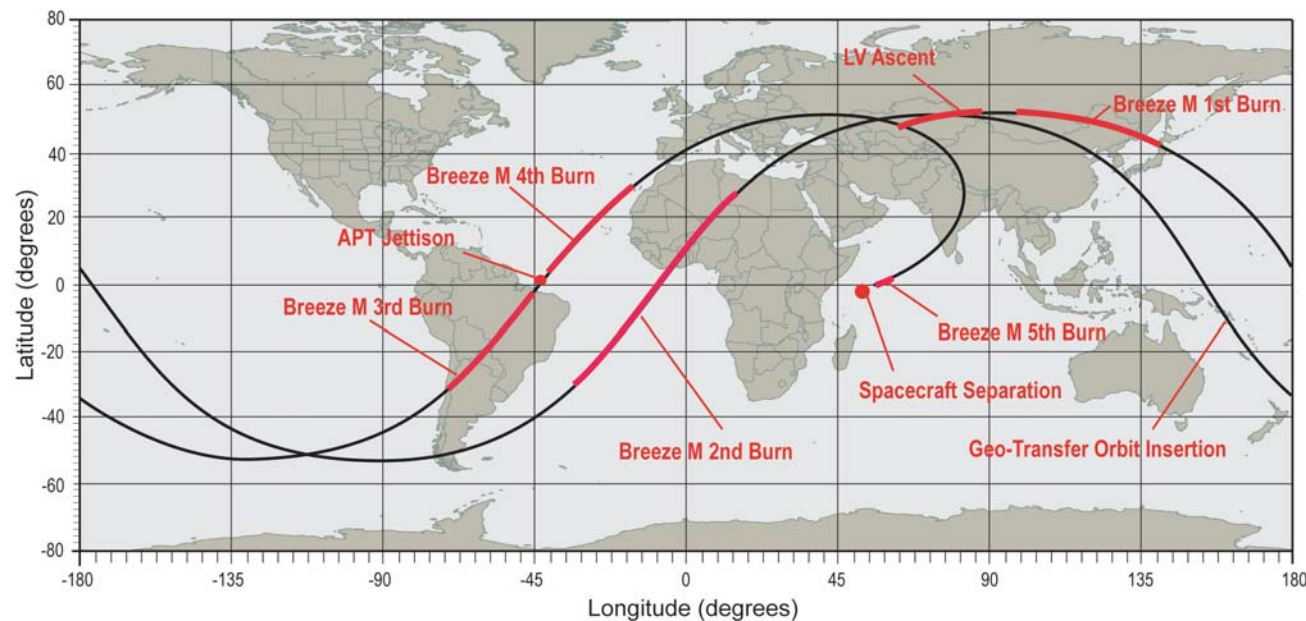


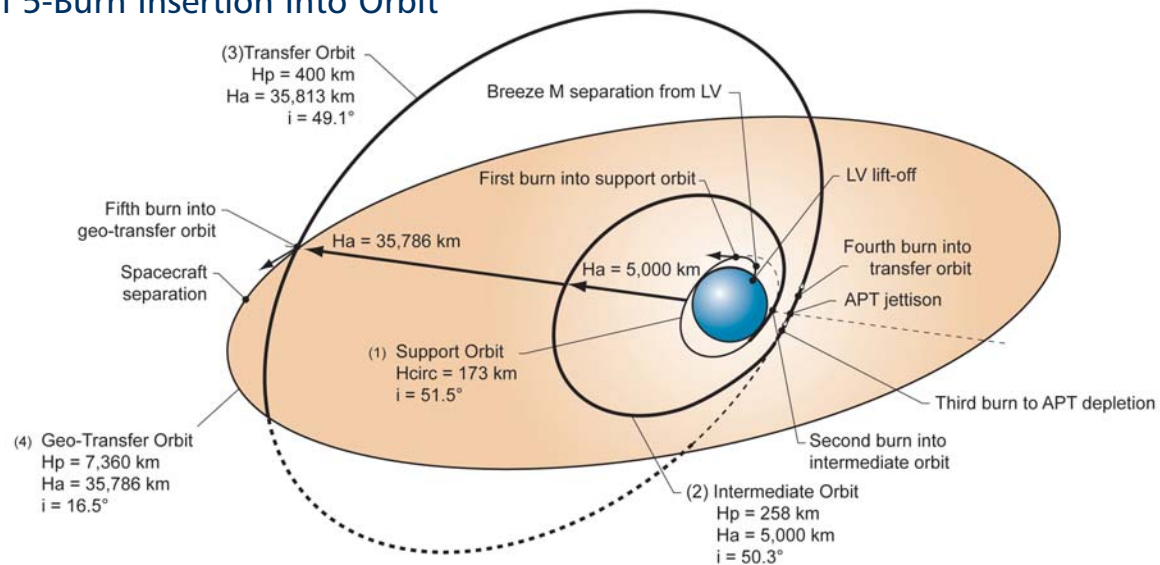
## MISSION PROFILE

The Proton Breeze M launch vehicle, utilizing a 5-burn Breeze M mission design, will lift off from Pad 39 at the Baikonur Cosmodrome, Kazakhstan, with the MEASAT-3 satellite on board. The first three stages of the Proton will use a standard ascent trajectory to place the Breeze M fourth stage and the MEASAT-3 satellite into a sub-orbital trajectory, from which the Breeze M will place itself and the spacecraft into a circular support orbit. Once MEASAT-3 is in the support orbit, it will be propelled into its transfer orbit by a series of additional burns of the Breeze M. Separation occurs approximately 9 hours, 12 minutes and 10 seconds after liftoff.

### Typical 5-Burn Proton Ascent Ground Track



### Typical 5-Burn Insertion Into Orbit



## THE SATELLITE



International Launch Services

**Satellite Operator:**  
MEASAT  
[www.measat.com](http://www.measat.com)

**Satellite Manufacturer:**  
Boeing Satellite Systems  
