SPACEX THAICOM

PRESS KIT | JANUARY 2014

THAICOM-6

www.spacex.com www.thaicom.net

SpaceX THAICOM 6 Mission Press Kit

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HIGH RESOLUTION PHOTOS AND VIDEO

SpaceX will post photos and video after the mission.

High-resolution photographs can be downloaded from: spacex.com/media
Broadcast quality video can be downloaded from: vimeo.com/spacexlaunch/

MORE RESOURCES ON THE WEB

For SpaceX coverage, visit:

spacex.com
twitter.com/elonmusk
twitter.com/spacex
facebook.com/spacex
plus.google.com/+SpaceX
youtube.com/spacex

For THAICOM coverage, visit:

www.thaicom.net

WEBCAST INFORMATION

The launch will be webcast live, with commentary from SpaceX corporate headquarters in Hawthorne, CA, at spacex.com/webcast.

Web pre-launch coverage will begin at approximately 4:00 p.m. EDT.

The official SpaceX webcast will begin approximately 30 minutes before launch.

SpaceX hosts will provide information specific to the flight, an overview of the Falcon 9 rocket and THAICOM 6 satellite, and commentary on the launch and flight sequences.

SpaceX THAICOM 6

Mission Overview

Overview

SpaceX's customer for its THAICOM 6 mission is the satellite communications provider THAICOM. In this flight, the Falcon 9 rocket will deliver the THAICOM 6 satellite to a Geosynchronous Transfer Orbit (GTO). THAICOM 6 is a commercial telecommunications satellite.

The THAICOM 6 launch window will open at approximately 5:06 p.m. EST on January 6, 2014 from Space Launch Complex 40 at Cape Canaveral Air Force Station, Florida, with additional launch opportunities January 7-12, 2014.

If all goes as planned, the THAICOM 6 satellite will be deployed into its geosynchronous transfer orbit approximately 31 minutes after liftoff.

Satellite Payload

THAICOM 6

The THAICOM 6 mission will launch the THAICOM 6 commercial telecommunications satellite, an Orbital Sciences GEOStar-2 spacecraft. This hybrid Ku- and C-band spacecraft weighs 3,016 kg (6,649 lbs) at launch. This mission is the second Falcon 9 launch to a geosynchronous transfer orbit, targeting a 295 x 90,000 km orbit at 22.5 degrees inclination.

THAICOM 6 will be co-located with THAICOM 5 at 78.5 degrees East ("Hot Bird" position), and carry a hybrid Ku- and C-band payload generating approximately 3.7 kilowatts of payload power. The Ku-band payload will be comprised of 8 active transponders providing services to the Southeast Asia (mainland). The C-band payload will feature 18 active C-band transponders providing services via the satellite's regional beam to Southeast Asia and Africa, including Madagascar.

Always a Challenging Mission

All spaceflight is incredibly complicated. Every component of the mission must operate optimally. Hardware, avionics, sensors, software and communications must function together flawlessly. If any aspect of the mission is not successful, SpaceX will learn from the experience and try again.

Prelaunch

Months before a Falcon 9 launch, both rocket stages are transported to SpaceX's development facility in McGregor, Texas for testing, and then trucked individually to SpaceX's hangar at Space Launch Complex 40 at the Cape Canaveral Air Force Station in Cape Canaveral, Florida. SpaceX's payload fairing is shipped separately to the launch site. Around 30 days before launch, the spacecraft arrives at SpaceX's SLC-40 hangar annex. In the days that follow, the spacecraft is processed and encapsulated within the fairing, and the rocket stages are integrated.

The final major preflight test is a static fire, when Falcon 9's nine first-stage engines are ignited for a few seconds, with the vehicle held securely to the pad.

One day prior to launch, Falcon 9 and its payload are transported to the launch pad and raised vertically. All ground personnel leave the pad in preparation for fueling of the launch vehicle.

Launch Sequence

The launch sequence for Falcon 9 is a process of precision necessitated by the rocket's approximately one-hour launch window, dictated by the desired orbit for the satellite. If the one-hour time window is missed, the mission will be attempted on the next available date.

