accurate measurements of durations you spend in REM, deep sleep or light sleep.

### Why use Gold Standard Sleep Technology?

The technology in Somfit<sup>®</sup> is medically validated and the data collected is Gold standard – meaning that it is the accepted methodology to accurately measure and detect REM, and the data can be used for medical consultations with your GP if and when the need arises.

### Coaching

Empower yourself with accurate sleep data and with Compumedics' strong ties with the sleep professional community and extensive experience in sleep monitoring, you can take intelligent action to improve your wellbeing and performance.

### Who is it for ?

- Athletes - managing and enhancing performance
- Parents - to monitor their children's sleep patterns
- Medical professionals - to assist treatments of insomnia or depression
- Anyone who wants to truly understand their sleep habits for well being.



Somfit<sup>®</sup> coaching APP

### The power inside

Powered with technologies from Compumedics, the company with over 25 years experience in professional sleep diagnostics and equipping leading sleep laboratories around the world with advanced sleep monitoring systems.

Compumedics offers expertise in medical product design, but significantly provides the advanced diagnostic-grade signal processing power for more accurate sleep staging and analysis in the Somfit<sup>®</sup>.

# A FOCUSED STRATEGY IN ACTION

For over 30 years, Compumedics' focus in Sleep and associated medical disorders has established a solid platform for growth.

For personal use only

**Compumedics established**  
Dr. David Burton founded Compumedics to design and manufacture medical electronics. Prior to Compumedics, analysis and diagnosis depended, in large part, upon manual recording methods, which were very time consuming and costly to implement.

**S-Series – the first digital sleep system in Asia Pacific**



**P-Series and S-Series released**  
Compumedics announced the release of the P-Series Portable Sleep Monitoring System with features including intelligent CPAP control.

Used by NASA and SHHS.



**NASA contracts won for International Space Station and Space Shuttle flight preparation**  
NASA chose Compumedics' P-Series Portable Sleep Monitoring System for the 1998 Neuro-mission Space Shuttle flight preparations.  
Compumedics won the contract to supply medical hardware for the International Space Station's Human Research Facility (HRF) under contract to NASA.

**Compumedics recognised**  
Compumedics was named Australian Exporter of the Year.  
Compumedics was awarded the 1998 Governor of Victoria Award for Victorian Exporter of the Year.  
Compumedics was awarded the 1998 AusIndustry Innovation Award.  
Compumedics was awarded the 1998 Telstra Innovation Award.



Siesta 802™ – World leading wireless system for sleep and EEG - receives FDA clearance.

Compumedics awarded the 2006 Frost & Sullivan Technology Leadership Award.

Compumedics and chairman inducted into the Victorian Manufacturing Hall of Fame.

**Somté® PSG is released** - the simplest and most convenient way to meet requirements for recording full PSG, in both attended and unattended settings.



Somté® PSG - Full PSG absolutely anywhere.

1988

1993

1994

2001

2006 - 2007

2008

1987

1991

1995

1998-1999

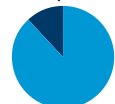
2000

2002-2005

**Epworth installs first Sleep Disorders Unit**  
Compumedics' first sleep system was installed at the Epworth Hospital Sleep Disorders Unit (Melbourne, Victoria). TIME magazine and the television series 'Beyond 2000' both featured the Epworth sleep center.

Sales revenue  
**\$1.7M**

Sales split



● Domestic \$1.5m  
● Export \$0.2m

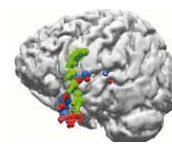
**Chosen for world's largest sleep study**  
Compumedics won the competitive US Government-funded contract to supply the equipment for the world's largest sleep study (6000 patients). The five year Sleep Heart Health Study (SHHS) was won against a field of 22 competitors, including multinationals. Compumedics supplied 40 P-Series Sleep Monitoring Systems along with 9 replay and 6 analysis systems. The equipment selection committee was made up of sleep experts from 11 leading University Hospitals across the USA.  
Compumedics was granted IEC 601-1 patient safety certification for its S-Series and P-Series products.

