



# EXPERIMENT QUESTIONNAIRE V1.3

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Questionnaire for an Experiment on a Scientific Rocket by DLR-MORABA



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Mail: [moraba@dlr.de](mailto:moraba@dlr.de)**Document Identification:**

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# Instructions

- The answers to this form are computer readable. Any changes to the PDF other than filling in the fields will degrade the readability. Please fill in this form electronically, save it and send it back to us. Please do not print this form, not even with the virtual PDF printer method. Please do not convert the PDF to other formats e.g. MS Word. Please do not add extra text fields.
- For us it is more important to have partial information early on compared to having a complete set of information very late. If certain information is not available yet, leave it out, fill in the rest and send it anyway. As soon as more information is available fill in the blanks of the same form and send it again. If there are updates later on to already sent information, please edit this form and also resend it.
- Please do not use thousands separator when typing numbers. Please use points ( . ) as decimal separators not commas ( , ). In fields that ask for a number, please only fill in numbers, no letters.
- Please fill in the **minimum** requirements for your experiment to function. Desired parameters may be addressed in the free text areas.
- If you do not have a requirement for a certain parameter, please leave the corresponding field empty.
- Please let us know
  - if there are technical problems.
  - if it is not clear what to fill in.
  - if you are missing options.



# 1 Introduction

Please enter the date of the last edit in the format DD.MM.YYYY and update it whenever you edit the file:

**Date:** . . .

## 1.1 Experiment Description

**Short Experiment Name (Acronym):**

**Full Experiment Title:**

**Organisation:**

**Mission:** **Nr<sup>1</sup>:**

**Abstract:**

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<sup>1</sup>if applicable, applies for recurring programmes

**Experiment Objectives:**

➤ Please also provide a picture or CAD drawing of your experiment.



## 1.2 Contacts

Nr.	Title	First Name	Last Name	Email	Phone
1					
2					
3					
4					
5					

Nr.	Nationality	Organization	Responsibility	B <sup>2</sup>	E <sup>3</sup>	C <sup>4</sup>
1						
2						
3						
4						
5						

➤ Please also provide portrait pictures<sup>5</sup> of each member participating at the campaign.

## 1.3 Rental Cars

Book rental car for this team:

Beneficiary (Name):

Special requirements:

## 1.4 Shipping Address

In order to send you test equipment or parts of your equipment after campaign we require the shipping address of your organisation.

<sup>2</sup>Bench Test Week Participation

<sup>3</sup>Environmental Test Week Participation

<sup>4</sup>Launch Campaign Participation

<sup>5</sup>required for the badge at the Launch Site / can be added to the Flight Requirements Document



# 2 Electrical

## 2.1 Requirements

### 2.1.1 Power

In this section please state power requirements towards the service module. If you do not require power or charging from the Service Module e.g. because you use your own batteries or you have a separate umbilical please leave the corresponding fields empty:

Power Supply Required:

Switch Times [s]:	Power On: T-	s	Power Off: T+	s
Inrush Current [A]:		A		
Average Power Consumption [W]:		W		
Peak Power Consumption [W]:		W		
Total Energy Consumption [Wh]:		Wh		

Extra Batteries:

Charging Required:

Charging Current [A]: A

Inrush Current [A]: A

How is Dead-Payload<sup>1</sup> during Radio Silence<sup>2</sup> guaranteed?<sup>3</sup>

### 2.1.2 Umbilical

Do you use at least one separate umbilical directly connected to your experiment modul?

Separate Umbilical(s):

<sup>1</sup>Dead-Payload means no switching operation in Payload or GSE. Best case scenario: no device has power

<sup>2</sup>Radio Silence is always required when humans access the launcher with loaded motors

<sup>3</sup>Alternatively attach Waver

If yes, please state the position:

<b>Position<sup>4</sup> [°]</b>	<b>Width [°]</b>	<b>Content</b>
○	○	
○	○	
○	○	
○	○	
○	○	
○	○	

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<sup>4</sup>Angular position of the center of the umbilical according to right hand rule with thumb pointing towards nosecone

### 2.1.3 Radio Frequency

Do you use a separate TM transmitter system:

If yes, please specify:

Carrier Frequency [MHz]	Modulation	Deviation [V]	Bitrate [Bit/s]	Encoding	Power [W]

Do you require separate transmitters from MORABA:

Do you require a separate antenna system from MORABA:

Do you require direct access to GPS antennas:

### 2.1.4 Data

#### On-Board

If you use the Service Module for data transmission please specify the following:

	On Ground	In Flight	Interface Type	Interface Speed [kBit/s]	Block Size [Bytes]	Block Frequency [Hz]	Average Datarate [Bytes/s]	Peak Datarate [Bytes/s]
Downlink								
Uplink								

#### On-Ground

Direct isolated LAN connection to Launcher Equipment required:

**Groundstation Computers:**

Name	MAC Address
	: : : : :
	: : : : :
	: : : : :
	: : : : :
	: : : : :

**2.1.5 Signals**

Signal	Required	On	Off
SOE			
SODS			
LO		at Umbilical release	at power off

**2.1.6 Pyro**

Pyro Events Required:

What is triggered by the pyro event?