A little less than four hours before launch, the fueling process begins—liquid oxygen first, then RP-1 kerosene propellant. The plume coming off the vehicle during countdown is gaseous oxygen being vented from the tanks, which is why the liquid oxygen is topped off throughout the countdown.

Terminal countdown begins at T-10 minutes, at which point all systems are autonomous. The SpaceX Launch Director at the Cape Canaveral Air Force Station gives a final go for launch at T-2 minutes and 30 seconds. At T-2 minutes, the Air Force Range Control Officer confirms the physical safety of the launch area and provides the final range status. Just before liftoff, the launch pad's water deluge system, dubbed "Niagara," is activated.

Seconds before launch, the nine Merlin engines of the first stage ignite. The rocket computer commands the launch mount to release the vehicle for flight, and at T-0 Falcon 9 lifts off, putting out 1.3 million pounds of thrust.

Flight

The vehicle will pass through the area of maximum aerodynamic pressure—max Q—approximately 80 seconds into flight. This is the point when mechanical stress on the rocket peaks due to a combination of the rocket's velocity and resistance created by the Earth's atmosphere.

Approximately 174 seconds into flight, the first-stage engines are shut down, an event known as main-engine cutoff, or MECO. Three seconds after MECO, the first and second stages will separate. Seven seconds later, the second stage's single Merlin vacuum engine ignites to begin a 5 minute, 35 second burn that brings the satellite into a parking orbit. The fairing that protects the payload is deployed early in this burn. Eighteen minutes after injection into the parking orbit, the second stage will relight for just over one minute to carry the payload to its geosynchronous transfer orbit.

Satellite Deployment

Approximately three minutes after the second burn (at the 31 minute, 13 second mark after launch), the THAICOM 6 satellite is deployed into orbit.

THAICOM 6 Mission Timeline

Times and dates are subject to change

LAUNCH DAY

COUNTDOWN

Hour:Min:Sec	Events
- 13:30	Vehicle is powered on
- 3:50	Commence loading liquid oxygen (LOX)
- 3:40	Commence loading RP-1 (rocket grade kerosene)
- 3:15	LOX and RP-1 loading complete
- 0:10	Falcon 9 terminal count autosequence started
- 0:02	SpaceX Launch Director verifies go for launch
- 0:02	Range Control Officer (USAF) verifies range is go for launch
- 0:01	Command flight computer to begin final prelaunch checks. Turn on pad deck and Niagara water
- 0:00:40	Pressurize propellant tanks
- 0:00:03	Engine controller commands engine ignition sequence to start
0:00	Falcon 9 liftoff

LAUNCH

Hour:Min	Events
0:01	Max Q (moment of peak mechanical stress on the rocket)
0:03	1st stage engine shutdown/main engine cutoff (MECO)
0:03	1st and 2nd stages separation
0:03	2nd stage engine start
0:04	Fairing separation
0:08	2nd stage engine cutoff-1 (SECO-1)
0:27	2nd stage engine restart
0:28	2nd stage engine cutoff-2 (SECO-2)
0:31	THAICOM 6 satellite deployed

Falcon 9 Rocket

Falcon 9 is a two-stage rocket designed from the ground up by SpaceX for the reliable and cost-efficient transport of satellites and SpaceX's Dragon spacecraft.

QUICK FACTS

Made in America. All of Falcon 9's structures, engines, and ground systems were designed, manufactured, and tested in the United States by SpaceX.

21st-century rocket. As the first rocket completely developed in the 21st century, Falcon 9 was designed from the ground up for maximum reliability. An upgraded Falcon 9 with safety and reliability enhancements and greater lift capability flew for the first time in December 2013, lofting the SES-8 satellite to a geosynchronous transfer orbit , and will fly on this mission.

Designed for maximum reliability. Falcon 9 features a simple two-stage design to minimize the number of stage separations. (Historically, the main causes of launch failures have been stage separations and engine failures.) With nine engines on the first stage, it can safely complete its mission even in the event of an engine shutdown.

