United Nations/AVIO SpA

VEGA-C Application Form

INSTRUCTIONS TO COMPLETE THE APPLICATION FORM

Fill each and every section of this document with as much detail as you can, following the instructions given.

1. Please prepare the VEGA-C Mission Application Form in accordance with the instruction and guidelines given in this template.
2. Make the descriptions in the documents specific and comprehensive utilizing charts and tables. Reference in the text all charts, figures and tables used.
3. The template has two type of fields to be filled in:

   - Mandatory: mandatory fields are marked with the following code [M]

   - Optional: optional fields (or fields that are not applicable to all CubeSats) are marked with the following code [O], **however if the information is applicable to your CubeSat, then the information becomes mandatory**.

   Please include your text in the boxes to that effect.
4. When necessary, sections and subsections will contain a description of their expected content. Descriptions are marked with the code [DESCRIPTION]. Please use any graphic material such as diagrams when you deem them necessary to clarify or express a concept or a design.
5. Write “TBD” (to be determined) when information is not yet available on an item.
6. Using the provided MS-Word templates is mandatory. The application should follow the following general format:
   i Size of paper: A4
   ii Margins: 20 mm from the edge
   iii Page number: 15 mm from the bottom edge
   iv Font and size: Times New Roman 10-12 points
   v The application should be submitted in .pdf, and text in the pdf file shall be selectable
7. Please do not include this page in your application

IMPORTANT: The application is only considered valid if all the information requested by the Announcement of Opportunity is provided.

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1. BASIC INFORMATION [M]

Status of your organization(s) (using "X" as appropriate):

[ ] Research institutions [ ] Universities [ ] Other public institutions

[ ] Non-Governmental Organizations (NGO)

1.1. Project title: [M]

TITLE OF THE PROJECT HERE

1.2. Executive Summary: (no more than 150 words) [M]

EXECUTIVE SUMMARY HERE

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1.3.Certificate [M]

By signing this application, I confirmed that all statements in our application are true, correct and complete. Once selected, our organizations(s) will comply with the Terms and Conditions stipulated in the Announcement of Opportunity:

Issued by the Principal Investigator (PI):

Name of PI in print	Signature of PI	Place	Date (dd-mm-yyyy)

Approved by applying organization 1:

(Signature of head of organization 1)	Place	Date (dd-mm-yyyy)

(Full name and title of head of applying organization 1 in print)	(Seal of organization 1)

Approved by applying organization 2 (if applicable, and extend this section as needed for more organizations):

(Signature of head of organization 2)	Place	Date (dd-mm-yyyy)

(Full name and title of head of applying organization 2 in print)	(Seal of organization 2)

1.4.Project coordinator information [M]

Name and Surname	
Gender	
Telephone	
E-mail	
Legal Name of Project Coordinator's Organization	
Address of Project Coordinator's Organization	
Signature of the responsible official or authorized representative of the organization and stamp	

2. TEAM COMPOSITION

2.1. Project Coordinator [M]

Name and Surname	
Gender	
Nationality	
Job title	
Telephone	
E-mail	
Legal Name of Project Coordinator's Organization	
Full Address of Project Coordinator's Organization (including country)	
List of papers published by the project coordinator in peer reviewed journals related to the topic of the proposal (if none, please insert N/A)	
Experience (if none, please insert N/A)	
Has the Project Coordinator been part of a winner team of other competitive process organized by UNOOSA? (e.g. DropTES, KiboCUBE, CSS,…)	[ ] Yes [ ] No If yes please explain:

Mini CV:

YOUR TEXT HERE

2.2. Team Member [M]

([DESCRIPTION] Repeat this section as necessary to cover all the team members)

Name and Surname	
Gender	
Nationality	
Telephone	
E-mail	
Legal Name of Team Member's Organization	
Full Address of Team Member's Organization (including country)	

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Legal Name of Team Member's Organization (if different from Project Coordinator's Organization)	
Full Address of Team Member's Organization (including country) (if different from Project Coordinator's Organization)	
List of papers published by the team member in peer reviewed journals related to the topic of the proposal (if none, please insert N/A)	
Experience (if none, please insert N/A)	
Has the Team Member been part of a winner team of other competitive process organized by UNOOSA? (e.g. DropTES, KiboCUBE, CSS,…)	[ ] Yes [ ] No If "Yes" please explain:

Mini CV:

YOUR TEXT HERE

3. PROPOSAL ABSTRACT [M]

([DESCRIPTION] Please insert a brief description of the proposed CubeSat, stating with the objectives and aim of the work proposal. The abstract should concisely describe the research setup of the CubeSat and the methodology to achieve the objectives and aims. Maximum 300 words).