**Compumedics' ASX listing**  
Compumedics listed on the Australian Stock Exchange.



E-Series EEG/PSG system

**Compumedics' completes first acquisition – Neuroscan.**

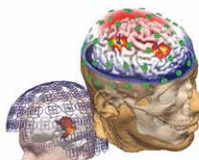


**DWL division established for blood-flow Doppler technology.**



Sales revenue  
**\$20.2M**

**Compumedics DWL awarded membership to Germany's top 100 innovative companies.**



**CURRY® 6 - Multi-modal Neuroimaging software is released.**



Globally read TIME magazine cover and article brings the "Trouble with Sleep" to the world.

For sale only

**Grael® is released** - Compumedics released the world's first High Definition and premier PSG/EEG, Grael®.

**Grael® wins Powerhouse Museum Award & finalist at the Australian International Design Award.**

Grael® PSG/EEG - World's first High Definition Amplifier.

Compumedics introduces direct selling in Germany.



2009

2010

Compumedics recognised as one of Australia's top 100 Health Innovators through its world leading devices for sleep diagnostics.

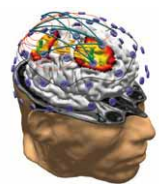


**Somnilink SPAP®**

Somnilink SPAP receives CE and TGA clearance.

2011

2012



**CURRY® SCAN 7 Neuroimaging Suite is released** - Compumedics Neuroscan releases its combined acquisition and signal processing software.

Compumedics introduces direct selling in France.

2013

2014

**Beijing Bestmed, Compumedics' China-based distributor invests \$0.5, becoming a top 10 shareholder** - this injection of funds contributes to Compumedics further growth in the China region.



Neuvo® LTM 512 Channel EEG

2015

2016

**New Patent Grant Underpins Growth Opportunities for Compumedics' DWL.**

- New product development based on patent for system of detecting and treating blood vessel stenosis or occlusions.



**\$7.5 Million Sleep Diagnostic Systems Contract with Beijing Bestmed Accelerates Compumedics Strength in China.**

2017

2018

**Compumedics wins major multi-million dollar MEG brain imaging contract.**



**Growth in China** - Compumedics confirms strength in China with over \$5M in sales in 2017.

**Successful completion of \$6.5M capital raising**

**New product released - Profusion NeXus 360** - A Revolution in Laboratory Management



2017

2018



**Compumedics celebrates its 25 Year Silver Jubilee Anniversary.**

**Neuvo® LTM, world's first 512 channel wall system is released to market** - the Ultimate Long-term Monitoring System.

**Grael®-HD EEG - High-Definition EEG** is released to market.



Grael®-HD EEG

**eHealth Business focus in Asia.**

New contract signed with Bestmed (China) with potential revenue of US\$5 million over the next three years growing to US\$13.2 million within five years.

Company has now secured total contracts for its eHealth platform with potential incremental revenue of US\$9.1 million over the next three years.

**New products released -**

**Profusion EEG5** - World class EEG diagnostic software.

**Profusion Sleep4** - World class PSG diagnostic software.



Grael® PSG      Grael® LT EEG

**New Grael® Range released for market** - Grael® PSG, Grael® LT and updates to Grael® and Grael® EEG

**New e-Health Somfit® consumer product is developed** -



Somfit® Night

**Compumedics and KRISS (Korea Research Institute of Standards and Science) officiates technology transfer agreement and MOU for new advanced MEG.**

**Compumedics Signs \$3.6 Million Distribution Agreement with Fukuda Denshi Co., Japan**

Fukuda Denshi Co. becomes Compumedics' new neuro diagnostic distributor in Japan. The deal further underpins Compumedics' on-going growth in Asia and opens a new market for Compumedics existing product range - neuro-diagnostic and monitoring products - in Japan.

**New product released -**

**ONSight™ A.V.S Ambulatory Video Solutions**

Monitor your patient's home ambulatory studies with CONFIDENCE! EEG with Video recording in "Real Time"!



# BOARD OF DIRECTORS

Deep

Compumedics is committed to developing a world class working environment that rewards individuals for the contributions they, and their teams, make to the business each year. Compumedics is proud of the diversity of its people, and continues to develop its people infrastructure under the guidance of the Senior Management Team and the Board.



**Dr. David Burton, Ph.D.**

Executive Chairman, CEO

Dr. David Burton, Ph.D., is the founder, Chairman and CEO of Compumedics. After establishment of Compumedics the company was listed on the ASX in 2000, and has been awarded 24 awards for design, innovation, business and exports including the Australian Exporter of the Year in 1998 and Small Business of the Year in 1999.