Statistics. Falcon 9 topped with SpaceX fairing is 224.4 feet (68.4 meters) tall and 12 feet in diameter (the fairing is 17 feet in diameter). Its nine first-stage Merlin engines generate 1.3 million pounds of thrust at sea level, rising to 1.5 million pounds of thrust as Falcon 9 climbs out of the Earth's atmosphere.

In demand. SpaceX has nearly fifty Falcon 9 missions on its manifest, with launches for both commercial and government clients.

Designed to safely transport crew. Like the Dragon spacecraft, Falcon 9 was designed from the outset to transport crew to space.

Mission success. Falcon 9 has achieved 100% success on its flights to date, including routine flights to the International Space Station and most recently the successful December 2013 launch of the SES-8 satellite to geosynchronous transfer orbit.

Why "Falcon"? Falcon 9 is named for the Millennium Falcon in the "Star Wars" movies. The number 9 refers to the nine Merlin engines that power Falcon 9's first stage; one Merlin vacuum engine powers the second stage.

ADVANCED TECHNOLOGY

First Stage

Falcon 9 tanks are made of aluminum-lithium alloy, a material made stronger and lighter than aluminum by the addition of lithium. Inside the two stages are two large tanks each capped with an aluminum dome, which store liquid oxygen and rocket-grade kerosene (RP-1) engine propellants.

The tanks and domes are fabricated entirely in-house by SpaceX. Sections of aluminum are joined together using SpaceX's custom-made friction stir welders to execute the strongest and most reliable welding technique available. The structures are painted in-house by SpaceX, concurrent with the welding process.

Falcon 9's first stage incorporates nine Merlin engines. After ignition, a hold-before-release system ensures that all engines are verified for full-thrust performance before the rocket is released for flight. Then, with thrust greater than five 747s at full power, the Merlin engines launch the rocket to space. Unlike airplanes, a rocket's thrust actually increases with altitude. Falcon 9 generates 1.3 million pounds of thrust at sea level but gets up to 1.5 million pounds of thrust in the vacuum of space. The first stage engines are gradually throttled near the end of first-stage flight to limit launch vehicle acceleration as the rocket's mass decreases with the burning of fuel.

Interstage

The interstage, which connects the first and second stages, is a composite structure made of sheets of carbon fiber and an aluminum honeycomb core, and it holds the release and separation system. Falcon 9 uses an all-pneumatic stage separation system for low-shock, highly reliable separation that can be tested on the ground, unlike pyrotechnic systems used on most launch vehicles.

Second Stage

The second stage, powered by a single Merlin vacuum engine, delivers Falcon 9's payload to the desired orbit. The second stage engine ignites a few seconds after stage separation, and can be restarted multiple times to place multiple payloads into different orbits.

Like the first stage, the second stage is made from a high-strength aluminum-lithium alloy, using most of the same tooling, materials, and manufacturing techniques. This commonality yields significant design and manufacturing efficiencies.

Merlin 1D Engine

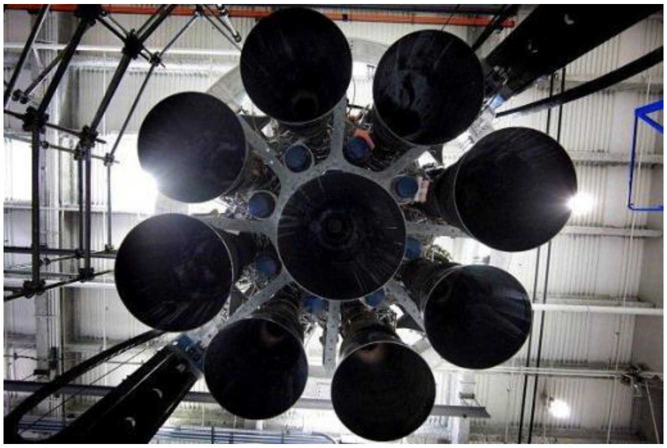
The Merlin engine that powers the first stage of Falcon 9 is developed and manufactured in-house by SpaceX . Burning liquid oxygen and rocket-grade kerosene propellant, a single Merlin engine generates 654 kilonewtons (147,000 pounds) of thrust at liftoff, rising to 716 kilonewtons (161,000 pounds) as it climbs out of Earth's atmosphere. Merlin's thrust-to-weight ratio exceeds 150, making the Merlin the most efficient booster engine ever built, while still maintaining the structural and thermal safety margins needed to carry astronauts.

