Profile Status: Published

Technology Request

Motor controller and charger sought for a new light and environmentally friendly aircraft

Summary

A French SME is looking for a motor controller and charger for a new light and environmentally friendly aircraft. Technical cooperation or license agreement is sought with companies or technical centers that can supply the solution today or under the 18th coming months according to the requirements.

Creation Date	16 October 2018
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Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/25e08648-c022-41f9-8355-74a66cb4fbaa

Details

Description

The French SME working in the aircraft domain is looking for a motor controller and charger for use in an innovative light and environnementally friendly aircraft.

Technical cooperation is sought with a supplier that can offer products that maybe don't comply today with the requested specifications but with a development road map to achieve compliance within 18 months.

The provider should be able to design, develop and realise trials according to the requirements of the French company and produce the motor controller and charger.

Production rae : 250 per year for the aeronautical market and 1000 per year for the automotive one as automotive is also a possible market.

The product must be certified according to ASTM F-2840 within 30 months.

The supplier will be subject to controls and audits from the French company and the civil aviation authorities. It is not requested the company be a production or design organisation in accordance with Part-21 but it would be a bonus.

Technical Specification or Expertise Sought

- Voltage : HVDC : 500V to 1000V
- Output power for electric motor : 120 kW

- Number of pole : Phase will be adjusted according to the motor specifications
- Main function : Motor speed control and over speed protection, battery charger from electric motor energy regeneration,
- The motor controller and charger must be able to regulate and optimise the propeller pitch and the motor speed according to the airspeed and the pressure altitude. The optimisation will be made with the propeller efficiency abacus
- Electrical conversion AC/HVDC from mains to load the battery
- Power grip input : AC three-phase 400V or single phase 110-220V at 50 Hz to 500 V to 1000 V
- Power grid power : 43kW-45 A (max)
- Interface with the BMS (Battery Monitoring System)
- Electric insulation and water-resistance
- Designed to prevent improper (reverse polarity) connection
- Incorporate adequate ground fault protection
- Weight < 5 kg (including cooling system)
- Volume : 3L
- Efficiency : 99 %
- MTBF (Mean Time Between Failures) : 100 000h
- the Motor controller and charger must be isolated from the aircraft airframe
- Monitoring and safety devices to protect against over temperature, over voltage, over current,...
- Current regulation
- Current limitations and protection of electrical network for charge and aircraft faults
- Data output for pilot, mechanics and aircraft systems, (CAN bus interface)
- Full built-in test with status output on CAN bus
- Dialog whith charging station or mains according to automotive standards
- Cooling : Air or Water
- Coolant temperature : 90°C
- Cooling flow : determined by the supplier
- Quantity of cooling : determined by the supplier
- The supplier shall indicate compliance with Ingress Protection standards
- Provided with CAD step files
- Provided with full data sheet and interface description
- Motor controller and charger capability to regulate the coolant temperature would be a big bonus
- Motor controller and charger capability to be integrated with the electric motor would be a big bonus

The motor controller and charger must be able to resist to the following environment :
- temperature
Flying with ambient temperature between -10 °C and +35°C
Storage temperature between -20°C and +50°C

- Humidity
Flying with relative humidity between 0 and 90 %

- Altitude :
0 to 20 000 FT : 0 to 7 000 ft

Stage of Development

Concept stage

IPR Status

Secret Know-how,Patent(s) applied for but not yet granted,Patents granted

Keywords

Technology

02008001	Air Transport
02009010	Lightweight construction

Market

09001005	Motor vehicles, transportation equipment and parts
09001006	Airfield and other transportation services

NACE

H.51.1.0	Passenger air transport

Open for EOI : Yes

Dissemination

Relevant Sector Groups

Automotive, Transport and Logistics

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
French

Client Country

France

Partner Sought

Type and Role of Partner Sought

Type of partner sought : Industry, technical center

Role of the partner sought : to deliver the technical solution with the requested specifications - if not ready today, to be able to achieve compliance within 18 months

Type of cooperation : license agreement or technical cooperation

Type of Partnership Considered

License agreement
Technical cooperation agreement