YOUR TEXT HERE

4. MISSION OBJECTIVES, REQUIREMENTS AND CONSTRAINTS

4.1. Objectives [M]

([DESCRIPTION] Please list the objectives of the proposed CubeSat, please use SMART (Specific, Measurable, Achievable, Relevant, Time-bounded). Objectives can be categorized in primary (needed for the success of the CubeSat) and secondary (nice to achieve). Primary objectives and Secondary objectives shall be numbered as PrimObj-XXX and SecObj-XXX respectively (e.g. PrimObj-001, PrimObj-002…; SecObj-001, SecObj-002,...).

YOUR TEXT HERE

4.2. Relevance to the Sustainable Development Goals [M]

([DESCRIPTION] Please insert a description of the Sustainable Development Goals that are supported by the CubeSat and its associated results. Please indicate how the participation in the AO and its related activities contribute to one or several Sustainable Development Goals)

YOUR TEXT HERE

4.3. Novelty, Uniqueness and Possible Evolutions [M]

([DESCRIPTION] Versatility of the CubeSat system, progressiveness and possible evolution of the CubeSat with comprehensive descriptions)

YOUR TEXT HERE

4.4. Description of Cooperation [O]

([DESCRIPTION] If it is a joint proposal from several entities, please describe the role and responsibilities of each one)

YOUR TEXT HERE

4.5. Work Breakdown Structure [M]

([DESCRIPTION] Include the Work Breakdown Structure for the development, testing, operations and decommissioning of the satellite. In case of partnerships please indicate the share of the work among the partners for the different work packages)

YOUR TEXT HERE

4.6. Requirements and Constraints

4.6.1. Mission Requirements and constraints [M]

([DESCRIPTION] Please insert a list of the requirements needed to accomplish the mission objectives, including if you have specific requirements on mission profile (Vega C mission domain is from 400km to 2000km altitude and from 5.2 deg. to SSO inclination, but a mission profile cannot be guaranteed for this mission). Mission requirements and constrains shall be numbered in a sequential manner in increments of 10, using M as prefix (e.g. Mis-10, Mis-20, Mis-30…)). The Debris Mitigation Guidelines (https://www.unoosa.org/pdf/publications/st_space_49E.pdf) shall be part of the mission requirements and flow down to the necessary technical requirements.

YOUR TEXT HERE

4.6.2. Technical Requirements and constraints [M]

([DESCRIPTION] Please insert list of the technical requirements or constraints of the CubeSat. Please refer to, in particular, but not only, chapters 2, 3, 4 and 6 of the Auxiliary Passengers User's Manual. Technical requirements and constraints shall be numbered in a sequential manner in increments of 10, using Tec as prefix (e.g. Tec-10, Tec-20, Tec-30…)).

YOUR TEXT HERE

4.7. Other requirements and constraints

4.7.1. Transportation from collection facility to launch site: requirements and constraints (if any) [O]

([DESCRIPTION] Please insert a list of requirements or constraints for the CubeSat regarding transportation from the collection facility to launch site, including potential stowage and packaging requirements (dimensions, volume,) as well as environmental requirements (temperature, humidity…). Please refer to, in particular, but not only, chapters 2, 3, 4 and 6 of the Auxiliary Passengers User's Manual. Transport requirements and constraints shall be numbered in a sequential manner in increments of 10, using Tran as prefix (e.g. Tran-10, Tran-20, Tran-30…)).

YOUR TEXT HERE

4.7.2. Launch preparation requirements and constraints (if any) [O]

([DESCRIPTION] Please insert a list of requirements or constraints for the CubeSat regarding preparation for launch (e.g. consumables to be installed, hardware) and if any, indicate the time in days before launch (L-days). Please refer to, in particular, but not only, chapter 6 of the Auxiliary Passengers User's Manual. Launch preparation requirements and constraints shall be numbered in a sequential manner in increments of 10, using Lau as prefix (e.g. Lau-10, Lau-20, Lau-30…)).

