AP100 Parachute Compliance report

1. **Compliance to 2.1. - Description of the mitigation and the involved systems of the UAS**

➢ The image of the UAS (Matrice 400) with the installed parachute.





1.1 Configuration information

The dimension of UAS before and after install with parachute is the same.

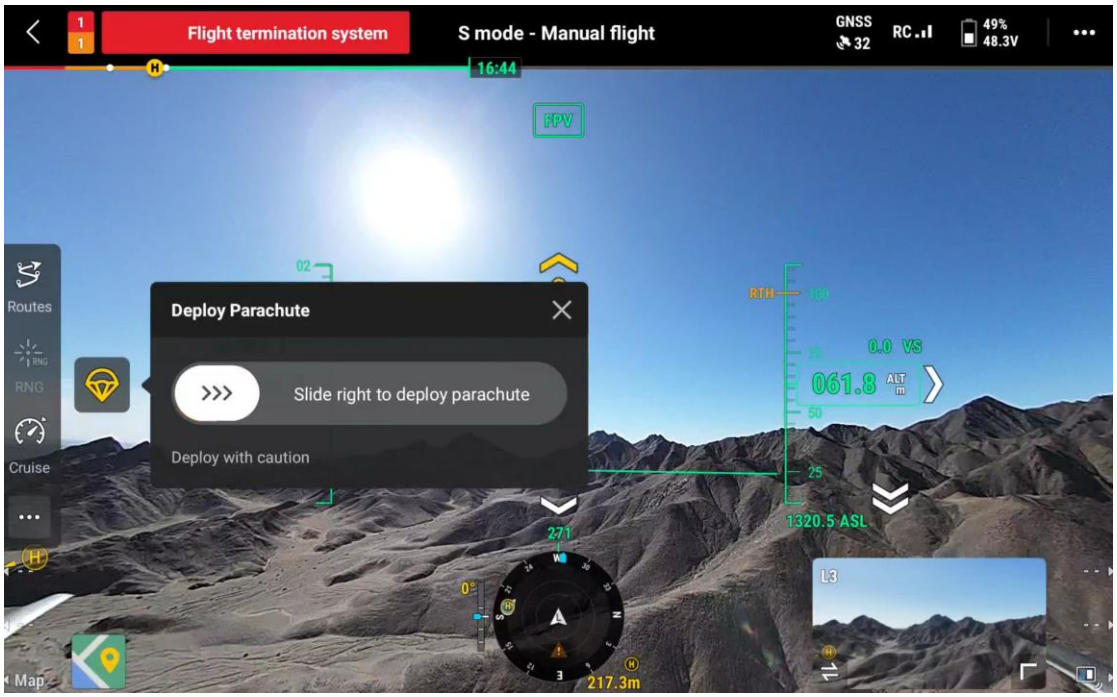
Dimension		
UAS (Matrice 400)	Expand dimension	980mm*760mm*480mm
	Folding dimension	490mm*490mm*480mm
Parachute	182mm*171mm*157mm	

The operational limitations for the parachute (temperature, Wind, Minimum deployment altitude, other)

Table 1-Operational limitation		
OL #1	Maximum wind speed at groud level	12m/s
OL #2	Minimum flight altitude (AGL)	30m
OL #3	Operating temperatures	-20℃ to 50℃

