



DRONESHIELD

Artificial Intelligence For Multi-Mission Threat Protection and C-UAS Defence

DroneShield Limited (ASX:DRO)
2023 Half Year Results - Investor Presentation
August 2023

1H23 Update



- Record contracts and rapidly growing cash receipts
 - \$11.5 million revenue for 1H23, ▲200% over 1H22¹
 - \$15.3 million cash receipts for 1H23, ▲200% over 1H22¹
 - \$33 million US Government sale announced 16 July, expected to be fully delivered and paid this calendar year
 - \$9.9 million 2-year R&D contract announced 4 July, following on the earlier \$3.8 million contract from same customer
 - All-time record 2Q23 cash receipts of \$8.2 million, ▲200% over 2Q22
 - Expecting \$2.4 million in R&D Tax Incentive (as cash payment) in the current 3Q23 quarter

Rapidly narrowing 1H23 net loss, at \$2.9 million (▼40% compared to 1H22)

- Second half year is typically stronger than first half – 1H22 net loss was \$4.9 million vs entire FY23 net loss of \$0.9 million

Strong cash balance of \$42.4 million as of 30 June, no debt or convertibles

Record \$62 million contracted backlog and pipeline of over \$200 million²

- \$65m+ inventory build under way, substantially completed by end of current quarter

Substantially completed expansion of the team to enable build, delivery and support of materially larger orders

- Moving to a larger Sydney facility (2.5x current floor space) prior to year-end, plus supply chain partners been rapidly expanding

Favourable macro environment for DroneShield with rapidly rising counterdrone, defence and security spending globally

- The Ukraine conflict continues to highlight the use of drones on the battlefield, which will continue driving increasing C-UAS orders even after the eventual ceasefire

¹ The difference between \$11.5 million revenue and \$15.3 million cash receipts is due to a sale delivered in December 2023 (thus falling into FY2022 revenue), and payment received in January 2023

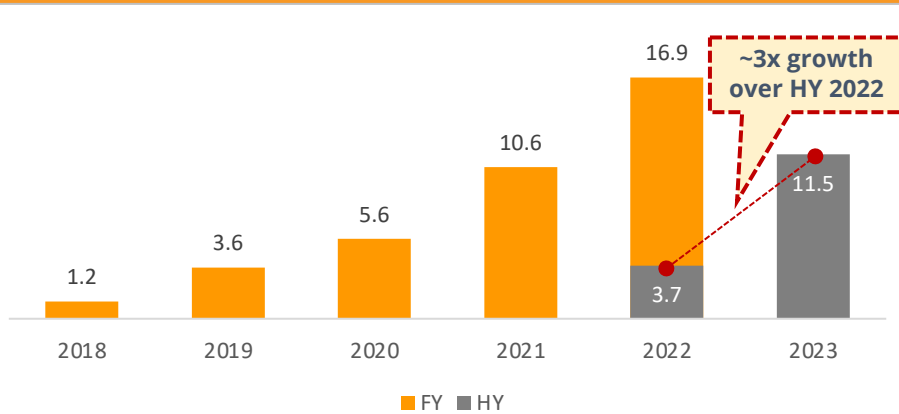
² There is no assurance that any of the Company's sales opportunities will result in sales.

Continued Rapid Growth (\$m, Dec YE)

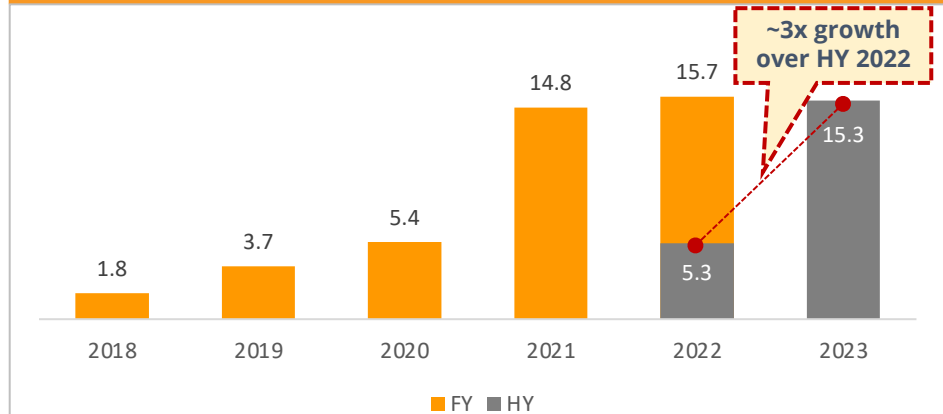


The business stands at an inflection point

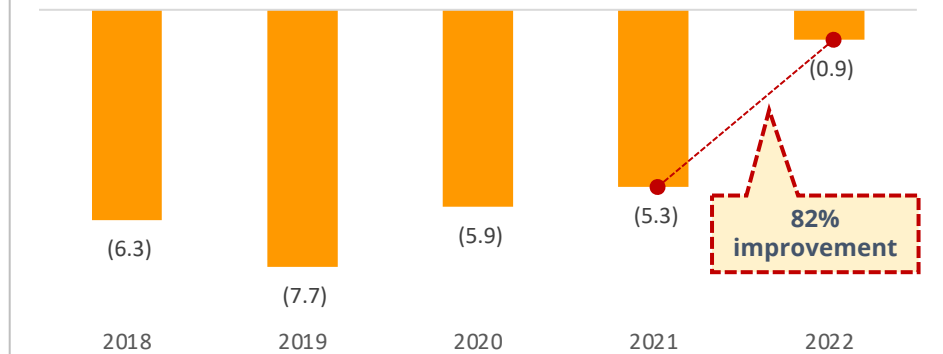
Strong Revenue Growth



Rapid Cash Receipt Growth (Sales + Grants)



