

Full Year Results
for Financial Year to 31 May 2022

Richard Gibbs, CEO Michael Tyerman, CFO





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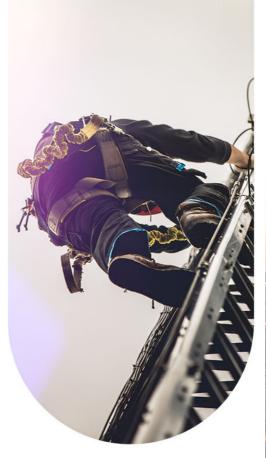
Enabling the future of RF Microwave and mmWave communications



Creating value for our stakeholders through technology leadership



# **Executive Overview**

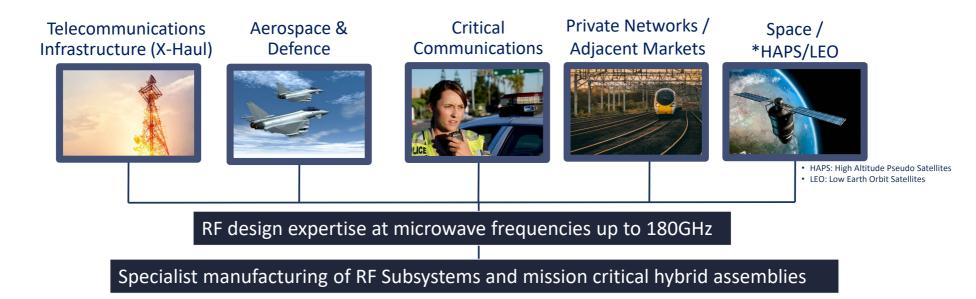




#### Overview



Filtronic plc is a **designer** and **manufacturer** of advanced RF communications products serving five core markets:



We deliver high-performance solutions based on:

- Flexible UK / USA manufacturing resources allowing OEM's to quickly scale to volume
- Accredited manufacturing facilities with robust security, proven processes and full traceability
- Order fulfilment options which include turn-key design and manufacturing, inventory hub and kitting

### Full Year Highlights



£17.1m (+10%)

Adjusted EBITDA\* £2.8m (+58%)

Adjusted operating profit\*\* £1.6m (+174%)

Cash at bank

Net cash (net of all lease obligations except right of use property lease)

- Margin improvement from a stronger sales mix.

headwinds from the macro environment.

- Series of recent contract wins totalling £1.9m from new customers
- Healthy cash position provides a platform for continued investment in growth initiatives.

Revenue growth of 10% and adjusted EBITDA growth of 58% to £2.8m despite

- Delivered on existing development contracts and secured initial production orders for new development programmes.
- Built our channels to market, strengthened the order book and improved customer engagement.
- Sales of Tower Top Amplifiers (TTAs) surpassed £1m in the financial year.
- Successfully managed ongoing challenge of global semiconductor shortages.
- Strengthened engineering and business development teams.

Adjusted EBITDA is earnings before interest kation, depreciation, amortisation and

Adjusted operating profit is operating profit/(loss)



# Financial Summary



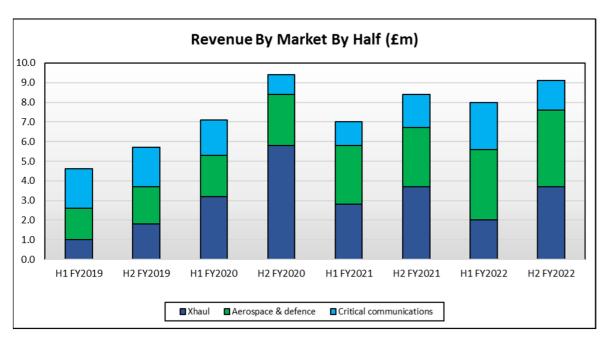


#### Revenue: 10% Growth FY2022 vs FY2021



#### Key strategic objective:

**Develop customer base outside of top three customers** 



#### **Group revenue £17.1m** (2021: £15.6m)

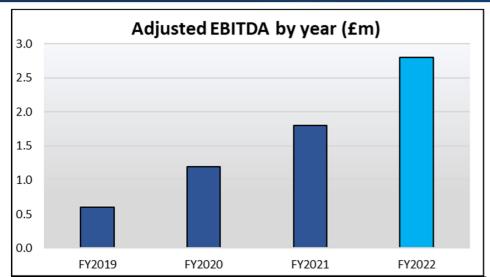
10% revenue growth over FY2021 despite headwinds from global electronic component shortages, geopolitical issues and inflation.