[www.boeing.com/defense-space/space/bss/factsheets/601/measat3/measat3.html](http://www.boeing.com/defense-space/space/bss/factsheets/601/measat3/measat3.html)

**Platform:**  
601HP

**Separated Mass:**  
4,765 Kg

**Design Life:**  
15 years

**Mission:**

MEASAT-3 is the newest addition to the MEASAT fleet. Built by Boeing Satellite Systems, Inc., and based on the Boeing 601HP bus, MEASAT-3 will provide 24 C-band and 24 Ku-band 36 MHz transponders over a 15-year service life. Designed to be co-located with MEASAT-1 at 91.5° East longitude, MEASAT-3 will provide high-powered C-band coverage over more than 100 countries and Ku-band spot beams focused on Malaysia, Indonesia and South Asia. With the launch of MEASAT-3, the MEASAT network will provide C-band coverage over 70 percent of the world's population and high-powered DTH quality Ku-band coverage over 160 million TV households.



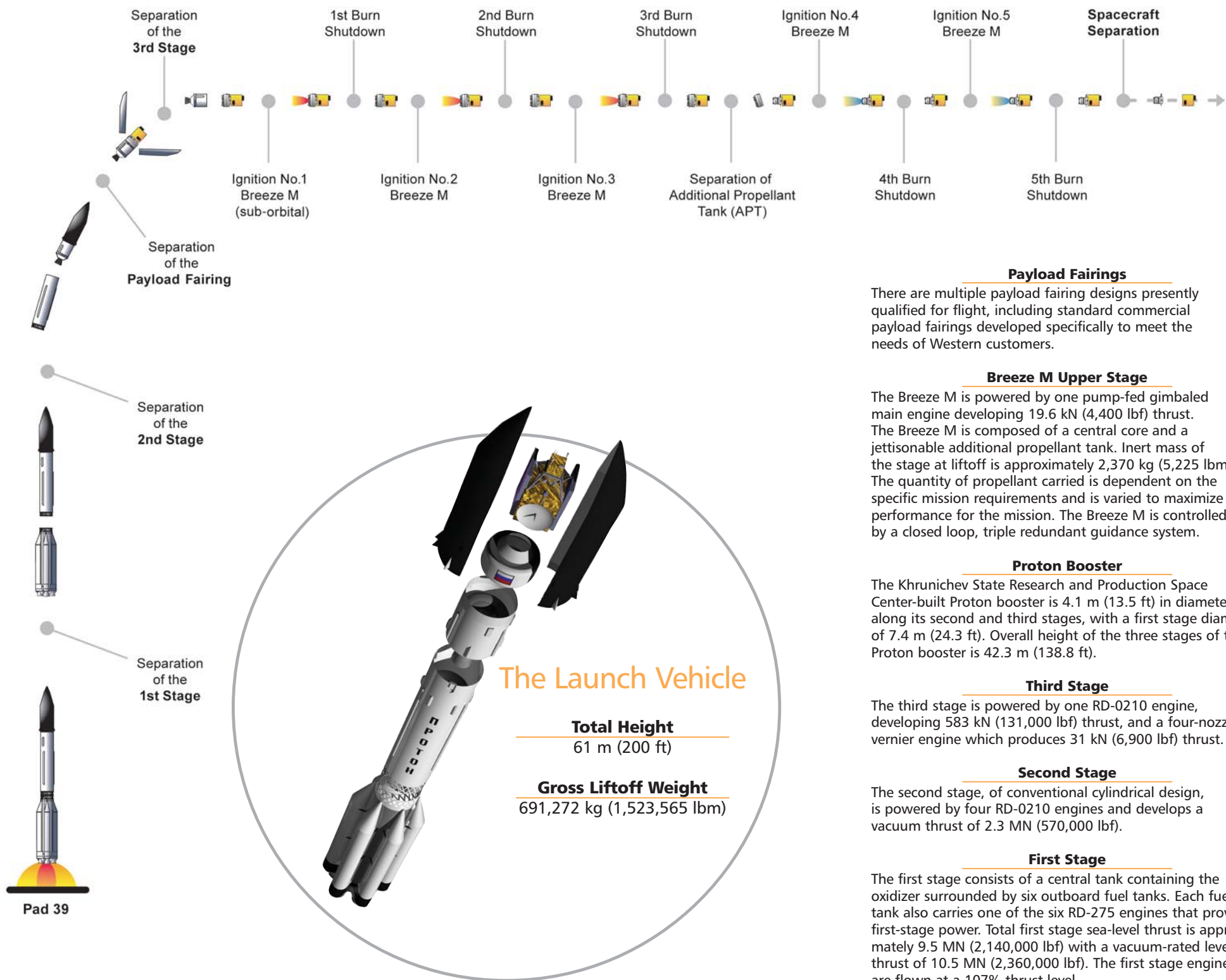
[www.ilslaunch.com](http://www.ilslaunch.com)