1.2 The activation methods and triggering parameters for the parachute.

Trigger method	Procedure	Anti-touch protection Measures
Manual triggering	• In an emergency, users can tap the parachute icon on the DJI Pilot 2 camera view and swipe right to deploy the parachute. • In regions that support FTS, users can trigger the FTS via a web interface. Before use, i the DJI Cellular Dongle 2 on the aircraft and connect to a 4G network. The remote controller also needs to have the module installed or be connected to Wi-Fi. After installation, go to the camera view in DJI Pilot 2, enter the SN and verification to trigger the FTS and deploy the parachute.	● Physical: The parachute icon in the app is equipped with anti-touch protection. It needs to be dragged to the far right to trigger the function. ● Software: The parachute cannot be deployed when the UAS is placed on the ground.
Automatic triggering	• The parachute will deploy automatically when an abnormal attitude or velocity is detect • This parachute supports the Flight Termination System (FTS) in certain regions. The FTS can be used together wit Geocaging feature. Users can draw a geocage in the DJI Pilot 2 app. If the aircraft flies outside the boundary of the contin volume, the FTS will be activated, the aircraft motors will stop, and the parachute will deploy. The conditions are as follows: 1. When the UAS's attitude exceeds 95 degrees for 0.1 seconds continuously, or 2. When the UAS's descent speed exceeds 11 m/s for 0.2 seconds continuously, or 3. When the UAS's acceleration exceeds 30 m/s² 0.5 seconds	To mitigate the risk of damage to nearby equipment or property caused by close-range deployment, the automatic deployment will be dis under either of the following conditions: 1. The aircraft is within a 10m radius of the Home Point, and its relative altitude is within 15 m above or below the Home Point. 2. With Cleaning Mode enabled, the aircraft is within a 10 m radius of the Home Point, and its relative altitu within 15 m above the Home Point. The parachute cannot be deployed when the UAS is placed on the ground.