- Aerospace & defence increased revenue due to the battlefield communications project and a number of new development contracts.
  - Growth of 25% vs FY2021
- Xhaul revenue impacted by global semiconductor component shortages in H1 but recovered to normalised trading in H2
  - Decreased 12% vs FY2021 but demand remains good
- **Critical communication** sales increased as public funds were diverted back into infrastructure projects from healthcare. Good market adoption of the TTA.
  - 34% revenue growth vs FY2021



## Third Consecutive year of Adjusted EBITDA growth



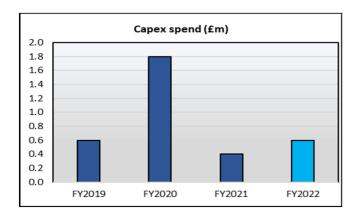


Full year results (£m)				
	FY2022	FY2021	Change	
Revenue	17.1	15.6	10%	
COGS	(5.6)	(5.5)	(3%)	
Operating costs	(9.4)	(9.5)	0%	
Exceptional items	0.4	0.1	(531%)	
Operating profit (Adjusted)	1.6	0.6	174%	
EBITDA (Adjusted)	2.8	1.8	58%	

- Improved revenue coupled with the stronger sales mix from higher margin business within aerospace & defence and critical communications markets drove higher gross profit.
- Engineering developments customer funded in the year. Focus on technology roadmap execution in FY2023.
- Yield and process efficiency improvements delivered further manufacturing cost savings.
- Overhead costs controlled at £9.4m
  - Strengthened business development and engineering teams in Q4 (recruitment fees of £0.2m) whilst marketing spend increased with trade exhibitions restarting.
  - Salary costs increased by £0.1m additional headcount in the engineering team but lower manufacturing heads.
  - US government loan of £0.1m as part of Covid Paycheck Protection was forgiven in period and credited to P&L.
- Adjusted EBITDA grew by 58% to £2.8m.

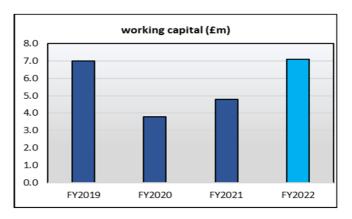
### Balance Sheet Highlights





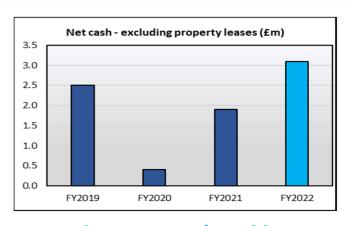


- £0.6m capex to accelerate NPI developments and service the opportunity pipeline.
- Purchased using asset finance to maximise Group liquidity and invest in
- Future capex spend will be aligned to incremental revenue opportunities and technology capability.



**Working capital** 

- Net working capital is £7.0m
- Inventory increased by £0.4m to mitigate supply chain issues from global electronic component shortages. Mitigation action has created opportunities and enabled new business wins.
- Strong trading in Q4 driven high closing debtors and creditors. Balances are all in line with payment terms and consistent with industry standards.



**Strong net cash position** 

- Healthy cash position gives a platform to invest in revenue growth initiatives and develop capability.
- Cash in bank of £4.0m (2021: £2.9m).
- Enabled by good trading performance driving EBITDA generation with offset from increased working capital requirements.
- Undrawn invoice discounting debt facilities available - £3.0m Barclays and \$4.0m Wells Fargo.