Falcon 9 is the only vehicle currently flying with engine out capability. The nine-engine architecture on the first stage is an improved version of the design employed by the Saturn I and Saturn V rockets of the Apollo program, which had flawless flight records in spite of engine losses.

The Merlin 1D engine provides a number of improvements over its Merlin 1C predecessor, including greater performance, improved manufacturability by using high efficiency processes, increased robotic construction and reduced parts count.

High-pressure liquid oxygen and kerosene propellant are fed to each engine via a single-shaft, dual-impeller turbopump operating on a gas generator cycle. Kerosene from the turbopump also serves as the hydraulic fluid for the thrust vector control actuators on each engine, and is then recycled into the low-pressure inlet. This design eliminates the need for a separate hydraulic power system, and eliminates the risk of hydraulic fluid depletion. Kerosene is also used for regenerative cooling of the thrust chamber and expansion nozzle.

Octaweb



The Octaweb thrust structure of the nine Merlin engines improves upon the former 3x3 engine arrangement, increasing the Falcon 9's reliability while streamlining its manufacturing process. It houses the nine Merlin 1D engines and was designed to handle the increase in thrust from the Merlin 1C to Merlin 1D engine design. To form the structure, sheet metal is welded together and engines are placed into the nine slots. The eight engines surrounding one center engine simplify the design and assembly of the engine section, reducing production time from about three months to a matter of weeks.

The new layout also provides individual protection for each engine, and further protects other engines in case of an engine failure. It significantly reduces both the length and weight of the Falcon 9 first stage. With this design, Falcon 9 is also prepared for reusability – the Octaweb will be able to survive the first stage's return to Earth post-launch.

Reliability

This flight represents the eighth flight of the Falcon 9, following seven successful missions.

An analysis of launch failure history between 1980 and 1999 by the Aerospace Corporation showed that 91% of known failures can be attributed to three causes: engine failure, stage-separation failure, and, to a much lesser degree, avionics failure. Because Falcon has nine Merlin engines clustered together to power the first stage, the vehicle is capable of sustaining certain engine failures and still completing its mission. This is an improved version of the architecture employed by the Saturn I and Saturn V rockets of the Apollo program, which had flawless flight records despite the loss of engines on a number of missions. With only two stages, Falcon 9 limits problems associated with separation events.

SpaceX maximizes design and in-house production of much of Falcon 9's avionics, helping ensure compatibility among the rocket engines, propellant tanks, and electronics. In addition, SpaceX has a complete hardware simulator of the avionics in its Hawthorne factory. This simulator, utilizing electronics identical to those on the rocket, allows SpaceX to check nominal and off-nominal flight sequences and validate the data that will be used to guide the rocket.

SpaceX uses a hold-before-release system—a capability required by commercial airplanes, but not implemented on many launch vehicles. After the first-stage engines ignite, Falcon 9 is held down and not released for flight until all propulsion and vehicle systems are confirmed to be operating normally. An automatic safe shutdown occurs and propellant is unloaded if any issues are detected.

SpaceX Fairing

The payload fairing sits atop Falcon 9 for the delivery of satellites to destinations in low-Earth orbit (LEO), geosynchronous transfer orbit (GTO) and beyond. SpaceX designed and developed its 5-meter fairing and manufactures every unit in Hawthorne, Calif. With an all-pneumatic deployment system (like Falcon 9's interstage), the fairing experiences low shock and can be tested on the ground.

The fairing is a composite structure made of sheets of carbon fiber and an aluminum honeycomb core. Large enough to carry a city bus, the fairing stands 17' in diameter and 43' tall and is designed to reliably meet all mission requirements.

There are two halves to the fairing. One side is passive, and one is active with all actively controlled systems.

Structurally, the lower joint connects the fairing to the payload attach fitting and the 2nd stage. There is a vertical seam connecting the two fairing halves. The same latch mechanism is used in 14 locations along the vertical seam. Four pushers that share similar design components with the stage separation system separate the fairing halves at deployment.

