

Frequency Electronics, Inc.

NASDAQ: FEIM

Providing High-Precision Timing & Frequency Generation and RF/Microwave
Technology for Space and Terrestrial Applications

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Who We Are

- FEIM is a world leader in high-precision time and frequency technology for space and terrestrial markets
 - one of few companies in the world capable of producing atomic clocks from the raw materials to finished products
 - complete control of quality, performance and production for key technologies
- Serving government and commercial customers in space systems, secure communications, Electronic Warfare and Position Navigation and Timing (PNT)
- Our clocks are the “heartbeat” of the systems into which they are incorporated
- Precise timing enables systems to operate when interrupted or jammed...critical to all networks
 - GPS-denied environment
- FEIM is a unique national asset, one of few companies capable of producing:
 - quartz oscillators from raw quartz in-house
 - rubidium clocks produced from raw materials in-house
 - unparalleled performance g-sensitive oscillators (patented design)



Highest Performance and Quality Clocks in the World

Company History

- 2020 is our 58th year in operations
- Over 5000 systems in space (some systems in continuous operations for 40 years...and counting)
- Frequency's systems have:
 - visited all of our sun's known planets
 - landed on the moon
 - aided in viewing the far reaches of our universe, providing the timing system for Hubble
 - aided the search for new planets on the Kepler Observatory
 - assisted manned space exploration on Apollo, the Space Shuttle and International Space Station
 - kept Voyager operating far outside the solar system...40 years and still working
- Provider of low g-sensitive clocks for sensitive DoD programs for 20+ years



Investment Highlights

- **Technology:** Robust R&D investments to target new market opportunities, both space and non-space.
- **Operations:** Consolidating manufacturing and streamlining operations to further reduce costs.
- **Financial Strength:** Continued cash generation producing balance sheet strength with strong cash and working capital position, no debt.
- **Customers:** Long track record with key customers. Reputation for technical excellence. Broad customer base...government, OEMs, commercial and military space and non-space, domestic and international...facilitates future growth.
- **Manufacturing Capabilities:** Core timing and frequency sources produced 100% in-house from the raw materials. Absolute control of quality and performance = competitive advantage.
- **Market:** Largest market opportunity set in company history for both satellites and terrestrial systems. Defense budget trends are favorable. Currently pursuing approx. \$500m of new opportunities.