YOUR TEXT HERE

4.7.3. Handling requirements and constraints (if any) [O]

([DESCRIPTION] Please insert a description of the technical requirements or constraints of the CubeSat. Please refer to the Vega-C Auxiliary Passenger's User Manual, in particular, but not only, the relevant sections of chapter 5 and chapter 6. Launch preparation requirements and constraints shall be numbered in a sequential manner in increments of 10, using Han as prefix (e.g. Han-10, Han-20, Han-30…))

YOUR TEXT HERE

5. CUBESAT SPECIFICATIONS AND DETAILED DESCRIPTION

5.1. CubeSat Setup and Overall System

5.1.1. Main Specifications [M]

([DESCRIPTION] you can use graphs and tables for some items such as **Table 5.1** provided **as example**):

Table 5.1. CubeSat main specifications

Parameter	Values	Units
Mass	[1U: less than 1.33]	Kg
Dimensions	[1U: 100×100×113.5]	Mm
Dimensions (deployed)		Cm
Ballistic coefficient		kg/m^2
Expected COG position		—

)

YOUR TEXT HERE

5.1.2. 3D View [M]

([DESCRIPTION]: Front-view, side view and top view)

YOUR TEXT HERE

5.1.3. External Dimensions [M]

([DESCRIPTION]: The size of any protruding objects should be also indicated, if any)

YOUR TEXT HERE

5.1.4. Total Mass and Mass Distribution Among Subsystems [M]

YOUR TEXT HERE

5.2. System Block Diagram and List of Components [M]

5.2.1. System Block Diagram [M]

([DESCRIPTION]: Including all subsystems and how they are related)

YOUR TEXT HERE

5.2.2. List of Components [M]

([DESCRIPTION]: List of components. For custom-made components, please provide name, 3D view (as section 5.1.2) and describe main features of the component, mass, location of center of gravity and functionality. A Product Breakdown Structure will be highly appreciated.)

YOUR TEXT HERE

5.2.3. Description of the Interfaces [M]

5.2.3.1. Mechanical Interface [M]

YOUR TEXT HERE

5.2.3.2. Electrical Interface [M]

YOUR TEXT HERE

5.2.3.3. Thermal Interface [M]

YOUR TEXT HERE

5.2.3.4. Radio-frequencies [M]

YOUR TEXT HERE

5.2.4. Subsystems Design [M]

5.2.4.1. Structural and Mechanical Subsystems [M]

([DESCRIPTION]: Design for primary structure, mechanisms such as deployment of solar panels and antenna, equipment layout plans, separation mechanism, and materials for primary structure)

YOUR TEXT HERE

5.2.4.2. Power Subsystem Interface [M]

([DESCRIPTION]: List of components, schematic of the electronics, control system and description of the power subsystem)

YOUR TEXT HERE

5.2.4.3. Thermal Subsystem [M]

([DESCRIPTION]: List of components and type control system (passive/active) with a description of the subsystem)

YOUR TEXT HERE

5.2.4.4. Communications Subsystem [M]

([DESCRIPTION]: List of components and description of the control system (passive/active))

YOUR TEXT HERE

5.2.4.5. Ground Segment Subsystem [M]

([DESCRIPTION]: List of ground equipment including ground stations' descriptions)

YOUR TEXT HERE

5.2.4.6. Data Processing Subsystem [M]

([DESCRIPTION]: List of components, and if applicable, data compression method, data recorder, multiplexing schematics and description of the subsystem)

YOUR TEXT HERE

5.2.4.7. Attitude and Orbit Control Subsystem [M]

([DESCRIPTION]: List of components, redundancy, and schematics and description of the AOCS)

YOUR TEXT HERE

5.2.4.8. Deorbiting Subsystem [M]

([DESCRIPTION]: If this subsystem is different from the Attitude and Orbit Control, please provide list of components, and deorbiting mechanism to be used, including redundancy if any)

YOUR TEXT HERE

5.2.4.9. Payload [M]

([DESCRIPTION] Please insert a description of the payload, and list of its components).

YOUR TEXT HERE

5.2.4.10. Additional Technical Features of the CubeSat [M]

([DESCRIPTION] Please insert a description of any unique equipment used in the CubeSat, and specifications of unique equipment.).