Rapidly Improving P&L



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¹ The difference between \$11.5 million revenue and \$15.3 million cash receipts is due to a sale delivered in December 2023 (thus falling into FY2022 revenue), and payment received in January 2023



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Problem and Opportunity: Drones as a Threat

Drones - A Critical and Growing Threat Vector



Russia launches 'kamikaze' drone attack on Kyiv, killing 4 and hitting civilian infrastructure

By Victoria Butenko, Oleg Volkovich and Yulia Kessalova, CNN
Updated 3:09 PM EDT, Mon October 17, 2022

Drone activity at Augusta Correctional Center in Craigsville causes lockdowns

Flights into Gatwick diverted after reports of drone near airport

Spokesperson says 12 incoming flights affected during almost hour-long suspension due to alert



A British Airways plane at Gatwick. The carrier said one of its flights was diverted to Stansted before refueling and returning to the West Sussex airport. Photograph: Gareth Fuller/PA

BORDER CRIME

Smugglers use drones to spy on agents in the field, Border Patrol says

by: [Salvador Rivera](#)
Posted: Mar 9, 2023 / 06:27 PM CST
Updated: Mar 16, 2023 / 07:30 PM CDT

Drugs and weapons were given to the windows of the Donacona prison



100 drones a day in Sydney Airport no-fly zone

A sharp increase in drones flying in airport no-fly zones has commercial pilots on alert and the regulator erecting warning signs.

Pak smugglers switch to smaller, stealthier drones to drop drugs into Punjab

By [Ravinder Vasudeva](#) · Chandigarh

Aug 18, 2023 12:09 AM IST
Reason: Such drones can fly long distances and make comparatively less noise, thus making it harder for security agencies to detect these as compared to the large-sized drones.



THE WALL STREET JOURNAL



Saudi Arabia Reveals Extent Of Damage To Oil Plants After Drone Strike



Russia Hits Ukraine's Kyiv Region With Drone Attack

Ukraine's air-force command says it downed six Iranian-made drones over the south

Why is the Malicious Use of Drones a Threat?



The widespread adoption of drone technology has increased the risk and prevalence of disruptive use

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Payload Delivery

- **Attacks:** Dropping harmful / explosive payloads (including chemical or biological substances) or creating damage via collision
- **Smuggling:** Moving contraband into sensitive zones such as prisons



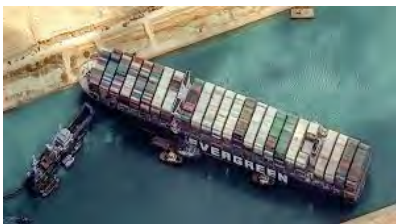
Intelligence Gathering

- **Directing Attack:** Reporting enemy target location on the battlefield to direct forces
- **Spying and Tracking:** Obtaining video, images and track movements of personnel
- **Surveillance:** Using drone images and other payload data to enable reconnaissance



Nuisance Activity

- **Infrastructure Disruption:** Using drones to jeopardise the safe operation of major facilities such as airports



Cyber and Ransom Attacks

- **Corporates, Ships, Facilities:** Hack into control networks via proximity intrusion with a drone, and demand ransom or cause terrorist attack



Counterdrone: US\$10bn Diverse Addressable Market

Rapidly improving and easily available drone technology is driving demand for counterdrone solutions

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Military



Government Facilities



Law Enforcement



Protective Details



Airports



Stadiums



Commercial Venues



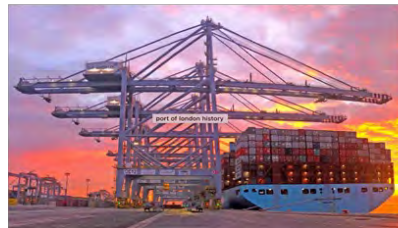
Energy Production



High Profile Events



Shipping / LNG Ports



Rescue / Fire Response



Correctional Facilities



Sources:
Addressable market: <https://www.DroneShield.com/counterdrone-market>
Markets and Markets: <https://www.marketsandmarkets.com/Market-Reports/anti-drone-market-177013645.html>
Factors & Factors: <https://www.globenewswire.com/en/news-release/2021/08/27/2287713/0/en/Global-Counter-UAV-Market-Size-Share-Expected-to-Reach-USD-2-041-09-Million-by-2026-Facts-Factors.html>

How a Counterdrone System Works



DroneShield performs all 3 steps of the process

Step 1

Detect



Step 2

Assess



Step 3

Respond



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- State of the art, multi-sensor drone **detection** products provide optimal detection and identification of drones and other UAS threats

- Machine learning and AI based detection and classification software for near-real time **tracking** and **assessment** of drone threats

- **Respond** / defeat technologies offer intelligent, responsive, non-kinetic solutions for the controlled management of threats

Geopolitical Environment Providing Market Tailwinds



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- Increased expenditure by Western Governments in response to the war in Ukraine
 - US DoD increasing 2023 budget to over US\$800bn, a record peacetime amount¹
 - Germany increasing spending to over 2% of GDP (from 1.53% in 2021), including a new EUR100bn fund to modernise military²
 - Poland have announced a record 2023 Defence budget at 3% of GDP³
 - Australia completed Defence Strategic Review earlier this year, with expectations to increase the Defence spend and allocate an increasing budget to asymmetric, high-tech and greyzone warfare

In Australia, the Government is seeking to rapidly grow sovereign defence capability, with several key focus areas directly matching DRO expertise, being counter-robotics, Electronic Warfare, battlefield surveillance (ISR) and defence technology capabilities more generally

