PAYLOAD USER'S GUIDE

AUGUST 2018
VERSION 6.2

ROCKET LAB

UNPRECEDENTED ACCESS TO SPACE

We are in an exciting new era of small satellite technology - one that's making life on Earth better. Small satellites keep us connected, provide security, help us monitor resources and environmental change, and they enable us to explore new and exciting science that benefits us all. Access to orbit for these small satellites has been challenging, until now.

We believe the launch process should be simple, seamless and tailored to your mission - from idea to orbit.

Since the Electron launch vehicle was first conceived in 2013, every detail of the Rocket Lab launch experience has been designed to provide small satellites with rapid, reliable and affordable access to space.

Innovation is at the core of the Electron launch vehicle, just as it's at the core of the revolutionary small satellites we're launching to orbit. We've designed Electron to be built and launched with unprecedented frequency, while providing the smoothest ride and most precise deployment to orbit for your satellite. We've also developed the world's only private orbital launch pad to provide unrivalled scheduling freedom.

Humankind's next major achievements await us on orbit. We'll take you there.

Peter Beck

Founder and Chief Executive of Rocket Lab

PAYLOAD USER'S GUIDE OVERVIEW

This document is presented as an introduction to the launch services available on the Electron Launch Vehicle. It is provided for planning purposes only and is superseded by any mission specific documentation provided by Rocket Lab.

REVISION HISTORY

DATE	VERSION	HISTORY
June, 2015	1.0	First Release
May, 2016	2.0	Updated Release
September, 2016	3.0	Updated Release
December, 2016	4.0	Updated Release
April, 2017	5.0	Updated Release
June, 2018	6.0	Updated Release
July, 2018	6.1	Updated Release
August, 2018	6.2	Updated Release

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ROCKET LAB

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1. MEET ELECTRON

YOUR MISSION - FROM IDEA TO ORBIT.

YOUR RIDE TO ORBIT

Designed and manufactured by Rocket Lab, Electron is the world's most innovative and advanced small launch vehicle. Every detail of Electron has been designed for rapid production to support a weekly launch cadence, freeing the small satellite market from launch bottlenecks.

> STANDING AT 17 METERS (55 FEET AND 9.3 INCHES) TALL, WITH A DIAMETER OF 1.2 METERS (3 FEET 11.2 INCHES) AND A LIFT OFF MASS OF 13,000 KG (28,600 LBS), ELECTRON IS OPTIMIZED FOR LAUNCHING 150 KG (330LBS) TO A 500 KM SUN-SYNCHRONOUS ORBIT.

ELEGANT DESIGN. EXCEPTIONAL PERFORMANCE.

Innovation is at the core of Rocket Lab and it flows through every aspect of Electron. Electron utilizes advanced carbon composite technologies throughout the launch vehicle structures, including all of Electron's propellant tanks. The all carbon-composite construction of Electron decreases mass by as much as 40 percent, resulting in enhanced vehicle performance. Rocket Lab fabricates tanks and other carbon composite structures in-house improve cost efficiency and drive rapid production.

Electron is powered by a total of ten Rutherford engines, named after the notable New Zealand-born Physicist, Ernest Rutherford, who split the atom in 1917. Rutherford is the first oxygen/hydrocarbon engine to use additive manufacturing for all primary components, including the regeneratively cooled thrust chamber, injector pumps, and main propellant valves. Rutherford adopts an entirely new electric propulsion cycle, using brushless DC electric motors and high-performance lithium polymer batteries to drive its propellant pumps. Nine Rutherford engines power Electron's first stage and one vacuum optimized Rutherford engine powers Electron's second stage.

TAKE A LOOK INSIDE

ELECTRON

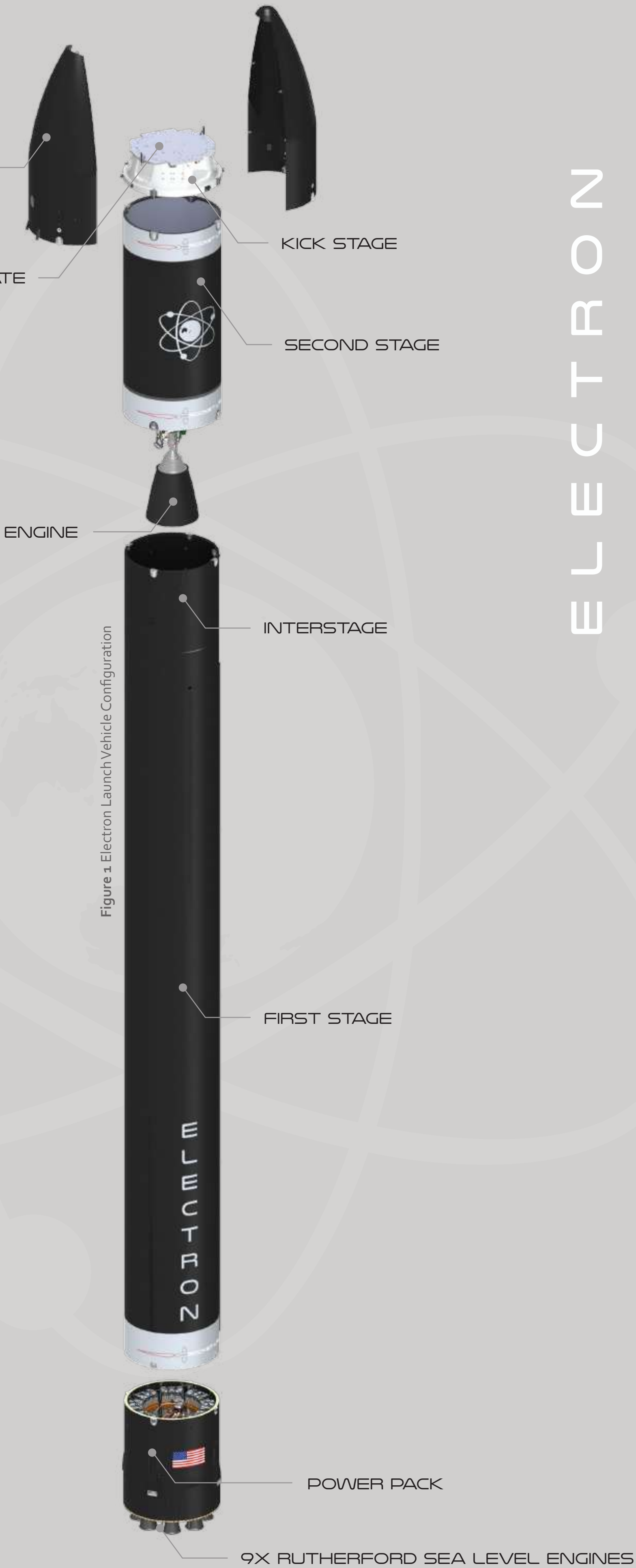


Figure 1 Electron Launch Vehicle Configuration

OVERALL

LENGTH
17M

DIAMETER (MAX)
1.2M

STAGES
2 + OPTIONAL KICK STAGE

VEHICLE MASS (LIFTOFF)
13,000KG

MATERIAL/STRUCTURE
CARBON FIBER COMPOSITE/MONOCOQUE

PROPELLANT
LOX/KEROSENE

PAYLOAD

NOMINAL PAYLOAD
150KG TO SSO

PAYLOAD DIAMETER
1.08M

PAYLOAD HEIGHT
1.91M

FAIRING SEP SYSTEM
PNEUMATIC UNLOCKING, SPRINGS

STAGE 2

PROPULSION
1X RUTHERFORD VACUUM ENGINE

THRUST
5500 LBF VACUUM

ISP
343 SEC

INTERSTAGE

SEPARATION SYSTEM
PNEUMATIC PUSHER

STAGE 1

PROPULSION
9X RUTHERFORD SEA LEVEL ENGINES

THRUST
5500 LBF SEA LEVEL (PER ENGINE)

ISP
311 SEC

2. MEET RUTHERFORD

THE FIRST OF ITS KIND.

THE FIRST OF ITS KIND.

Electron's Rutherford engines are named after notable New Zealand-born Physicist Ernest Rutherford (1871 – 1937), who split the atom in 1917 and challenged scientific thinking of the day. Rocket Lab's flagship engine, the 5,500 lbf (24 kN) Rutherford, is an electric pumped LOx/ Kerosene engine specifically designed for the Electron launch vehicle.

Rutherford adopts an entirely new electric propulsion cycle, making use of brushless DC electric motors and high-performance lithium polymer batteries to drive its propellant pumps. This cuts down on much of the complex turbomachinery typically required for gas generator cycle engines, meaning that the Rutherford is simpler to build than a traditional engine but still can achieve 90% efficiency.

Figure 2 First Stage Rutherford Engine

Figure 3 Rutherford Stage 1 Configuration

Rutherford is also the first oxygen/hydrocarbon engine to use additive manufacturing for all primary components, including the regeneratively cooled thrust chamber, injector pumps, and main propellant valves. The Stage 1 and Stage 2 Rutherford engines are identical, with the exception of a larger expansion ratio nozzle for Stage 2 for improved performance in near-vacuum-conditions. All aspects of the Rutherford engines are completely designed in-house and are manufactured directly at our Huntington Beach facility.

3. MEET THE KICK STAGE

UNRIVALED FLEXIBILITY FOR PRECISE ORBITAL DEPLOYMENT.

UNMATCHED FLEXIBILITY FOR ORBITAL DEPLOYMENT

Rocket Lab's Kick Stage offers our customers unmatched flexibility for orbital deployment. The Kick Stage is used to circularize an orbit and is capable of multiple engine burns to deliver multiple payloads to a range of different orbits with precision insertion.

The Kick Stage was successfully demonstrated on Rocket Lab's "Still Testing" flight in January 2018.

The Kick Stage is powered by the Curie engine, named for the physicist and chemist Marie Curie, and is developed and manufactured in-house by Rocket Lab using 3D printing.