Falcon 9 uses an all-pneumatic stage separation system for low-shock, highly reliable separation that can be tested on the ground, unlike pyrotechnic systems used on most launch vehicles.

SpaceX Facilities

SPACE LAUNCH COMPLEX 40, CAPE CANAVERAL AIR FORCE STATION

Cape Canaveral, Florida

SpaceX's Space Launch Complex 40 at Cape Canaveral Air Force Station is a world-class launch site that builds on strong heritage: The site at the north end of the Cape was used for many years to launch Titan rockets, among the most powerful rockets in the US fleet. SpaceX took over the facility in May 2008.

The center of the complex is composed of the concrete launch pad/apron and flame exhaust duct. Surrounding the pad are four lightning towers, fuel storage tanks, and the integration hangar. Before launch, Falcon 9's stages and the payload are housed inside the hangar, where the payload is encapsulated within the fairing. A crane/lift system moves Falcon 9 into a transporter-erector system and the payload and fairing are mated to the rocket. The vehicle is rolled from hangar to launch pad on fixed rails shortly before launch to minimize exposure to the elements.

SpaceX Launch Control, also at Cape Canaveral, is responsible for operating the Falcon 9 throughout the launch countdown.

SPACEX HEADQUARTERS

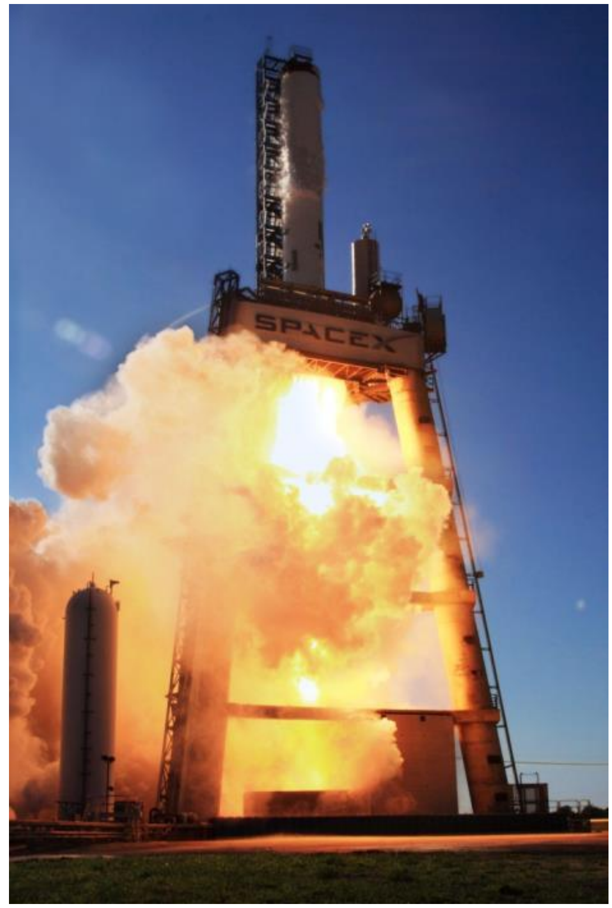
Hawthorne, California

SpaceX's rockets and spacecraft are designed and manufactured at the company's headquarters in Hawthorne, California – a complex that spans nearly one million square feet.

ROCKET DEVELOPMENT FACILITY

McGregor, Texas

Engines and structures are tested at a 900-acre state-of-the-art rocket development facility in McGregor, Texas.



SPACE LAUNCH COMPLEX 4E, VANDENBERG AIR FORCE BASE

Lompoc, California

SpaceX's Space Launch Complex 4E at Vandenberg Air Force Base in California is used for launches to high inclination and polar orbits, and will support launches of the Falcon Heavy.

SpaceX Company Overview

SpaceX designs, manufactures, and launches the world's most advanced rockets and spacecraft. The company was founded in 2002 by Elon Musk to revolutionize space transportation, with the ultimate goal of enabling people to live on other planets. Today, SpaceX is advancing the boundaries of space technology through its Falcon launch vehicles and Dragon spacecraft.