Record Defence and Security budgets, combined with a demonstrated use of drones by both sides in Ukraine for payload delivery, directing artillery strikes, collecting field intelligence and general use, has put increasing focus on both drone and counterdrone systems for all major militaries

DroneShield is one of very few fielded and proven counterdrone systems with US DoD recommendations and based in Australia and US, hence well positioned to supply to Western allies

- Combined, these factors are expected to lead to meaningful and consistent order flow for DroneShield across near and medium term



Ukrainian men practice attaching a bomb to a drone



Iranian Shahed drones used by the Russian military

¹ <https://news.am/eng/news/711941.html>

² <https://www.reuters.com/business/aerospace-defense/germany-hike-defense-spending-scholz-says-further-policy-shift-2022-02-27/>

³ <https://www.trade.gov/market-intelligence/polands-defense-spending>



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DroneShield Overview

Executive Summary



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DroneShield Overview	<ul style="list-style-type: none">• Founded in 2014 and listed on the ASX in 2016, DroneShield provides Artificial Intelligence platforms for protection against drones• Hardware and software to detect and safely neutralise small drones used for warfare, terrorism, contraband delivery, and airport disruptions• Key customers include military, intelligence community, Homeland Security, law enforcement, critical infrastructure, prisons and airports globally
Business Model	<ul style="list-style-type: none">• Three streams of revenue: hardware (drone detection and defeat devices), SaaS (device software updates) and R&D• Sales through an experienced in-house veteran salesforce with distribution partners across over 100 countries• SaaS is expected to become a significant proportion of overall revenue over the next 5 years• R&D contracts are adjacent to the core technology, and contribute advanced capability in-house
SaaS via Proprietary AI Software Engines	<ul style="list-style-type: none">• RFAI™ (radiofrequency spectrum engine), DroneOptID™ (optical AI engine), SFAI™ (sensorfusion AI engine)• The engines undertake real-time, at the edge, detection and identification of drones and other potential threats• The result is an increase in detection responsiveness, lower false positives and an increase in the speed at which new threats are detected, classified and tracked by DRO systems• Customers receive regular software updates via enrolling in a SaaS model at the time of purchase of their systems• All hardware except for radars and cameras fully developed in-house, with no reliance on third party IP
Addressable Market	<ul style="list-style-type: none">• US\$10 billion worldwide addressable market• Rapidly improving and easily available drone technology is driving demand for counterdrone solutions• Current geopolitical conflicts make extensive use of drones by all sides
Growth Strategy	<ul style="list-style-type: none">• Today, over 75% of revenues is derived from defence• Defence, intelligence community and border security will continue to be the key focus, however there is a major opportunity for growth into civilian airports, critical infrastructure, prisons, stadiums and corporates

Investment Highlights



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Leader in Counterdrone

World leading provider of state-of-the-art counterdrone solutions and electronic warfare systems used in a diverse array of critical end markets

Proprietary AI-Based Platform

Full-scale hardware and SaaS offering used to detect, assess, and safely counteract threats from unmanned aerial systems (“UAS”)

Large and Growing Market

Leverage to the global defence and security technology sector; \$10bn counterdrone addressable market, in addition to electronic warfare and defence AI markets

High Quality Sales Pipeline

Sales pipeline of over \$200m with over 80 qualified projects at different stages; over \$60m in contracted orders currently being fulfilled

Recurring Customer Base

Best-in-class customer base including the Australian Department of Defence, US DoD, US State Department and others

Rapidly Scaling Financial Profile

The business is at an inflection point, with a record \$15.2m in 1H23 cash receipts

Fully Funded for Growth

Fully funded for growth with \$40m raised in March 2023; spending geared towards rapid scaling of inventory and operations to meet high demand

DroneShield: Complete Proprietary Hardware and Software



High IP, yet mass-production hardware, with a software subscription platform and Electronic Warfare work

Company-owned production facility, supplemented by outsourced manufacturers, to ensure ability to manage large hardware orders
The focus is on software subscriptions, with hardware fleet serving as an enabling platform

Hardware with Embedded Software and Associated Services

Dismounted & Body-Worn Counterdrone Solutions



DroneGun Mk3



DroneGun Mk4



DroneGun Tactical



RfPatrol Mk2

Vehicle / Ship / Fixed Site Counterdrone Solutions



DroneSentry-X



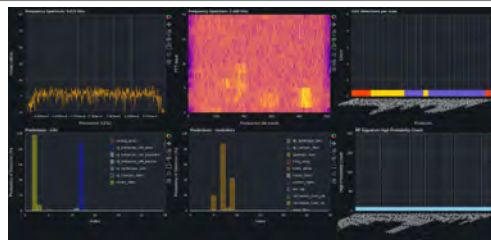
DroneSentry

Software (SaaS and R&D contracts)

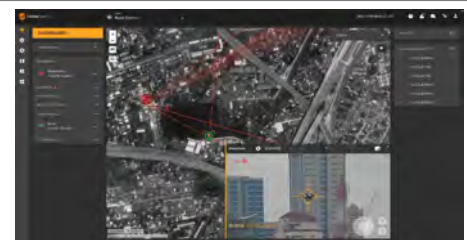
Electronic Warfare and SIGINT



RFAI (Radiofrequency AI engine)