Dr. Burton started his career at the Bureau of Meteorology, where he studied radar techniques and electronic equipment. He founded Linear Transfer Pty Ltd, which designed, manufactured and marketed high fidelity recording and sound equipment. He was awarded an Associate Diploma in Engineering (Electronics) by the Royal Melbourne Institute of Technology and a Ph.D. (Eng. Sc.) by Monash University, Melbourne (Australia). Dr. Burton's engineering background includes the design and project management of Compumedics' first sleep laboratory and portable sleep systems. Dr. Burton has authored 150 patents or patent applications across more than 20 families of patents that form part of Compumedics' intellectual property.

Dr. Burton has served as an advisor for the Victorian Government as a member of the Council for Knowledge, Innovation, Science and Engineering (KISE), being the Victorian Government's key advisory body on issues and policies focusing on science and innovation.

Dr. Burton was presented the Clunies Ross National Science and Technology Award in 2002 for his development of innovative sleep monitoring technology. He was awarded the 2003 Centenary Medal by the Prime Minister and Governor General of Australia for outstanding contribution to science and technology, particularly public science policy. In 2003 Dr. Burton was awarded the Ernst & Young Victorian Entrepreneur of the year award for technology, communications, E-commerce and life sciences. In 2007 Dr. Burton was inducted into the Victorian Manufacturing Hall of Fame in recognition of manufacturing achievements and world-wide medical device exports.

Dr. Burton served as a Victorian Government adviser as a Board member of the Design Victoria (2008-2011), was appointed to the Academy of Technological Science and Engineering (ATSE) committee in 2012 and in recognition of his outstanding contribution to the profession of Biomedical Engineering and was awarded the 2012 David Dewhurst Award by Engineers Australia, College of Biomedical Engineers.



**Mr. David Lawson**

Executive Director

Mr Lawson has been Chief Financial Office and the Company Secretary of the Company for over nineteen years. In that time, Mr Lawson has been extensively involved in the development of the Company including the Initial Public Offering of shares in the Company, the subsequent offshore acquisitions in the US and Germany, private equity placements and the recent refinancing of the Company. Mr Lawson also has been involved in the operational turn around of the Company and brings a significant amount of experience and knowledge to the Board.



**Dr. Alan Anderson**

Non-Executive Director

Dr. Anderson, is a leading American attorney in the areas of commercial litigation, intellectual property and computer law.

He has represented Compumedics for all legal matters in the USA since late 1998.

Dr Anderson completed his Bachelor of Arts with Honours (Political Science) at Coe College. He also holds a Master of Business Administration with Distinction, a Doctor in Law with Honours from Cornell University, and a Certificate in International Business and Commercial Law from the McGeorge School of Law (University of the Pacific).



**Mr. Tucson Dunn**

Non-Executive Director

Currently working with JLM Investment, (USA) as CEO of Healthcare where he is responsible for healthcare ventures.

Prior to joining JLM, Mr. Dunn served as Managing Director of Fosun Healthcare Holdings in Shanghai China. Mr. Dunn has over 25 years of international healthcare leadership experience developing and managing hospitals, clinics and related business throughout Asia, Middle East, Europe and USA.

# SENIOR MANAGEMENT



**Dr. David Burton, Ph.D.**  
Executive Chairman, CEO



**David Lawson**  
Executive Director,  
Chief Financial Officer  
& Company Secretary



**Warwick Freeman**  
Chief Technology Officer



**Kerry Hubick**  
Trademark, Patent  
& General Legal Attorney



**Christoph Witte**  
General Managing Director  
DWL Compumedics Germany GmbH

## Medical Advisory Board



**Dr David Burton**  
Heads up Compumedics Medical  
Innovations Division.  
Authored > 100 patents or  
applications across >20 families



**Prof Ian Colrain, Ph.D.**  
Exec. Director - Brain Sciences &  
Senior Director, Center for Health  
Sciences, Stanford Research  
Institute (SRI) Biosciences.  
Professorial fellow - Uni of  
Melbourne . Core faculty member -  
Palo Alto School of Sleep Medicine.  
Member - editorial board of SLEEP