The Kick Stage additionally is equipped with a cold gas reaction control system for precision pointing, as well as its own avionics, power, and communications systems.

Rocket Lab is committed to the sustainable use of space and the Kick Stage has been designed with this in mind. The Curie engine has restart capability allowing for de-orbit of the stage, leaving nothing on orbit but our customers' satellites.

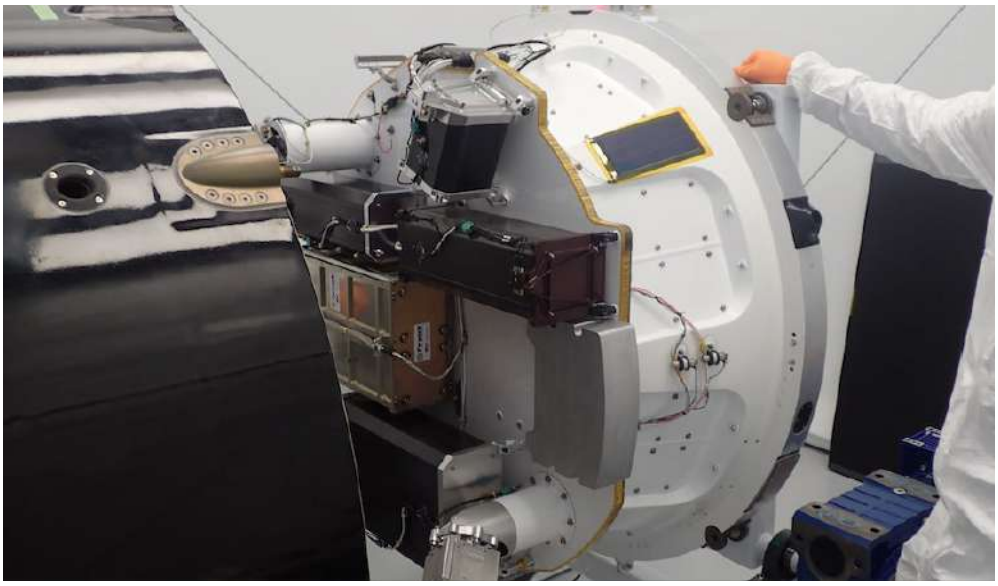


Figure 4 Rocket Lab's Kick Stage being intergrated with the fairing

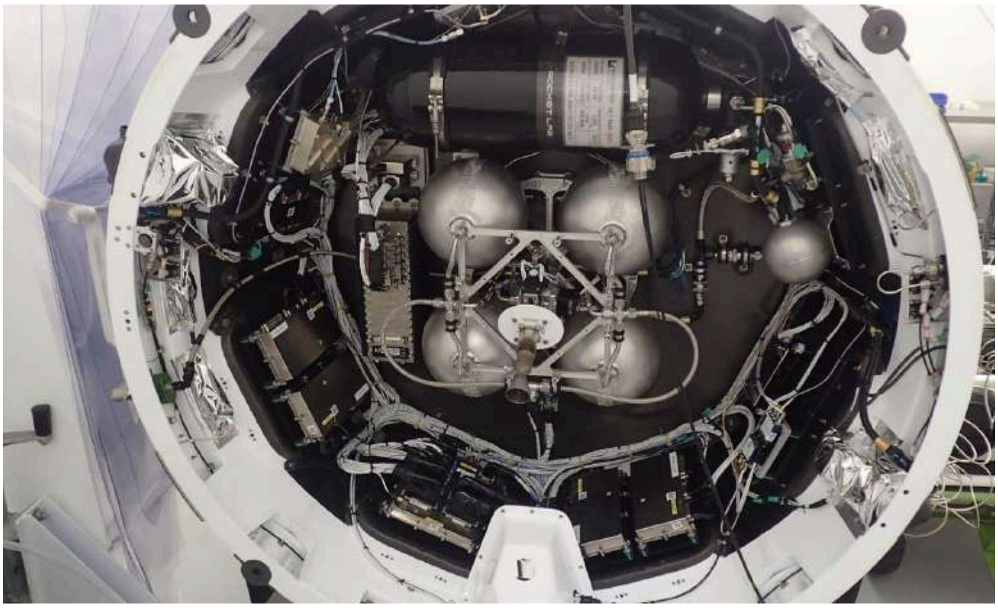


Figure 5 Rocket Lab's Kick Stage

4. AVIONICS

HIGH-PERFORMANCE FLIGHT COMPUTER SYSTEMS.

HIGH-PERFORMANCE FLIGHT COMPUTER SYSTEMS

Rocket Lab has designed high-performing avionics and flight computer systems, including in-house assembly and testing. The computing nodes make use of state-of-the-art FPGA architecture, allowing massive customization of function while retaining hardware commonality.

Rocket Lab performs avionics validation not only at the component level, but also in our sophisticated hardware-in-the-loop (HITL) test facility which allows for integrated launch vehicle and software simulation and testing.

The Electron launch vehicle is currently equipped with a standard flight termination system, although Rocket Lab is actively developing an autonomous flight termination system with initial flights expected in 2018.

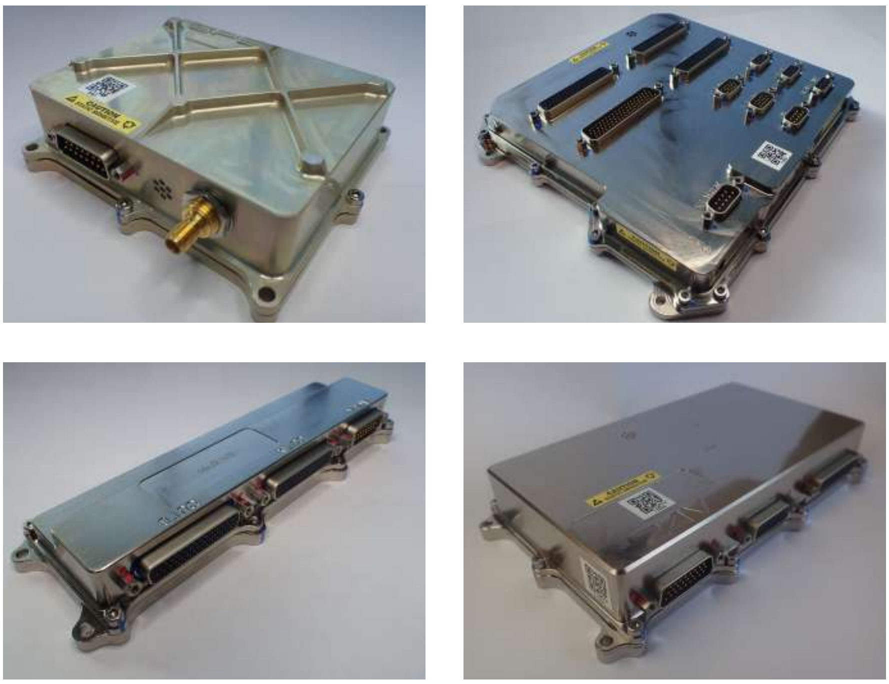


Figure 6 Rocket Lab Avionics

5. PAYLOAD ACCOMMODATION

MAKE YOURSELF AT HOME.

THE FAIRING

Electron's Payload Fairing is a composite split clam shell design and includes environmental control for the payload. During separation, each half of the fairing is designed to rotate on a hinge away from the payload, resulting in a safe separation motion.

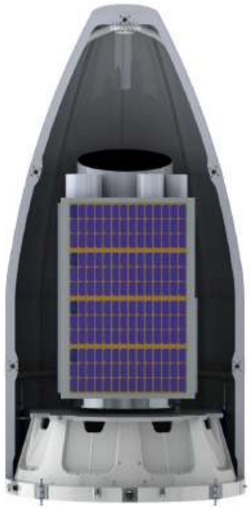


Figure 7 Sample configuration inside of the fairing

SPECIFICATION	VALUE
Length	**2.5 m**
Diameter (maximum)	**1.2 m**
Mass	**44 kg**
Acoustic Protection	**Foam Sheets**
Separation System	**Pneumatic Unlocking, Springs**

Table 1 Electron fairing specifications

Rocket Lab can develop custom solutions for customers with payloads that exceed the standard envelope.

PAYLOAD PLATE

The primary means of attachment between the Electron launch vehicle and the customer payload is via the Payload Plate, which typically forms the direct interface between the spacecraft separation system and the launch vehicle. For rideshare missions, multiple spacecraft separation systems may be mounted directly to the payload plate or Rocket Lab may recommend the use of a multiple payload adapter, to make best use of the available space within the fairing. Customers can provide their own adapters or Rocket Lab can provide one as a non-standard service.

Approximately 1m in diameter, Rocket Lab's Payload Plate is a honeycomb composite structure which is customized with an interface bolt pattern specifically to match the customer's requirements. Payload Plate configurations can be customized to accept single or multiple satellites, independent of whether they are CubeSat or microsatellite form factors.