DroneSentry-C2 and DroneOptID

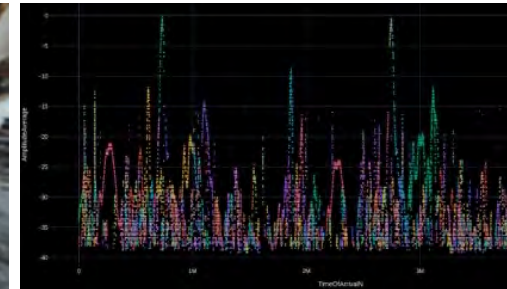


Explosive Growth Based on a Strong Foundation



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2014-2017 Building the Foundation	2018-2022 "Green Shoots"	2023 Explosive Growth	2024-2028 Transforming to Next Level
<p>Setting up in Australia and US ASX IPO (raising \$7m)</p> <p>R&D and productizing the initial product family:</p> <ul style="list-style-type: none"> - DroneGun Mk1 and Mk2 - Acoustic detection sensors <p>Team grows to 11 staff</p> <p>Global partner network setup</p> <p>C-UAS market in infancy</p> <p>Customers demos, trials and initial smaller orders</p> <p>From nil to \$300k/year annual revenue</p>	<ul style="list-style-type: none"> • Multiple \$1m+ orders • \$3.8m 2-year R&D contract • \$9.6m and \$17m capital raises, \$3.7m Epirus investment • Completing the product line-up: <ul style="list-style-type: none"> - DroneGun Tactical - RfPatrol Mk1 and Mk2 - DroneSentry-X - Refinement of DroneSentry - Introducing SaaS model • First-ever ACMA licence to manufacture jammers • Team grows to 60 staff • From \$1m to \$17m annual revenue 	<ul style="list-style-type: none"> • \$33m U.S. Govt sale • \$9.9m 2-year R&D contract • \$40m capital raise • 85 staff in Sydney and Virginia • Exploding market, with Ukraine highlighting the need for C-UAS products • \$62m order backlog • \$200m pipeline 	<ul style="list-style-type: none"> • 5-year target*: <ul style="list-style-type: none"> - \$300-\$500m annual revenue - 50% of revenue in SaaS and software R&D • This revenue is expected to be supported by 120-150 staff



* There is no assurance that any of the Company's sales opportunities will result in sales.



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Competitor Analysis

DroneShield's Counterdrone Competitive Advantage



C-UAS market pioneer, with a culture of systematic innovation and understanding of channels to market

Market leading, differentiated technology...



Multi-sensor detection, ID and tracking



Best-in-breed detection range



Best-in-breed defeat range

...across multiple platforms...



Body-worn



Vehicle/Ship mounted



Fixed site

...underpinned by AI-powered SaaS...



Proprietary software integrated across product suite



Difficult to replicate



Experienced development team for quarterly software updates

... and backed by high barriers to entry



Experienced in-house veteran sales team



Relationships and pipeline with global defence partners and clients in over 100 countries



Deep in-house world-leading technology talent (70+ engineers)

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Competitor Analysis

DroneShield is the only global provider of its own individual sensors, integrated into a complete system, fully in-house



	DRONESHIELD	ANDURIL	CACI	LITEYE Black Sage	Dedrone Aerial Armor	ELECTRONIC WARFARE	Radio Hill	BLUEHALO	SRC	D-FEND SOLUTIONS
Origin										
Integrator	✓	✓	✓	✓	✓	-	-	-	-	-
Detect										
Dismounted	✓	-	-	-	-	-	-	-	-	-
Vehicle	✓	-	✓	-	-	-	-	✓	✓	✓
Fixed Site	✓	✓	✓	-	✓	-	-	✓	✓	✓
Defeat										
Dismounted	✓	-	-	✓	✓	✓	✓	-	-	-
Vehicle	✓	-	-	-	-	-	-	✓	-	✓
Fixed Site	✓	✓	-	✓	-	-	-	✓	✓	✓
Comment										
Platform information	<ul style="list-style-type: none"> ✓ Most extensive product range in the market ✓ Large IP portfolio ✓ Leading performance 	<ul style="list-style-type: none"> ✓ Integrator-only via its Lattice platform 	<ul style="list-style-type: none"> • Substantially an integrator • Acquired AVT, a smaller integrator 	<ul style="list-style-type: none"> • Highlander Partners (Texas PE) acquired both Liteye and Black Sage • Integrator/C2 supplier 	<ul style="list-style-type: none"> • Lower-performance technology • Focus on law enforcement • Acquired Aerial Armor Jan 23 	<ul style="list-style-type: none"> • Handheld Dronekiller jammer gun • Lacks a full product suite 	<ul style="list-style-type: none"> • Handheld DroneBuster jammer gun • Lacks a full product suite 	<ul style="list-style-type: none"> • Titan RF detect-and-defeat (via Citadel acquisition) • LOCUST laser defeat • Acquired Verus Mar 23 	<ul style="list-style-type: none"> • Offer an expensive, competing product to DroneSentry 	<ul style="list-style-type: none"> • Use protocol manipulation approach – similar legal restrictions to jamming, but less reliability and no swarm protection
Detect	RF, EO / IR, Radar	RF, EO / IR, Radar	RF, EO / IR, Radar	RF, EO / IR, Radar	RF, EO / IR, Radar	-	-	RF	EO / IR, RF, Radar	Protocol manipulation
Defeat	RF smart jamming	Drone on drone – Anvil product	-	Catching net, RF jamming	RF jamming	RF jamming	RF jamming	RF jamming, Laser	RF jamming	Protocol manipulation
Geography	Global	USA, UK, Australia	USA	USA	Global	USA	Global	USA	USA	Global
Technology Portfolio	RF, EW, AI, sensorfusion, computervision	Sensor integration	EO / IR sensors, gimbals, RF	Sensor integration	RF	Waveforms	RF	RF, Laser	RF, EW, radar	Protocol manipulation

Note: Competitor analysis based on publicly available information

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Key Execution Priorities and Growth Strategy