FEI Global Customers

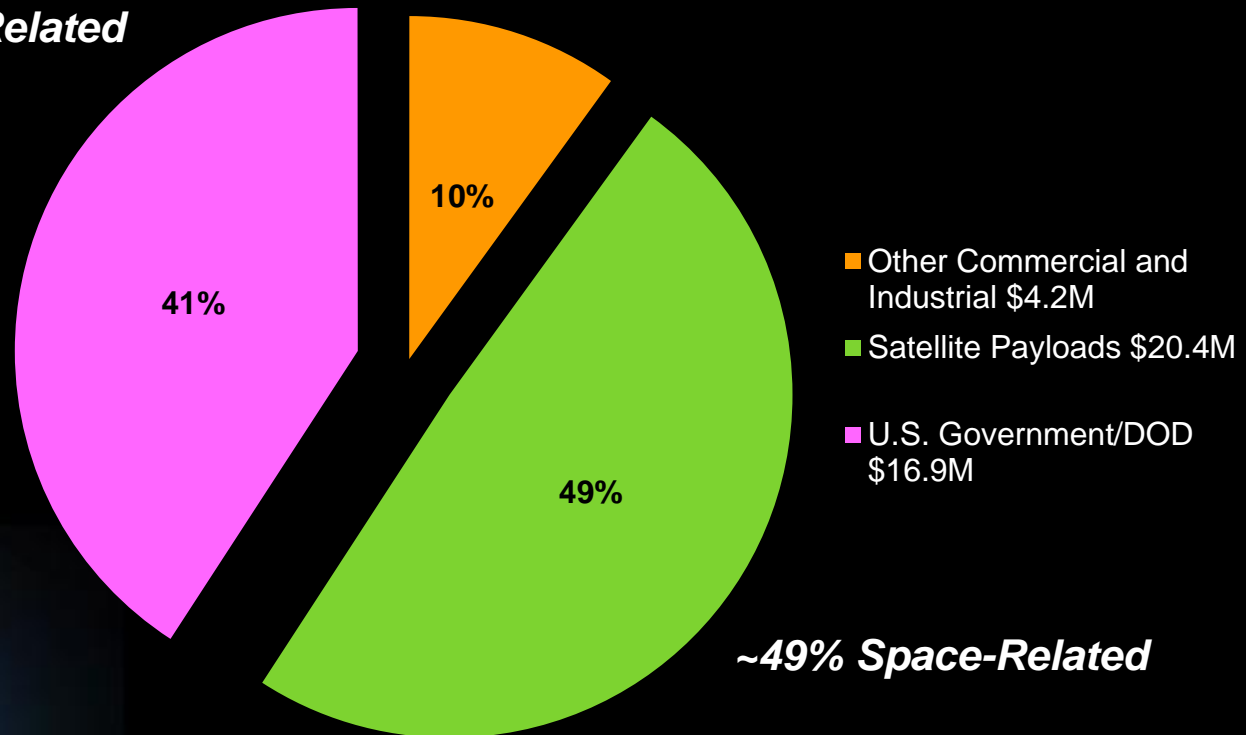


Direct to Government...Fortune 25...A&D Primes

Frequency Electronics - Primary Business Sources

FY20 Revenues by End Market - \$41.5M

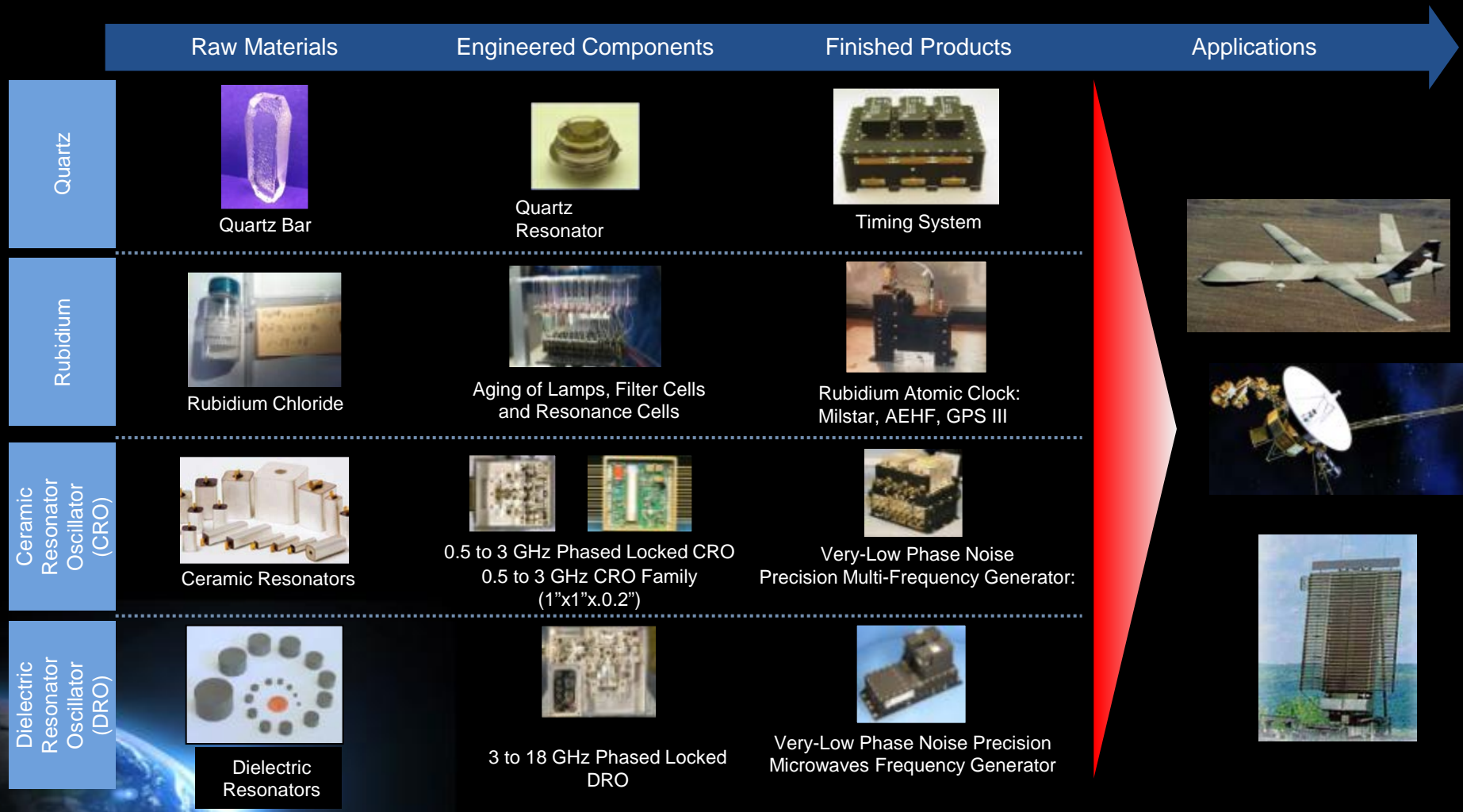
~51% non-Space Related



~49% Space-Related

Key Building Blocks From Raw Materials to Final Products

Controlling Product Flow Reduces Cycle Time & Enhances Performance



FEIM maintains critical, in-house engineering and manufacturing technologies to ensure control of performance, quality and production rates. Highest performance and quality clocks in the world.