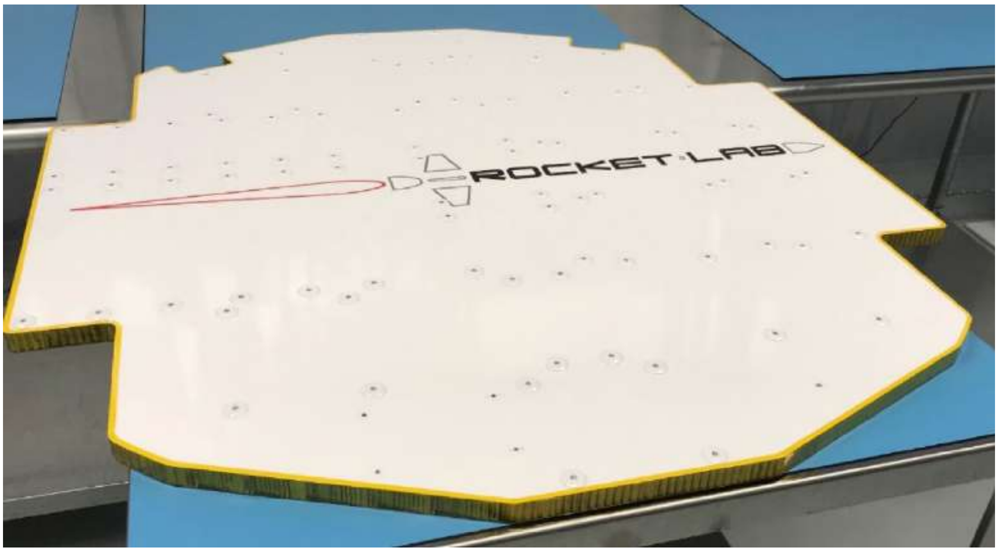


Figure 8 Rocket Lab payload plate

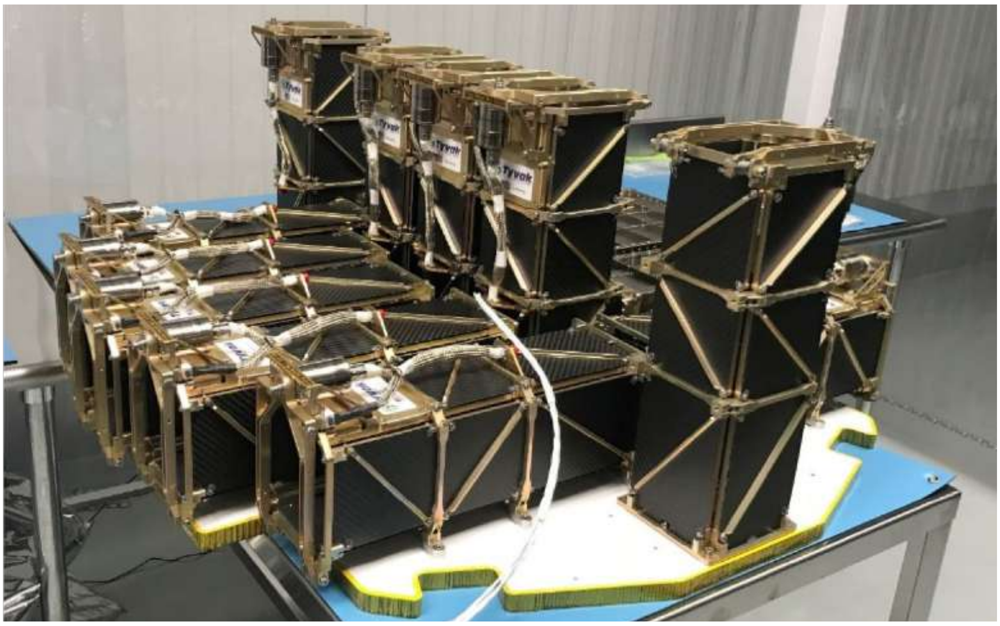


Figure 9 Rocket Lab payload plate, payload configuration for NASA ELANA mission

PAYLOAD ELECTRICAL INTERFACES

The Electron offers a standardized bulkhead electrical interface for connecting one or more spacecraft separation systems. Details of this interface are provided in the mission specific ICD.

As a non-standard service, a payload electrical umbilical, available from spacecraft mate to the launch vehicle, through launch, is available for customer use. The umbilical provides up to ten twisted shielded pairs and ethernet connectivity, allowing Customers to charge and monitor spacecraft post-encapsulation. If this service is utilized, an electrical ground support equipment interface panel will be accessible both in the hangar and in a customer equipment room near the launch pad. Umbilical harness specifications will be defined in the mission specific ICD and provided in accordance with contractual requirements.

SEPARATION SYSTEMS

Electron has been designed to support all commercially available payload separation systems, both mechanically and electrically. Electron has the added capability to deploy multiple separation systems during a single mission, enabling rideshare missions without additional sequencer hardware. Rocket Lab can procure the separation system on a Customer's behalf, integrate a customer supplied system, or supply a Rocket Lab-developed separation system – such as our Maxwell series of CubeSat dispensers.

For microsatellites customers looking for a turn key solution, Rocket Lab has worked with RUAG to offer the PAS 381S separation system as a standard option on the Electron. The PAS 381S is perfectly sized for Electron-class dedicated payloads and is cross compatible with the standard 15" ESPA interface that many small satellites have been designed to. The PAS 381S can be configured for flight in advance of the spacecraft arrival at the launch site, so all that remains is the installation of bolts at the mechanical interface and any required electrical connections or hookups. The RUAG PAS 381S for Electron has also been designed to accomodate a fly-away electrical umbilical interface, for those customers who require power or connectivity during on-pad operations.

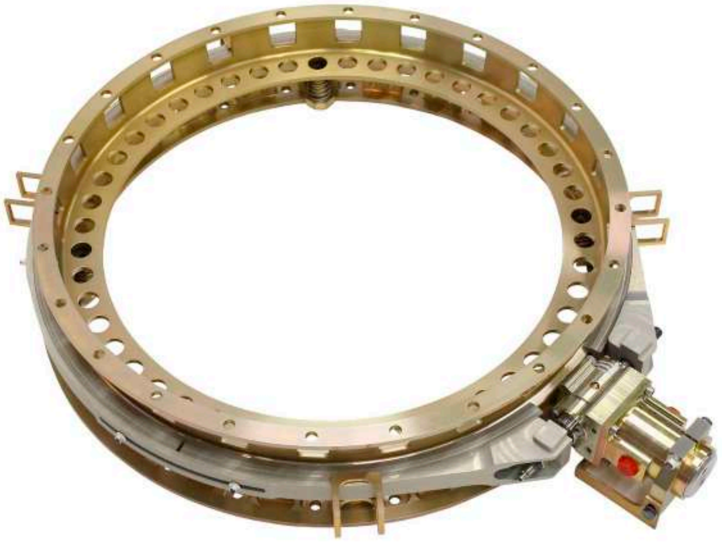


Figure 10 PAS 381S separation system

6. FLIGHT ENVIRONMENTS

THE SMOOTHEST RIDE TO ORBIT.

THE SMOOTHEST RIDE TO ORBIT

Electron's payload environments provide the most secure and smooth ascent to orbit on the market.

Rocket Lab performs mission specific analyses as part of the standard launch service statement of work, including incorporating data from previous flights to further refine launch environments. The loads and environments provided in this section are for reference only – final mission environments are provided to customers via the mission specific ICD. The environments represent the flight level maximum predicted environment (MPE) at the top of the payload plate and do not include any additional margin for testing of spacecraft. Rocket Lab recommends Customers follow the guidelines in GSFC-STD-7000 for spacecraft testing margins.

FAIRING THERMAL AND HUMIDITY ENVIRONMENT

The fairing environment is controlled from encapsulation through deployment, with a maximum relative humidity of 65%. Rocket Lab will perform a mission specific thermal analysis encompassing events from roll-out to deploymnent on orbit.

ACCELERATION LOADS

The payload will be subjected to a range of axial and lateral accelerations during flight. The maximum predicted load factors will typically be within the envelope shown in the Figure below. This envelopes both static and dynamic loads. Mission specific accelerations will be determined via coupled loads analysis and provided in the mission ICD.

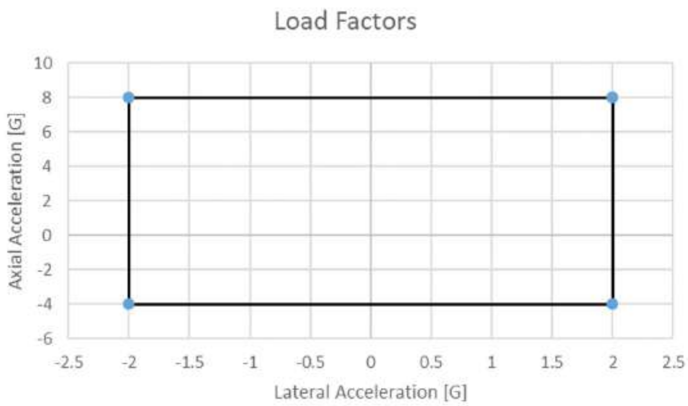


Figure 11 Electron Load Factors. *Results are indicative of single-deck cubesat rideshare*

MAX LATERAL	MAX AXIAL
± 2	+8/-4

Table 2 Electron Load Factors. *Positive sign represents compressive loads*

SHOCK

The maximum predicted shock response at the Payload Plate from all sources of launch vehicle shock is shown below in Figure 12 and Table 3.

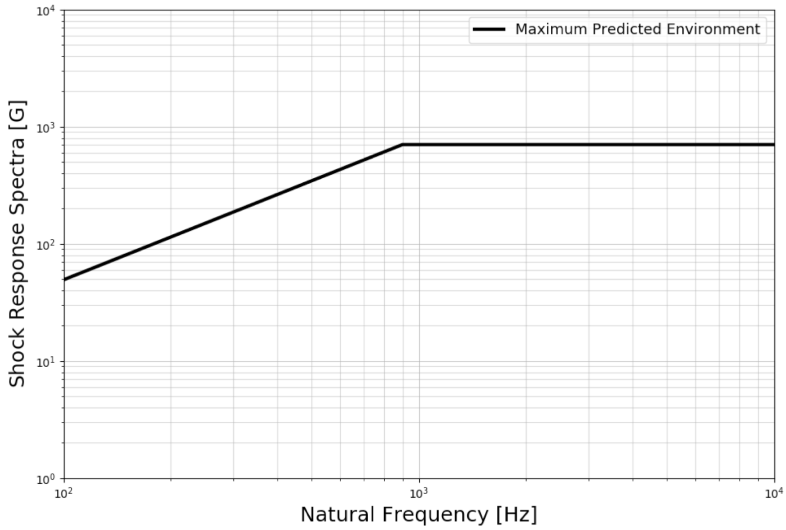


Figure 12 Electron Shock MPE

FREQUENCY(HZ)	SRS ACCELERATION
100	50
900	800
10000	800

Table 3 Electron Shock MPE

ACOUSTICS

The maximum predicted acoustic environment within the Payload Fairing will be at or below the levels shown in Figure 13, below.