Leadership in Counterdrone, Grow Adjacent Capabilities and SaaS



Mission: Making the world a safer place through mass deployments of drone detection and neutralization systems

Three-part Strategy



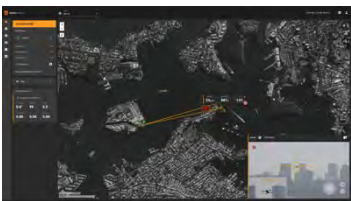
Continue Leadership in the Counterdrone/Unmanned Threat Sector

- The counterdrone market is growing rapidly, especially in the US
- DroneShield is well positioned as the industry pioneer, with on-the-ground US team, and Australia being part of the Five Eye intelligence alliance (US, UK, Australia, NZ and Canada)
- Continue to embed hardware and SaaS with key customer systems globally



Grow Adjacent Electronic Warfare Capabilities

- Executing on the third, \$9.9m 2-year contract with a Five Eyes Department of Defence
- EW includes obtaining intelligence of the radiofrequency signals on the battlefield and applying directed energy to jam, degrade, disrupt or neutralise an adversary capability
- The work is almost entirely software-based, assisting with scale and margins
- Medium term opportunities for broader dissemination amongst AUKUS (Australia / US / UK alliance)



Grow SaaS (Software as a Service)

- Existing counterdrone detection products include a meaningful ongoing subscription, which will continue to grow with the number of deployed devices in the field – DroneShield provides quarterly software updates
- Two key SaaS products: RFAI (RF devices AI engine) and DroneSentry-C2 (incl SFAI sensorfusion and DroneOptID electro-optical AI engine))

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Appendices

Counterdrone Detection Solutions



DroneShield uses multi-sensor drone detection for optimal results, unaffected by time of day or weather

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	Radio frequency	Radar*	Cameras*	Acoustic*
Imagery				
Overview	<ul style="list-style-type: none"> • Foundational layer • Detects drone comms protocols (via conventional RF library or an AI engine) 	<ul style="list-style-type: none"> • Motion tracker - emits signals which are then reflected back to the radar by targets 	<ul style="list-style-type: none"> • Electro-Optical (EO), Infrared (IR) and Thermal • Video analytics and image capture identification of drone activity 	<ul style="list-style-type: none"> • Compares noise of drone blades or motor to a database of acoustic signatures
Advantages	<ul style="list-style-type: none"> ✓ No interference with other sensors ✓ Tracks multiple targets ✓ Passive – cannot be “seen” ✓ Low false alarm rate ✓ Direction-finding capability ✓ Long ranges ✓ Cost effective 	<ul style="list-style-type: none"> ✓ Picks up drones without RF emissions ✓ Tracks multiple targets 	<ul style="list-style-type: none"> ✓ Best used for verification, classification and tracking of a target detected by other sensors ✓ Potential identification of payloads ✓ Provides “eye on target” 	<ul style="list-style-type: none"> ✓ Passive, cost effective ✓ Supporting sensor, filling gaps from other sensors
Disadvantages	<ul style="list-style-type: none"> ✗ Doesn't pick up RF-silent drones ✗ Requires firmware updates 	<ul style="list-style-type: none"> ✗ False alarms (birds etc) ✗ Is “seen” as emits energy ✗ Longer range detection is expensive ✗ Struggles with hovering drones 	<ul style="list-style-type: none"> ✗ Not well suited for detection on its own due to field-of-view vs distance trade-off ✗ Short ranges 	<ul style="list-style-type: none"> ✗ Short range ✗ False alarms ✗ Cannot locate or track ✗ Requires signature database updates






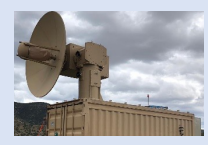
* Third party hardware, integrated into DroneShield combined multi-sensor solution, with differentiated offering via AI-powered software layers

Counterdrone Defeat Solutions



DroneShield uses smart jamming which has advantages over other technologies, particularly, in its use across civil and military applications, and does not compete against large Defence Primes

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	Safe – “soft kill” <i>No intentional damage to the drone</i>		Kinetic – “hard kill” <i>Physical force used with potential for destructive damage</i>		
	Smart Jamming	Spoofing/Cyber/ Protocol Manipulation	Counter-Drone Drones	Projectile Fire Kinetic Systems	Directed Energy (Laser or Microwave)
DroneShield Offering			Exotic Tech, Limited Reliability	Large Defence Primes Dominance Area	
imagery			 		
Overview	<ul style="list-style-type: none"> Radio waves force a drone to fly back, hover, or land 	<ul style="list-style-type: none"> Hijacks the control of a drone 	<ul style="list-style-type: none"> “Kamikaze” or “catching” drones 	<ul style="list-style-type: none"> Remote weapons systems shoot down drones 	<ul style="list-style-type: none"> Lasers and high-power microwave systems “dazzle” or destroy a drone
Advantages	<ul style="list-style-type: none"> ✓ Universal effectiveness ✓ 360-degree defeat coverage ✓ Effective against swarms ✓ Civil and military environments 	<ul style="list-style-type: none"> ✓ Allows for the re-routing and re-direction of malicious drone flight paths ✓ Applications in both civil and military environments 	<ul style="list-style-type: none"> ✓ “Catching” the drone is available to a wider range of customers 	<ul style="list-style-type: none"> ✓ Effective against Govt-grade drones ✓ Established technology for military operations 	<ul style="list-style-type: none"> ✓ Effective against Govt-grade drones ✓ Systems can be mounted on naval vessels for complex defence systems
Disadvantages	<ul style="list-style-type: none"> ✗ Potential for collateral interference (for a “dirty” jammer) 	<ul style="list-style-type: none"> ✗ Not effective against all drones ✗ Higher chance of collateral damage 	<ul style="list-style-type: none"> ✗ Generally slow to deploy ✗ Not effective against swarms 	<ul style="list-style-type: none"> ✗ Collateral damage ✗ Unsuitable for use in a civil environment 	<ul style="list-style-type: none"> ✗ In early stages ✗ Only available for military applications