# **Operational Summary**

## Business Development Highlights



- Significant 12 month orderbook for Morpheus Xhaul transceivers as 5G network deployment gathers pace
- £0.7m production order from test equipment market following successful development programme and prototype delivery
- £1.3m Battlefield radio communications equipment order delivered with excellent field trial results
- "Best-in-class" Tower Top Amplifier (TTA) exceeded £1.0m of sales
- Defence accreditation at Leeds facility results in over £1m of defence filter design wins
- Second DSTL development programme secured as part of Electronic Warfare ("EW") & Cyber program
- Engagement with Low Earth Orbit ("LEO") Space primes and better understanding of gateway link requirements
- Successfully navigated some of the global semiconductor supply chain issues with proactive procurement and product redesign





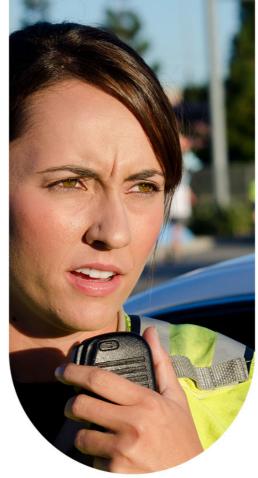
### **Building Momentum**



- Healthy cash position will allow us to invest in technology roadmap to enable the next phase of growth
- UK Government investment in sovereign Space and Telecommunications Infrastructure (including Skynet and OneWeb) continues to build opportunities for RF Gateway links
- UK defence spending on EW technologies including upgrades to next generation aerospace radar platforms
- Global 5G infrastructure roll-out continues at pace with E-band frequencies licenced worldwide (including India)
- Initial engagement in challenging switch filter design for a well-funded Quantum Computing application
- Long term development programme for a 5G test equipment OEM is transitioning to full production
- Early engagement in High Altitude Pseudo Satellites ("HAPS") market brings E-band IP to the attention of LEO Space constellations players
- Critical communications market continues to see federal and state spending in infrastructure investment
- Growing level of market acceptance for TTA products specified in important state upgrade programmes
- Final delivery of battlefield radio communications equipment driving interest in follow-on demand
- Active recruitment program enabled us to build a talented RF design team Manchester Design Centre



# Strategy & Growth





### Market Dynamics





**Telecommunications** 

\* Ref: Research & Markets (Mar 2022)



Aerospace &

Defence

£16.5bn increase in UK Defence

Partnership with market leaders

Accredited UK RF hybrid facility

Strong RF design / DFM support

RF / microwave hybrid TRM

modules for airborne ASEA

Spending CY2020-24\*

radar systems





Adjacent Markets /



	Infrastructure (Xhaul)
Primary Application	E-band mmWave backhaul transceivers for 5G telecommunications infrastructure
Market Growth Rate	5G Backhaul growth: 13.0% p/a CY2021-28*
Market Drivers	Global 5G telecoms rollout Release of E-band licences High density urban networks Installed fibre backhaul
Filtronic USP	Partnership with market leader Quality /reputation / brand Proven IP / Performance History of high volume delivery

LICE
Critical

Comm

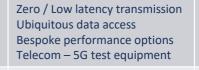
CY2021-25\*

Communications	Private Networks
Subsystems for LMR secure public safety / first responder communications networks	Private Telecom links, Low Latency Trading Networks, Track to Train Networks, Telecom Test Equipment
LMR market growth: 9% p/a	

HAPS / LEO Up-link / Down-link - mmWave high frequency transmission systems for HAPS / LEO

Space Telecoms

NATO spending to 2.5% GDP	
Outsourced RF design capability A&D primes lack design capacity Sovereign OSAT hybrid facility UK Defence Strategy / Exports	Reliability of P25 LMR solutions Upgrade + MRO installed base Introduction of LTE solutions Integration LTE + LMR solutions



Proven IP /wide dynamic range

Performance – power / latency

Volume manufacturing

Quality /reputation / brand

Ubiquitous data access 60-70% space investment in LEO Economic network coverage Future operating revenues