YOUR TEXT HERE

5.3. Concept of Operations [M]

([DESCRIPTION] Please insert a description of how the CubeSat will be operated (e.g. operational constraints: operations only during illuminated, when passing over certain regions of the Earth, type of operations: autonomous operations, controlled operations…). Please include also any activation/deactivation procedures and disposal type, **consider breaking it down into several sections**).

YOUR TEXT HERE

5.4. Communication links [M]

([DESCRIPTION] Please insert a description of the communication links used by the CubeSat, and how they are used. Please refer to elements of section 5.2.4.4 and 5.2.4.5 of the present document if needed).

YOUR TEXT HERE

5.5. Safety [M]

([DESCRIPTION] Please refer to Payload Safety Handbook (CSG-NT-SBU-16687-CNES) to include any relevant information regarding the safety considerations for your CubeSat. In case of any safety hazard, please describe the control mechanisms).

YOUR TEXT HERE

5.6. Foreseen outcomes and deliverables [M]

([DESCRIPTION] Please insert a description of the specific outcomes of the CubeSat and how they are related to the Sustainable Development Goals. Please also explain which deliverables will be produced through the experimentation with the CubeSat).

YOUR TEXT HERE

5.7. Research background [M]

([DESCRIPTION] Include any previously related work you have performed and any relevant scientific/engineering background supporting your experiment).

YOUR TEXT HERE

6. SCHEDULE

6.1. Development schedule [M]

([DESCRIPTION] Please provide a schedule of the development phases of your CubeSat, including milestones and pass/fail criteria for each one. The final milestone of the engineering schedule should be the delivery to either Centre Spatial Guyanais (French Guyana) or Collection Facility in Brno (Czech Republic). The location of final collection facility will only be determined L-5 months. A Gantt chart and its description shall be included).

YOUR TEXT HERE

6.2. Operations schedule [M]

([DESCRIPTION] Although at this stage it might be difficult to provide a complete schedule for the operations, please provide as much detail about the schedule as possible (e.g. campaigns, phases...), A Gantt chart and its description shall be included).

YOUR TEXT HERE

6.3. End of Life and Deorbiting schedule [M]

([DESCRIPTION] Although at this stage it might be difficult to provide a complete schedule for disposal, please provide as much detail about the schedule as possible (e.g. campaigns, phases...). A Gantt chart and its description shall be included).

YOUR TEXT HERE

7. BUDGET

7.1. Cost [M]

([DESCRIPTION] Please provide information of the cost, including the price of the parts, personnel costs, facilities costs, operation costs, travel expenses, shipment of the CubeSat, dissemination activities…).

YOUR TEXT HERE

7.2. Secured budget and budget plan [M]

([DESCRIPTION] Please provide information of the secured budget (budget that is committed) and letters of commitment specifying the funding source, and information on what are the envisaged funding sources of any remaining non secured budget …).

YOUR TEXT HERE

8. ASSEMBLY, INTEGRATION AND TESTING

8.1. Facilities

8.1.1. Description of the assembly facilities [M]

([DESCRIPTION] Please describe the facilities that can be accessed for the assembly of the CubeSat. In case the facilities do not belong to the institution submitting the application, please also include a letter from other institution(s) authorizing the use of their facilities).

YOUR TEXT HERE

8.1.2. Description of the integration facilities [M]

([DESCRIPTION] Please describe the facilities that can be accessed for the integration of the CubeSat. In case the facilities do not belong to the institution submitting the application, please also include a letter from other institution(s) authorizing the use of their facilities).

YOUR TEXT HERE

8.1.3. Description of the testing facilities [M]

([DESCRIPTION] Please describe the facilities that can be accessed for the testing of the CubeSat. In case the facilities do not belong to the institution submitting the application, please also include a letter from other institution(s) authorizing the use of their facilities).

YOUR TEXT HERE

8.2. Test and Verification [M]

([DESCRIPTION] Please provide the test plan, matching each of the requirements with a test case and indicating the validation method).

8.2.1. Verification Plan for Mission Requirements [M]

YOUR TEXT HERE

8.2.2. Verification Plan for Technical Requirements [M]

YOUR TEXT HERE

8.2.3. Verification Plan for Other requirements and constraints [M]

YOUR TEXT HERE

9. TRANSPORTATION TO COLLECTION FACILITY[M]

([DESCRIPTION] Please provide information concerning the transport, customs arrangements, …).