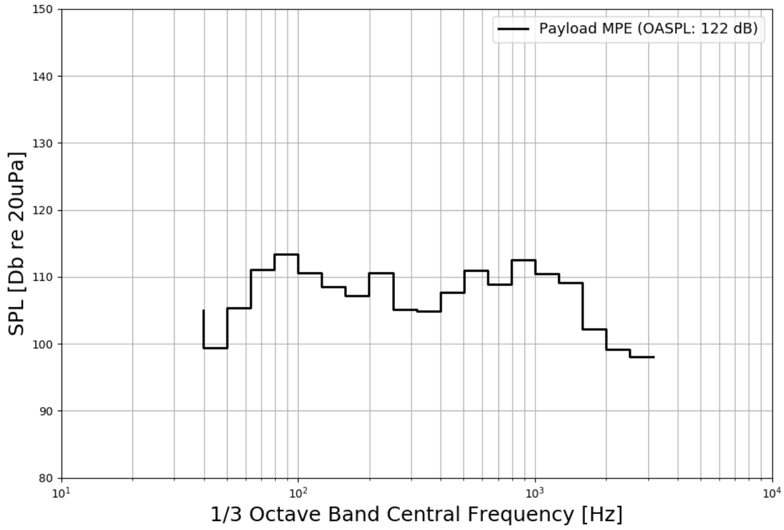


Figure 13 Payload Fairing Acoustic Environment

RANDOM VIBRATION

The dominant environment for small spacecraft is random vibration. The red smoothline in Figure 14 below represents the current MPE based on mission analysis and flight data. The black line represents the NASA GEVS 10 GRMS acceptance levels, which conservatively envelopes the MPE. Until Rocket Lab has incorporated additional flight data, NASA GEVS is provided as the recommended acceptance level. Customer specific test levels and notching strategies will be reviewed by Rocket Lab on a mission specific basis.

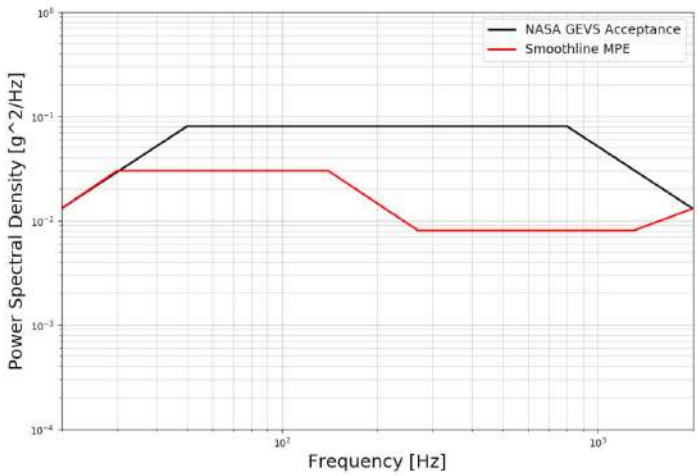


Figure 14 Current MPE based on mission analysis and flight data

RECOMMENDED TEST ENVIRONMENT (GEVS)

FREQUENCY(HZ)	PSD(G^2/HZ)
20	**0.013**
50	**0.080**
800	**0.080**
2000	**0.013**

Table 4 Recommended Test Environment

RADIO FREQUENCY

The primary source of radiated emissions from Electron are from the UHF omni-directional antennas on the kickstage, which are mounted on the outward side of the payload adapter cone structure, below the Payload Plate. The worst case radiated emissions at the time of payload activation will be enveloped by the level(s) in the table below.

FREQUENCY [MHZ]	V/M	DBUV/M
401.85	38.72	50

Table 5 The worst case radiated emissions at the time of payload activation

VENTING

The fairing compartment de-pressurization rate is less than 1.8 kPa/sec, apart from a short period during lift-off and transonic flight. An overpressure of ~0.5 kPa relative to the atmosphere is maintained for the majority of the flight. The maximum de-pressurisation rate is 2.8 kPa/s or 0.4 Psi/s.

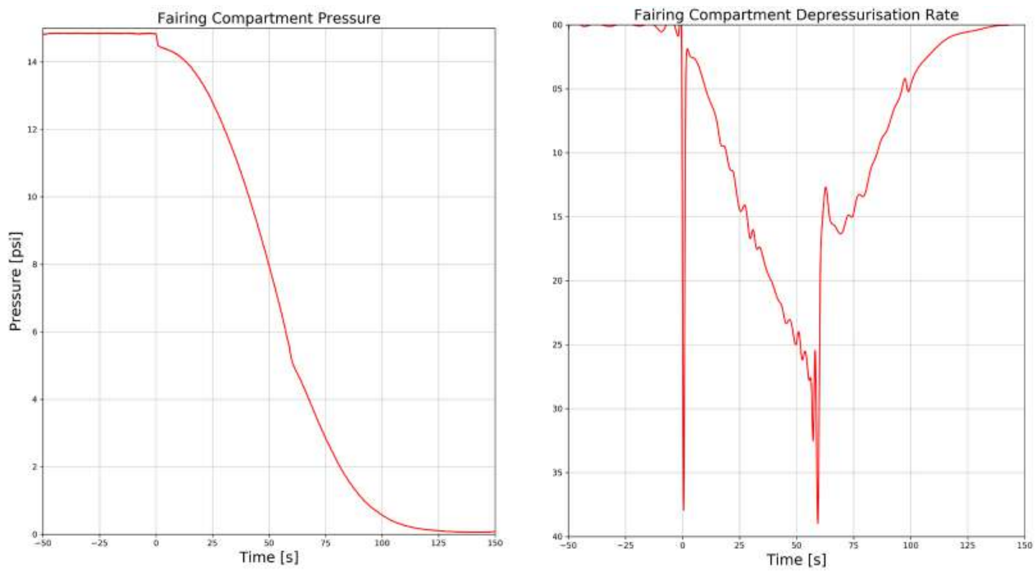


Figure 15 Electrons fairing compartment pressure and depressurization rates

SAFETY REQUIREMENTS

Details of all safety requirements will be discerned once all the safety documentation has been received. Hazardous operations include but are not limited to the use of high-pressure systems, heavy hydraulic lifting, toxic materials and ordnance operations. Rocket Lab will work closely with the payload customer to ensure all safety procedures are understood and implemented.

7. PERFORMANCE OVERVIEW

ELEGANT DESIGN.
EXCEPTIONAL PERFORMANCE.

SIMPLE, SEAMLESS AND TAILORED TO YOUR MISSION

From Rocket Lab's Māhia Launch Complex 1, Electron can be flown on trajectories of inclinations ranging from 39 degrees to Sun-Synchronous Orbit (98 degrees). Additional inclinations outside of this range may also be possible upon request.

Rocket Lab is also developing a second launch pad, to be located on US soil. The location and details of the site will be available in August 2018.

Electron is capable of reaching a wide range of both circular and elliptical orbits. One of the most common orbits requested by Customers is a sun-synchronous orbit (SSO), which is shown in Figure 8 and Table 3. Electron is designed to place 150kg into a circular SSO at 500km altitude.

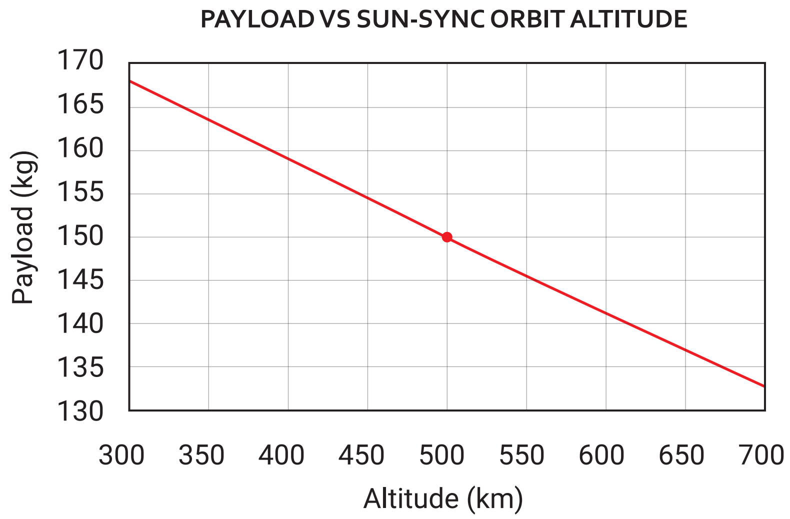


Figure 16 Performance to Circular Sun-Synchronous Orbit

ORBIT ALTITUDE (KM)	PAYLOAD MASS (KG)
300	**168**
400	**159**
500	**150**
600	**142**
700	**133**

Table 6 Performance to Circular Sun-Synchronous Orbit

PERFORMANCE CAPABILITY

For customers seeking non-traditional orbits, Figure 17 and Table 7 below represent the maximum performance for an elliptical orbit launched due east from the Mahia launch site.