Parachute trigger icon



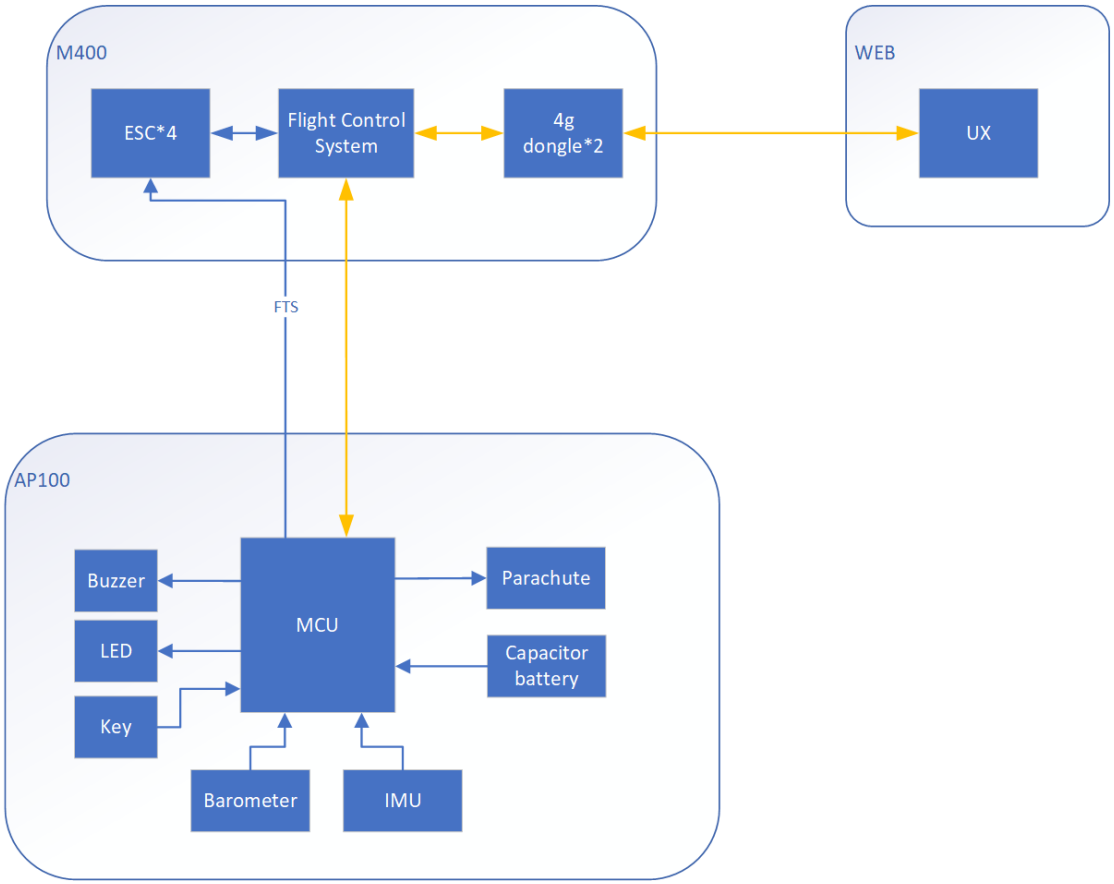
Slide to confirm the deployment

1.2.1 Parachute operation procedures

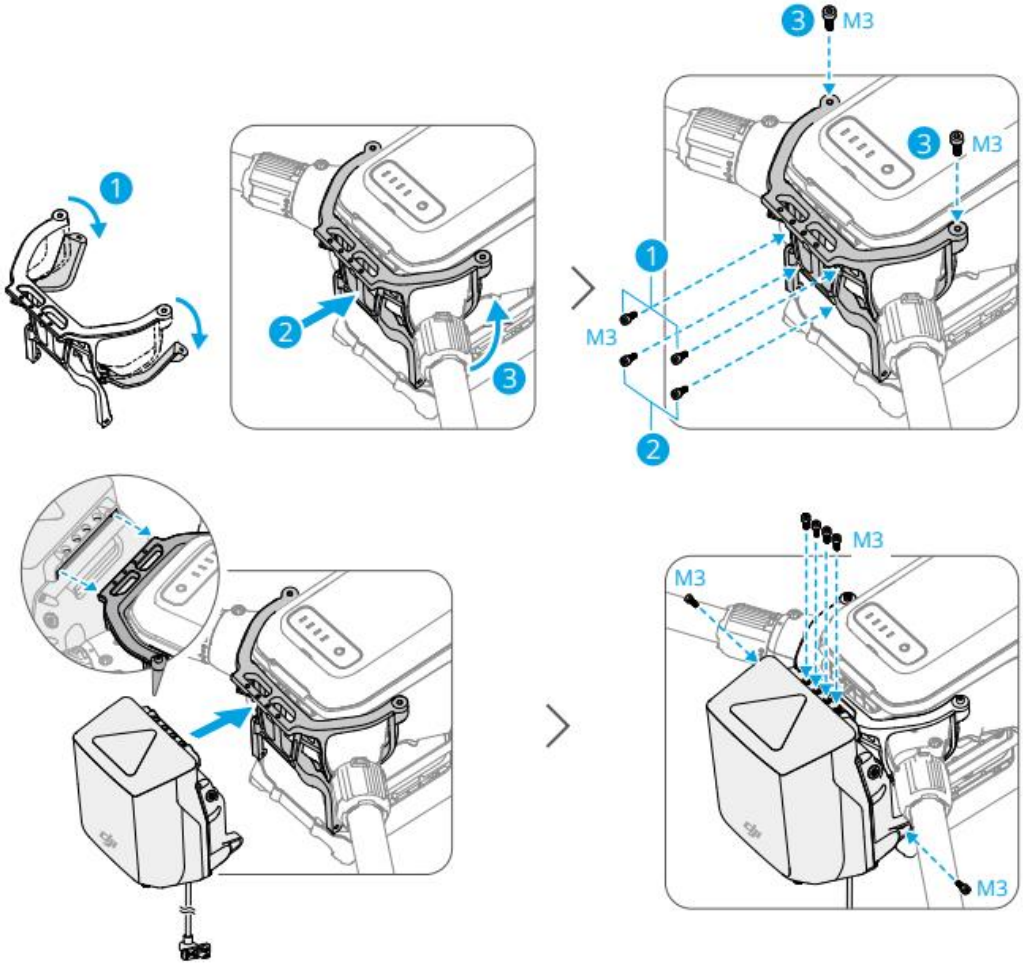
The parachute is opened by high-pressure gas generated by a gas generator. When triggered, the gas generator will produce large amounts of CO2 gas so that the umbrella could open. Meanwhile, after the trigger of parachute, it will automatically trigger the sound and light alert and request the UAV power system to shut down the electrical supply of the drone. Also, it will record GPS location once the parachute is deployed. The necessary interfaces between the UAS and the mitigation means.