## MEASAT-3

### Mission Overview

- 1st MEASAT launch on an ILS vehicle
- 4th ILS Proton Launch in 2006
- 323rd Proton launch

# MISSION ASCENT PROFILE



## Countdown and Flight Events Summary

EVENT	HR:MIN:SEC
Ignition sequence start	-00:00:02.5
Stage one ignition, 40 percent thrust	-00:00:01.6
Command stage one thrust to 100 percent	-00:00:00.9
<b>Liftoff</b>	<b>00:00:00.0</b>
Maximum dynamic pressure	00:01:05
Stage one/two separation	00:02:03
Stage two/three separation	00:05:30
Payload fairing jettison	00:05:45
Stage three upper stage separation from Breeze M	00:09:44
Breeze M first burn ignition	00:11:19
Breeze M first burn shutdown	00:19:12
Breeze M second burn ignition	01:08:30
Breeze M second burn shutdown	01:25:23
Breeze M third burn ignition	03:29:07
Breeze M third burn shutdown	03:40:52
Breeze M fourth burn ignition	03:42:49
Breeze M fourth burn shutdown	03:47:46
Breeze M fifth burn ignition	08:50:54
Breeze M fifth burn shutdown	08:58:39
Breeze M/spacecraft separation	09:12:10

### Payload Fairings

There are multiple payload fairing designs presently qualified for flight, including standard commercial payload fairings developed specifically to meet the needs of Western customers.

### Breeze M Upper Stage

The Breeze M is powered by one pump-fed gimbaled main engine developing 19.6 kN (4,400 lbf) thrust. The Breeze M is composed of a central core and a jettisonable additional propellant tank. Inert mass of the stage at liftoff is approximately 2,370 kg (5,225 lbm). The quantity of propellant carried is dependent on the specific mission requirements and is varied to maximize performance for the mission. The Breeze M is controlled by a closed loop, triple redundant guidance system.

### Proton Booster

The Khrunichev State Research and Production Space Center-built Proton booster is 4.1 m (13.5 ft) in diameter along its second and third stages, with a first stage diameter of 7.4 m (24.3 ft). Overall height of the three stages of the Proton booster is 42.3 m (138.8 ft).

### Third Stage

The third stage is powered by one RD-0210 engine, developing 583 kN (131,000 lbf) thrust, and a four-nozzle vernier engine which produces 31 kN (6,900 lbf) thrust.

### Second Stage

The second stage, of conventional cylindrical design, is powered by four RD-0210 engines and develops a vacuum thrust of 2.3 MN (570,000 lbf).

### First Stage

The first stage consists of a central tank containing the oxidizer surrounded by six outboard fuel tanks. Each fuel tank also carries one of the six RD-275 engines that provide first-stage power. Total first stage sea-level thrust is approximately 9.5 MN (2,140,000 lbf) with a vacuum-rated level thrust of 10.5 MN (2,360,000 lbf). The first stage engines are flown at a 107% thrust level.