Benefits and Applications of Safe, Layered, Counterdrone Systems over Kinetic Systems



Safe counterdrone systems have many advantages over kinetic counter-drone systems, which are only practical for deployment in war-like scenarios

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Avoidance of Collateral Damage



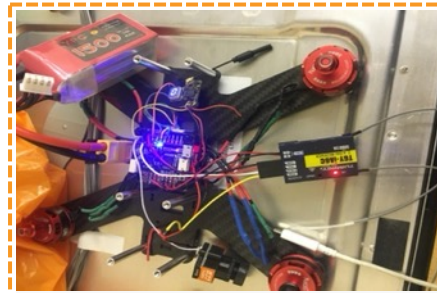
- DroneShield safe defeat solutions force drones to pre-set emergency protocols causing the drone to fly back to its starting point, hover, or land, safely neutralizing the threat
- Alternatively, kinetic solutions could see a destroyed drone fall on crowds of people or inflict “friendly fire” from projectiles

Evidence for Legal Prosecution



- A drone which has been forced to land can be collected by local law enforcement to track the whereabouts of its controller
- As drones are usually accompanied by an image recording device, this can be used as legal evidence to prosecute offenders

Intelligence Gathering



- Drones can often carry sensitive instruments or technology
- When forced to land, this technology can be exploited by military personnel to aid in intelligence gathering operations

Multi-Platform with Scale Benefits



- Safe solutions can be carried on-the-man, mounted on light skinned vehicles and provide continuous passive protection unconstrained by ammunition stores
- Kinetic counter-drone solutions are often mounted on heavy, remote weapon stations and constrained by magazine depth

DroneShield AI Software Sees Through Noise – Radiofrequency Spectrum



World leading proprietary RF AI platform for protection against advanced threats, such as drones

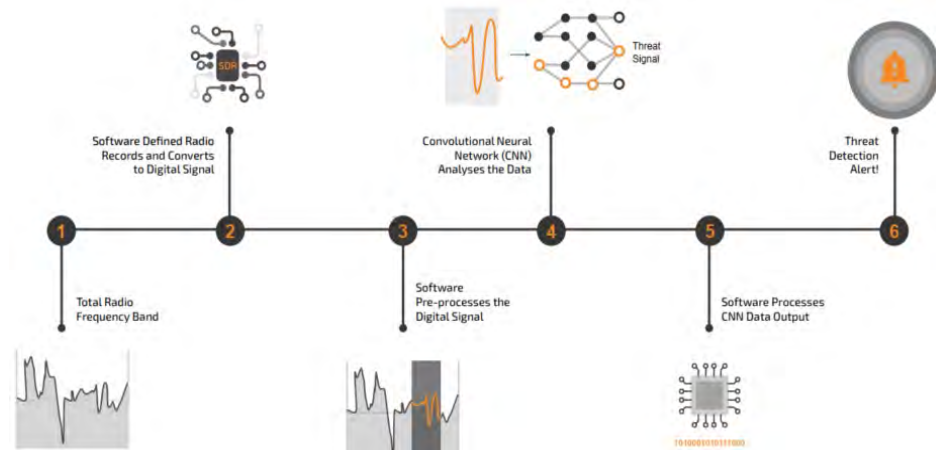
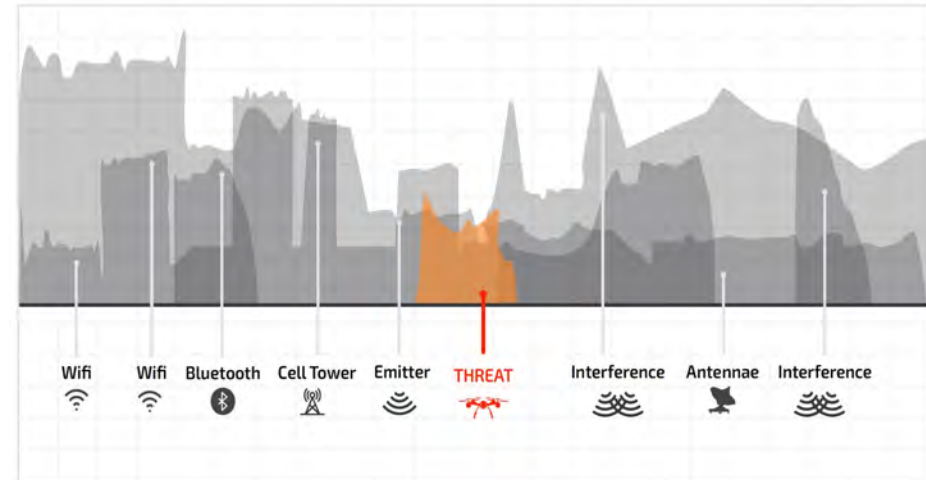
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Drones operate in arguably the densest parts of the Radio Frequency (“RF”) Spectrum with “noise” coming from all kinds of other emitters including Wi-Fi, Bluetooth, cell towers and antennas

- Consequently, counter-drone detection technology needs to be able to pull a signal out of all the other “noise”, while still maintaining a low false alarm rate
- Achieving this using traditional techniques, especially in a very cluttered environment, is very difficult – if not impossible

Consequently, DroneShield has developed a cutting-edge spectrum awareness capability using proprietary Artificial Intelligence techniques through its RFAI™ engine