**2.1.7 Time Synchronisation**

Do you require time synchronisation onboard with the Service Module?

Time Synchronisation Required:

**2.1.8 Flight Event Information**

Flight Event Information Required:

What:

### 2.1.9 TV Channel

TV Channel Required

How many channels:

Time:

### 2.1.10 Other

## 2.2 Electromagnetic Compatibility

### 2.2.1 Emitting

Do you use USB?

Do you use SATA?

Do you use video cameras?

Please list devices in your experiment that emit or might emit high frequency electromagnetic waves in considerable power and specify the estimated Frequency. If you are uncertain if the device needs to be considered or what frequency is emitted, enter the device and check the box "Require Measurement". :

Device	Require Measurement	~Frequency [MHz]

### 2.2.2 Sensitive

Do you use a GPS receiver?

Do you use any other kind of receiver?

Do you use any kind of electromagnetic sensitive device like sensors or measurement instrument. Please also specify the sensitive area.

Device	~Frequency [MHz]

## 2.3 Hazards

### 2.3.1 High Voltage

High Voltage

Voltage [V]:

V





### 2.3.2 Other

## 2.4 Remarks



# 3 Mechanical

## 3.1 Experiment Properties

Uncertainty:

Determination Method<sup>1</sup>:

Lift-Off mass [kg]:

Reentry mass [kg]:

Recovery mass [kg]:

Length [mm]:

Diameter [mm]:

Center of Gravity<sup>2</sup> [mm]:

Position of Cable Duct [°]:

Position of SM Interface Connector<sup>3</sup>  
[mm]:

Preferred Position:

Creates Vibrations:

Changes mass or mass distribution:

Ejections:

Moving Parts:

Gas Release:

Lasers:

Class<sup>4</sup>:

Explosives:

Hatch(es):

### Hatches:

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<sup>1</sup>Examples: weighing, CAD estimation, calculation

<sup>2</sup>as distance from lower flange

<sup>3</sup>as distance from lower flange

<sup>4</sup>highest class if multiple lasers

Nr.	Position <sup>5</sup> [°]	Clear Width [°]	Access at Launcher
1			
2			
3			

## 3.2 Requirements

Storage environment temperatures: min: °C max: °C

**Other Requirements:**

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<sup>5</sup>angular position of the center of the hatch according to right hand rule with thumb pointing towards nosecone

## 3.3 Hazards

## 3.4 Remarks



# 4 Flight Dynamics

## 4.1 Requirements

min  $\mu G$  Time [s]: s

max  $\mu G$  Time [s]: s

min Apogee Altitude [km]: km

max Apogee Altitude [km]: km

**Attitude:**

**Other:**

## 4.2 Remarks





**Consumables<sup>4</sup>:**

**Other Requirements**

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<sup>4</sup>e.g. Nitrogen or Distilled Water

## 5.3 Hazards

## 5.4 Remarks



# 6 Operational

## 6.1 Requirements

### 6.1.1 Special Test Configurations in Bench Test or Flight Sim



**Procedure:**

**Late Access**

Late Access Required:

Duration [Min]

Min

**Procedure:**

**Other Requirements:**

## 6.2 Remarks



## 6.3 Timetable

Time [T +/- sec]	Event
T            s	
T            s	
T            s	
T            s	
T            s	
T            s	
T            s	
T            s	
T            s	
T            s	
T            s	



# 7 Recovery

## 7.1 Requirements

Max Recovery Time [h]:

Number of items to be recovered:

Recovery procedure Required: Please attach corresponding document.

Description of items to be recovered:

**Other:**

## 7.2 Hazards

## 7.3 Remarks



# 8 Post Flight Analysis

## 8.1 Required Information

Here you can specify information you require for post-flight analysis (e.g. GPS position measurements, data from gyroscope etc.).

## 8.2 Offered Information

Here you can specify information you measured during flight and are willing to share.



# 9 Hazards

## 9.1 Explosives

Do you use explosives: Yes

If yes:

1. Please attach the Material Safety Data Sheets.

Attached

Document Number:

2. Are there electro-explosive devices? Yes

If yes:

- a) Please provide schematic and wiring diagrams.

Attached:

Document Number:

- b) Do all electro-explosive devices meet a 1 amp/1 watt NO FIRE requirement?

Yes

If no, provide a waiver request.

- c) Is it 100% qualified with a 500 VDC megohmmeter test for 5 seconds from bridge wire to case, and bridge wire to bridge wire if dual bridge wires are used?

Yes

If no, provide a waiver request.

- d) Is the electrical wiring and power source completely independent and isolated from all other systems? (They must not share common cables, terminals, power sources, tie points, or connectors with any other system)

Yes

If no, provide a waiver request.

- e) Have all circuits been designed with a minimum of two independent safety devices?

Yes

If no, provide a waiver request.

**Remarks:**

## 9.2 Flammables

Do you use flammables: Yes

If yes, for each flammable please attach the Material Safety Data Sheet (MSDS) and fill one line:

<b>Flammable</b>	<b>MSDS Doc#</b>	<b>Amount</b>	<b>Purpose</b>	<b>lying</b>

# 10 Additional Comments