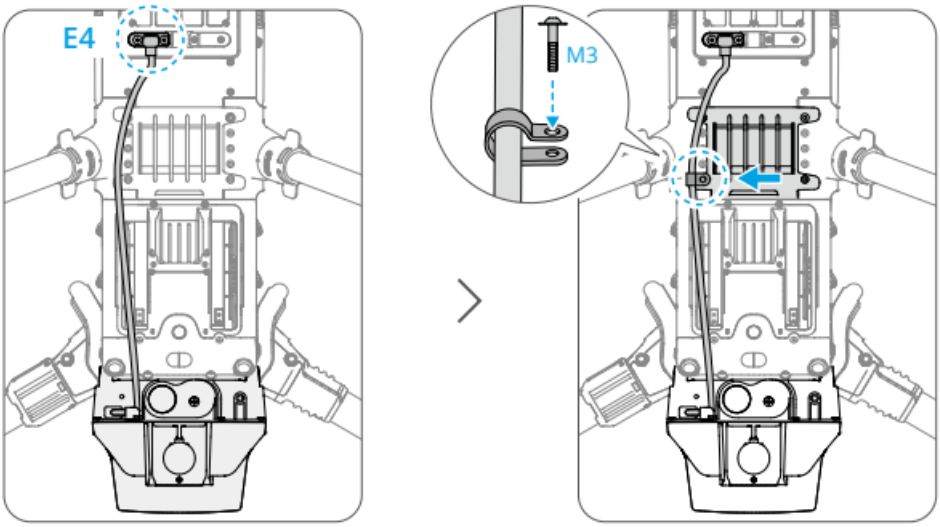
The trigger in the remote control APP adopts a click + slide unlock design to prevent accidental touches.

1.2.2 The system block diagram of the parachute



1.2.3 The installation of the parachute on the UAS.





The maintenance procedures of the parachute system.

The parachute is a single-use safety device that must be completely replaced after deployment. Additionally, for system effectiveness and flight safety, it is recommended to retire and replace the product 3 years after activation, regardless of normal daily self-check results.

If the parachute has never been deployed, perform the following inspections every 3 to 6months:

1. Check the parachute exterior shows no signs of damage, dirt, moisture, or water ingress.
2. Check the parachute connection cable is undamaged and does not obstruct the aircraft's vision and sensing systems, the aircraft port shows no corrosion, and the port screws are securely fastened.
3. Check the bracket screws show no corrosion or damage, and that the parachute is securely mounted with no looseness.
4. Check the gimbal safety tether is secured correctly as instructed, the hook-and-loop fastener is firmly attached, and the tether is not damaged, detached, broken, hardened, tangled, taut, or attached to any foreign objects.

2. Compliance to 2.2- Evidence for the reduction of ground impact effects

Compliance to 2.2.1 is achieved in the following way. The parachute is a Type 3 mitigation means reducing the impacted area and the severity of a potential impact with a person.

Max characteristic dimension (m)		≤1	≤3	≤8	≤20	≤40
Nominal critical areas (m^2)	0.8	8	80	800	8000	80000

With the limitations on descent rate and wind speed it can be expected that the UAS will sweep a 3m long area below the height of people before impacting the ground. Therefore, a simple approximation using following values:

Formula for calculating Critical Area:

$$A_{critical} = L_{drift} \times (D_{UAS} + W_{person}) + \pi \times \left(\frac{D_{UAS} + W_{person}}{2}\right)^2$$

- UAS characteristic dimension (M400) = 1.07m
- Maximal wind drift distance below the height of a person = 3m

- Width of a person 0.3m
- Height of a person 1.8m
  Critical area = (3m) x (1.07m+0.3m) + π x ((1.07m+0.3m)/2)²= 5.58 m², which is acceptably similar to the less than 8m class critical area and provides the target 90% reduction in critical area.

Compliance to 2.2.2 is achieved by compiling a test report.
The test standard about parachute is based on ASTM F3322, and it was tested in a controlled area and isolated aerial space.
DJI has finished 20 times of parachute deployment test, while 29 cases were conducted by TPTA . Totally 49 times tests all following ASTM F3322 which requires the maximum take-off weight condition under different situation.
The test records and results can be found in Annex A and TPTA' s report.