The RFAI™ engine receives quarterly updates (intra-quarter updates also available) which get pushed to the devices deployed across the globe in a variety of ways suitable for the security of the end user



DroneOptID AI Software – Optical and Thermal Spectrum Counterdrone Surveillance



DroneShield's DroneOptID AI engine detects and tracks complex threats such as drones in cluttered environments

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Drones are small, fast-moving objects, hard to detect with naked eye more than 50m away, against complex background

Cameras on their own cannot detect and track drones at any meaningful distance, due to

- the trade-off between the camera Field-of-View (FoV) and Depth. A wide FoV would only see drone at a close distance. A narrow FoV means only looking at a tiny part of the area
- Even once an object is detected, separating drones from birds is difficult, especially for fixed wing drones

To enable cameras to accurately detect and track drones and other objects, DroneShield has developed a proprietary AI engine DroneOptID™, in conjunction with University of Technology Sydney, with DroneShield retaining the IP

- DroneOptID uses the latest in Computer Vision technology to detect, identify and track drones in real time, cutting through all the other “noise”
- The software takes geographical and environmental data from other sensors in order to slew and validate a drone threat. Once the drone is in the field of view of the camera, using proprietary DroneShield algorithms, the DroneOptID software uses motion tracking and machine learning techniques to identify and track the target



Artificial Intelligence in Electronic Warfare



DroneShield is favourably exposed to the fast-growing Electronic Warfare business segment

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Electronic warfare (EW) is any action involving the use of the electromagnetic spectrum (EM spectrum) or directed energy to control the spectrum, attack an enemy, or impede enemy assaults

The purpose of electronic warfare is to deny the opponent the advantage of—and ensure friendly unimpeded access to—the EM spectrum

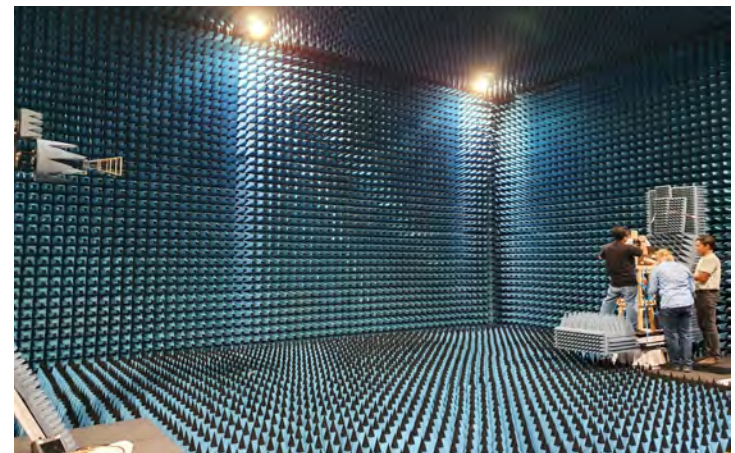
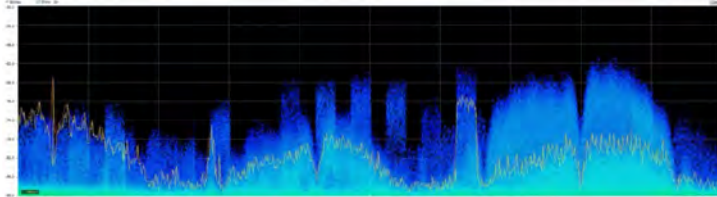
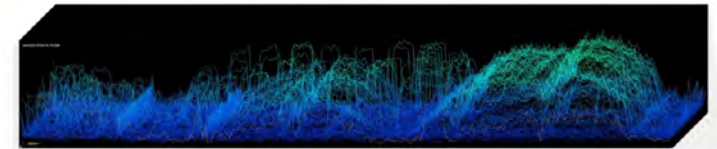
Demand for smart EW technologies to jam, degrade, disrupt or neutralise an adversary capability are rapidly growing and are an essential part of modern warfare

Given the overlap with DroneShield's counter-drone AI technology and the minimal Australian based competition in EW technology, DroneShield is in the box seat to exert dominance in this rapidly growing area

In July 2023, DroneShield received a \$9.9 million, 2-year R&D contract with the Five Eyes Department of Defence

– Contract was awarded on a sole source basis

Additional, and larger, contracts are expected, as DroneShield builds up its AI capabilities in the EW and Signals Intelligence arena



Seasoned Senior Team



DroneShield's experienced team carries a solid track record of delivering growth

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Peter James

Independent Non-Executive Chairman

Peter joined DroneShield's Board of Directors in 2016

Over 30 years of experience in the Technology, Telco and Media Industries

Chairman of ASX-listed companies including Macquarie Telecom

Chair of Nearmap, when sold to Thoma Bravo for \$1bn in December 2022



Oleg Vornik

CEO and Managing Director

- Oleg joined DroneShield in 2015, and the Board of Directors in January 2017
- Responsible for overseeing DroneShield's market strategy
- Senior executive experience includes Royal Bank of Canada, Brookfield, Deutsche Bank and ABN AMRO



Jethro Marks

Independent Non-Executive Director

- Jethro joined DroneShield's Board of Directors in January 2020
- CEO and co-founder of the Mercury Retail Group
- Extensive commercial experience in successfully scaling a multinational business



Carla Balanco

CFO and Joint Company Secretary

- Carla joined DroneShield in mid-2018
- Instrumental in scaling the company's financial management systems
- Experience working in Chartered, Commercial and Business Development roles



Red McClintock

Sales Director

- Red served 23 years as an officer in the Royal Australian Navy
- Prior to joining DroneShield, Red worked for five years with BAE Systems as a Business Development and Account Manager