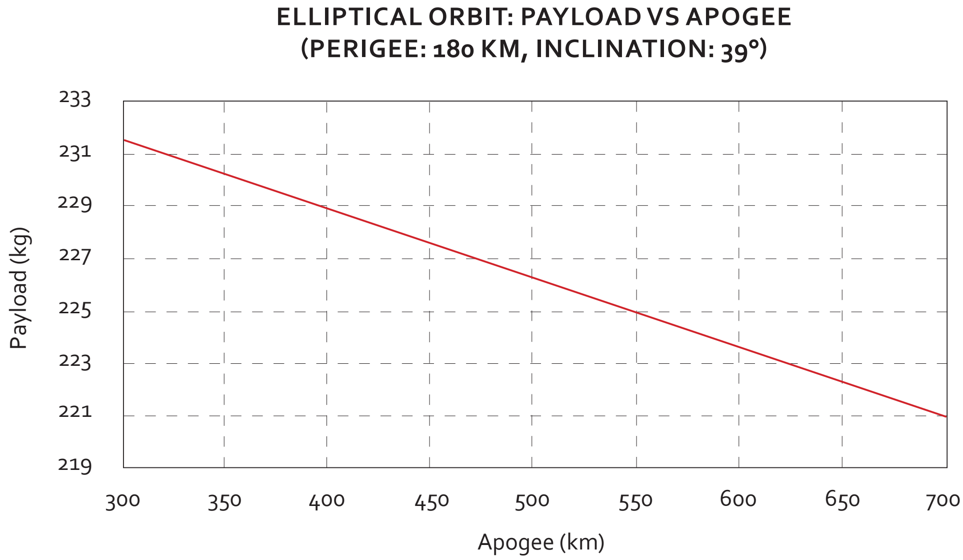


Figure 17 Performance to a 180 km Perigee at 39° Inclination Elliptical Orbit

APOGEE (KM)	PAYLOAD MASS (KG)
300	**231**
400	**229**
500	**226**
600	**224**
700	**221**

Table 7 Performance to a 180 km Perigee at 39° Inclination Elliptical Orbit

ORBIT INJECTION ACCURACY

Electron can achieve the following target mission injection accuracies for a typical mission to 500km SSO, as shown in Table 8. Note that mission-specific payload injection accuracies will be calculated as part of mission analysis at Rocket Lab.

Inclinations	**+/- 0.15 deg**
Perigee	**+/- 15km**
Apogee	**+/- 15km**

Table 8 Orbit Injection Accuracy

ATTITUDE AND DEPLOYMENT RATES

Electron can achieve the following target mission injection accuracies for a typical mission to 500km SSO, as shown in Table 9. Note that mission-specific payload injection accuracies will be calculated as part of mission analysis at Rocket Lab.

DEPLOYMENT MARGINS	
Attitude	+/- 5 deg
Rates	+/- 1 deg/s

Table 9 Deployment Margins

The onboard cold gas thruster attitude control system (ACS) of the kick stage will provide the capability to hold a nominal attitude prior to separation of the payload, resulting in low deployment attitude and rate margins. Mission-specific values will be provided by Rocket Lab.

SAMPLE FLIGHT PROFILE

Electron lifts off shortly after ignition of all nine Stage 1 Rutherford engines. Stage 1 engine cutoff occurs at approximately T+ 2 mins 30 sec into flight, followed shortly by stage separation and Stage 2 engine ignition. The payload fairing is jettisoned at ~T+3 mins into flight. At about T+7 minutes, two batteries for the electric pumps are exhausted and jettisoned. Stage 2 engine cutoff occurs about a minute later at ~T+9mins, followed by Kick stage separation, coast and ignition.

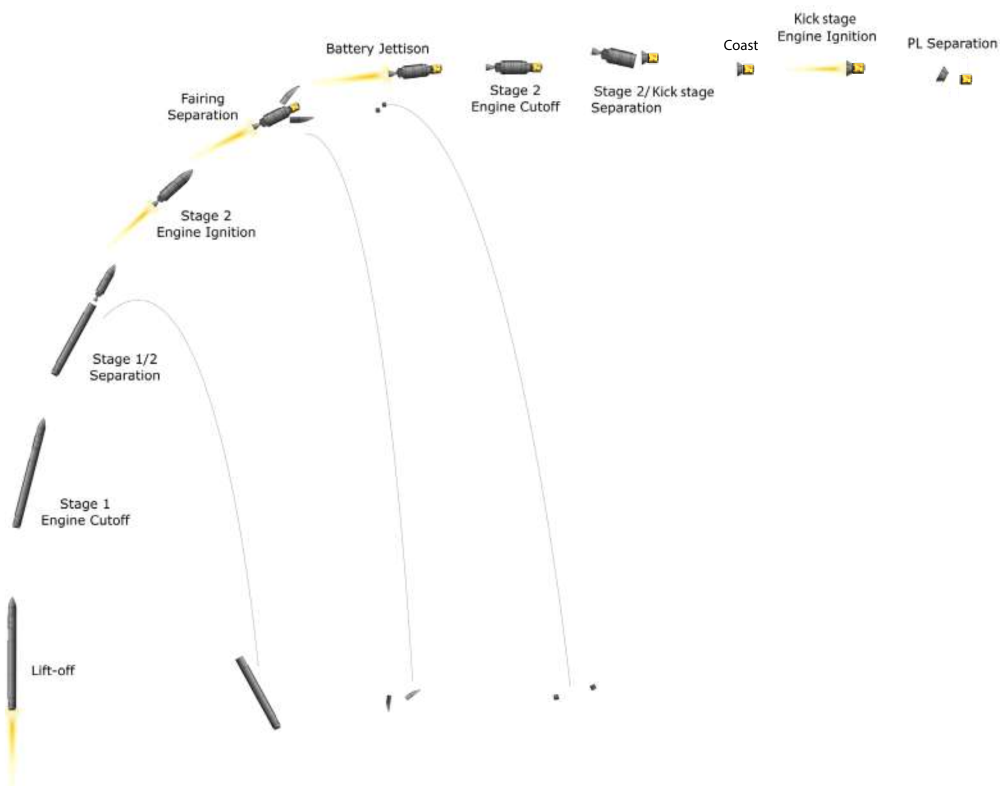
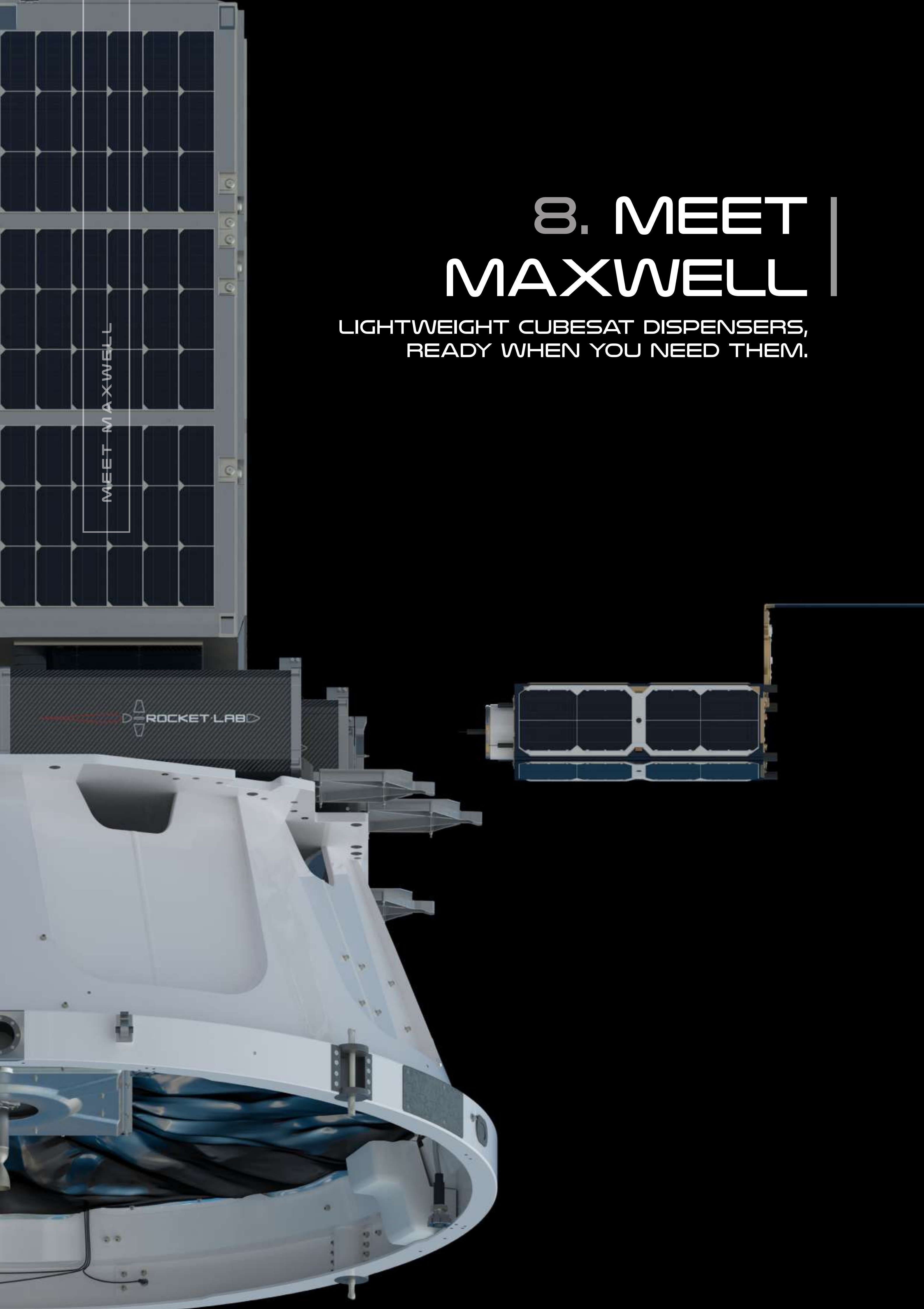


Figure 18 Example of an Electron flight profile

8. MEET MAXWELL

LIGHTWEIGHT CUBESAT DISPENSERS,
READY WHEN YOU NEED THEM.



