GOVERNMENT AND DEFENSE APPLICATIONS AT A GLANCE

FREEWAVE

FreeWave Vision

To enable a world where implementing the Internet of Things (IoT) is effortless through universal wireless access to data from any Machine to Machine (M2M) device from any location.

APPLICATION	USE CASE DESCRIPTION	GENERALLY- USED FREQUENCIES	SPECIFIC PRODUCTS
Unmanned Air Vehicles (UAV)	• Command & Control • Intelligence Surveillance and Reconnaissance	225-400 MHz, 900 MHz, 2.4 GHz, 1.3 GHz	GXM Series, I2 Series, F-Series, M13, ZumLink 900 Series, MM2 Series
Unmanned Ground Vehicles (UGV)	• Robotics • Weapon and IED detection	2.4 GHz, 3.4 GHz	SMR3400, I2 Series
Unattended Ground Sensors (UGS)	• Real-time remote monitoring • Physical and perimeter security • Border security	900 MHz, 2.4 GHz	ZumLink 900 Series, GXM Series
Unmanned Underwater Vehicle (UUV)	• Command & Control • Intelligence Surveillance and Reconnaissance	900MHz, 2.4GHz	MM2 Series, GXM Series
Training	• Soldier training • Infantry • Small unit tactics	225-400 MHz, 900 MHz, 1.3 GHz	MM2-9X5W, MM2-13X5W, F-Series
Targeting / Range	• Small arms ranges	225-400 MHz, 900 MHz	F-Series, MM2 Series
Guided Parachutes	• Guided cargo/pallet drops	900 MHz	MM2 Series
Navy Surface Targets	• Aircraft Gunnery • Ship to Shore	900 MHz	MM2-9X5W, MM2 Series
Base Infrastructure	• Electric power • Smart grid • Control infrastructure processes	900 MHz, 2.4 GHz, 5 GHz	WP-201, MM2 Series, ZumLink 900 Series

FREQUENCY	SERIAL INTERFACE	ETHERNET INTERFACE	SECURITY & NOTES
225-400 MHz	✔		Wideband and Narrowband, Optional AES and TDMA
340-400 MHz	✔		Small Form Factor, Wideband, Optional AES and TDMA
900 MHz	✔	✔	Small Form Factor, Wideband, Optional AES and TDMA
1.3 GHz	✔	✔	Small Form Factor, Wideband, FIPS 140-2, Optional AES and TDMA
2.4 GHz	✔		Various Form Factors, Wideband, Optional AES and TDMA, FIPS 140-2
3.4 GHz	✔		Wideband, Optional AES

ADDITIONAL BENEFITS

- American made in Boulder, CO
- Over 20 years experience
- 1+ million radios shipped
- Line of Sight up to 210 km

- 2+ million hours of combat flight time on UAS programs of record
- ISO 9001:2015 certified

- Cost, Size, Weight, and Power (CSWAP) advantages vs. traditional DoD radio suppliers

COMMERCIAL AND ENTERPRISE APPLICATIONS AT A GLANCE

FREEWAVE

PRIMARY APPLICATIONS	HOW FREEWAVE IS USED		
Oil & Gas	• Supervisory Control and Data Acquisition (SCADA) • Sensor communication (C1D1, C1D2) • Plunger lift	• Tank levels and water meters • Pumps, valves, and flow lines • Auto Vehicle Location (AVL) • Flare stacks • Dehydrator temperature	• Separator pressure • Emergency Shut Down (ESD) • Cathodic protection • Network Resiliency (Mesh to re-route, Cell for Backup)
Water/Waste Water	• Storage tank levels • Master Meters – Turbines, Magnetic Flow	• Pumping stations • Sewer lift stations • Treatment plants	• Chemical Injection sites • Specialty process control devices
Smart Grid & Solar	• Distribution Management (DMS) • Distribution Automation (DA) • Substation Automation (SSA)	• Load Management (LM) • Demand Response (DR) • Energy Management (EMS)	• Supervisory Control and Data Acquisition (SCADA)
Environmental Monitoring	• Seismic monitoring • Geothermal monitoring • Subsea monitoring	• Water level monitoring • River flow monitoring	• Leak detection • Levee performance testing
Electric Power & Utilities	• Power generation stations • Infrastructure • Emissions control • Fault Condition Indicator (FCI)	• Supervisory Control and Data Acquisition (SCADA) • Auto Meter Infrastructure (AMI) backhaul	• Capacitor bank monitoring • Recloser communications • Regulator monitoring
Location Tracking	• Food & beverage communication	• Irrigation control	• Golf, distance from pin
Precision Agriculture	• Precision steering and guidance • Irrigation	• Fertilizer and pesticide application	• Feedlot controls
Turf & Pivot Irrigation	• Center pivot mobile water system	• Water control above ground for canals	• Ground based water source

OTHER APPLICATIONS	HOW FREEWAVE IS USED
Mine Safety & Rescue	• Emergency communications, video monitoring
Wind Turbine	• Gas content, radon, vibration monitoring
Asset Management	• Stationary asset monitoring, predictive analytics
Fleet Management	• Mobile asset monitoring, predictive analytics
Traffic Control	• Traffic control, video monitoring
Education	• School campus – last mile, remote research, video monitoring/surveillance
Healthcare	• Virtual medicine, remote diagnostics and diagnosis, last mile connectivity
Public Safety	• Police, EMS, 1st responders, video monitoring/surveillance

For ITAR questions and/or potential leads/opportunities, contact:

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