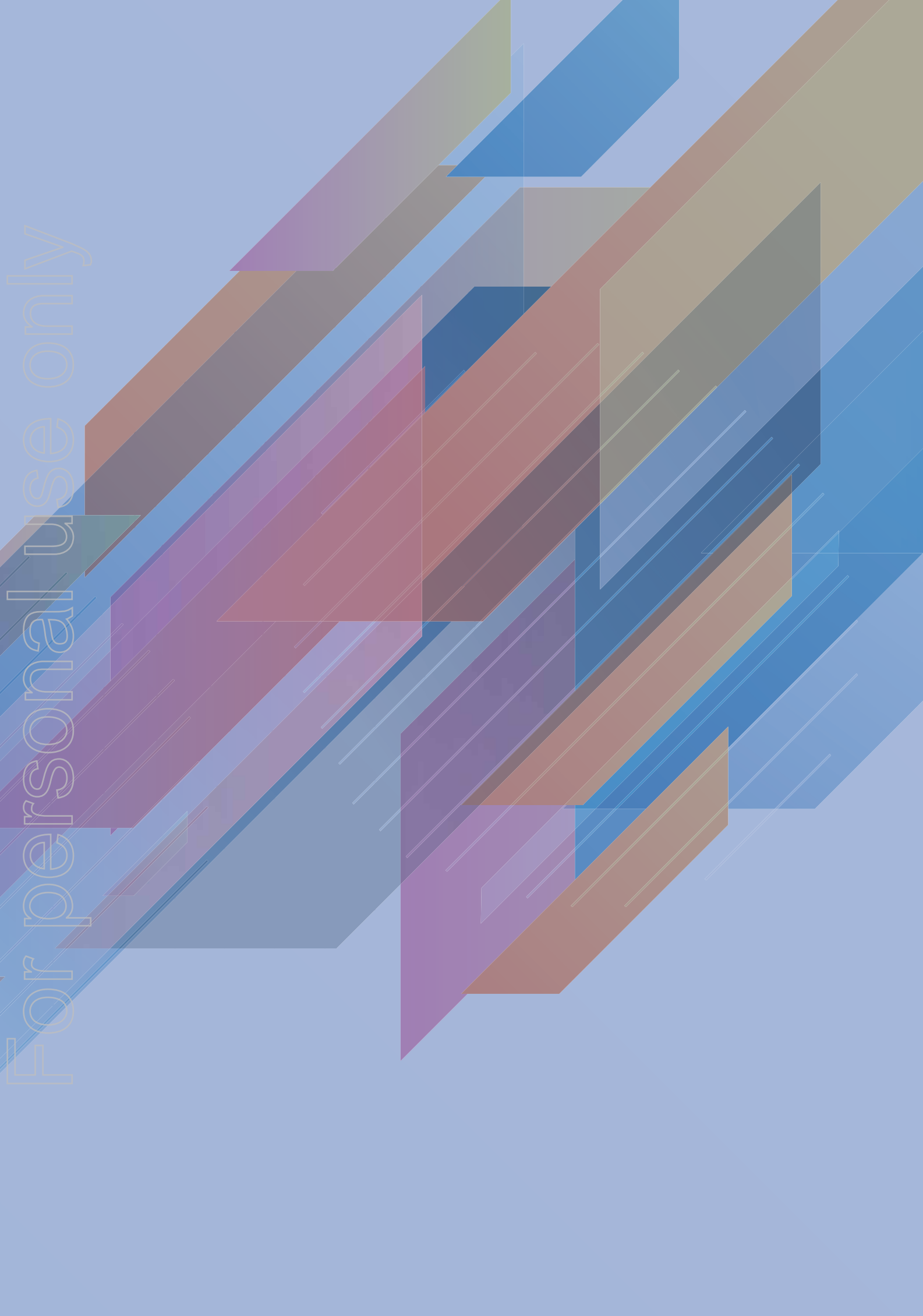
**Prof Patrice Bourgin, M.D.,  
Ph.D. Professor of Neurology**  
Strasbourg University  
Director, Sleep Disorders  
Center - Head of Research Team  
"Light, Circadian Rhythms, Sleep  
Homeostasis and Neuropsychiatry



**Prof John Ebersole,  
MD Chicago University**  
Department of Neurology  
Director, Adult Epilepsy  
Service Director, Clinical  
Neurophysiology Program Medical  
Director, Illinois MEG Center Editor-  
in-Chief, Journal of Clinical  
Neurophysiology

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