3. Compliance to 2.3 - The mitigation means works with sufficient reliability in the event of a loss of control

Compliance to 2.3.1 is achieved by listing all probable malfunctions that may cause the crash of the UAS. Justify how the mitigation means can be successfully activated in these situations. ASTM F3309/F3309M-18 standard can be used as a help in making this list.
Probable malfunctions that may cause the crush.

No.	Malfunctions
1	Abnormal inclination angle of UAS
2	Abnormal descending speed
3	Unusual situation with the electric motor of the drone (overheating, excessive power, blockage, etc.)
4	Abnormal vibration of the arm. Please check the condition of the motor blades.
5	GNSS is being spoofed
6	Sensor system malfunction

Compliance to 2.3.2 is achieved by performing at least 30 successful representative activation tests and compiling a test report, showing that the mitigation means achieves the necessary reliability.

a) The test report should describe the types of tests done, conditions in which the tests took place and the outcome of each test. A summary of each test results should be provided in a table.
b) Applicant must conduct a series of at least 30 representative activation tests one of which must be in flight to determine the reliability of the mitigation means. If malfunctions happen during testing, then the root cause of the malfunction must be identified and corrected and a subsequent 30 tests performed)
If evidence is provided by showing operational experience, then the mitigation means must have been in operation with the same type of UAS. Operational activation events should be logged with the same data requirements as for a parachute test including the prevailing conditions.
The test records and results can be found in Annex A and TPTA' s report.

3.1 Compliance to 2.4-evidence that the mitigation means does not introduce additional risk for third parties

3.1.1 Functional Hazard Assessment

Function	Failure	Effect on person	Class

Automatic deployment	Fail to deploy	The parachute fails to reduce the descent speed of the aircraft. As a result, the emergency time for person on the ground to avoid the aircraft's crash is significantly shortened.	major
Parachute deployed	Twisted / Not fully opened	The parachute fails to reduce the descent speed of the aircraft. As a result, the emergency time for person on the ground to avoid the aircraft's crash is significantly shortened.	minor
Attachment	Detach	The parachute fails to reduce the descent speed of the aircraft. As a result, the emergency time for person on the ground to avoid the aircraft's crash is significantly shortened.	major
Sound and light alarm	Alarm failure	This led to a lack of alarm alerts during the aircraft's descent, shortening the emergency time for person on the ground to avoid the aircraft crashing. After the aircraft landed, the difficulty of searching for the accident aircraft also increased.	minor
FTS	The aircraft cannot be remotely controlled to stop.	Unable to trigger the shutdown of the aircraft	minor

3.1.2 FMEA Single Failure Analysis

Component failure	Description	Effect	Initial hazard severity level	Qualitative safety objective	Mitigation measures	Final hazard severity level
Igniter fail	Parachute cannot open	crash	major	Low probability	Add self-check function and conduct parachute status	minor

					check before takeoff.	
Cutting device/Discharge failure	Parachute cannot open	Crash	Major	Low probability	During production on the assembly line, inspect the materials. Pre-flight checking.	minor
Inadvertent activation	The parachute opened by mistake.	Hurt	Major	Low probability	The parachute cannot be deployed when the UAS is placed on the ground.	minor

No single failure can cause serious injuries to the ground.

3.1.3 Evaluation of failure combinations

The above single failure will not occur at the same time. The software side will have prompts and alarms to the user, and the relevant software optimization scheme is made, which will not actually occur in the using scenarios and processes.

Annex A

Parachute Recovery System Test Report

Received sample: DJI AP100 Parachute	
System name	DJI Matrice 400
PRSModel Number:	AP100
Integrator:	SZ DJI TECHNOLOGY CO., LTD.
Applicable Standards:	

This report documents comprehensive performance testing UAS according to **Standard Specification for Small Unmanned Aircraft System (sUAS) Parachutes.**

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1. PRE-TEST INFORMATION COLLECTION

Tested by:	Jadon Guo
Verified by:	Rita Wen
Start date of performance of the test	06 May 2026
End date of performance of the test	30 Jun 2026
Facility	SZ DJI TECHNOLOGY CO., LTD
Location	No.35 Hengling North Road,Huiyang District,Huizhou City,Guangdong Province,China
Event/Sponsor	SZ DJI TECHNOLOGY CO., LTD
sUAS Make/Model	DJI Matrice 400
sUAS Manufacturer	SZ DJI TECHNOLOGY CO., LTD
Organization	SZ DJI TECHNOLOGY CO., LTD