Tom Branstetter

U.S. Director of Business Development

- U.S. Navy veteran and former Navy SEAL
- Focus across DoD and other federal agencies
- Tom holds a Bachelor of Arts degree in Entrepreneurship



Angus Bean

Chief Technology Officer

- Angus joined DroneShield in early 2016
- Merges the fields of mechanical hardware, electronics, software, digital interface and technology
- Experience as the development lead for Australia's largest industrial design and engineering consultancy



Lawrence Marychurch

Vice President, Design

- Lawrence joined DroneShield in 2018 and has a background in Industrial Design
- Manages a team of industrial designers and mechanical engineers as well as DroneShield's in-house production team
- Responsible for DroneShield's wide base of Australian and international component suppliers



Paul Cenoz

Counsel and Joint Company Secretary

- Paul joined DroneShield in 2023. He is admitted to practice law in California and NSW.
- Prior to DroneShield, Paul held executive roles at high growth scale-ups, successfully building businesses in the US and Australia. He was COO and General Counsel of OSINT Combine in Sydney



Matt McCrann

U.S. CEO

- Experienced business development executive
- Over 15 years of experience in the Defense and National Security sector
- Served in the US Navy as an Intelligence Analyst and a member of NSA/CSS's Cryptologic Direct Support Element



Raffael Battner

Operations Manager

- Over 15 years of experience in Manufacturing and Operations Management
- Prior management positions in deep-tech start-ups as well as corporate organisations delivering products and projects into the automotive, telecommunications and industrial market



Carl Norman

Vice President, Embedded Systems

- Carl is an experienced embedded product engineer who joined DroneShield early in 2019
- Over 25 years of experience in electronic product design, manufacturing and project management
- Background in RF products, analogue, embedded and high speed digital systems

Industry and Media Recognition



ASX-listed DroneShield wins US Defence contract



Matthew Cranston
United States correspondent

Oct 5, 2022, 6:04am

Washington | ASX-listed DroneShield has won a \$1.8 million contract which will open doors to military.



Tess Bennett
Technology reporter

Aug 9, 2023 - 1:32pm

In what is the company's first major contract, dozens of DroneGun N systems will be used to neutralise an

The CEO of an Australian company that builds rifle-like devices that force drones out of the sky says investors should overcome ethical concerns and get behind the defence industry because rising global tensions mean World War III is likely in our lifetimes.

Oleg Vornik, chief executive of ASX-listed DroneShield added that although his drone guns don't hurt people or even the flying robots they bring down, Australia needs to be as self-reliant as possible, which meant building a strong private defence industry.



DroneShield boss Oleg Vornik warns Australia is the target of "grey-zone warfare" that is being waged via cyber attacks. (Oleg Galst'yan)

By **BEN PAKHAM**
FOREIGN AFFAIRS AND DEFENCE
CORRESPONDENT
Follow @benpakham

8:39M MAY 4, 2021
9 COMMENTS



DroneShield's DroneGun in use with the US Army.

DroneShield (ASX:DRO) selected for ISREW panel

ASX News, Technology

ASX:DRO MCAP \$71.36M



Julia Seymour
Markets Presenter/Reporter
julia.seymour@themarketmaker.com.au
07 September 2022 15:23 (AEDT)



DroneShield: Diggers 'naked' to drone

Shares soar as US government buys up Aussie company's anti-drone tech

Nick Bonnyady
Technology writer

Jul 17, 2021, 5:44pm

Shares in ASX-listed defence technology company DroneShield have soared 19 per cent, after it struck a \$33 million deal to sell equipment to the United States Department of Defence, underscoring the importance of the versatile unmanned vehicles to modern warfare.

RELATED QUOTES

TURQ \$0.226

1 Year 1.6x

8.42%

DroneShield makes systems that stop drones from communicating with

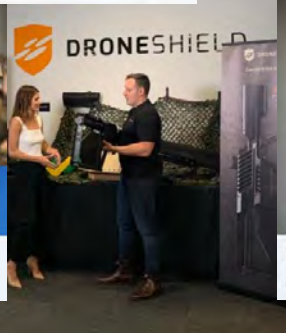


DroneShield Launches Regional NSW Testing Facility



Aussie 'drone gun' bringing Mexican cartels down to earth

1 min read



Homegrown defence company helping Ukraine take out Russian drones

1 min read

Capital Structure



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Capital Structure (approximately 10,000 shareholders)	
DRO Shares on Issue	586,903,611
DRO Options on Issue ¹	35,840,000
Fully Diluted Shares on Issue	622,743,611
Fully Diluted Equity Value ²	\$189.9m
Cash ³	\$42.4m
Debt ³	\$nil
Fully Diluted Enterprise Value	\$147.5m

¹ Options issued at various strike price and maturities. For full information please refer to ASX releases

² At 30.5c per share, as at 28 August 2023

³ As at 30 June 2023

Director and Employee Shareholdings		
Oleg Vornik, CEO and Managing Director	5,027,022 shares 10,000,000 options ²	2.41% ¹
Peter James, Independent Non-Executive Chairman	3,817,522 shares 5,000,000 options ²	1.42% ¹
Jethro Marks, Non-Executive Director	750,000 shares 1,000,000 options ²	0.28% ¹
Other Employees	19,710,999 shares 14,140,000 options ²	5.44% ¹

¹ On a fully diluted basis

² Options issued at various strike price and maturities. For full information please refer to ASX releases

Research Coverage



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DRONESHIELD

Artificial Intelligence For Multi-Mission Threat Protection and C-UAS Defense

DroneShield Limited (ASX:DRO)
Investor Presentation
August 2023

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