YOUR TEXT HERE

10. LICENSING AND COMPLIANCE WITH INTERNATIONAL GUIDELINES AND REGULATIONS

10.1. Frequency allocation [M]

([DESCRIPTION] Please provide information concerning the frequencies to be used and the plan to obtain the license (timeline, entity(ies) involved…).

YOUR TEXT HERE

10.2. Space Object Registration [M]

([DESCRIPTION]: Indicate your intention and provide a plan to register your CubeSat in the United Nations Register of Objects Launched into Outer Space. Please refer once again to the Guidelines on Space Object Registration and Frequency Management for Small and Very Small Satellites)

YOUR TEXT HERE

10.3. Compliance to the Space Debris Mitigation Guidelines and the Guidelines for the Long-Term Sustainability of Outer Space Activities [M]

([DESCRIPTION] Please provide information on how compliance is ensured).

YOUR TEXT HERE

10.4. Earth Observation License [O]

([DESCRIPTION] Please provide information concerning the license to be requested and the plan to obtain the license (timeline, entity(ies) involved…).

YOUR TEXT HERE

10.5. Other Compliance required [O]

([DESCRIPTION] Please provide information concerning the any other license to be requested for the operations and the plan to obtain the license(s) (timeline entity(ies) involved or how compliance is ensured…).

YOUR TEXT HERE

11. FEASIBILITY AND RISK ANALYSIS

11.1. Feasibility analysis [M]

([DESCRIPTION] Provide arguments on the feasibility of your project in its technical specifications and research contents, including research and technical base, maturity of the project, availability of necessary resources on the ground, and technical conditions that could be capitalized on.)

YOUR TEXT HERE

11.2. Risk analysis [M]

([DESCRIPTION] Provide a description of the risks that you might face, their likelihood (1 (not likely) 3 (very likely) and impact (1 (minor impact) to 3 (catastrophic)) and mitigation actions for each of them)

YOUR TEXT HERE

12. COMMUNICATIONS AND DISSEMINATION PLAN [M]

([DESCRIPTION] Provide the plan (e.g. scope, schedule, resources, means) that will be used to promote the opportunity and the results. Particular attention should be given to initiatives inside the applicant country(ies))

YOUR TEXT HERE

13. SUPPORTING DOCUMENTS [M]

([DESCRIPTION] List here any documents in support of your application (e.g. support letters, CVs,…), including document number, document name, authors and organizations, publication and volume, date, etc. Please attach those documents as separate pdf files (they could be scan copies of originals if needed)).

YOUR TEXT HERE

14. ABBREVIATIONS AND REFERENCES [M]

([DESCRIPTION] List here any abbreviations used across the document and references of documentation you have used to create your application (including document number, document name, authors and organizations, publication and volume, date, etc.)]

YOUR TEXT HERE

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ADDITIONAL CONTENTS (to be provided at least at the first submission of the Spacecraft Interface Control Document)

Mass properties

The Inertia coefficient and the Product of inertia are defined with respect to the Center of Gravity (CoG) of the body. The Product of Inertia are defined by: **Pxy = + ∫xy dm** (= opposite sign of the cross-terms of the inertia coefficient matrix)

Description:		Mass (kg)		CoG location (mm)			Inertia coefficient (with respect to CoG (kg.m²)		Product of Inertia (with respect to CoG) (kg.m²)	
Abbreviation:	M	Xcg	Ycg	Zcg	Ixx	Iyy	Izz	Pxy	Pyz	Pzx
Nominal										
Dispersion										

Ownership

Legal owner of the satellite:	*The legal entity owning the satellite; name, address, contact details*
Legal entity operating the satellite:	*The legal entity operating the satellite; name, address, contact details*
Legal owner of the deployer:	*The legal entity owning the deployer; name, address, contact details*

Separation characteristics

- ΔVsep amplitude = **xx m/s +/- xx**
- Direction of separation = Half-cone around **xx deg**

Satellite overview, launch configuration	
X+ view	*(place picture here, indicating reference frame and dimensions)*
X - view	*(place picture here, indicating reference frame and dimensions)*
Y + view	*(place picture here, indicating reference frame and dimensions)*
Y - view	*(place picture here, indicating reference frame and dimensions)*
Z + view	*(place picture here, indicating reference frame and dimensions)*
Z - view	*(place picture here, indicating reference frame and dimensions)*
Isometric view	*(place picture here, indicating reference frame and dimensions)*

S/C fundamental frequencies

At Final Mission Analysis kick off a FEM model shall be delivered, compliant with AVIO specification.