40 active HAPS programmes\* 60,000 LEO satellites by 2029\*\*

OneWeb + FAANG investment

Manufacturing processes

Partnership with market leader

Quality /reputation / brand

US manufacturing facility

<sup>\*\*</sup> Ref: AGI.com 2021



<sup>\*</sup> Ref: Defence News (Jan 2021)

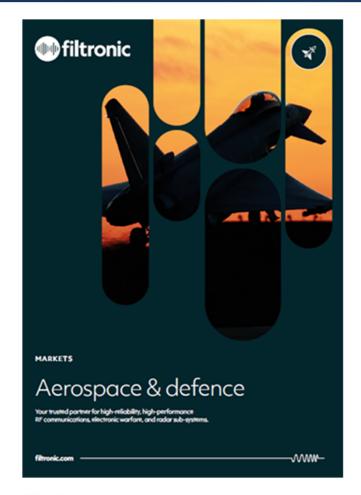
<sup>\*</sup> Ref: Research and Markets (Mar 2022)

Tx / Rx Power SSPA performance Quality / reliability Telecoms reputation Volume manufacturing

<sup>\*</sup> Ref: Northern Sky's Research (July 2020)

### Aerospace & Defence





- Filtronic has a unique combination of filter design, MMIC design, hybrid assembly and RF sub-system design and manufacturing
- Filtronic has established security accreditations and manufacturing processes that allow us to work on classified defence programs
- The UK defence industry is critically short of sovereign RF design skills and specialist RF manufacturing resources
- Diverting engineering resource from the mature Critical Communication market has enabled us to win £3.0m of new defence business in the last two years
- UK Government has confirmed investment for the Tempest programme and a £2.2b production order for Typhoon fleet radar upgrade ref: recent FIA23 announcements
- The overall value of the electronic warfare market (EW&C) in the United Kingdom is expected to reach £800 billion by 2027\*



Filters + Switch Filterbanks for Radar and Communications



Battlefield Communication Systems



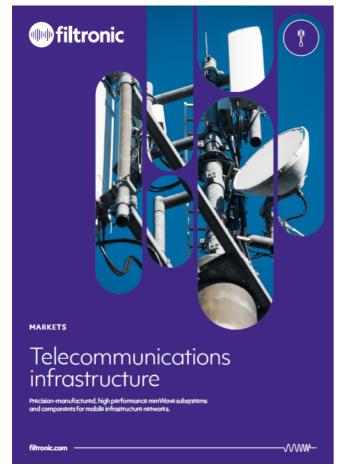
Radar Hybrid, MCM's and QFN SiP Modules



RF Communication Test
Systems

#### Telecoms Infrastructure





- Filtronic has a long history in the design and manufacturing of Xhaul communications equipment at E-band frequencies
- Owning the core MMIC chip-sets allows Filtronic to differentiate product offerings and offer enhanced product performance
- Filtronic has a technology and development roadmap which will deliver V-Band, W-band and D-band solutions as the market requirements emerge
- E-band frequencies need to be deployed to offer true 5G performance but individual countries have been slow to licence this frequency band India expected Q3/2022
- Several emerging markets utilise E-band IP developed for the telecoms market High Frequency Trading – Track to Train links – HAPS and Space gateways
- The backhaul segment with the highest five year growth will be E-Band. The E/V-Band market is forecast to grow at a 25% compounded annual growth rate CY2022-26\*







Hercules HP module



Morpheus XHaul Module



Hades Active Diplexer



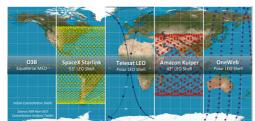
Cerus SSPA module

### LEO Space





- Filtronic has successfully developed and deployed two separate E-band HAPS solutions for large USA West Coast technology companies
- Commercial LEO programs expect commercial cost structurers and proven IP and place high value on fast time to market
- LEO constellations require multiple frequency bands (Ka/Q/V and E-band) Filtronic has multi frequency IP and our new engineering team has extensive SATCOM experience
- UK Government investment in OneWeb should result in opportunities for UK based technology providers
- Filtronic investment in chipsets for terrestrial telecoms Xhaul allows us to build highly differentiated and scalable solutions Cerus SSPA incorporating power combining
- The number of LEO satellites schedule for launch by 2027 will exceed 60,000\*