2. Equipment used by DJI

The Target of Evaluation, PRS with sUAS, is composed of the following components:

- Parachute Recovery Systems (PRS)
  - DJI AP100 Parachute (AP100), firmware version: 00.01.29.01
- Small Unmanned Aircraft Systems (sUAS)
  - DJI Matrice 400(Matrice 400), firmware version:17.02.50.07
  - DJI RC Plus 2 (TKPL2), firmwareversion: 01.64.08.18
  - APP (DJI Pilot 2), APP version: 17.2.5.23
- SUA Components and Payload
  - Propellers (2510F)

- Landing Gear (M400 LG)
- Intelligent Flight Battery (TB100-20254-48.23)
- DJI Cellular Dongle2 (IG831T)

- Gimbal Connector:
- Single Gimbal Connector (M400 SGC)
- Dual Gimbal Connector (M400 DGC)
- Third Gimbal Connector (M400 TGC)
- Camera and Payloads:
- Zenmuse H30 (ZH30)
- Zenmuse H30 (ZH30T)
- Zenmuse L2 (ZL2)
- Zenmuse P1 (ZP1)
- Zenmuse S1(ZS1)
- Zenmuse V1(ZV1)

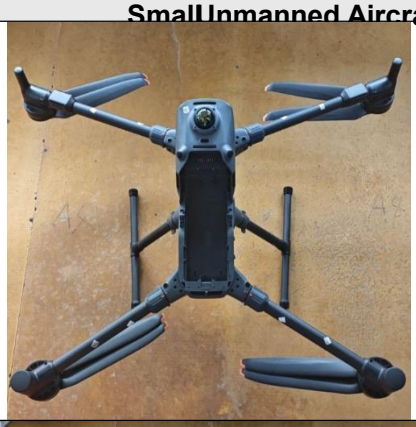
3. SAMPLE LIST

Date of receipt		24 June 2026
Item	Model	Serial Number
sUA	Matrice 400	1581F8DBW258100A2TG1
		1581F8DBW259400A2X26
		1581F8DBD25260060101
		1581F8DBD24BJ0050144
		1581F8DBD25260060155
		1581F8DBD25260060098
Controller	TKPL2	7CACMB800102MW
		7CACMB700101YZ
		7CACN710010N5T
PRS	AP100	BXEDP61001X285
		BXEDP4F0011WQK
		BXEDP4F0017JY2
		BXEDP4F001LFDM
		BXEDP4F0017XBZ
		BXEDP4F0012X9A
		BXEDP4F001AHX9
		BXEDP4F0017UNZ
		BXEDP4F0015LHL
		BXEDP4F001AWB6
		BXEDP4F001E51A
		BXEDP220010158
Date of receipt		25 June 2026
Item	Model	Serial Number

sUA	Matrice 400	1581F8DBD25260060101
		1581F8DBD25260060155
		1581F8DBD25260060098
		1581FACGD25260060067
		1581F8DBD25260060012
		1581F8DBD24BJ0050008
		1581F8DBW262200B38X8
		1581F8DBW258100A2TG1
Controller	TKPL2	7CACMB800102MW
		7CACMB700101YZ
		7CACN710010N5T
PRS	AP100	BXEDP220010163
		BXEDP220010160
		BXEDP220010166
		BXEDP220010169
		BXEDP220010089
		BXEDP220010064
		BXEDP220010068
		BXEDP220010086

4. Sample photo

Parachute Recovery System (PRS)

DJI AP100 Parachute	
Parachute bracket AP100MB	
Small Unmanned Aircraft sUAS	
Up	
Bottom	