S/C Thermal and Cleanliness characteristics

S/C thermal model shall be delivered in case a detailed thermal analysis is requested. Precise the requirements of cleanliness/contamination during ground and flight phase.

Radio Frequencies

RF interface information		
Item	**Value**	**Remarks**

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Primary transmit frequency: [MHz]		
Secondary transmit frequency: [MHz]		
Primary receive frequency: [MHz]		
Secondary receive frequency: [MHz]		
Other frequencies used: [MHz]		
Emission duration		

Frequency filing	
Frequencies (in amateur-bands) coordinated through IARU: [Y/N]	
All frequencies filed through national body with ITU (IARU): [Y/N]	
Date of filing: [YY-MM-DD]	*(If filing still in progress, indicate the expected date of approval)*
Ground station (operation) license: [Y/N]	

Transmitter RF properties		
Property	**Primary**	**Secondary**
EIRP [W]		
Relative level of unintentional emissions (harmonic components) [dB]		
Primary radiation bandwidth at minus 3 dB level [MHz]		
Antenna directive gain in main directivity pattern lobe [dBi]		
Modulation type		
Polarization type		
Status during ground transport, launch	OFF	OFF
Time between satellite activation and first transmission [s]		

Receiver RF properties		
Property	**Primary**	**Secondary**
Primary receiving channel bandwidth at minus 3 dB level [MHz]		
Sensitivity in main receiving channel [dBm]		
Antenna gain in directivity pattern [dBi]		
Polarization type		
Status during launch	OFF	OFF
Time between satellite activation and receiver activation [s]		

For each antenna, please specify:	
Type and location of each antenna on satellite (TMTC / payload):	
Feared events in the case of failure and the associated degrees of severity	
Control and command system of RF transmissions with, more particularly, details concerning the safety barriers or commands regarding untimely radiation	

from the antenna	
Safety distances for the exposure of staff to professional and public thresholds	

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Satellite Activation

Satellite activation interface	
Activation timer after launch: [s] *(delay between deployment of satellite from deployer and satellite's activation/deployment of deployable structures)*	*(If deployable structures deploy at different times, please indicate details here.)*
Activation timer is software defined: [Y/N]	
Activation of EPS is latching: [Y/N] *(Latching: Release of kill-switches of the armed satellite will irreversibly activate the satellite)*	
Satellite implements Apply Before Flight elements: [Y/N]	
If ABF(s) are used, indicate their location(s):	*(Placement w.r.t. reference frame used in the previous, indicating which side holds the location of the element, eg: +X, +Y, +Z, -X, -Y or -Z)*
Satellite implements Remove Before Flight elements: [Y/N]	
If RBF(s) are used, indicate their location(s):	*(Placement w.r.t. reference frame used in the previous, indicating which side holds the location of the element, eg: +X, +Y, +Z, -X, -Y or -Z)*

Please indicate below a schematic of the electrical connection(s) between, and the operational logic of, the following elements:
1) Killswitches
2) Remove before flight elements and/or apply before flight elements
3) The battery & power system and the satellites electrical systems

Satellite electrical (activation) schematic

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SATELLITE LAUNCH & SPACE ENVIRONMENT QUALIFICATION

Environment	Status	Remarks
Quasi static acceleration		
Sine vibration		
Random vibration		
Shock		
Acoustic		
Thermal vacuum		
S/C electrical field susceptibility levels		
S/C sensitivity to magnetic fields.		
Depressurization*		

**The depressurization profile during launch is usually specific to the launch vehicle. Indicating the ratio between contained (air)volume [m3] in the satellite and the total surface area [m2] through which air can escape during launch is usually sufficient to provide.*

Please indicate whether qualification (and acceptance) will occur according to the proto-flight (PFM) philosophy, or whether a qualification model/test will be combined with an acceptance test on the flight model (QM-EM).