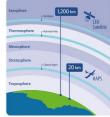
Bespoke solutions for LEO constellations



HAPs + Leo E-Band Solutions



Cerus Power Modules with power combining



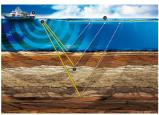
Engagement with HAPS and LFO consortiums

## Adjacent Market Applications

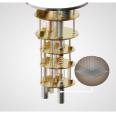




- Filtronic investment in core technology and manufacturing capability for Aerospace and Defence, Telecom and Critical Comms enables access to adjacent markets
- Adjacent markets help to diversify customer base, justify future investment and fill available manufacturing capacity
- Priority given to applications that utilise existing engineering knowledge and current manufacturing capacity where we can retain or generate IP
- Mission critical applications with high frequency RF filtering and packaging requirements provide attractive margins
- Selected engagements in adjacent markets has enabled £2.5m of new business wins in the last two years
- Prospects in filter design and mmWave packaging for oil & gas, quantum computing test instruments applications look promising in terms of future potential



Seismic sensor hybrids



**Quantum Computing** 



mmWave Test Equipment



RF SiP Design + OSAT Services



Track to Train Networks

# Strategy & Growth – markets / applications update



Vertical Market & Application

Progress in 1st year

Target mid term

FY2022 Update

Target long term



Aerospace

• TRM + filter development contracts for MKII upgrade.

 TRM + filter research and for next gen radar systems

 Consolidate business model for hybrid manufacturing • Tx Rx Module + filter prototype for MKII upgrade.

 TRM + filter research and for next gen radar systems

 Portfolio of OEM customers for CMS and OSAT services  8 separate filter programmes secured with UK primes

 Completed Tx module prototype for next gen radar

 Defined QFN SiP solution for Typhoon ASEA radar upgrade  Qualification of prototypes for Typhoon ASEA radar upgrade.

• TRM + filter development for next gen fast jet programmes

 Turnkey OSAT\* offering for UK Defence OEMs



Terrestrial 5G Telecom Infrastructure  Promote superior Morpheus power performance to tier 1s

Secure funding for mmWave development program

 Start mmic design for W-band in accordance with roadmap  Develop E-band active SiP/ active diplexer solution

 Develop Track to Train solution based on UK trials

Move test equipment development to production

 E-band active SiP/ active diplexer solution launched

 Hercules + Morpheus X hi-power products launched

• 5G test equipment orders

• W-band test wafer launched

 Develop W-band transceiver and active diplexer for lead customer(s).

 Develop D-band project plan in conjunction with lead customer(s)



UK Defence & Critical Comms

 Achieve full security accreditation for Leeds site

 Filtering process for UK DSTL SME programmes

 Complete battlefield comms project design and initial build  Support development of emerging 900MHz product

 Win TTA orders with Tier 1 LMR providers in US/ Europe

• Establish flexible 3<sup>rd</sup> party filter design relationship

 Second DSTL development project won

• Complete delivery of battlefield comms program

 Milestone of £1m of TTA sold since initial order in May 21 Win follow-on DSTL EW&C development programs

• Secure identified shipborne radar programmes



Space – HAPS / LEO  Look for fast turn OSAT business opportunities that can provide space heritage

 Promote IP developed as part of initial HAP's engagements to LEO constellation OEMs  Align Filtronic with OneWeb for development of gen 2

• Development of 10w PA for volume manufacturing

 Play active role in HAPS Alliance to promote E-band  Engaged in consortium bids for OneWeb 2.0 program