FEIM Product Portfolio Addresses Mission Critical Precision Time & Frequency Requirements

Non-SPACE

Airborne, Sea, and Ground Secure Communications, Signal Intelligence (SIGINT), Electronic Intelligence (ELINT), Communications Intelligence (COMINT)

Products

- Rugged low-G Qz Oscillators
- Rugged Rb Oscillators
- RF/ μ W Broadband Fast-Switching Synthesizers
- SIGINT Receivers
- ELINT Receivers
- COMINT Receivers



Example Platforms

- AMRAAM
- AEGIS
- THAAD
- IBCS
- JCREW
- JLENS
- WIN-T
- GMR
- MIDS

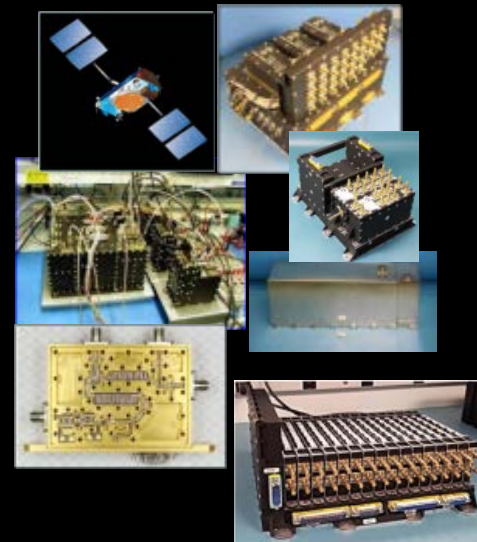
SPACE

Spacecraft Secure Communications

Clocks, Low Phase Noise Frequency Sources, Frequency Converters

Products

- Master Clocks (Quartz and Rubidium)
- Frequency Generators and Synthesizers up to 44GHz
- Frequency Distribution Networks
- Receivers and Up/Down Frequency Converters up to Ka-band
- Low Noise Amplifiers
- Transmitters
- Highly Integrated Assemblies



Example Platforms

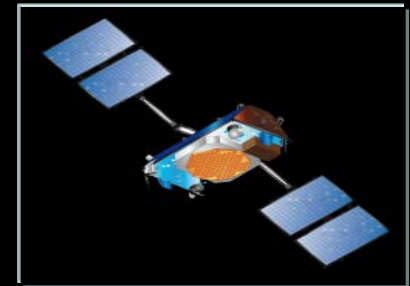
- DSP
- MILSTAR
- AEHF
- WGS
- Ground Stations
- Highly Integrated Assemblies

Iridium NEXT Constellation -- Master Frequency Generation Unit and L-Band Frequency Converter Assembly

- 81 Flight Master Frequency Generation Units



2011-current



- 168 L-Band Frequency Converter Assemblies



Iridium NEXT Program Demonstrates Frequency's Ability to Deliver High-Production-Volumes of High Reliability/High Performance Space Qualified Hardware...Over 4000 subassemblies delivered.

DOD WGS Constellation -- Triple Redundant Master Oscillator, Master Clock and Reference Generators (10 Shipsets)



Triple Redundant Master OCXO



6 Dual Redundant Ref Gen (DRO)



1 Dual Redundant Master Clock (CRO)



DOD AEHF Constellation -- Triple Redundant Rb Master Timing System (6 Ship sets)



**AEHF Master Oscillator Group (MOG)
- 3 Redundant Rb Master Oscillators**

**MILSTAR Predecessor FEI Rb Clocks Have Been in Continuous Operation
in Orbit Since 1995**

FEIM & Voyager Space Exploration

- Launched in 1977, Voyager 1 and 2 are still in good health
- Voyager 1 is **~13 billion miles** (~21 billion km) from Earth; Voyager 2 is **~11 billion miles** (~17.7 billion km) from Earth
- Both are operating as part of the Voyager Interstellar Mission



Courtesy of JPL

Voyager 2, is expected to enter interstellar space in the next few years. The different locations of the two Voyagers allow scientists to compare right now two regions of space where the heliosphere interacts with the surrounding interstellar medium. Once Voyager 2 crosses into the interstellar medium, they will also be able to sample the medium from two different locations simultaneously.

FEIM's oscillators have been keeping precise time and frequency for 40+ years-the longest operating clocks in space. Originally Specified for 7-Year Life.

