Declaration of Design and Performance

DDP No.: 120-00004

Issue No.: 1.2

Approving authority: n/a

DDP Change Control Ref: JIRA No. HWD-464

Note: Before specifying equipment, check with Flightcell International that this declaration is the currently valid version

MANUFACTURER

Flightcell International Ltd

Address: 98 Vickerman St, Nelson, New Zealand 7010

DECLARATION OF DESIGN AND PERFORMANCE

System Name: Flightcell SmartHUB

Part No.: SHP_01

Description: Camera system for cockpit voice and audio recording for rotary and fixed wing aircraft.

Data interfaces include Ethernet, USB, Wi-Fi, RS-232, General Purpose Inputs and General Purpose Output. The product is designed for standard 5.25" DZUS rack mounting.

Rev No.: 1.5

Weight & Overall Dimensions:. Weight: 750g.

System Wiring Diagrams	
Diagram No.	**Description**
114-00012	SH Wiring Diagram

Overall Dimensions *for more specific data, refer to the assembly diagrams and definition specification below*	
Part Description	**DZUS mounted**
Faceplate width	146.0mm
Body width	122.0mm
Faceplate height	57.2mm
Body height	50.0mm
Depth (from front face to rear face)	160.0mm

Manufacturer's Specification Design: 117-00015 SmartHUB Design Specification

Performance:

The Flightcell SmartHUB meets all the specifications and requirements as outlined in this document. The main performance specifications are listed below.

Item	Detail
Display	256 x 64 OLED White Display
Interface	10/100/1000 Ethernet, USB 2.0, USB-C, RS-232, Analog audio (1), GPI (3), GPO (1), Wi-Fi, GPS, Display Mode Switch, Power Switch
DC Power Source	+12V - +32VDC (28V nominal) Max current: ~1.93A @ 28VDC
Connectors	Main connector: HD44 D Type Male Plug, mating connector: M24308/2-13Z Secondary connector: HD44 D Type Female Socket, mating connector: M24308/4-19F

Wi-Fi Transceiver transmit power		
Modem	**Description**	**RF Performance**
Wi-Fi	Tx power (dBm)	16.0
	Antenna gain (dBi)	2.0
	Total power (dBm)	18.0
	Total power (mW)	63.1

GPS		
	Frequency Range (MHz)	1575.42 MHz ± 10 MHz
	Active Antenna Supply	5V DC, up to 100mA
	Sensitivity (dBm)	-166 dBm
	Time to First Fix (Seconds)	29 (cold start)

Test Report References: FHD06H CE, FHD06H EMC Test Report, 109387-4_Final, HSVCR91485_FlightCell_SmartHub_DO160_Temp_Test_Report_RevA, Flightcell46617-signed

Fault analysis reports: n/a

Installation and Operation References:

Manual No.	Description
117-00016	Flightcell SmartHUB and Camera Installation Manual
117-00017	Flightcell SmartHUB and Camera Operators' Manual

Declarations:

The limits of declared performance and those implied by the declarations below are not intended to be absolute, but are intended to indicate performance which has been shown by tests.

Cooling Requirements

The unit is passively cooled. No special cooling required.

Ingress of fluids, sand and dust

The unit is designed to be protected against fluids, sand and dust to a rating of IP54, however no external tesing has been completed.

A rating of IP54 means that the unit is protected against ingress of dust in sufficient quantities to interfere with satisfactory operation of the unit and against harmful ingress of water when subjected to water splashing against the enclosure from any direction).

Storage

The unit should be stored at a temperature of not less than -55°C and not more than +85°C.

Operating temperature

The ambient operating temperature range for the unit is -20°C to +55°C.

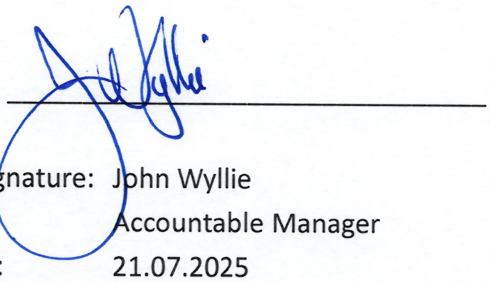
Storage Life

The shelf storage life is not less than 5 years under controlled storage conditions.

CERTIFICATION

The declaration in this document is made under the authority of Flightcell International Ltd.

Flightcell International Ltd cannot accept responsibility for equipment used outside the limiting conditions stated above without their agreement.

Signed: 

Authorised Signature: John Wyllie

Position: Accountable Manager

Effective Date: 21.07.2025

REMARKS

Nameplate Marking: DO-160G Env. Cat. [(A1)(B1)(F1)]BXB[UG]HXXXXXXZAZ[ACX][SS]MXXXXXXXAX

CONDITIONS	DO-160G Section#	Description of Tests
Temperature & Altitude Low Temperature High Temperature In-Flight Loss of Cooling Altitude Decompression Overpressure	4.0 4.5.1 & 4.5.2 4.5.3 & 4.5.4 4.5.5 4.6.1 4.6.2 4.6.3	Equipment tested to categories A1, B1, F1 No Forced cooling required Equipment identified as category X, no test performed
Temperature Variation	5.0	Equipment identified as category B
Humidity	6.0	Equipment identified as category X, no test performed
Operational Shocks Crash Safety	7.2 7.3	Equipment identified as category B, aircraft type 5, test type 5 Equipment identified as category B, aircraft type 5, test type 5
Vibration	8.0	Equipment identified as category U, Aircraft zone 2, Test curve G
Explosive Atmosphere	9.0	Equipment identified as category H
Waterproofness	10.0	Equipment identified as category X, no test performed
Fluids Susceptibility	11.0	Equipment identified as category X, no test performed
Sand and Dust	12.0	Equipment identified as category X, no test performed
Fungus	13.0	Equipment identified as category X, no test performed
Salt Fog	14.0	Equipment identified as category X, no test performed
Magnetic Effect	15.0	Equipment identified as category X, no test performed
Power Input	16.0	Equipment identified as category Z 16.6.2.4 Abnormal Surge Voltage (dc) Cat. B
Voltage Spike	17.0	Equipment identified as category A
Audio Frequency Susceptibility	18.0	Equipment identified as category Z

Induced Signal Susceptibility	19.0	Equipment identified as category ACX
Radio Frequency Susceptibility	20.0	Equipment identified as category S
Radio Frequency Emissions	21.0	Equipment identified as category M Section 21.4 requires a Ferrite WURTH Model 742 721 32 clamped on USB Camera Cable close to J2
Lightning Induced Transient Effects	22.0	Equipment identified as category X, no test performed
Lightning Direct Effects	23.0	Equipment identified as category X, no test performed
Icing	24.0	Equipment identified as category X, no test performed
Electrostatic Discharge	25.0	Equipment identified as category A
Fire, Flammability	26.0	Refer to flammability statement in notes below
Other Tests		

Notes:

Although not tested or certified to any flammability standards Flightcell International Ltd is highly confident that due to the materials used in the design, the SHP_01 SmartHUB would meet the requirements of DO-160G, Section 26 (Fire, Flammability), Category C - Flammability.

See 118-00028 Flightcell SHP_01 Material Flammability Declaration.