 Generated roadmap for scalable Cerus SSPA product

 Build on relationship with LEO constellation OEMs  Establish strong relationship with Space Catapult to develop NETPark site as manufacturing & test hub

 Develop demonstrator for scalable SSPA at E / V band

# Strategy & Growth – operations / capability update



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#### Progress in 1st year

#### Target near term

#### **Interim Update**

#### Target long term



Sales & Marketing

- Build the roster of sales reps in North America
- Develop direct sales network in Europe / Israel
- Relaunch the Filtronic brand and build online presence
- Expand UK defence sales and business development team
- Build CRM tool capability and develop sales methodology
- Engage in selected technical associations + industry groups
- Added to North America rep channel + direct BD resource
- Data analytics support recent marcom investments
- Increased engagement with funding / industry groups
- Bring Channel Management skills into the company
- Develop technical proposal / grant application writing team



Engineering

- Build stronger programme management organisation so we can scale design programs
- Strengthen inhouse SIP design and engineering capability
- Build OEM engineering links
- Build alignment with key UK universities specialising in RF subsystem design
- Engage engineering staff in technical associations + industry groups
- Director of Technology role to develop /drive roadmap
- Established new design team in Manchester area
- Established links with UK universities specialising in RF
- Graduate and apprenticeship development programme



Operations & Facilities

- Maximise efficiencies from hybrid manufacturing line
- Build accredited UK defence "box-build" capability.
- Consolidate USA Critical Comms build / test facility
- Manufacturing process for low cost plastic encapsulation.
- Develop assembly process for Compound Semi materials.
- Improve prototype development Eng. capability
- Defined process required for low cost plastic TRM SiP.
- Strengthen process engineering resources
- Added die attach line to assist process development
- Space level cleanroom manufacturing facilities
- Expansion of in house qualification + DPA capability



People & Processes

- Improve materials planning and inventory management systems for turnkey OSAT\*
- Explore Filtronic Leadership Academy – Management Development Training
- Gain Cyber Security IASME accreditation
- Develop ESCC level assembly process flows ESCC9000.
- Gained IASME governance accreditation
- Secured lead customer to develop space level assembly
- Filtronic Leadership Academy programme commenced
- Gain Cyber Security ISO27001 accreditation
- Target AS9100 quality std for aviation, space and defence
- Enhance our business systems



# Key Investments in FY2023



<b>Business Activity</b>	Key Investments
Sales and marketing	<ul> <li>Development of direct sales channels for Aerospace, Defence and Space with recruitment of senior business development team</li> <li>Increased budget for tradeshow and direct marketing activity</li> <li>Expansion of rep and distributor network in the USA and Europe</li> </ul>
Engineering (R&D)	<ul> <li>Increase engineering design capacity to serve a building opportunity pipeline, development of the technology roadmap and delivery of current programmes</li> <li>Complete the W-band and SSPA mmic development wafer analysis</li> <li>Plastic QFN packaging development program for future radar platforms</li> <li>Develop Cerus power amplifier platform design to penetrate space markets</li> </ul>
Operations and business processes	<ul> <li>Expand our cyber security credentials to win more defence contracts</li> <li>Process development of semiconductor packaging and OSAT manufacturing</li> <li>Upskill our leaders and management with the "Filtronic Leadership Academy"</li> <li>Formalise the graduate and apprentice programme to develop tomorrows talent pool</li> </ul>
Balance sheet	<ul> <li>Continue to build the inventory position to mitigate the risk of the global electronic component shortage and shipping delays from Asia</li> </ul>



# Summary





### Summary



- Filtronic continues to evolve:
  - Focused on four strategic pathways (Xhaul telecoms, aerospace, defence and space) that position us in markets where we can differentiate, add value and command sustainable margins:
    - Strengthening the sales and engineering functions to open the aperture on new business opportunities
    - Promoting the brand based on a clear understanding of values and customer's expectations
    - Driving a roadmap for the development of facilities, people and business processes
    - Multi-year plan to build capability and further develop IP portfolio
- Served available markets are strong and the Board are confident in their future forecasts
- Cash and resources in place to work through semiconductor supply chain issues and economic headwinds
- USA manufacturing well aligned with the McCain Bill and the customers desire for "Made in America" sourcing
- Good alignment with UK Gov priorities sovereign supply chains for Aerospace, Defence, Telecoms and Space
- Positive trading outlook for the current financial year despite some economic, industry and geopolitical pressures