MEET MAXWELL

Rocket Lab has internally developed a series of rail-based CubeSat dispensers named Maxwell. The Maxwell series is available in a variety of CubeSat form factors, including 1U, 3U, 6U, 12U and 16U. The 3U Maxwell is shown in Figure 13. Non-standard sizes such as 2U or 8U are also available. Custom sizes can be accommodated according to customer specifications.

The Maxwell dispensers are extremely lightweight, with the 3U dispenser weighing less than 1 kg. The dispensers have been designed to be compatible with spacecraft designed to the CubeSat Design Specification, in addition to offering extra volume compared to comparable systems. The Maxwell dispensers have been designed to environments in excess of Electron's own benign launch environments, and as such are compatible with not only Electron, but other launch applications as well.

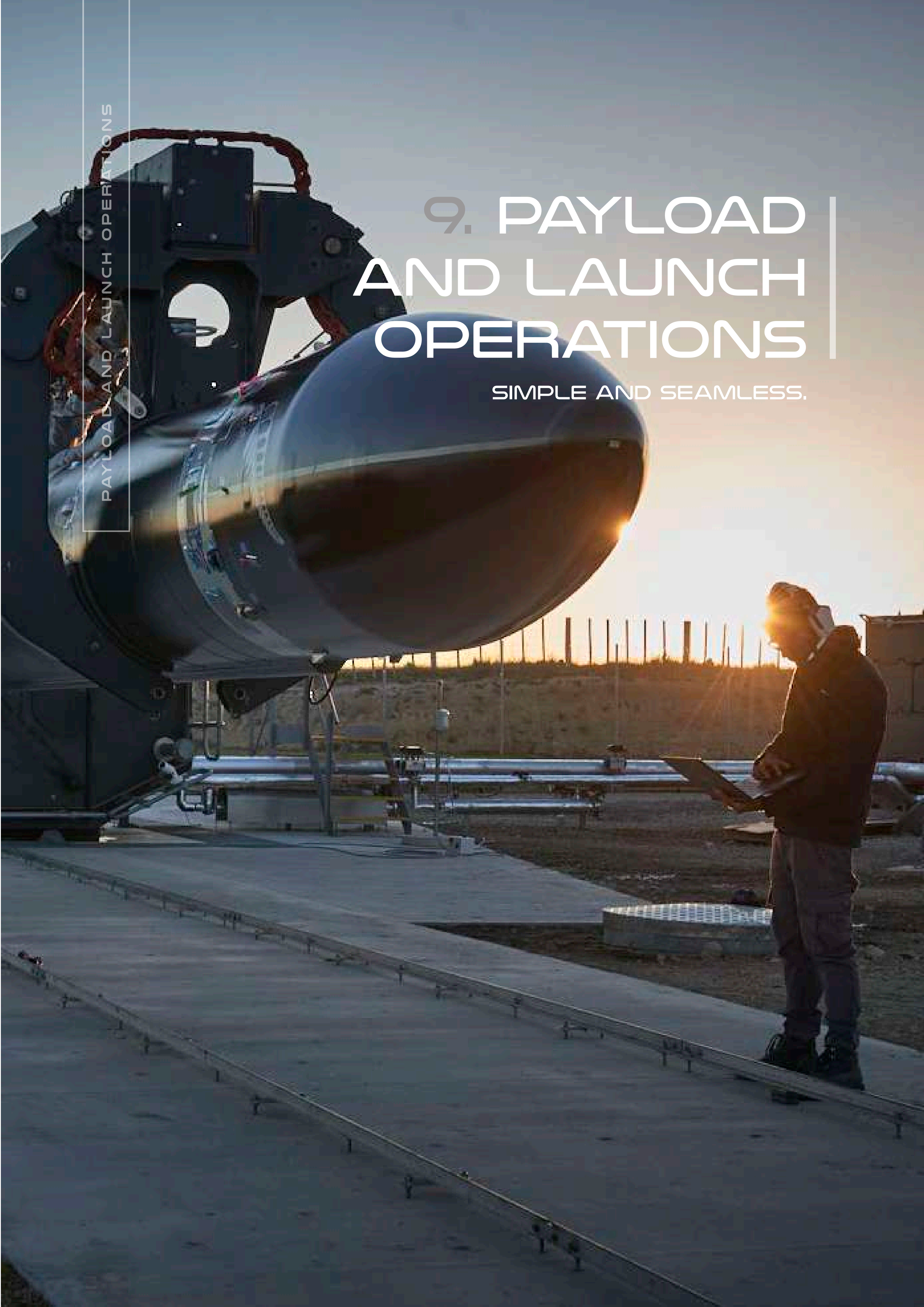
Maxwell dispensers can be manufactured quickly and have relatively short lead times, in support of Rocket Lab's effort toward significantly improving launch integration schedules. Please contact Rocket Lab for additional details on the Maxwell dispensers.

For customers looking for a way to perform vibration testing on their CubeSats, Rocket Lab also offers test-only versions of the Maxwell for repetitive use.

Figure 19 Rocket Lab's Maxwell Dispensers

9. PAYLOAD AND LAUNCH OPERATIONS

SIMPLE AND SEAMLESS.



STANDARD SERVICES

As a part of the standard launch service, Rocket Lab offers the following Customer services. Note that these services will be included in the mission-specific Statement of Work.

- Mission integration analyses (CLA, Thermal, Trajectory)
- Creation and management of the Interface Control Documentation and associated verifications
- Obtain launch license from the FAA with Customer inputs
- Facilitate range safety review process
- Provide required signals for payload deployment
- Test electrical interfaces with payload
- Provide temperature, humidity, and cleanliness control in the fairing
- ISO 8 equivalent processing facilities with temperature & humidity control
- Installment of Customer logo on Payload Fairing
- Customer advertisement on live launch webcast
- Mission Operations support during launch and deployment
- Provide separation confirmation and state vector
- Post-flight summary or report

NON-STANDARD SERVICES

In addition to standard services, Rocket Lab can also offer the following optional services to customers. Please contact Rocket Lab for more information on optional services.

- Provision of Maxwell CubeSat Deployers and test hardware
- Payload fueling services and hardware
- Custom payload adapters
- Additional Analyses Cycles (CLA, Thermal, etc)
- Early integration studies
- Provision of electrical harnesses and connectors
- Umbilical connection to EGSE
- Enhanced cleanliness controls (ISO 7)
- Arrangement of Payload Transport to launch site
- ITAR – Export compliance

MISSION INTEGRATION SCHEDULE

The following timeline is an example of a standard Integration dedicated mission. Rideshare missions may work to shorter, more streamlined schedules. Rocket Lab can work to accelerated schedules as needed; please contact Rocket Lab to discuss mission-specific timeline needs.

Approximate Timeframe	Rocket Lab to Customer	Customer to Rocket Lab
Signature +1m (Launch - 12m)	Draft Mission ICD	Payload Questionaire Payload CAD Model Preliminary Mass Properties
Launch - 10m	Payload Plate Layout	Mission Specific ICD Edits
Launch - 9m	Initial Mission ICD Release	Payload CLA Model Payload Thermal Model
Launch - 8m	Signed Mission ICD	
Launch - 6m	Mission ICD Verifications Nominal Trajectory, Separation & Recontact Analysis CLA Results Thermal Results Launch Window Notification	Payload Processing Inputs Payload Safety Inputs Mission ICD Verifications
Launch - 4m	Payload Processing Plan	Final Mass Properties ICD Verifications
Launch - 3m	Dispersed Trajectory, Separation & Recontact Analysis	Payload Licensing Confirmations Launch License Inputs Daily Payload Processing Schedule Licensing Confirmations
(Preship Review) Launch - 45d	Electron Readiness Confirmation Launch Date Confirmation	As Measured Mass Properties Spacecraft Readiness Verification
Launch - 1m	Mission Analysis Updates Start of Launch campaign	Payload Arrival at Launch Integration Facility
Launch - 15d	Fairing Encapsulation	
Launch - 5d	Launch Readiness Review	
LAUNCH		

Table 10 Example of a standard Integration Schedule

PAYLOAD PROCESSING FACILITIES

Rocket Lab has two Payload Processing Facilities: one in Huntington Beach, California, and one located in the hangar of the Mahia Launch Complex. Services and infrastructure available at both facilities include:

- Class 100,000 (ISO 8) Cleanroom
- Standard 110V AC @ 60Hz and 230V @ 50 Hz Power
- Office and desk spaces equipped with Internet/Ethernet ports for customers' mobile devices
- Access to Wifi, Conference room space, handheld tools and machine shop
- Nitrogen, and compressed air supplies
- Secure area including 24/7 security guards, building access control, and video monitoring

Additional services and infrastructure available at Mahia include

- Class 100,000 (ISO 8) Cleanroom
- Overhead crane for payload integration operations
- Secure area including 24/7 security guards, building access control, video monitoring, and an area warning system
- Fueling carts and procurement of "green" propellants (available as a non-standard service)
- Payload EGSE Room Adjacent to Launch Pad (Optional service)
- Customer Range Control Center (Optional Service)

Figure 20 Rocket Lab's Payload Processing Facilities

TRANSPORTATION

Payload shipment to the launch site is to arrive no later than 30 days prior to launch. Depending on customer preference, payloads can either be integrated and prepared for shipment in Rocket Lab's Huntington Beach, CA cleanroom facility, or can be shipped directly to the launch site and integrated in the Payload Processing Facility (PPF) at LC-1.

All payloads will arrive in Auckland, New Zealand to clear customs, then will be transported by ground (or by air, if the Customer prefers) to the Mahia LC-1 PPF. Rocket Lab can arrange transportation between Auckland and Mahia as an additional service if requested.

For Rideshare Missions, CubeSats will typically be integrated to their dispensers at Huntington Beach approximately 40 days prior to launch.

Upon arrival at the LC-1 PPF, the payload is immediately unloaded and transferred to the cleanroom.