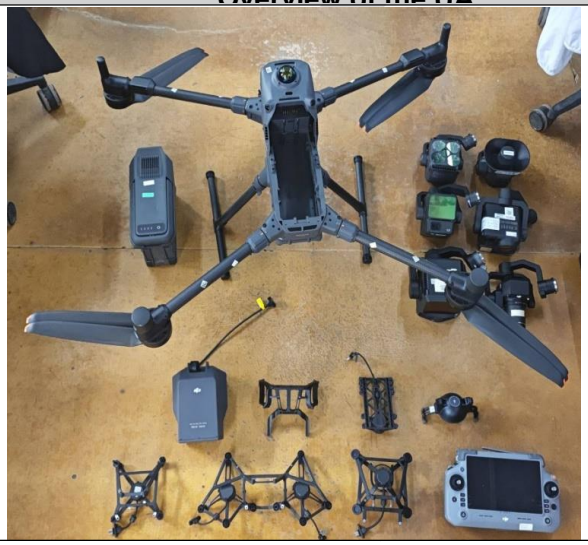
Front	
Side	
Remote Controller	
Up	
Bottom	
Battery	

Up	
Bottom	
Propeller	
Up	
Bottom	
Accessory Camera	
Name	Zenmuse H30
Model	ZH30

Up	
Accessory Camera	
Name	Zenmuse H30
Model	ZH3
Up	
Accessory Camera	
Name	Zenmuse L2
Model	ZL
Up	
Accessory Camera	
Name	Zenmuse P1
Model	ZP

Up	
Accessory Speaker	
Name	ZenmuseV1
Model	ZV
Up	
Accessory Spotlight	
Name	Zenmuse S1
Model	ZS
Up	
Accessory Dongle	
Name	DJI Cellular Dongle2
Model	IG831

Up	
Accessory Connector	
Name	Single Gimbal Connector
Model	M40SG
Up	
Accessory Connector	
Name	Dual Gimbal Connector
Model	M40DG
Up	
Accessory Connector	
Name	Third Gimbal Connector
Model	M40TG

Up	
Overview of the UA	
Up	

5. Test Execution Overview

The testing encompassed the complete spectrum of failure scenarios required for a multirotor sUA, as defined in the standard' s test matrix as mandated by Sections 6.4 (Testing Matrix and Requirements):

- **Failure Scenarios (FS)**

  Full Power Cut (FS 1 & 4), Critical Number Motor Failure - CNMF (FS 2 & 5), Critical Number Motor Failure plus one, CNMF + 1 (FS 3 & 6), and Shock Load Testing (FS 7). The failure scenarios are instigated independently via the failure box. The installation of fail box set up refer to ANNEX, where the installation did not reduce areas of entanglement or close off previously open areas of the aircraft. The modification to the forebody mass fail within the manufacturer defined maximum weight limit.

- **Flight Conditions**

  Tests were conducted in both hover and at maximum forward speed (25 m/s).

- **Weight Configurations**

  Tests were performed at both Minimum Takeoff Weight and Maximum Takeoff Weight with a worst-case edge-case payload configuration. The manufacturer-declared MTOM (Maximum Takeoff Weight) is 15800 g. The minimum takeoff weight comprises the aircraft airframe and all essential installed components, including the battery, dongles, and parachute module.

- **Worst-case edge-case**

  The worst-case edge-case is determined by identifying the combination of weight, speed, and center-of-gravity conditions that are most adverse to PRS deployment and descent performance. The selection is based on assessment of PRS installation geometry, deployment dynamics, and aircraft attitude effects, and is verified through representative test configuration.

- **Deployment Trigger**

  Both Autonomous Triggering System (ATS) and Manual Triggering Device (MTD) deployments were tested, with MTD tests incorporating the required 2-second delay.

- **Independent Oversight**

  All failure modes were instigated independently via a failbox, concealed from the Remote Pilot in Command (RPIC) to prevent anticipation. Every trial was documented with continuous video recording from takeoff to landing.

- **Results Analysis** o The minimum flyable altitude (MDA) was recorded in all automatic deployments. It was determined as the height difference between the failure scenario initiation altitude and the altitude at which a stable vertical descent was achieved post-parachute deployment.
    - The rate of descent was recorded throughout all trials, from which the average rate of descent for the PRS was derived.
    - The Minimum Flyable Altitude Rating (MFAR) was obtained by the greatest MDA calculated for the respective hover and full forward trials during all automatic deployments, plus a 6.56 ft (2 m) buffer and the total length of the parachute assembly.
      The total length of the parachute is 3.12 m.