NETPark Plexus 1, Thomas Wright Way, Sedgefield, County Durham, TS21 3FD

T: +44 1740 618 800 E: sales@filtronic.com

#### **USA Office**

700 Marvel Road, Salisbury, Maryland, 21801 USA

T: +1 410 202 8811 E: sales@filtronic.com



filtronic.com



# Appendices



#### Income statement



	FY2022	FY2021
	£000	£000
Revenue from goods and services	16,580	14,375
Revenue from non-recurring engineering (NRE)	472	1,181
Revenue	17,052	15,556
Material costs of goods sold	5,645	5,462
Staff costs	6,416	6,318
Depreciation, amortisation and impairment	1,223	1,195
Other operating income	(329)	(345)
Other expenses	2,122	2,284
Total operating costs	9,432	9,452
Operating profit	1,975	642
Exceptional items	(391)	(64)
Adjusted operating profit	1,584	578
Depreciation, amortisation and impairment	1,223	1,195
Adjusted EBITDA	2,807	1,773
Adjusted EBITDA margin	16%	11%

## Balance sheet



	May-22	May-21
	£m	£m
Goodwill and intangible assets	1.5	1.7
Right of use assets	2.3	2.3
Property, plant and equipment	0.7	1.0
Deferred tax	0.8	1.2
Non-current assets	5.3	6.2
Inventory	2.6	2.2
Trade and other receivables	4.5	3.3
Cash and cash equivalents	4.0	2.9
Current Assets	11.1	8.4
Trade creditors and other payables	3.0	2.4
Provisions	0.3	0.4
Deferred income	0.3	0.3
Financial liabilities	0.0	0.1
Lease liabilities	1.8	2.0
Total liabilities	5.4	5.2
Net assets	11.0	9.4
Share capital and reserves	11.0	9.4

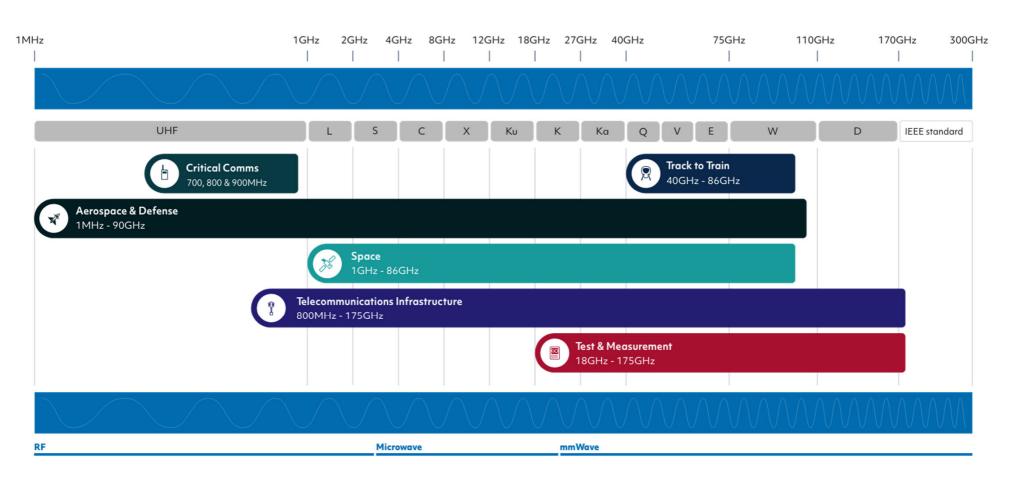
## Cash flow statement



	May-22	May-21
	£m	£m
Net cash generated from operating activities	2.3	2.5
Net cash used in investing activities	(0.2)	(0.4)
Net cash used in financing activities	(1.0)	(1.0)
Movement in cash and cash equivalents	1.1	1.1
Currency exchange movement	0.0	(0.2)
Opening cash and cash equivalents	2.9	2.0
Closing cash and cash equivalents	4.0	2.9