LAUNCH OPERATIONS SCHEDULE

The standard payload processing schedule is consistent with the example schedule shown in Figure 21. Note that timelines can be altered upon Customer request. Please contact Rocket Lab for more information.

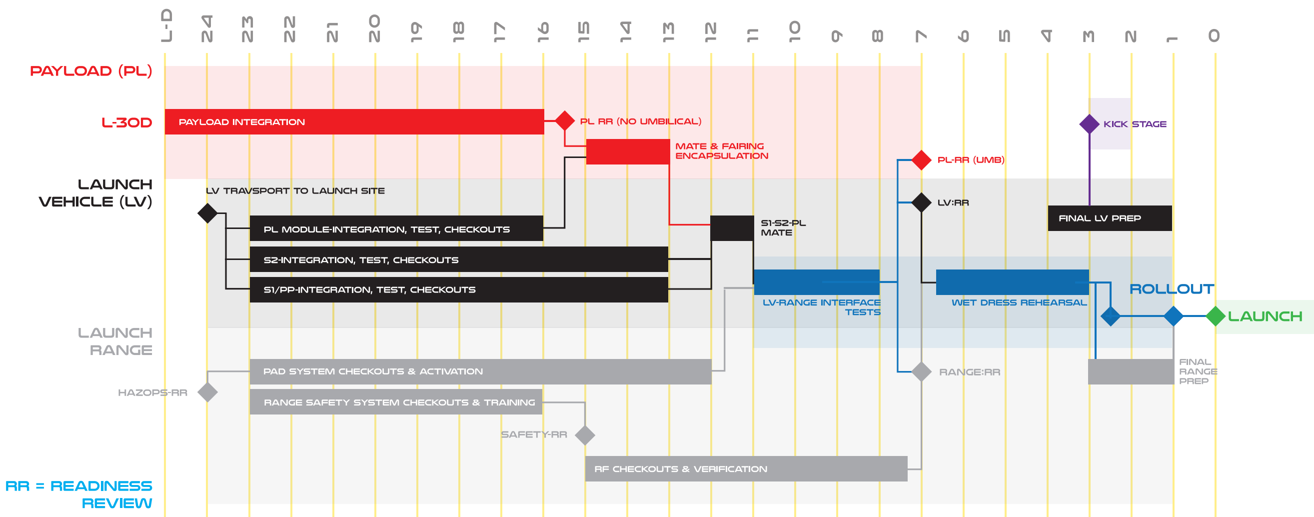


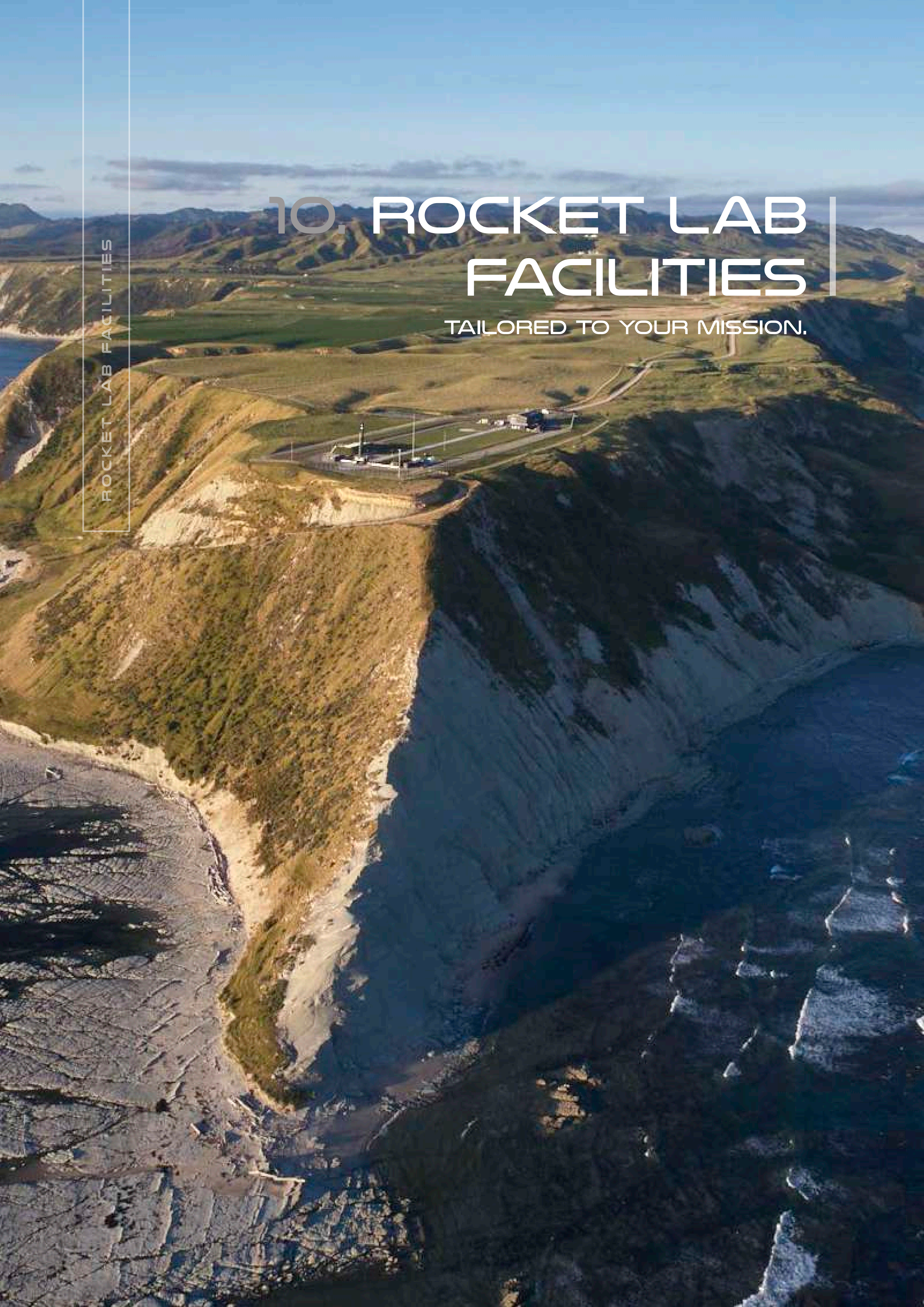
Figure 21 Example of a standard payload processing schedule

POST-LAUNCH REPORTING

Post-payload separation, within T + 90 minutes, Rocket Lab will deliver a state vector to the Customer based on initial data.

10. ROCKET LAB FACILITIES

TAILORED TO YOUR MISSION.



ROCKET LAB FACILITIES

Rocket Lab has three primary facilities: Rocket Lab USA (Headquarters) in Huntington Beach, California; Rocket Lab Ltd in Auckland, NZ; and Launch Complex 1, in Mahia Peninsula, NZ. Rocket Lab also operates two test facilities in New Zealand, close to the Rocket Lab Ltd. offices in Auckland, for engine and stage testing. Rocket Lab is in the process of developing a second launch site, to be located in the United States.

ROCKET LAB HEADQUARTERS – HUNTINGTON BEACH, CA

Rocket Lab USA headquarters are based in Huntington Beach, California, less than 1 hour from Los Angeles International Airport. Rocket Lab has dedicated a portion of HQ specifically to our Customers, with meeting areas, office space, and a Customer Control Center with connectivity to Auckland, Mahia, and any future launch sites. Rocket Lab HQ includes production, payload processing, and office facilities. Rocket Lab's Mission Management organization is based within Headquarters as well.

Figure 22 Rocket Lab's USA Headquarters

Figure 23 Rocket Lab's Huntington Beach production warehouse

HUNTINGTON BEACH PAYLOAD PROCESSING FACILITY

The Huntington Beach Payload Processing Facility at Rocket Lab USA currently includes a gowning room and an ISO 8 (Class 100,000) cleanroom (see Section 4.5 for a list of services available). Client areas are available adjacent to the cleanroom as well in a separate office area designed specifically for customers with desk space, internet connectivity, and power outlets.

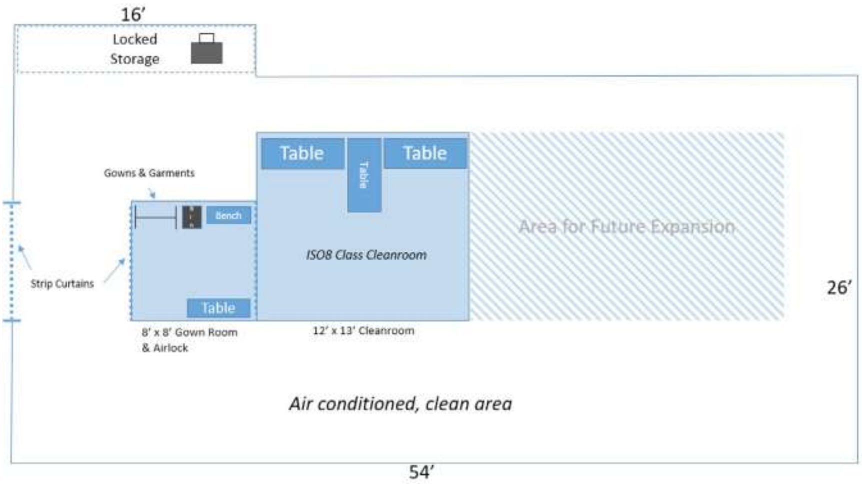


Figure 24 Rocket Lab's Huntington Beach Payload Processing Facility layout

Figure 25 Rocket Lab's Huntington Beach Payload Processing Facility

ROCKET LAB LTD, AUCKLAND, NEW ZEALAND

Rocket Lab Ltd is based in Auckland, New Zealand, minutes from the Auckland International Airport. This facility is the location of Rocket Lab's Research and Development team, and includes engineering, manufacturing, and test personnel under one roof. In addition, Rocket Lab Mission Control is also based in the Auckland Facility. The Mission Control facility also includes a dedicated Customer Mission Operations Room, for use during the launch campaign.