6. REFERENCED DOCUMENTS

No.	Documentation	Description
1	DJI AP100 parachute User Manual V1.0 2026.07	Parachute Manual (PM) includes maintenance and continued operational safety expectations.
2	DJI MATRICE 400 User Manual v2.0 2026.07	Manufacturer’ s instruction of the UAS.

7. TESTING MATRIX RESULT TABLE

GENERAL DATA	
Date of performance of the test (start):	24 June 2026
Date of performance of the test (end):	25 June 2026

ENVIRONMENTAL CONDITIONS DURINGTESTS	
24 June 2026	Test group number: FS1/FS3/FS4/FS7
Temperature (°C):	37.3
Relative humidity (%):	67.5
Wind Speed (m/s)	5
Illuminance (lux)	14200
Pressure (kPa)	101.53
25 June 2026	Test group number: FS3/FS5/FS6/FS7
Temperature (°C):	38.6
Relative humidity (%):	59
Wind Speed (m/s)	6
Illuminance (lux)	13600
Pressure (kPa)	101.67

Test group number	FS Test ID	Failure Scenario	Deployment Type	Weight Config.	Result	Minimum Deployable Altitude(ft)	Rate of Descent (ft/sec)
FS1	FS1.4	Hover full power cut	ATS	MaxTOW	PASS	165.1	9.99
			ATS	MaxTOW	PASS	98.5	12.29
			ATS	MaxTOW	PASS	88.9	14.11
FS3	FS3.2	Hover CNMF+1 Failure	ATS	MaxTOW	PASS	75.4	11.84
			ATS	MaxTOW	PASS	91.5	14.01
			ATS	MaxTOW	PASS	86.6	14.39
FS4	FS4.4	Full forward speed Full power cut	ATS	MaxTOW	PASS	55.9	10.64
			ATS	MaxTOW	PASS	60.3	12.78
FS5	FS5.2	Full forward speed CNMF	MTD	MaxTOW	PASS	61.6	11.43
	FS5.4		ATS	MaxTOW	PASS	56.8	13.45
			ATS	MaxTOW	PASS	74.3	13.29

		Failure	ATS	MaxTOW	PASS	129.0	7.54
FS6	FS6.2	Full Forward speed CNMF+1 failure	ATS	MaxTOW	PASS	54.0	10.02
			ATS	MaxTOW	PASS	30.7	11.31
			ATS	MaxTOW	PASS	53.8	11.61
FS7	FS7.1	Shock load testing	ATS	MaxTOW	PASS	122.4	10.19
			ATS	MaxTOW	PASS	80.7	14.13
			ATS	MaxTOW	PASS	71.1	14.44
			ATS	MaxTOW	PASS	157.9	5.53
			ATS	MaxTOW	PASS	103.9	6.65
Test Conclusion: The number of remaining tests were completed independently by DJI, with no PRS failures occurring throughout the entire process.							
Minimum Deployable Altitude Testing(MDA) -Hover:					165.1 ft		
Minimum Flyable Altitude Rating(MFAR) -Hover:					181.9 ft		
Minimum Deployable Altitude Testing(MDA) - Full Forward Flight					129.0 ft		
Minimum Flyable Altitude Rating(MFAR) - Full Forward Flight					145.8 ft		
Rate of Descent Testing:					11.48 ft/sec		

8. TEST SUMMARY

Overview of DJI Tests

This test program was conducted to validate the performance and reliability of the DJI AP100 Parachute (Model: AP100) Parachute Recovery System (PRS) integrated onto DJI Matrice 400 (Model: Matrice 400) small Unmanned Aircraft (sUA).

Summary of Test Results (including TPTA’s test results)

Test by DJI needs, a total of 29 individual trials were executed by Applus and recorded in separate report.

The remaining 20 tests were completed independently by DJI.

No PRS failures occurring throughout the entire process and no unacceptable entanglement.

Based on totally 49 test records, the final test results were obtained:

Minimum Deployable Altitude Rating (MDA)：165.1 ft

Minimum Flyable Altitude Rating (MFAR)：181.9 ft

Average Rate of Descent: 11.12 ft/sec