US Government Opportunities are Robust

- Space now recognized as a warfighting domain
- Vulnerability of GPS to jamming/spoofing makes alternative precision timing more important
- Investment trends in key space systems are favorable...GPS-IIIIF, OPIR, WGS, Classified
- Technology that will position us for likely outcomes.
 - Smaller size/weight/power
 - Higher performance
 - Lower cost
 - New frequencies (higher) emerging
- We will take a much more aggressive approach to the broader DoD and USG market for RF electronics, airborne/terrestrial platforms, PNT solutions, missiles, and Electronic Warfare.
 - Patented low g-sensitive oscillators
 - Frequency synthesis
 - Frequency conversion
 - Integrated RF assemblies

FEI Will Leverage Its Position as the World Leader in Low g-Sensitive/Low Phase Noise Oscillators to Expand Revenues

Secure Communications & Command and Control Market- Air/Ground/Maritime

- The DoD budget environment is favorable.
- C4ISR is getting increased focus, driven by:
 - Global geopolitics
 - Terrorism
 - Increasing vulnerability of critical systems (e.g. GPS)
 - Advancing (commercial) technology
 - Increasing capability of US adversaries
- FEIM has key technologies applicable to USG needs:
 - Low g-sensitive oscillators...key to precision time & frequency generation
 - Critical to military capabilities...communications, navigation, sensors
 - Frequency synthesis/conversion
- R&D and marketing efforts targeting this market area

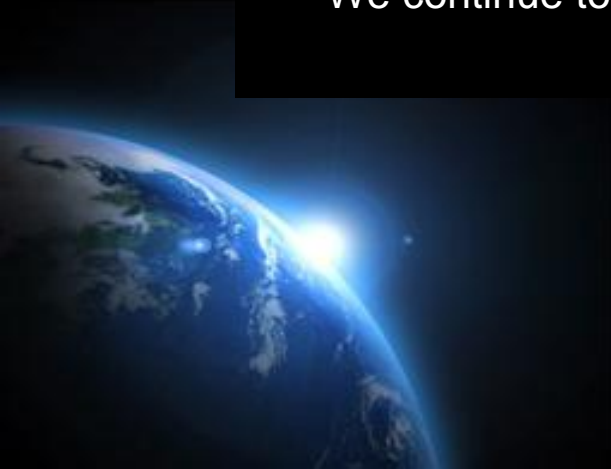
Estimate the overall C4ISR market of interest to be \$80b-\$100b annually

Financial Information



Financial Highlights

- Continuing to invest in R&D, ensuring our products are cutting edge and available as future opportunities mature.
- Frequency has a strong balance sheet and is expecting to see significant financial improvement in the next fiscal year.
- The number and value of new business opportunities is the largest in company history.
- We continue to streamline operations and manage costs.



Strong Balance Sheet

- Total Assets \$ 90M
- Net Working Capital \$ 40M
- Cash and ST Investments \$ 14M
- Long Term Debt \$ 3M
- Shareholders Equity \$ 55M

As of October 31, 2020 (end of FEIM 2nd quarter FY21)



Statement of Operations

	FY19	FY20	FY21
<i>(in thousands)</i>	<u>April 30, 2019</u>	<u>April 30, 2020</u>	<u>6 months October 31, 2020</u>
Revenue	\$ 49,509	\$ 41,507	\$ 26,940
Operating Loss	\$ (2,817)	\$ (10,922)	\$ (119)
Net Income Loss	\$ (2,529)	\$ (10,026)	\$ 67
Cash Flow Provided (Used) by Operations	\$ 3,175	\$ 1,407	\$ 1,981

Operating margins are expected to improve with an increase in revenue and completion of the development (R&D) phase on key contracts .



Backlog

FY19 <u>April 30, 2019</u>	FY20 <u>April 30, 2020</u>	FY21 <u>6 months October 31, 2020</u>
\$37M	\$36M	\$42M

***Growing backlog will convert to increasing revenue and improved bottom line performance.
Backlog does not include unfunded portions of contracts or value for unexercised
production options.***



FEI Selected Near-Term Opportunities

S
P
A
C
E

GPS IIIF + Related PNT Satellites:

Rubidium clocks, quartz Oscillators (satellite+programmatic costs)

Potential Value
\$180-\$200M

Other Space programs:

Ultra-Stable Very-Low Phase-Noise Clocks, Frequency Synthesizers,
Frequency Generators for Commercial and Government Satellites*

\$35-\$80M

O
T
H
E
R

Secure Communications & Command and Control *

\$15M-\$50M

Synthesizers and converters for Electronic Warfare*

\$40M-\$50M

Other Bid Opportunities

\$250M-\$300M

***\$300M in Potential Opportunities...all with initial development contracts.
Additional \$250m-\$300M in Potential Additional Contracts being tracked .***

*Multiple opportunities

Frequency Electronics

***Building for the Future From a 58 Year
Legacy of Excellence***