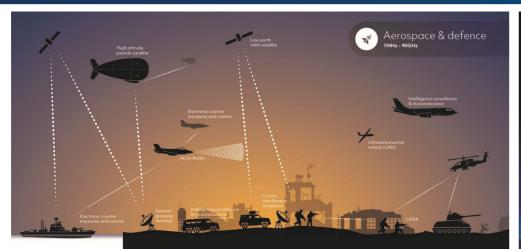
# Markets / RF Frequency Band

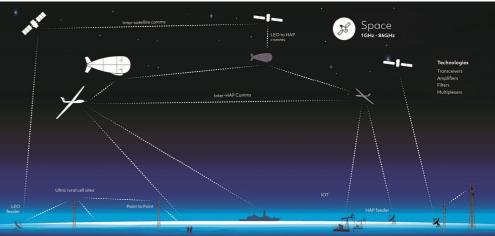


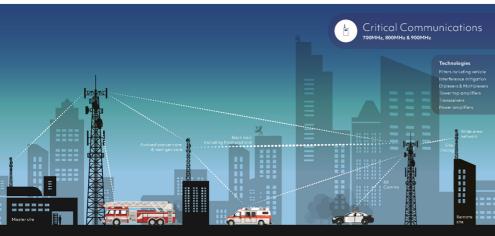


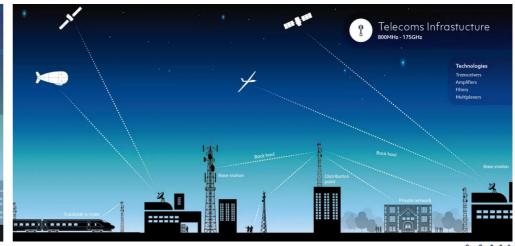
# Applications by Market – 1MHz to 175GHz





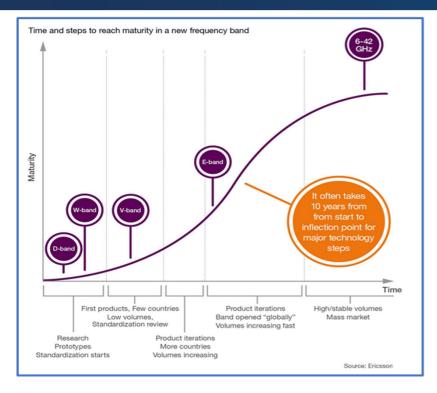




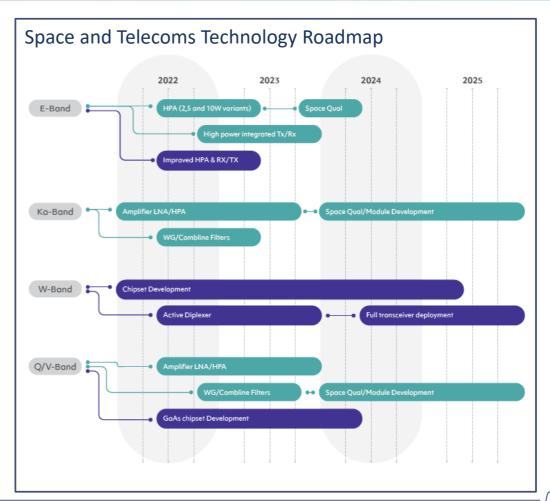


# Technology Roadmap – Telecoms / Space





Multiple frequency bands Ka to D-Band will be used to facilitate the convergence of terrestrial and non-terrestrial telecom infrastructure





Enabling the future of RF Microwave and mmWave communications

Creating value for our stakeholders through technology leadership

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