General testing philosophy: **[PFM or QM-EM]**

SAFETY INPUT

Satellite safety input		
Item	**Input**	**Remarks**
Flammable materials present: [Y/N]		
Liquid or solid propellant present: [Y/N]		
Explosive / pyrotechnical devices present: [Y/N]		
Hazardous substances present: [Y/N]		*(hazardous for human health upon contact/touch/inhalation)*
Pressurized systems with fluid or gas: [Y/N]		
Source of ionizing radiation present: [Y/N]		
Laser systems present: [Y/N]		

Please indicate below on a high level the main materials (total mass > 10g) present in the satellite. Expand the list as needed.

Satellite and its components are **RoHS** compliant: [Y/N]	

Material	**Total mass [g]**
Aluminium	
Stainless steel	
Copper	
Zinc	
POM	
PEEK	
Carbon fiber	
…	
…	
…	
…	

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Please use the Payload Safety Handbook (CSG-NT-SBU-16687-CNES) for completing the table below:

SHEET #		CLASS	PHASE 1		PHASE 2	
			Issue	Status	Issue	Status
A1	Solid propellant rocket motor					
A2.	Igniter assembly S & A device Initiation command and control					
A3	GSE Operations					
B1	Electro-Explosive Devices Ordnance					
B2	Initiation command and control circuits					
B3	GSE Ground tests Operations					
C1	MonoPropellant propulsion system					
C2	Command and control circuits					
C3	GSE Operations					
AC1	Dual propellant / propulsion system Propellants					
AC2	Command and control circuits					
AC3	GSE Operations					
D1A	Non ionizing RF systems					
D2A	Optical systems					
D3A	Other RF sources Laser systems					
D1B	Electrical systems batteries Heaters					
D2B	Umbilical Electrical interfaces					
D3B	GSE Battery operations					
D1C	Pressurized systems with fluids and gas other than propellants Cryogenics					
D2C	Command and control circuits					
D3C	GSE Operations					
D1D	Mechanical / Electro-Mechanical systems Transport / Handling					
D2D	Other systems and equipment					
D1E	Ionizing systems / Flight sources					
D2E	Ionizing systems / Ground sources					
O	Documentation					
GC	General comments Miscellaneous					

HANDLING AND STORAGE INPUT

In this part, the handling and storage constraints of the satellite are detailed.

Constraint	Min	Max	Remarks
Storage temperature [Deg C]			*(Minimum & maximum storage temp. Can be marked as N/A)*
Storage humidity [%]			*(Minimum & maximum storage temp. Can be marked as N/A)*

ELECTRICAL SYSTEMS – BATTERIES – HEATERS

Battery stowed/armed storage life: [months]	

Conformity of the connectors, cables and distribution (strong and weak currents, grounding):
AWG cable, power connector, single point grounding scheme, etc…
Arrangements for the protection of risk-related systems against over-current,over-voltage and short circuiting:
Current limiter, etc…

Conformity of the battery and its cells	
Technical characteristics: delivered voltage and load voltage, power, [Whr], [g], etc.	
Description of charging and discharging cycles: number, nature, degraded case	

Qualification report (or a summary) for the battery and its cells, especially:	
- Burst pressures - Results of vacuum tests and leakage rates measured - Results of cycling tests (charging/discharging)	

Battery Heaters: Y [ ] N [ ]

Description of the heaters: Number, location, operating temperature, maximum temperature the heaterscan reach (by design)	
Risk analysis: - Feared events and corresponding failure mode - Protection arrangements - Means of control and monitoring - Method for emergency cut-off	

COMMAND AND CONTROL / BATTERY OPERATION

Risk analysis of charging/discharging operations:	
- Failure mode & corresponding consequences - Protection arrangements (flight & ground) - Means of control and monitoring / Method for emergency cut-off - Description of charging circuits, constituent parts, - Description of the procedure for battery charging: charging voltage, alarms, interrupting charging	

Conformity of EGSE (Electrical Ground Support Equipment)	
-Technical & safety data for each EGSE: protection against over-voltage, over-current, short-circuiting - Standards applicable to GSE - Risk analysis if the EGSE failure may have catastrophic consequence in case of failure (demonstration of EGSE safe-mode)	

List of operations to be performed on the batteries:
integration, connection, arm plugs installation, charging, etc.