Rocket Lab's engine test cell and stage test cell are also conveniently located within driving distance of the Auckland office.

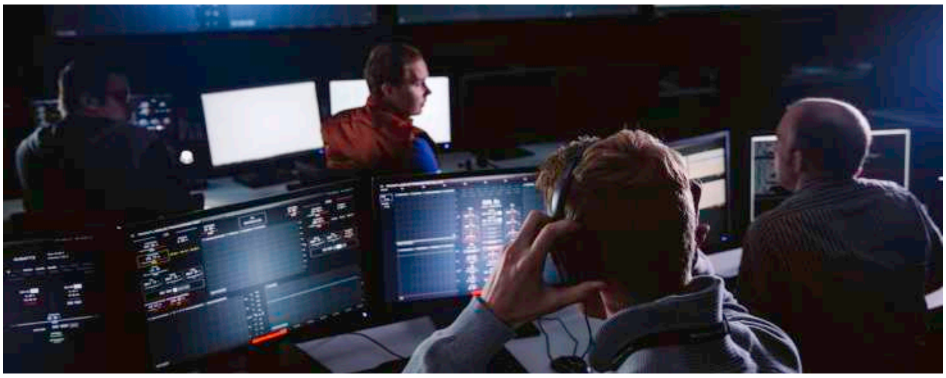


Figure 26 Rocket Lab's Mission Control in Auckland

Figure 27 Rocket Lab's engine test cell in Auckland

LAUNCH COMPLEX 1, MAHIA, NEW ZEALAND

Rocket Lab currently operates the world's only private orbital launch range. The Mahia Peninsula-based site is FAA-licensed and can support up to 120 launches per year. The site is located at (-39.261500, 177.864876) on Hawke's Bay, New Zealand.

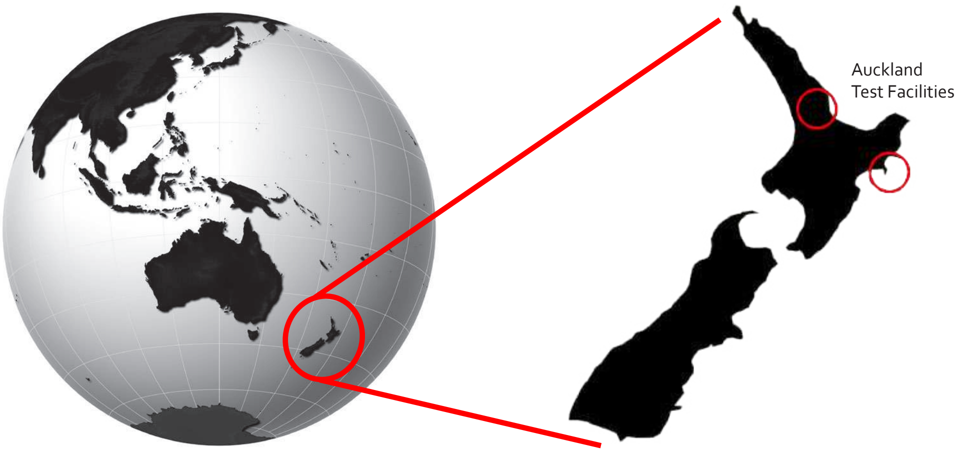


Figure 28 New Zealand and its Global Location

The launch site also includes a Command and Control Facility located 3.5km from the launch pad, outside of the safety zone. This location houses workstations for flight safety, payloads, launch vehicle teams, and the launch director. This is also the location of the tracking antennas on the day of launch.

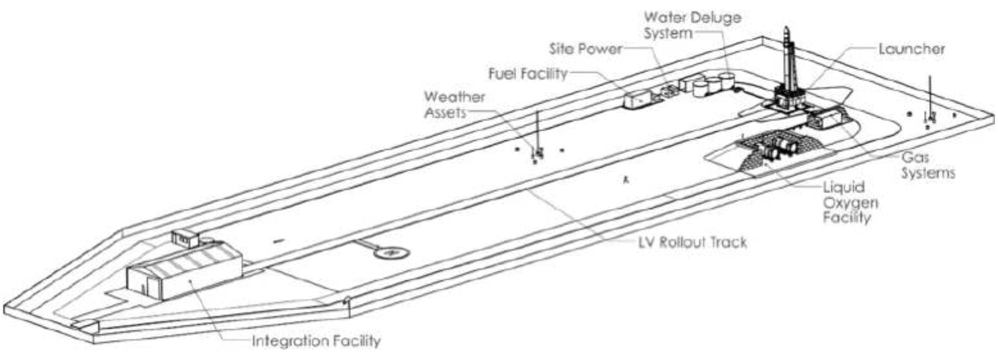


Figure 29 Launch Site Layout

Figure 30 View from Rocket Lab Range Control at Launch Complex 1 in Mahia, NZ

Figure 31 Rocket Lab Launch Complex in Mahia, NZ

Figure 32 Rocket Lab Launch Complex in Mahia, NZ

PAYLOAD PROCESSING FACILITY & CUSTOMER AREA

The Payload Processing Facility at LC-1 includes dual Customer spacecraft processing areas consisting of a single airlock, dual cleanrooms and gowning rooms, and two separate client areas adjacent to the cleanrooms. The client rooms provide the Customer connectivity to their payload and a work area with desk space, internet connectivity, and power outlets. See layout in Figure 33.

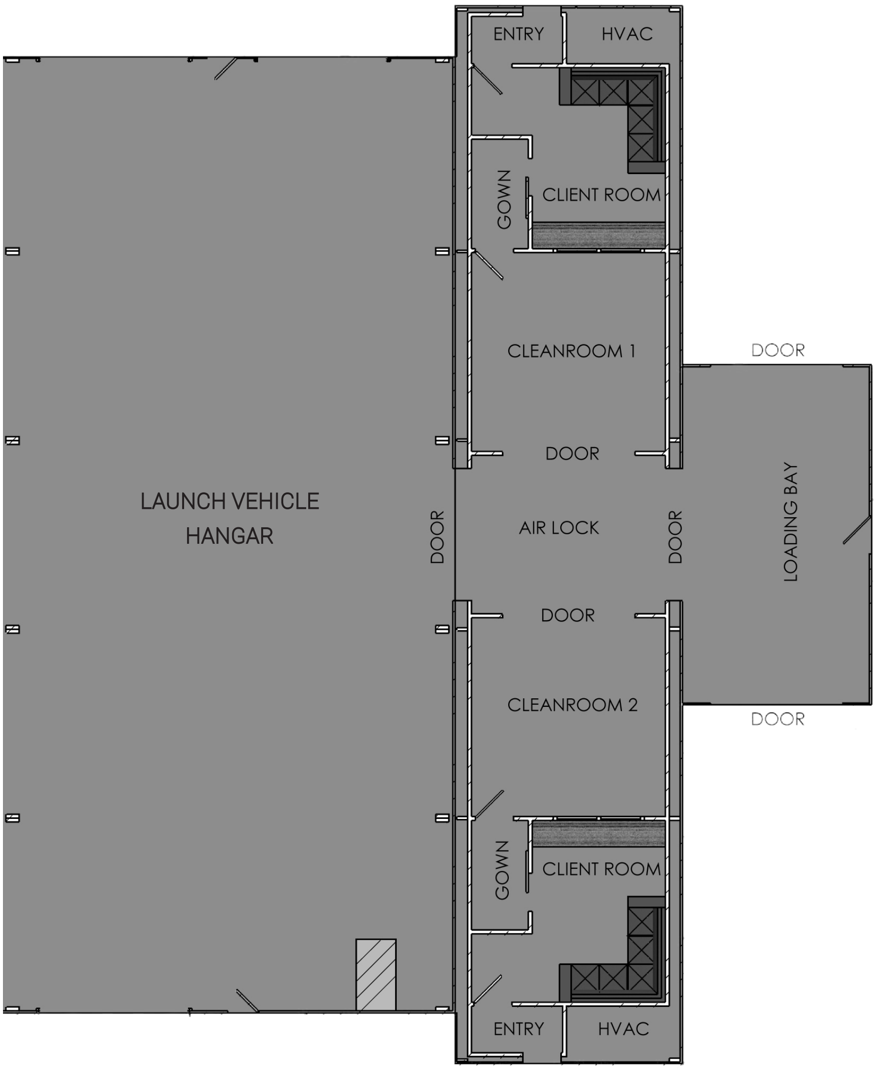


Figure 33 The layout of the Payload Processing Facility at LC-1

11. MEET THE TEAM

THE PEOPLE DEMOCRATIZING ACCESS TO SPACE

THE ROCKET LAB TEAM

Meet the dedicated and innovative people behind Electron. Our team is driven to broaden the horizons of what's already possible in space and we're inspired by the possibilities not yet imagined. With almost 300 people spread across Huntington Beach, Auckland, and Māhia, the Rocket Lab team is empowering humanity by opening access to space.

QUICK REFERENCE GUIDE

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QUICK REFERENCE GUIDE

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LIST OF ACRONYMS

CAA	Civil Aviation Authority of New Zealand
CLA	Coupled Loads Analysis
DARPA	Defence Advanced Research Projects Agency
EMC	Electromagnetic Capability
FTS	Flight Termination System
GN2	Gaseous Nitrogen
GNC	Guidance, Navigation and Control
GPS	Global Positioning System
GSE	Ground Support Equipment
HIL	Hardware In the Loop
IMU	Inertial Measurement Unit
LOx	Liquid Oxygen
LV	Launch Vehicle
MDR	Mission Dress Rehearsal
ONRG	US Office of Naval Research Global
ORS	Operationally Responsive Space
TVC	Thrust Vector Control
UHF	Ultra-High Frequency

CONTACT US

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