Transforming the Way Rockets Are Made

SpaceX's proven designs are poised to revolutionize access to space. Because SpaceX designs and manufactures its own rockets and spacecraft, the company is able to develop quickly, test rigorously, and maintain tight control over quality and cost. One of SpaceX's founding principles is that simplicity and reliability are closely coupled.

Making History

SpaceX has gained worldwide attention for a series of historic milestones. It is the only private company ever to return a spacecraft from low-Earth orbit, which it first accomplished in December 2010. The company made history again in May 2012 when its Dragon spacecraft attached to the International Space Station (ISS), exchanged cargo payloads, and returned safely to Earth—a technically challenging feat previously accomplished only by governments. SpaceX began official cargo resupply to the ISS in October 2012, with the first of 12 commercial resupply (CRS) missions.

Advancing the Future

Under a $1.6 billion contract with NASA, SpaceX will fly at least 10 more cargo supply missions to the ISS for a total of 12—and in the near future, SpaceX will carry crew as well. Dragon was designed from the outset to carry astronauts and now, under a $440 million agreement with NASA, SpaceX is making modifications to make Dragon crew-ready.

SpaceX is the world's fastest-growing provider of launch services. Profitable and cash-flow positive, the company has nearly 50 launches on its manifest, representing nearly $5 billion in contracts. These include commercial satellite launches as well as NASA missions.

Currently under development is the Falcon Heavy, which will be the world's most powerful rocket. All the while, SpaceX continues to work toward one of its key goals—developing reusable rockets, a feat that will transform space exploration by radically reducing its cost.

Key SpaceX Milestones

- **March 2002** SpaceX is incorporated
- **March 2006** First flight of SpaceX's Falcon 1 rocket
- **August 2006** NASA awards SpaceX $278 million to demonstrate delivery and return of cargo to ISS
- **September 2008** Falcon 1, SpaceX's prototype rocket, is first privately developed liquid-fueled rocket to orbit Earth
- **December 2008** NASA awards SpaceX $1.6 billion contract for 12 ISS cargo resupply flights
- **July 2009** Falcon 1 becomes first privately developed rocket to deliver a commercial satellite into orbit
- **June 2010** First flight of SpaceX's Falcon 9 rocket, which successfully achieves Earth orbit
- **December 2010** On Falcon 9's second flight and the Dragon spacecraft's first, SpaceX becomes the first commercial company to launch a spacecraft into orbit and recover it successfully
- **May 2012** SpaceX's Dragon becomes first commercial spacecraft to attach to the ISS, deliver cargo, and return to Earth
- **August 2012** SpaceX wins $440 million NASA Space Act Agreement to develop Dragon to transport humans into space
- **October 2012** SpaceX completes first of 12 official cargo resupply missions to the ISS, beginning a new era of commercial space transport
- **September 2013** First flight of SpaceX's upgraded Falcon 9 rocket, with successful reentry of the first stage booster
- **December 2013** First flight of Falcon 9 to geosynchronous transfer orbit

Profile

SpaceX is a private company owned by management and employees, with minority investments from Founders Fund, Draper Fisher Jurvetson, and Valor Equity Partners. The company has more than 3,000 employees with its headquarters in Hawthorne, California; launch facilities at Cape Canaveral Air Force Station, Florida, and Vandenberg Air Force Base, California; a rocket development facility in McGregor, Texas; and offices in Houston, Texas; Chantilly, Virginia; and Washington, DC.

For more information, including SpaceX's Launch Manifest, visit the SpaceX website at www.spacex.com.

SpaceX Leadership

ELON MUSK
CEO and Chief Designer

As CEO and Chief Designer, Elon oversees development of rockets and spacecraft for missions to Earth orbit and ultimately to other planets. The SpaceX Falcon 1 was the first privately developed liquid-fueled rocket to reach orbit. In 2008, SpaceX won a NASA contract to use its Falcon 9 rocket and Dragon spacecraft to commercially provide the cargo transport function of the space shuttle, which was retired in 2011. In 2010, SpaceX became the first commercial company to successfully recover a spacecraft from Earth orbit with its Dragon spacecraft. And in 2012, SpaceX's Dragon spacecraft became the first commercial vehicle to successfully attach to the International Space Station and return cargo to Earth.

