



**GOVERNMENT OF INDIA
DIRECTORATE GENERAL OF CIVIL AVIATION
DRONE DIRECTORATE**

TYPE CERTIFICATE

No.: T07240000021

This certificate, issued to ***M/s Topsun Energy Limited*** certifies that the Unmanned Aircraft System

"AEROYAN AG-01"

*its technical specifications and operating limitations for which are contained in Datasheet No **T07240000021** dated **23rd July, 2024** is of proper design, material, specification, construction and performance for safe operation based on the recommendation of **TQ Cert Services Private Limited** as required by the Certification Scheme for Unmanned Aircraft Systems notified by the Ministry of Civil Aviation vide S.O. 347(E) dated the 26th of January, 2022.*

This Type Certificate is issued under the provision of Rule 8 and Rule 9 (3) of the Drone Rules 2021.

This certificate shall remain valid until suspended or cancelled.

Date: 23rd July, 2024

Director General of Civil Aviation

Technical Specifications Of M/S Topsun Energy Limited's UAS Model AEROYAN AG-01

Manufacturer Name	Topsun Energy Limited
Address	B101, Electronic Estate, Sector 25, Gandhinagar, Gujarat, India -382024 , Gandhi Nagar , GUJARAT , 382028 , INDIA
UAS Model Name	AEROYAN AG-01
Description	AEROYAN AG-01 is a Small class quadcopter RPAS UAS having a tank of filling capacity of 10L for Agrochemical spraying or 9Kg filling capacity for seed spreader configuration.
UAS Details	
Category/Sub-Category	rotorcraft (RPAS)
Class	SMALL
Maximum all-up-weight(including payload) in kg	24.95
Overall dimensions (l x b x h) in mm	1800.0 x 1800.0 x 579.0
Payload Details	
Details of each Compatible Payload (including Manufacturer Name, Payload Specifications with Model No., Intended Applications)	1. Sprayer with tank having maximum 10L Liquid filling Capacity . 2. Seed spreader with tank having maximum 9Kg filling capacity
Variable Load/Consumables (Like fluid etc., if any)	1.Sprayer payload :-10Ltrs Liquid for spraying 2.Seed spreader:-9Kg seed for spreading .
Power plant Details	
Engine details (Manufacturer details, Model No.)	NA , NA
Engine/Motor	Hobbywing X8 BLDC Motor
Power Rating	2746.2 watts
No. of Engines/ Motors	4
Total fuel capacity (kg)/ Battery capacity (mAh)	16000.0 mAh
Propeller details (Diameter, Max RPM)	Diameter - 30 inches , Pitch - 9 , Max RPM - 3619
Equipment Details	
GNSS	Available
Autonomous Flight Termination System or Return Home (RH)	Available Available
Flashing anti-collision strobe lights	Available

RFID and GSM SIM Card	RFID- Not Available GSM SIM Card- Not Available
Flight control Module	Available
SSR transponder (Mode 'C' or 'S') or ADS-B OUT equipment (if applicable)	Not Available Not Available
Barometric equipment (with capability for remote sub-scale setting) (if applicable)	Not Available
Geo-fencing Capability	Available
Detect and Avoid Capability (if applicable)	Not Available
Remote Pilot Station	
Ground Control Station Model No.	Q ground control GCS software
GCS App. Version	v 4.2.3
C2 Link	
Equipment details	Skydroid H12
Frequency Band	2.420 - 2.4835 GHz
ETA issued by WPC Wing, DoT	Details- ETA-ETA-SD-20210704378 dated 24th July, 2021
Performance Details	
Maximum Endurance (hr/m)	11.30 minutes
Maximum Range (in km)	1 Km
Maximum Speed (in m/s)	8.0 m/sec
Maximum Height attainable/ Maximum Ceiling Height (in ft)	98.43 ft
Operating Altitude (in ft)	98.43 ft
Operational Envelope	VLOS Day
Engine limits (Maximum RPM) / Max. Battery Temperature (in deg C)	50.0 deg C
Propeller limits (Maximum)	3619
Documents / Manuals	
Manufacturer's Operating Manual (as applicable)	Flight Manual AEROYAN-AG 01 Ver. 9 dated 8th July, 2024
Manufacturer's Maintenance guidelines (as applicable)	Maintenance Manual and Schedule AEROYAN-AG 01 Ver. 7 dated 27th April, 2024
Maintenance Inspection Schedule/Overhaul interval	Maintenance Manual and Schedule AEROYAN-AG 01 Ver. 7 dated 27th April, 2024
Maintenance Log Book	Log Book AEROYAN-AG 01 Ver. 4 dated 26th January, 2024

Flight Log Book	Log Book AEROYAN-AG 01 Ver. 4 dated 26th January, 2024
User Guide/ Self Explanatory Information Booklet for end users	Flight Manual AEROYAN-AG 01 Ver. 9 dated 8th July, 2024
Intended Applications	
Intended Applications	<ol style="list-style-type: none">1. Agrochemical spraying for Agriculture purpose2. Seeds Spreading

**Limitations & Conditions to Topsun Energy Limited for manufacturing of UAS Model
AEROYAN AG-01**

1. **M/ s. Topsun Energy Ltd, Gandhinagar** , henceforth referred as manufacturer in this documents shall comply with the applicable Rules, Regulations & Requirements issued from time to time. The manufacturer shall comply with mandatory safety features (if any) as and when mandated by Ministry of Civil Aviation/DGCA.
2. Design documents and manuals submitted shall be frozen and controlled. Any changes effecting to the Type Certificate/ Datasheet, the manufacturer shall approach through Authorised Testing Entity for up- dation of the Type Certificate/ Data Sheet issued there under.
3. Manufacture shall be responsible for all UAS Model “**AEROYAN AG-01**” produced by them conforms to this type certificate & datasheet and shall issue a certificate of conformity for each UAS produced.
4. Manufacturer shall ensure that their UAS is not tampered at the time of sale and also at the time of maintenance. Manufacturer shall monitor the same and notified to DGCA as and when required.
5. Manufacturer shall maintain list of their vendors, bill of materials, inventory of UAS including buyer details with configurations sold to them etc. and access to the same shall be provided to DGCA during surveillance and as & when requested for. It shall be the responsibility of the manufacturer to ensure that their UAS are sold to bonafide customers.
6. Manufacturer shall ensure that operations is restricted to Visual Line of Sight, for day & night operations only and within the operations/ performance limitations specified in the frozen manuals.
7. Manufacturer shall affix fireproof plate for indicating UIN, Manufacturer's name, model no. and serial no. in all the UAS manufactured before it is transferred to the buyer.
8. Manufacturer shall intimate DGCA about any violations, defects, faults, malfunctions, incidents and accidents involving the subject UAS model quarterly and as when sought for.
9. UAS model "**AEROYAN AG-01**" can be used for intended applications only. Manufacturer shall ensure that the drone is flown away (30m) from uninvolved people and not flown over the crowd/ uninvolved people. The manufacturer shall be responsible for enduring applicable conditions and educate end users accordingly.
10. Manufacturer shall be responsible for rights related to design and development of the UAS model “**AEROYAN AG-01**” and DGCA shall not be party to any dispute arising due to proprietary right issues.
11. Manufacturer shall abide by the IT Act 2000 and any subsequent revision.
12. In case of violation of any of the above mentioned conditions and/ or operating requirements & restrictions specified in this Type Certificate, penal action shall be initiated in line with the Drone Rules, 2021 and other Rules/ Regulations issued from time to time.

From: Praveen Singh
Sent: Wednesday, October 23, 2024 12:02 PM
To: kcpatel
Cc: Maneesh Kumar ; Thulasiraman Krishnan ; Kavita Singh ; Manish Kumar Gupta ; Naga Suresh Kumar Pachipulusu ; Sampath Reddy
Subject: Issuance of Type Certificate in respect of UAS Model "AEROYAN AG-01" of M/s Topsun Energy Ltd

Sir

This has reference to your email dated 16th October, 2024 regarding the above-mentioned subject matter.

Reference is also invited to agenda item no. 4(a) of the minutes of meeting dated 9th February, 2024 held under the chairpersonship of Joint Director General of Civil, participated by Agri drone manufacturers (TC holders), wherein it was submitted by the TC holders that a different measure is used for determining the endurance of agricultural spraying drones. Accordingly, it was deliberated for standardisation and a decision was taken in the said meeting that the endurance for agricultural spraying drone is to be tested for empty payload (tank) and full payload (tank). So that endurance with dispensing payload falls within the range between empty and full tank.

Due to the limitation in the digital sky platform for filling only single numerical value in the endurance field. It was decided to indicate the conservative value of endurance of the machine with full payload in the interest of safety on the type certificate and record the endurance with empty payload in our records for future use.

Accordingly, post the aforementioned meeting, DGCA has been issuing TC for agriculture spraying drones indicating endurance with full payload including the Type Certificate No. T0724000021 dated 23rd July, 2024 issued to M/s Topsun Energy Pvt Ltd, Gandhi Nagar, Gujarat in respect of UAS Model "AEROYAN AG-01".

In view of the above clarification, it is informed that,

(1) **the endurance of UAS model "AEROYAN AG-01" with full payload(without dispensing)** issued vide the Type Certificate No. T0724000021 dated 23rd July, 2024 to M/s Topsun Energy Pvt Ltd, Gandhi Nagar, Gujarat is **11 min 30 sec**.

(2) **the endurance of UAS model " AEROYAN AG-01" with empty (tank) payload** recorded is **21 min 39 sec**.

This issues with the approval of competent authority.

Regards

प्रवीण कुमार सिंह /Praveen Kumar Singh
सहायक निदेशक (एई), ड्रोन निदेशालय/ Assistant Director(AE), Drone Directorate,
उडान भवन- सफदरजंग हवाई अड्डा/Udan Bhawan, Safdarjung Airport,
नागरिक उड्डयन महानिदेशालय/Directorate General Of Civil Aviation
नागर विमानन मंत्रालय/ Ministry of Civil Aviation,
भारत सरकार/ Government of India,
नई दिल्ली - ११००३३/New Delhi – 110003,
Mobile : 8178281369