Prior to SpaceX, Elon cofounded PayPal, the world's leading Internet payment system, and served as the company's Chairman and CEO. Before PayPal, Elon cofounded Zip2, a provider of Internet software to the media industry.

He has a Bachelor of Science in physics from the University of Pennsylvania and a Bachelor of Arts in business from the Wharton School.

GWYNNE SHOTWELL
President and Chief Operating Officer

As President and COO of SpaceX, Gwynne Shotwell is responsible for day-to-day operations and for managing all customer and strategic relations to support company growth. She joined SpaceX in 2002 as Vice President of Business Development and built the Falcon vehicle family manifest to nearly 50 launches, representing nearly $5 billion in revenue.

Prior to joining SpaceX, Gwynne spent more than 10 years at the Aerospace Corporation where she held positions in Space Systems Engineering & Technology as well as Project Management. Gwynne was subsequently recruited to be Director of Microcosm's Space Systems Division, where she served on the executive committee and directed corporate business development.

Gwynne participates in a variety of STEM (Science,Technology, Engineering and Mathematics)-related programs, including the Frank J. Redd Student Scholarship Competition. Under her leadership the committee raised more than $350,000 in scholarships in 6 years.

Gwynne received, with honors, a Bachelor of Science and a Master of Science in mechanical engineering and applied mathematics from Northwestern University.

THAICOM Company Overview

Who is THAICOM?

THAICOM Public Company Limited, a leading Asian satellite operator, was established in 1991 with unique proposition in providing integrated solutions for satellite broadcast and broadband. The Company houses high profiled engineering teams to provide leading-edge innovative solutions on telecommunication and satellite that answer every need with a full spectrum of services. Until now, **THAICOM** has launched five satellites into the orbit; two satellites are in operations. THAICOM 5 is a “Hotbird” broadcasting satellite for Thailand and SE Asia, boarding more than 500 TV channels, coverage over Thailand and SE Asia. THAICOM 4 (IPSTAR) is **the world’s first broadband satellite** and is providing broadband services to 14 countries across Asia-Pacific region. With the unique performance and technology of THAICOM 4, the Company has provided its solutions to many countries in the region to enable the broadband connectivity everywhere, also to recover communication networks at the time of disasters; such as in Japan, China and New Zealand. The Company will launch THAICOM 6 in 2014 to provide additional capacity that strengthen THAICOM’s “Hotbird” position, and will also serve the African market by the name “Aficom-1”. And further in 2014, THAICOM-7 will be launched to expand THAICOM’s servicing capacity and footprint in the regions.

THAICOM is listed on the Stock Exchange of Thailand (SET) under the trade symbol “THCOM”.

THAICOM 6 Fact Sheet

What is THAICOM 6?

THAICOM 6, a conventional satellite which will be co-located with THAICOM-5 at 78.5 degrees East (“Hot Bird” position), and carry Ku- and C-band payload. The Ku-band payload will be comprised of 9 transponders (TPE) providing services to the Southeast Asia (mainland). The C-band payload will feature 24 C-band transponders (TPE) providing services via the satellite’s regional beam to Southeast Asia and Africa. THAICOM-6 will expand the company’s business by providing telecommunication and broadcast services to more customers in those areas and maintaining THAICOM’s “hot bird” position in the region.

Specifications:

Platform:	Star 2.3 three-axis stabilized satellites
Orbital position:	78.5 degrees East
Life Expectancy:	Approximately 15 years
Transponder Capacity:	18 C-band: 12 x 36MHz, 6 x 72MHz (24 TPEs*) 8 Ku-band: 6 x 36MHz, 2 x 54MHz (9 TPEs*)
Manufacturer:	Orbital Sciences Corporation U.S.A.
Launcher:	FALCON 9 Space Exploration Technologies, U.S.A
Launch Date	Jan 3, 2014

TPE*: 36MHz-Transponder Equivalent

Footprint: